Prepositional complements in SLA: 
a preliminary analysis

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ABSTRACT
This paper presents part of the results from an experimental study (in progress) which investigates the acquisition of ditransitive verbs by 92 Greek learners of English. The structures tested are ungrammatical sentences which involve the presence of a null/deleted preposition or a null P with a clitic pronoun in four different classes of ditransitive verbs. It was predicted that if different prepositions involve different degrees of feature specification, L2 learners will have difficulty to represent them in their interlanguage. A grammaticality judgment task and a preference task were designed in order to test this hypothesis. Results indicate that Greek learners might have access to certain universal constraints but at the same time L1 influence could also be the reason for certain deviant forms they accept.

1. INTRODUCTION
The general aim of the experimental study is to investigate the second language (L2) acquisition process of the following English verb classes by Greek learners of English: (i) dative-to verbs, (ii) benefactive-for verbs, (iii) locative-spray/load verbs and (iv) source-from verbs. In particular, the objective is to investigate the way that linguistic knowledge is represented by L2 learners in syntactic constructions which involve prepositional complements of ditransitive verbs and also to provide an explanation for the appearance of ‘null’/’empty’ elements (prepositions) in their interlanguage. Using empirical data from two groups of

Greek learners of English, it is observed that the degrees of functionality of the category P are reflected in their interlanguage as certain prepositions are more frequently absent than others depending on the verb class and the structure in which they appear. Consequently the results also confirm the theoretical claims about the functional nature of the category P.

2. SOME PROPERTIES OF THE VERB CLASSES IN ENGLISH AND GREEK

Some of the properties of the verb classes in English and Greek which are relevant to our analysis and discussion below are summarized as follows:

a) The alternation between the Double-Object Construction (DOC) and the prepositional pattern is licit in English only with the dative and benefactive verbs whereas Greek allows some sort of double-object formation with all verb-classes (cf. (2), (4), (7) and (9) (the indirect object (IO) is morphologically marked with genitive case apart from the case of the spray/load verbs (cf. 7) where both objects appear with accusative case).

Dative - to Verbs

(1) O Yiannis edhose ena vivlio stin Eleni
    the John gave-3rd sing a-acc book-acc to the-acc Helen-acc
    'John gave a book to Helen'

(2) O Yiannis edhose tis Elenis ena vivlio
    the John gave-3rd sing the-gen Helen-gen a-acc book-acc
    'John gave Helen a book'

Benefactive - for Verbs

(3) O Yiannis aghorase mia blouza ghia tin Eleni
    the John bought-3rd sing a-acc blouse-acc for the-acc Helen-acc
    'John bought a blouse for Helen'

(4) O Yiannis aghorase tis Elenis mia blouza
    the John bought-3rd sing the-gen Helen-gen a-acc blouse-acc
    'John bought Helen a blouse'

Locative - spray/load Verbs

(5) O Yiannis fortose mila sto fortigho
    the John loaded-3rd sing apples-acc on-the-acc van-acc
    'John loaded apples on the van'

(6) O Yiannis fortose to fortigho me mila
    the John loaded-3rd sing the-acc van-acc with apples-acc
    'John loaded the van with apples'
(7) O Yiannis fortose to fortigho mila
the John loaded-3$$^{rd}$$ sing the-acc van-acc apples-acc
* John loaded the van apples
‘John loaded the van with apples’

Source - from Verbs
(8) I listes arpaksan tin tsanta apo to Yianni
the thieves grabbed-3$$^{rd}$$ pl the-acc bag-acc from the-acc John-acc
‘The thieves grabbed the bag from John’
(9) I listes (tou) arpaksan tou Yianni tin tsanta
the thieves (him-gen) grabbed-3$$^{rd}$$ pl the-gen John-gen the-acc bag-acc
*The thieves grabbed John the bag
‘The thieves grabbed the bag from John’

b) Extensive use of direct / indirect object pronominal clitics in the Greek DOC pattern of all verb classes (examples below are from dative verbs):
(10) O Yiannis tis edhose ena vivlio
the John her-clit.gen. gave-3$$^{rd}$$ sing a-acc book-acc
‘John gave her a book’

c) Certain types of operator movement are allowed in the Greek double-object construction (with obligatory presence of the IO-clitic pronoun) but not in English:

Matrix wh-interrogative clauses:
(11) ?Pjianou tou edhose o Yiannis to vivlio?$$^{2}$$
who-gen (him-gen) gave-3$$^{rd}$$ sing the-acc book?
* Who did John give the book?

Relative clauses ( with relativization of the IO):
(12) I ghineka pou tis edhose o Yiannis to vivlio ine i Eleni
the-nom woman-nom that her-clit.gen. gave-3$$^{rd}$$ sing the-nom John-nom
the-acc book-acc is-3$$^{rd}$$ sing the-nom Helen-nom
‘The woman that John gave the book to is Helen’

2. The acceptability of sentences like (10a) with dative verbs varies among native speakers, however, the equivalent wh-questions with source verbs appear to be more acceptable:
(i) Pjianou tou arpaksan ti tsanta?
Who-gen him-gen grab-3$$^{rd}$$ pl. the-acc bag-acc?
‘Who did they grab the bag from?’
d) Passivization of the IO in DOC is not allowed in Greek but it is possible in English (albeit not in all verb classes):

(13) *I Eleni dhothike to vivlio
the-nom Helen-nom given-3rd pass, the-acc book-acc
'Helen was given the book'

Based on previous studies (Kayne 1984, Salles 1997) where the analysis of DOCs is correlated to that of P-Stranding with wh-movement, it has been suggested (Bouba 1998a) that the different properties of the English and Greek dative/benefactive alternation (i.e. overt P: prepositional pattern, null P: double-object pattern) are due to the feature specification of the functional category \( P \) (Preposition).

Assuming that there is a distinction within the class of prepositions between those which are fully specified for interpretable/semantic features and those that are underspecified with respect to descriptive/semantic content\(^3\), certain prepositions in Greek will belong to the latter group (i.e. \( se/me \) and presumably the preposition \( to \) in English). It has been argued that the syntactic consequences of this distinction can be attested in the behaviour of the \( put \) and locative \( spray/load \) verbs in Greek (Bouba 1998b).

3. THE STUDY

3.1. Research questions - hypotheses

The hypotheses and predictions raised from the above theoretical considerations are the following:

- Learners will exhibit the tendency to omit certain prepositions more often than others (i.e. \( to \) rather than \( for \) or \( from \)) in different verb classes due to their different nature of feature specification.
- What are the reasons for the appearance of null Ps in the Greek interlanguage? Is the semantic information of the omitted/deleted/null category \( P \) recovered by the predicate and if yes, to what extent?

3.2. Methodology

For the purposes of the study two types of data collection techniques were used: a paced grammaticality judgement task with 122 grammatical and ungrammatical sentences (22 were distractor sentences) of the type illustrated in (14) and

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and a preference task with 60 pairs of sentences (11 of them were distractors) (cf. (16) and (17))

The first thirty guests are offered drinks and snacks.

* What did the farmer plant the field?

a. The person that he wrote the book for is his wife.
   b. * The person that he wrote the book is his wife.

To whom did John return the book?
   b. Who did John return the book to?

The subjects were 92 adolescent Greek learners of English (82 in the GJ task and 92 in the Preference task). They were classified into three groups of English language proficiency level (Advanced-Intermediate-Elementary) according to their scores in the Oxford Placement Test (Allan 1992). There was also a control group consisting of 22 native speakers of English. It should be noted that all those sentences in which the native speakers had a success rate of lower than 90% were excluded from the study; the relevant sentences in the present paper were those involving null P+Pron structures of benefactive verbs in the preference task.

3.3. The results

This paper concentrates on the results from ungrammatical test sentences which involve an omission of P in the following syntactic contexts:

a) Matrix wh-interrogative clauses (questioning of the IO).

* Who did you say ‘Hello’ earlier?
   * Who are you fixing him sandwiches?

4. In the GJ task there was a row of numbers from 1 to 10 below each sentence. Subjects were asked to respond by rating their judgments on a 10-point scale (1: totally incorrect; 10: totally correct). In the preference task the subjects were presented with three options below each pair of sentences and were allowed to circle only one option:
   a. only (sentence) a is correct, b. only (sentence) b is correct, c. both are correct

5. In order to calculate the subjects’ success rate in the GJ task the scoring was carried out as follows: for the grammatical sentences a desirable response was one ranging from 7 to 10; all other ratings were considered unsuccessful. For the ungrammatical ones a successful response was one ranging from 1 to 4. For the Preference Task a score of 1 was assigned to each subject if he/she chose the correct ‘version’ of the sentence and 0 was assigned for the other choices.

6. Subjects were not tested in Null P+Pron constructions of locative verbs.
b) Relative clauses (relativization of the IO).

(20) * The girl that Andrew borrowed a computer is Diana.

(21) * The person that I collect him these stamps is my father.

c) Passive voice (passivization of the DO).

(22) * A birthday present was bought me yesterday

Moreover, two types of ungrammatical structures are investigated: sentences with a null P (cf. (18), (20) and (22)) and sentences which involve a null P and an IO-pronominal clitic as in (19) and (21).

3.3.1. An overview of the results

Table 1. Overall Successful Performance in GJ & Preference Task.

<table>
<thead>
<tr>
<th>GJ Task</th>
<th>NS(n=21)</th>
<th>Interval(n=40)</th>
<th>Elem(n=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>SP</td>
</tr>
<tr>
<td>Gramm.</td>
<td>9.3</td>
<td>1.29</td>
<td>93%</td>
</tr>
<tr>
<td>Ungramm.</td>
<td>1.92</td>
<td>1.37</td>
<td>92%</td>
</tr>
<tr>
<td>Pref. Task</td>
<td>.96</td>
<td>.21</td>
<td>96%</td>
</tr>
</tbody>
</table>

For the statistical analysis a Kruskal-Wallis H test for several independent samples (the non-parametric analogue of one-way analysis of variance) was performed in order to detect differences among groups. In the results summarized in Table 1 all responses between and within groups are statistically significant at the .05 probability level. The control group performed as expected, that is, they are significantly more successful than the other groups. Also the Intermediate group exhibits higher performance than the Elementary. The striking difference in their performance between grammatical and ungrammatical sentences in the GJ task (higher success percentage with grammatical sentences) is presumably due to the nature of the testing technique employed.

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7. The abbreviations in the tables stand as follows: SP=Success Percentage, SD=Standard Deviation, M=Mean of their responses in terms of the numerical scale (1-10). The symbol * indicates statistically insignificant results in the between groups comparison.

8. For the comparison within groups the Kolmogorov-Smirnov Z test for two independent samples was used and therefore the value z is provided.

3.3.2. Results across verb classes

A) Grammaticality Judgement Task

Table 2. Successful Performance in GJ Task: Dative, Benefactive, Source & Locative Verbs

<table>
<thead>
<tr>
<th>GJ Task</th>
<th>NS (n=21)</th>
<th>Inter (n=40)</th>
<th>Elem (n=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>SP</td>
</tr>
<tr>
<td>Dative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null P</td>
<td>2.01</td>
<td>1.21</td>
<td>97%</td>
</tr>
<tr>
<td>Null P+Pron.</td>
<td>2.09</td>
<td>1.22</td>
<td>95%</td>
</tr>
<tr>
<td>Benefactive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null P</td>
<td>2.09</td>
<td>1.49</td>
<td>94%</td>
</tr>
<tr>
<td>Null P+Pron.</td>
<td>1.50</td>
<td>.80</td>
<td>100%</td>
</tr>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null P</td>
<td>1.55</td>
<td>1.26</td>
<td>97%</td>
</tr>
<tr>
<td>Null P+Pron.</td>
<td>1.31</td>
<td>.75</td>
<td>98%</td>
</tr>
<tr>
<td>Spray/Load</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null P</td>
<td>2.12</td>
<td>1.52</td>
<td>94%</td>
</tr>
</tbody>
</table>

The results across verb classes from the GJ task displayed in Table 2 appear to partially confirm the initial predictions. There are important and statistically significant differences between the two Greek groups in all verb classes, that is, the Intermediate outperformed the Elementary in all verb classes apart from the dative verbs. In other words, there is a striking low percentage of target-like performance with Intermediate in structures which involve a null P and null P+Pron with dative verbs, as their responses are statistically insignificant in comparison with the Elementary (null P: \( \chi^2 (1) = .767, \text{sig} = .385, p>.05 \), null P+Pron: \( \chi^2 (1) = 1.408, \text{sig} = .233, p>.05 \) ). This finding indicates that learners are more prone to delete the preposition to without exhibiting any sign of improvement from one level to the other.

In addition, it is important to note that both groups exhibit the lowest success rate with the dative verbs and the highest with the source verbs (although the Intermediate exhibits a slightly better performance in null P+Pron with benefactive verbs, however their responses are not significantly different from those in source verbs (z = -.362, \text{sig} = .724, p>.05)). This again suggests that learners seem to have a greater difficulty in identifying a missing preposition to rather than from or others.

10. The analysis is based on 2-3 tokens per type of sentence.
11. \( \chi^2 = \) chi-square, sig= (statistical) significance, \( p = \) probability (level).
Note also that the performance of the Elementary in locative (spray/load) null $P$ drops down to 25% and without any statistical differences from their responses in dative Null $P$ ($z = -1.409$, sig = .161, $p>.05$). The sentences with the locative verbs used in the test are direct translations of the 3rd alternative pattern which is permissible in Greek, that of the double-accusative form where the preposition *me* (=with) is deleted (cf. 7). Their failure in the early stages could be attributed to the fact that they transfer the degrees of functionality of the preposition *me* into English as well as the non-quantificational properties of the DP-complement of the preposition.

**B) Preference Task**

**Table 3. Successful Performance in Preference Task: Dative, Benefactive, Source & Locative Verbs**

<table>
<thead>
<tr>
<th>Pref. Task</th>
<th>NS($n=22$)</th>
<th>Interm($n=48$)</th>
<th>Elem($n=43$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$SP$</td>
</tr>
<tr>
<td><strong>Dative</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null $P$</td>
<td>.82</td>
<td>.39</td>
<td>82%*</td>
</tr>
<tr>
<td>Null $P$+Pron.</td>
<td>1</td>
<td>.00</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Benefactive</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null $P$</td>
<td>.93</td>
<td>.25</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null $P$</td>
<td>1</td>
<td>.00</td>
<td>100%</td>
</tr>
<tr>
<td>Null $P$+Pron.</td>
<td>.97</td>
<td>.17</td>
<td>97%</td>
</tr>
<tr>
<td><strong>Spray/Load</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null $P$</td>
<td>.95</td>
<td>.22</td>
<td>95%</td>
</tr>
</tbody>
</table>

The results from the preference task presented in Table 3 appear to be slightly controversial. Firstly, there is a striking contrast in the degree of performance across tasks: learners exhibit a far better performance in the preference task rather than the GJ task. As mentioned above, this is attributed to the design properties of the task used. Learners can detect incorrect structures more easily when these are provided together with their correct counterparts (i.e. preference task) rather than in isolation (i.e. GJ task).

Secondly, in contrast to our predictions, both groups and particularly the Intermediate exhibit a very high percentage of target-like performance with the dative verbs null $P$ structures (they manage to reach the NS’s performance: $\chi^2$ (1) = 2.423, sig = .169, $p>.05$) which presumably is an effect of the testing technique employed (see also discussion in section 3.3.1.). However, their responses in null $P$+Pron structures of the same class of verbs are still extremely low indi-
cating that there is no clear-cut pattern of improvement since both groups performed very poorly. With respect to the other verb classes there seems to be a pattern of improvement similar to the one attested in the GJ task with the subjects being more successful in the null P+Pron structures of source verbs.

4. DISCUSSION

The results seem to offer confirmation for the initial hypothesis that the tendency of the L2 learners to accept structures where certain prepositions are omitted will be correlated to the degree of functionality of the prepositions and their specification of semantic / Interpretable features. There is a gradual improvement at rejecting structures which involve a deleted P in benefactive, source and locative verbs, that is, those in which the prepositions for, from and with respectively are deleted (Intermediate: significantly better performance than Elementary). While the similar performance (low success percentage) of both groups with respect to the omission of the preposition to with the dative verbs indicates that the acquisition of the features of the preposition to is quite slow.

The findings reported in this paper suggest that subjects opt for an alternative representation of IOs which is not attested neither in the L1 nor in the L2 (null P in particular contexts). In English the available option is an overt preposition and in Greek it is either an overt preposition or a morphologically marked IO-clitic. This suggests that L2 learners select a more economical option assuming that the missing category can be recovered in the clause. In other words, their performance suggests that their hypotheses about the representation of ditransitive verbs are constrained by universal principles and, in particular, they seem to obey the Recoverability Condition (Chomsky 1995) (properties of a null category are recovered by another overt category in the clause).

With regard to the structures involving a null P+Pron, the findings allow us to address the issue of L1 Transfer given that the learners accept them as grammatical across all verb classes and in both tasks indicating that the Greeks make use of the English pronouns as clitics. However, one cannot claim that it is a clear instance of transfer as there is the possibility that learners make incorrect guesses about the limitations of the DOC formation in English resulting in overgeneralisations. That is, they mistakenly assume that DOC formation is sanctioned in English with all the verb classes and therefore accept the sentences with the clitic. Additional empirical evidence is needed in order to illuminate the role of transfer and overgeneralisation and, more particularly data from their responses in grammatical and ungrammatical declarative sentences which involve DOC formation with various verb classes.
5. CONCLUSION

To summarize, the study reported in this paper can shed some light on another dimension of the second language acquisition process of ditransitive verbs, namely, the problems posed by the acquisition of the so-called semi-lexical/functional heads i.e. prepositions. In the absence of data from the Advanced level no final conclusive statements can be made; however, two considerations might be on the right track: on the one hand, L2 learners rely on universal constraints to build the L2 structures (occurrence of null P) and on the other, they do seem to transfer certain properties of their mother tongue, that is, the acceptance of clitic-like pronoun in their interlanguage. While L1 Transfer cannot be ruled out, there is also the possibility that learners employ the overgeneralisation strategy which induces DOC formation with verbs that do not allow it. However more evidence is necessary in order to support or refute the above claims.

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