## Ditransitives and applicative structure in Greek

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#### 1 Introduction

Applicative constructions, best known from languages with overt applicative morphology such as Kinyarwanda in (1) have traditionally been understood to add a core argument to the basic valence of the verb.

(1) Kinyarwanda (Kimenyi 1980)

Umukoôbwa a-ra-som-er-a umuhuûngu igitabo girl she-PR-read-APPL-ASP boy book

Recent work on ditransitive constructions assimilates the properties of double object patterns (2a) to applicative constructions (Marantz 1993, Pylkkänen 2002).

(2) a. Orestis gave Lena a book.
b. Orestis gave a book to Lena.

Double Object Construction (DOC)

Prepositional Construction (PC)

The central insight behind this family of analyses, extending back to Relational Grammar, is that both applicative constructions like (1) and DOCs treat a non-theme argument like an object. In this paper we focus on DOCs in Greek (3a), part of a group of ditransitive constructions that includes prepositional constructions like (3b).

#### (3) Greek

a. O	Orestis	edhose	tis	(DOC)
the.NOM	Orestis.NOM	gave.3sg	the.GEN	
Lenas	ena	vivlio		
Lena.GEN	a.ACC	book.ACC		
'Orestis gave Lena a book.'				
b. O	Orestis	edhose	s-ti	(PC)
the.NOM	Orestis.NOM	gave.3sG	to:the.ACC	
Lena	ena	vivlio		
Lena.ACC	a.ACC	book.ACC		
'Orestis gave a book to Lena.'				

We focus in particular on the proposal by Pylkkänen (2002) that applicative constructions divide up into two subtypes. We show that Greek has both types of applicative, but motivates a single syntactic architecture for both. The difference between the benefactive and recipient goal subtypes falls out from differences in the selectional and thematic properties of the applicative head.

In section 2 we briefly discuss background literature on applicatives. In section 3 we present the properties of Greek genitive applied arguments, in particular recipient goals

<sup>&#</sup>x27;The girl is reading a book for the boy.'

and benefactives. In section 4 we discuss previous accounts of the Greek data. In section 5 we briefly lay out the theoretical framework we adopt (Georgala et al. to appear). In section 6 we present an analysis of the Greek recipient and benefactive DOCs using Georgala's et al. single structure / dual function applicative architecture, while in section 7 we propose an analysis of the Greek PC.

## 2 Background

#### 2.1 Double object constructions

Marantz (1993), extrapolating from the facts of Bantu applicatives, proposes that in DOCs the indirect object (IO) is introduced by an applicative head (4).

(4) 
$$\lceil_{vP} DP_{AGENT} \rceil_{v'} v \lceil_{VP1} DP_{GOAL} \lceil_{V1} V1 \lceil_{Appl} \rceil \lceil_{VP2} V DP_{THEME} \rceil \rceil \rceil \rceil$$

Building on this, Pylkkänen (2002) argues that applicative constructions divide into two different types semantically: high and low applicatives. The high applicative head denotes a thematic relation between an individual and the event described by the verb. High applicatives are introduced above the lexical VP (compare 4 to 5).

# (5) **High applicative** (cf. Pylkkänen 2002: 19) [Voice DP<sub>AGENT</sub> [Voice, Voice [ApplP DP<sub>BEN/LOC/INSTR</sub> [Appl, Appl [VP V DP<sub>THEME</sub>]]]]]

In contrast, low applicative heads denote a relation of transfer of possession, where the DP selected in [Spec, ApplP] can be either the recipient or the source of the lower theme DP. They are generated inside the lexical VP.

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(6) Low applicative (cf. Pylkkänen 2002: 19) [Voice DP<sub>AGENT</sub> [Voice, Voice [VP V [ApplP DP<sub>REC</sub> [Appl, Appl DP<sub>THEME</sub>]]]]]
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The Kinyarwanda benefactive applicative in (1) is an example of a high applicative. Benefactive constructions like this can be understood to be composed of two events, a core event denoted by the lexical VP 'read book' in (1), and an event of benefaction, combining the applicative argument 'boy' and the lexical VP. Under Pylkkänen's approach, the high applicative combines with the VP by Event Identification (Kratzer 1996), as in (7a), and adds an argument, interpreted as bene-/malefactive, instrument or location. In low applicatives (7b) although Appl is syntactically selected by the lexical verb, Appl is interpreted as the main function, taking the verb, the IO and the direct object (DO) as arguments and specifying the relationship between the latter two (viz. the treatment of generalized quantifiers in Barwise and Cooper 1981).

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(7) Semantics of high and low applicatives a. High Appl \lambda x.\lambda e. APPL(e,x) b. Low-Appl-TO \lambda x.\lambda y.\lambda f < e < s,t >> .\lambda e. f(e,x) & to-the-possession(x,y)
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Pylkkänen's theory of applicatives makes a number of predictions (8). Pylkkänen herself (2002) applies (8a-b) as diagnostics for distinguishing high and low applicatives. (8a) follows because the semantics of low applicatives (7b) stipulate the presence of a theme argument. (8b) follows because the type of event denoted by a static predicate (e.g., *holding a bag*) is inconsistent with the theme undergoing a change of possession. Finally, (8c) follows from the *to-the-possession* predicate in (7b).

- (8) a. Only high applicative can combine with unergatives.
  - b. Only high applicative can combine with statives.
  - c. The change of possession implication in low applicative DOCs is an entailment

#### 2.2 to-Prepositional constructions

In contrast to DOCs, Marantz (1993), among others, suggests that the applicative head is missing in the *to*-PC (2, 3b); on this view, as a result, *to*-PCs lack a change of possession interpretation.

## (9) Orestis sent a book to Lena.

(cf. Marantz 1993: 120)

 $[_{vP} DP_{AGENT} [_{v'} v [_{VP} DP_{THEME} [_{V'} V PP]]]]]$ 

## 3 Greek genitive DOCs

Greek has two distinct DOC patterns in which the non-theme argument appears in genitive case. In the recipient genitive pattern, the recipient goal bears genitive case, and the theme accusative. In the benefactive genitive pattern, the bene-/malefactive bears genitive. We show below that the former behave like typical low applicatives, while the latter pass Pylkkänen's tests for high applicatives. We show further that the two patterns are distinguished by important syntactic properties.

## 3.1 Genitive benefactive = High applicative

The genitive benefactive construction passes both of Pylkkänen's tests in (8a-b) for high applicatives. It is possible both with unergatives<sup>2</sup> (10) and statives (11).

## (10) Genitive benefactive with unergatives

Tha mas traghoudhisis avrio?
FUT 1PL.GEN.CL sing.2SG tomorrow

'Will you sing for us tomorrow?'

3SG.FEM.GEN.CL walked.1SG

<sup>&</sup>lt;sup>1</sup> Greek has merged the morphological distinction between genitive and dative case in the direction of genitive.

<sup>&</sup>lt;sup>2</sup> Genitive benefactives do not occur with manner of motion verbs, such as *treho* 'run' and *perpatao* 'walk'.

<sup>\*</sup>Tis perpatisa

<sup>&#</sup>x27;I walked for her.'

#### (11) Genitive benefactive with statives

Kratise mu to vivlio tis Lenas hold.2SG.IMP 1SG.GEN.CL the.ACC book.ACC the.GEN Lena.GEN 'Hold Lena's book for me.'

We conclude that this pattern satisfies the crosslinguistic criteria for a 'high'-type applicative construction.

#### 3.2 Recipient genitive = Low applicative

The recipient genitive pattern in (3a) superficially resembles the benefactive pattern: the non-theme argument bears genitive case, the DO accusative. However semantic and syntactic properties show that the patterns are distinct. First, at the most basic semantic level, recipient genitive sentences like (3a) imply transfer of possession, as predicted by a low applicative analysis, while the benefactive genitive pattern (10-11) does not; for example, (11) does not imply that the first person genitive beneficiary *mu* comes into possession of Lena's book. Second, and consistent with this difference, idiom facts support a low applicative-type analysis of the recipient genitive pattern. The standard account of the contrast in (12) (Harley 2003, among others) is that the DOC pattern in (12b) implies transfer of possession and is thus infelicitous.

(12)

- a. Estile ton Oresti s-to dhiaolo sent.3SG the.ACC Orestis.ACC to:the.ACC devil.ACC 'He/she sent Orestis to the devil.'
- b. \*Estile tou dhiaolou ton Oresti sent.3SG the.GEN devil.GEN the.ACC Orestis.ACC 'He/she sent the devil Orestis.'

The facts reviewed above show that benefactive genitives show the semantic properties of a high applicative (co-occurrence with unergatives and statives), while the recipient genitive pattern shows the properties of a low applicative (implied transfer of possession).

In Greek, these facts must be reconciled with two important syntactic differences between the two patterns. First, the benefactive genitive pattern allows the genitive DP to be expressed only as a clitic (13), while the recipient genitive pattern allows the genitive DP to be expressed as a clitic, or an independent DP, or clitic doubled (14):

## (13) Benefactive genitive

- a. Kratise tis to vivlio hold.2SG.IMP 3SG.GEN.FEM.CL the.ACC book.ACC 'Hold the book for her.'
- b. \*Kratise tis Lenas to vivlio Hold.2SG.IMP the.GEN Lena.GEN the.ACC book.ACC 'Hold the book for Lena.'

#### (14) Recepient genitive

O Orestis (tis) estile tis Lenas the.NOM Orestis.NOM 3SG.GEN.FEM.CL sent.3SG the.GEN Lena.GEN

to vivlio the.ACC book.ACC

Second, the benefactive pattern disallows passivization of the DO (15), while the recipient pattern allows it, but only when the IO is realized as a clitic (16) (Markantonatou 1994).

(15)

\*Enas kafes tis ftiahtike (tis Lenas) a.NOM coffee.NOM 3SG.GEN.FEM.CL was:made.3SG the.GEN Lena.GEN 'Coffee was made for Lena.'

(16)

a.\*Ena vivlio dhothike tis Lenas (apo a.NOM book.NOM was:given.3SG the.GEN Lena.GEN by

ton Oresti) the.ACC Orestis.ACC

'A book was given Lena (by Orestis).'

b. Ena vivlio \*(tis) dhothike (tis Lenas) a.NOM book.NOM 3SG.GEN.FEM.CL was:given.3SG the.GEN Lena. GEN

#### 4 Previous accounts

#### 4.1 Anagnostopoulou (2003, 2005)

Anagnostopoulou (2003, 2005) analyzes benefactive and recipient DOCs by positing a single applicative structure, with the applicative head above VP (17).

(17) **Recipient goal and recipient benef. DOC** (Anagnostopoulou 2005: 80) [<sub>v1P</sub> Subj [<sub>v1P</sub> vTR [<sub>v2P</sub> DP<sub>GEN</sub>/se-BENEF [<sub>v2P</sub> vAPPL [<sub>vP</sub> V DP<sub>ACC</sub>]]]]]

We will follow Anagnostopoulou in positing a single structural position for applicatives, not only for Greek, but for applicative constructions across languages. The question posed for an analysis like (17), however, is how to account for the difference between beneficiary and recipient DOCs if both types of argument are generated in the specifier of vAPPL? This is a question not just for Greek, but for applicative constructions across languages.

<sup>&#</sup>x27;Orestis sent Lena the book.'

#### 4.2 A Pylkkänen-type model

Georgala (2007) develops a Pylkkänen-type model to account for the difference between the two main types of genitive arguments discussed above. There are two problems with this analysis, one syntactic, the other semantic. The syntactic problem is easily exemplified in Greek, but Georgala et al. (2007) show that it holds more generally across languages. This problem is that manner and frequency adverbs can intervene between the indirect and direct object in the recipient DOC (18). This suggests that a maximal projection boundary intervenes between the DO and the surface position of the IO. This fact is not predicted by the low applicative analysis in (6), while it would be, for example, by Anagnostopoulou's uniform structure in (17).

#### (18) **IO Adv DO**

Estelnes tis Lenas sihna/amesos lefta? were sending.2sG the.GEN Lena.GEN often/immediately money.ACC 'Were you often/immediately sending Lena money?'

The second problem has to do with the exact nature of the transfer-of-possession implication in the semantic representation of low applicatives (7b). In (7b), this is represented as an entailment. But as is widely observed, the implication is cancellable, although how easily and under what circumstances cancellation is possible seems to vary across languages and speakers. Example (19) shows this for Greek.

(19) OOrestis estile s-ti Lena ena sent.3sg to:the.ACC Lena.ACC the.NOM Orestis.NOM a.ACC vivlio dhen elave pote to opio Lena book.ACC that the.NOM Lena.NOM received.3sg never not 'Orestis sent Lena a book that Lena never received.'

The interpretation of a DOC like (19) seems to require something closer to 'intended transfer of possession' (Rappaport-Hovav and Levin 2005) rather than a transfer entailment. It is unclear how to modify the representation in (7b) to capture this fact.<sup>3</sup>

#### 5 Proposal

Georgala et al. (to appear) argue for a distinction between thematic and expletive or 'raising' applicatives: thematic applicatives introduce an additional argument above VP, while raising applicatives serve as syntactic licensers for an argument inside VP, without introducing an argument on their own. Both types of applicative reside immediately above VP.

<sup>&</sup>lt;sup>3</sup> One approach might be to insert an intensional operator at the ApplP level in (7b). However the intensional operator would have to be related to the subject (agent); since VP intervenes between the base position of the subject and ApplP, it is unclear how this would be accomplished.

<sup>&</sup>lt;sup>4</sup> A term we owe to Julie Legate (p.c.).

## 5.1 Raising applicatives

Prima facie evidence for the distinction between raising and thematic applicatives comes from applicative constructions like those in Chi-Mwi:ni: in (20) and Mandarin in (21). These constructions show the properties of low applicatives reviewed in section 2. But the applicative heads, Chi-Mwi:ni: -il- and Mandarin gĕi, are positioned between the lexical verb and aspect. On the assumption that syntactic combination of heads is restricted to left head adjunction, this indicates that the applicative head originates above the verb.

#### (20) Chi-Mwi:ni: suffixal applicative

(Kisseberth and Abasheikh 1974)

Ni-mw-andik-il-il-e Nu:ru xati SP-OP-write-APPL-ASP-FV Nuru letter 'I wrote Nuru a letter.'

## (21) Mandarin DOC: (V gěi Aspect IO DO) pattern

(Georgala et al. to appear)

Wŏ mài-**gĕi**-le Mălì yī-ge shŏubiăo 1SG sell-GEI-ASP Mali 1-CL watch 'I sold Mali a watch.'

Although the applicative heads in (20-21) show morphosyntactic evidence of originating above the verb, they appear to have a licensing relationship with the recipient argument in VP. This is analyzed as in (22). Greek lacks an overt applicative head, but the Greek recipient genitive pattern, as we have seen, has properties of a low applicative, and must be syntactically distinguished from the benefactive genitive pattern. We analyze it as in (22b).

## (22) Raising Applicative

(a) [ApplP IO [Appl', gěi/-il- [VP tIO [V' V DO]]]] Mandarin and Chi-Mwi:ni: (b) [ApplP IOGEN [Appl', [VP tIO [V' V DOACC]]]] Greek

The exact nature of the licensing relationship between the applicative head and the recipient argument is subject to crosslinguistic variation. In languages like Greek, the theme argument (DO) is assigned accusative case and is subject to passivization under conditions discussed in section 3. In this language it makes sense to assume that the DO is licensed by v, as in monotransitive clauses, and that the recipient (IO) is licensed by the applicative head. In so-called symmetric applicative languages, such as Kinyarwanda, either the IO or DO may be passivized (Kimenyi 1980). This requires a licensing relationship of a different nature, which we will not explore in this paper.

The adverb placement data in (18) suggest that the recipient argument resides outside VP on the surface. Georgala et al. show that this property holds outside of Greek as well. It is accounted for by raising the IO to the specifier of the applicative head as shown in (22); thus the label Raising Applicative.

#### 5.2 Thematic applicatives

Thematic applicatives correspond to Pylkkänen's high applicative: the applied argument is introduced above VP. As in Pylkkänen's original analysis, the applicative head assigns

a thematic role (benefactive, instrument, location) that we might expect to be composed external to the projection, the lexical VP that denotes the core event.

In sum, this approach proposes a uniform position for ApplP above VP. It accounts for the differences between high and low applicatives on the basis of whether the applied argument originates in the specifier of the applicative head or raises there.

## 6 Distinguishing high and low applicatives

In the previous section we showed how a single applicative structure, uniformly above the lexical VP and below the projection introducing the subject, can be used to account for the differences between high- and low-type applicatives. We now apply this analysis to the two Greek genitive DOC constructions. For preliminaries, we assume first that two licensing conventions are relevant: the Agree relation of Chomsky (23), and some version of Shortest Move / Relativized Minimality, which bans movement of a syntactic constituent over a constituent of the same type.

(23) **Agree** (Chomsky 2000: 122)

The probe P agrees with the closest matching goal in D.

- a. Matching is feature identity.
- b. D is the sister of P [D = c-command domain of P].
- c. Locality reduces to closest c-command.

Second, we assume that genitive case is realized in the specifier of ApplP, as a type of inherent Case.<sup>5</sup> Finally, we assume that pronominal clitics are realized as non-branching specifiers of their host head. In the case of a clitic hosted by ApplP, this results in the configuration in (24):

(24) [[Clitic [Appl VP]]

This configuration applies both to externally merged (base generated) clitics and clitics moved from their base argument position. Under the set of assumptions of Chomsky (1995), the clitic in (24) is a [+minimal, +maximal] category. We assume that a nominal category with these features functions as an argument (that is, it may bear a thematic role), but as a [+minimal] category does not block movement of a maximal projection under Shortest Move / Relativized Minimality.

#### 6.1 Passive revisited

The analysis of genitive as inherent Case is supported by the fact that neither genitive recipients nor benefactives may passivize:

<sup>&</sup>lt;sup>5</sup> This assumption is not completely straightforward. Benefactive genitives are generated in a specific position ([Spec, ApplP]) and assigned one of a specific inventory of thematic roles by the applicative head, but recipient genitives are moved to this position and not assigned a thematic role by Appl. Since genitive is realized in a specific structural position irrespective of thematic role, it may be more appropriate to analyze it on a par with dummy case markers like English *of* assigned to complements of N.

(25)

## a. Recipient DP<sub>GEN</sub>

\*I Lena dhothike ena vivlio the.NOM Lena.NOM was:given.3SG a.ACC book.ACC 'Lena was given a book.'

#### b. Benefactive DP<sub>GEN</sub>

\*I Lena ftiahtike enan kafe the.NOM Lena.NOM was:made.3SG a.ACC coffee.ACC 'Lena was made coffee.'

#### 6.2 Theme passivization is possible with clitic recipient genitive

As we saw in section 3, however, the theme in the recipient genitive construction may be passivized just in the case that the recipient is realized as a clitic (15-16). Under the raising applicative analysis of the recipient genitive pattern, the recipient argument originates in [Spec, VP]. It enters into an Agree relation with the applicative head, and raises to [Spec, ApplP] to check the EPP feature of Appl. On the view that Agree involves deletion of matching uninterpretable features, v is able to enter into an Agree relation with the theme argument in active transitives like (3a). In a passive, however, the theme argument must raise past v to check the EPP feature of T; this is blocked under Shortest Move / Relativized Minimality when the recipient argument is a maximal projection, but not when the recipient is a clitic, a non-branching category.

## 6.3 Theme passivization with genitive benefactives is always out

In contrast to theme passivization with recipient genitives, passivization is always out with benefactive genitives, even when they are realized as a clitic. This is difficult to account for if both recipient and benefactive genitives are generated in the same position, as we noted above. On the expletive vs. thematic analysis of applicatives, however, the two structures are underlyingly distinct. The impossibility of passive with benefactive genitives can be explained if only 'active' v (v which assigns a thematic role) selects 'active' Appl (Appl which assigns a thematic role).

#### 7 The prepositional construction

Thus far in this paper we have focused on DOCs, and shown how the distinction between thematic and raising applicatives can account for the differences between benefactive and recipient genitive DOCs. In this section we focus on Greek prepositional ditransitive constructions. We provide support for Rappaport-Hovav's and Levin's (2005) argument that:

- (i) Ditransitive verbs such as *give* are monosemous; their recipient goal argument patterns similarly whether it is realized as an IO or object of a preposition.
- (ii) Ditransitives like *send*, on the other hand, are polysemous; their recipient goal argument patterns with *give*, but the locative goal behaves differently.

#### 7.1 Proposal

The recipient PC in Greek has the following form (3b repeated as 26):

(26) **PC**: V se-PP<sub>REC</sub> ACC<sub>THEME</sub>
O Orestis edhose s-ti Lena ena vivlio the.NOM Orestis.NOM gave.3SG to:the.ACC Lena.ACC a.ACC book.ACC 'Orestis gave a book to Lena.'

Contrary to traditional treatments of the PC, we follow Rappaport-Hovav and Levin (2005) in distinguishing verbs like *send*, which take both recipient and locative goals, and verbs like *give*, which only subcategorize for recipient goals. We treat locative goals as adjuncts. Recipient goals are base generated in [Spec, VP] regardless of whether they are realized as genitive DPs or objects of a PP headed by the preposition *se* 'to' (see Bowers and Georgala to appear for a similar analysis). Prima facie evidence for these distinct positions comes from the co-occurrence of recipient, theme and locative goal in the following example.

(Georgala 2007) (27)0 Orestis estile vivlio tis ena book ACC the.NOM Orestis NOM 3SG.GEN.FEM.CL sent.3sg a.ACC dhiamerisma s-to tis s-ti Nea Iorki York.ACC to:the.ACC apartment.ACC her.POSS to:the.ACC New.ACC 'Orestis shipped her a book to her apartment in New York City.'

Anagnostopoulou (2003) assigns genitive recipient goals and se-PP recipient goals different positions, as in (28):

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(28) se-PP recipient goal construction (Anagnostopoulou 2003) a. DP>PP: [_{vP} \text{ Subj } [_{v'} \ v \ [_{vP} \text{ DP}_{\text{THEME}} [_{v'} \ V \ se-PP_{\text{GOAL}}]]]] b. PP>DP: [_{vP} \text{ Subj } [_{v'} \ v \ [_{vP} \text{ se}-PP_{\text{GOAL}} [_{v'} \ V \ DP_{\text{THEME}}]]]]
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Below we show that the Rappaport-Hovav and Levin position, but not (28) is supported by facts from idioms, collocations with *give* known as 'Oehrle's generalization,' and anaphor binding.

#### 7.2 Idioms

It is generally assumed that fixed pieces of an idiom must form an underlying constituent syntactically. Based on this assumption the following predictions have been made about ditransitive idioms (Richards 2001, Harley 2003, among others):

- (i) An idiom with a fixed theme should only appear in the DOC.
- (29) a. give someone [a headache]<sub>THEME</sub>
  - b. \*give a headache to someone
- (ii) An idiom with a fixed goal should only occur in the PC.
- (30) a. send someone [to the devil]<sub>GOAL</sub>
  - b. \*send [the devil]<sub>GOAL</sub> someone

Rappaport-Hovav & Levin (2005) show that these predictions are false. Fixed theme idioms are found in the PC both in English (31) and Greek (32):

(31) (Rappaport-Hovav & Levin 2005) He's in there for one reason and that's to give [a headache]<sub>THEME</sub> to Mike White.

(32)(Georgala 2007) Dhino Oresti]<sub>PP</sub> Oresti]<sub>DP</sub> s-ton / [tou prasino give.1sG Orestis.ACC Orestis.GEN to:the.ACC the.GEN green.ACC fos light.ACC 'I give the green light to Orestis.'

Moreover, as in English, fixed goal idioms in Greek are found only in the PC.

(Georgala 2007)

a. Stelno kapion s-to dhiaolo send.1SG someone.ACC to:the.ACC devil.ACC 'I send someone to the devil.'

b. \*Stelno kapion tou dhiaolou

send.1SG someone.ACC the.GEN devil.GEN

'I send someone to the devil.'

## 7.3 Oehrle's generalization

Oehrle's (1976) generalization holds that patterns with *give* like (34) occur in the DOC, but not in the PC in English.

(34) a. The war years gave Mailer his first big success.
b. \*The war years gave his first big success to Mailer.

(Oehrle 1976)

As first noted by Anagnostopoulou (2005), unlike *to-PPs*, *se-PPs* like genitive DPs are licit in Oehrle's contexts (35).

(35) (Anagnostopoulou 2005: 86)

a. PC

O ghamos harise s-ti Lena statherotita the.NOM marriage.NOM gave.3SG to:the.ACC Lena.ACC stability.ACC 'Marriage gave Lena stability.'

b. **DOC** 

O ghamos tis harise tis Lenas the.NOM years.NOM 3SG.GEN.FEM.CL gave.3SG the.GEN Lena.GEN statherotita stability.ACC

'Marriage gave Lena stability.'

## 7.4 Binding

The structure in (17) accounts for the fact that in DOC the genitive IO c-commands the accusative DO. Evidence for the c-command facts comes from reciprocal binding (Anagnostopoulou 2003 following Barss and Lasnik 1986). Greek also permits surface DP<sub>ACC</sub>>DP<sub>GEN</sub> order. As argued in Anagnostopoulou (2003), the DP<sub>ACC</sub>>DP<sub>GEN</sub> order results from A'-type scrambling of the DO across the IO; thus the DO in this order cannot bind an anaphor in the IO.

The PP facts are more complex. Greek permits both the DP<sub>ACC</sub>>PP and the PP>DP<sub>ACC</sub> order. In each order the first argument may bind an anaphor in the second.

(36) (Anagnostopoulou 2005: 68)

#### DP<sub>ACC</sub> >PP

- a. Estila pedhi s-ti mitera to ena sent.1SG the.ACC one.ACC child.ACC to:the.ACC mother.ACC tou alou other.GEN the.GEN
  - 'I sent each child to the other's mother.'
- b. \*Estila to pedhi tis alis s-ti
  sent.1SG the.ACC child.ACC the.GEN other.GEN to:the.ACC
  mia mitera
  one.ACC mother.ACC
  - "\*I sent the other's child to each mother."

## PP>DP<sub>ACC</sub>

a. Estila mitera s-ti mia to pedhi sent.1SG child.ACC to:the.ACC one.ACC mother.ACC the.ACC tis alis the.GEN other.GEN b. Estila s-ti mitera alou tou to to:the.ACC mother.ACC the.GEN other.GEN the.ACC sent.1sg ena pedhi child.ACC one.ACC

The examples in (36) lead Anagnostopoulou (2003) to assume that both orders are base generated. However, there is independent evidence for short A-scrambling or object shift of the DO in Greek (Georgala ms.). On this view, the DP<sub>ACC</sub>>PP order is derived by A-type movement of the DO over the PP. Relativized Minimality / Shortest Move allows object shift over a PP, but A-type movement over another DP in the double object pattern is disallowed. Hence the DP<sub>ACC</sub>>DP<sub>GEN</sub> order can only be derived by A'-type movement, resulting in no change of A-binding possibilities, as Anagnostopoulou (2003) observes. Crucially, (37) shows that the same kind of object shift over a genitive DP is illicit, as predicted by the assumption that short object shift is restricted by Shortest Move.

(37) \*O Orestis edhose ti bira tis

the.NOM Orestis.NOM gave.3SG the.ACC beer.ACC the.GEN

Lenas zesti Lena.GEN warm.ACC

'Orestis gave Lena the beer warm.'

#### 8 Conclusions

Previous work on Greek double object constructions, in particular Anagnostopoulou (2003, 2005) has posited a single applicative projection located above the VP for the entire range of DOCs in this language. We have shown that this range of constructions partakes of the variation in types of 'extra core argument' constructions studied by Pylkkänen (2002). At the same time, there is no positive syntactic evidence for positing an applicative projection internal to the lexical VP, and positing such a projection raises both syntactic and semantic problems. The alternative we propose posits a single position for applicative heads, but distinguishes applicatives which introduce arguments with roles such as beneficiary and instrument from applicatives which syntactically license arguments with subcategorized roles such as recipient, generated inside the lexical VP. In addition we argued that the syntactic position of arguments of the latter type is determined by thematic role (or verb class) rather than whether they occur in PPs or as unmediated DP arguments of the verb.

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