A Smuggling Approach to the Dative Alternation

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Abstract: On the basis of traditional c-command tests, I argue that the prepositional dative example in (ii) is derived from the structure underlying the double object construction in (i).

i. John gave Mary the car. (Double Object Construction)
ii. John gave the car to Mary. (Prepositional Dative)

I motivate a smuggling analysis for the derivation of (ii), where a VP containing the theme is moved over the goal.

Keywords: double object constructions, c-command asymmetries, particles, smuggling

1. Introduction

A long standing debate in the syntax literature is whether (1a) is derived from the structure underlying (1b) (e.g., Larson 1988, Baker 1997:91), or (1b) is derived from the structure underlying (1a) (as I argue in this paper), or neither structure is derived from the other (Harley and Jung 2015, Harley and Miyagawa 2016: 21).

(1) a. John gave Mary the car. (Double Object Construction)
b. John gave the car to Mary. (Prepositional Dative)

I assume that (1a) and (1b) are derivationally related (see Larson 2014 for an extended defense of this position). This hypothesis explains why (1a,b) are truth conditionally equivalent, involve the same verb *to give*, and give rise to identical selectional restrictions (see Chomsky 1957: 42-43 for a similar observation about the passive):

(2) a. *I gave sincerity the car.
b. *I gave the car to sincerity.

I call the syntactic relationship between (1a) and (1b) the *Dative Alternation*. This terminology is neutral between an analysis where (1a) is derived from (1b) (*Dative Shift*) or (1b) is derived from (1a).

In this squib, I will give some evidence that (1b) is derived from the structure underlying (1a) by movement of the theme over the goal (a conclusion reached on similar grounds by Aoun and Li 1989 and Kitagawa 1994).

I point out that such a derivation yields a locality problem (one DP moves over another DP), and suggest a solution to this problem in terms of smuggling (see Collins 2005a, 2005b). Lastly, I will give independent evidence for the proposed derivation involving the distribution of particles in English.

2. Asymmetries

Barss and Lasnik 1986 and Larson 1986 show that there are c-command asymmetries in double object constructions and prepositional dative constructions. But there is also an

asymmetry between the DOC and the prepositional dative (see also Kitagawa 1994, Harley and Miyagawa 2016, Takano 1998: 824):

(3) a. John gave every man his paycheck.
b. ?John gave his paycheck to every man.

(4) a. John gave every dog to its owner.
b. *John gave its owner every dog.

(3a) shows that the goal c-commands the theme in a double object construction (since bound variable anaphora is allowed), and (4a) shows that the theme c-commands the goal in a prepositional dative construction. While (3b) is marginal on the bound variable reading, (4b) is completely unacceptable. Assuming that (4b) violates the condition on bound variable anaphora (Barss and Lasnik 1986: 348), the problem is to explain why (3b) does not incur a similar violation.

A contrast similar to the one in (3) and (4) exists for reciprocals (see also Kitagawa 1994, on the marginal status of (5b) see Takano 1998: 824):

(5) a. I showed the boys each other's pictures.
b. ??I showed each other's pictures to the boys.

(6) a. I showed the students each other's parents.
b. *I showed each other's parents the students.

Backwards anaphora in (5b) with the prepositional dative is considerably better than backwards anaphora in (6b) with the double object construction.

Lastly, a similar asymmetry between the DOC and the prepositional dative can be seen in quantifier scope (see Breuning 2001, Kitagawa 1994, Aoun and Li 1989 and Harley and Jung 2015 for an extensive discussion):

(7) a. I gave a student every car.
b. I gave a car to every student.

In (7a), the only possible interpretation is that there is a single student who receives all the cars. (7a) cannot have the inverse scope interpretation where every car is given to a different student. On the other hand, (7b) admits the inverse scope interpretation, where every student receives a different car.

As noted by Kitagawa 1994, Aoun and Li 1989 and Takano 1998, these kinds of asymmetries between DOCs and the prepositional dative can be explained if the prepositional dative is derived by movement of the theme over the goal.

Focusing on the quantifier data in (3) and (4), consider first the relevant condition from Barss and Lasnik 1986:

(8) "…in order for a pronoun to be related to a quantificational NP (QNP) as a variable, it must be in the domain of the QNP at S-Structure." (pg. 348)

The relative acceptability of (3b) can be accounted for if (3b) is derived by A-movement of the theme over the goal. Under that assumption, the quantifier phrase c-commands one of the occurrences of *his paycheck*, and therefore c-commands the pronoun. This derivation is sketched below:

(9) John gave his paycheck to every man <his paycheck>

Supporting evidence for this analysis is given by the following contrast:

(10) a. His_1 mother seems to $[every\ boy]_1$ to be nice.
b. *His_1 mother told $[every\ boy]_1$ to be nice.

(10a) involving raising is acceptable with a bound variable interpretation. (10b) is unacceptable. Since (10a) involves A-movement, *every boy* c-commands one occurrence of the pronoun (on a similar case involving psych-verbs, see Belletti and Rizzi 2012: 134).

I assume that the binding theory data and quantifier scope data can be explained in a similar way (see Kitagawa 1994, Aoun and Li 1989).

Hale and Keyser (2002: 178) give arguments that (5) and (6) do not show that the goal is underlyingly higher than the theme. They note that backwards binding also takes place in the following examples:

(11) Hale and Keyster 2002: 178
a. I set each other's drinks down beside Max and Harriet.
b. I strapped each other's spurs on Leecil and Wayne.
c. We led each other's colts up to Monica and Chiquita.

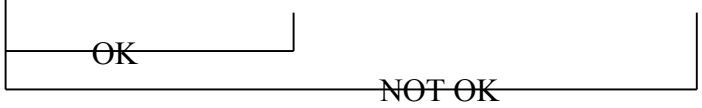
Takano (1998: 828) argues that examples such as those in (11) involve movement of the DP object over the PP.

However, a theoretical problem arises in the putative derivation for (3b) illustrated in (9). Such a derivation should violate Relativized Minimality (see Rizzi 1990) or the Minimal Link Condition (see Chomsky 1995) since the movement of the theme DP crosses over the goal DP. To overcome this problem, I propose a smuggling analysis.

3. Smuggling

Smuggling is defined as follows: Suppose a constituent YP contains XP. Furthermore, suppose that XP is inaccessible to Z because of the presence of W (a barrier, phase boundary, or an intervener for the Minimal Link Condition and/or Relativized Minimality) which blocks a syntactic relation between Z and XP (e.g., movement, Case checking, agreement, binding, etc.). If YP moves to a position c-commanding W, we say that YP smuggles XP past W. This is illustrated as follows:

(12) Z $[_{YP}$ XP] W $<[_{YP}$ XP]>



In this example, YP is the smuggler, XP is the smugglee, and W is the blocker. Crucially, smuggling itself does not trigger the movement in (8). Rather, YP undergoes movement for independent reasons (e.g., feature checking). In undergoing the independently motivated movement, YP smuggles XP over W.

As recent studies have shown, smuggling derivations play a role in a range of phenomena. Koopman 2012 uses smuggling derivations in the account of ergative case marking in Samoan. Snyder and Hymans 2015 show that the difficulty that children have in acquiring the passive reduces to a difficulty with smuggling derivations. Belletti and Rizzi 2012 (see also Belletti and Rizzi 2013) use smuggling derivations to account for restrictions on adverb order and binding in psych-verb constructions. Willson 2010 shows that there are two types of passive in Marshallese, one of which provides evidence for the passive structure argued for in Collins 2005 (involving an overt voice head).

4. Structure of DOCs

For background I assume that the double object constructions should be analyzed in terms VP shells (see Larson 1988), where the VP shells are vP, ApplP and VP and perhaps others (see Collins 1997, Collins and Thráinsson 1996, amongst many others). In particular, I assume v takes an ApplP complement, and Appl takes a VP complement.

I do not follow Pylkkänen (2008) who analyzes English as having a low applicative. Pylkkänen argues that the semantics of the low applicative differ from the semantics of the high applicative (pg. 14): "A high applicative head is very much like the external-argument-introducing head: it simply adds another participant to the event described by the verb. In contrast, low applied arguments bear no semantic relation to the verb whatsoever; they only bear a transfer-of-possession relation to the direct object."

Although I will not discuss Pylkkänen's approach in detail (see Larson 2010, 2014 for critical discussion), I will briefly note here it is possible to obtain the semantics attributed to the low applicative syntax (pg. 18) from a high applicative syntax (pg. 12). It is only necessary to define high applicative lexical entry follows:

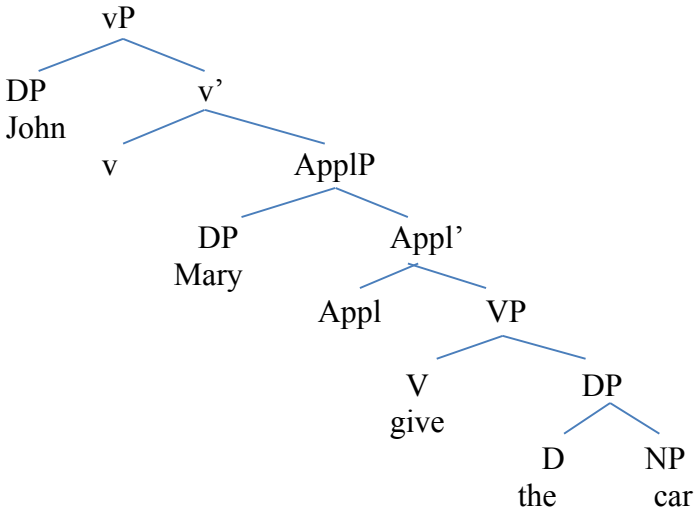
(13) $[\![\text{APPL}]\!] = \lambda P.\lambda x.\lambda e.[P(e) \wedge \text{to-the-possession}(e, \text{Theme}(e), x)]$

In this semantic value, Theme(e) is the function yielding the unique theme argument of e. In other words, when Appl is added to the VP, it adds a goal argument and says that the goal argument is related to the theme of the event by the to-the-possession relation.

Since Pylkkänen admits that the high applicative head comes in several semantic flavors (e.g., instrumental, benefactive, malefactive, pg. 17), I propose that (13) is just one more flavor. This new definition of the semantic value of the high applicative head also captures some of the other properties listed by Pylkkänen (pg. 18). Since Appl introduces the to-the-possession relation, V must have a theme argument. Pylkkänen also claims that high applicatives and low applicatives differ with respect to secondary predication. For brevity's sake, I do not pursue that issue here (see Harley and Jung 2015 for a recent discussion of depictives and DOCs).

A partial underlying structure of (1a) is given below (I leave out the representation of the movement of the V to Appl and the movement of Appl to v):

(14)



5. Analysis

Given this background, I propose that (1b) is derived from (1a) by smuggling: VP movement smuggles the theme past the goal. In particular, I propose that there is a VoiceP projection whose specifier the VP moves into. Technically, VP satisfies an EPP feature of Voice. On this analysis, it is natural to analyze the dative preposition *to* as the head of VoiceP. I will refer to this Voice head as inner Voice, to distinguish it from the one used in the passive, which I will refer to as outer Voice.

The derivation is given below:

(15) John gave Mary the car

a. $[_{ApplP}$ Mary $[_{Appl'}$ Appl $[_{VP}$ V $[_{DP}$ the car]]]] → Merge Voice

b. $[_{VoiceP}$ Voice $[_{ApplP}$ Mary $[_{Appl'}$ Appl $[_{VP}$ V $[_{DP}$ the car]]]]] → Move VP

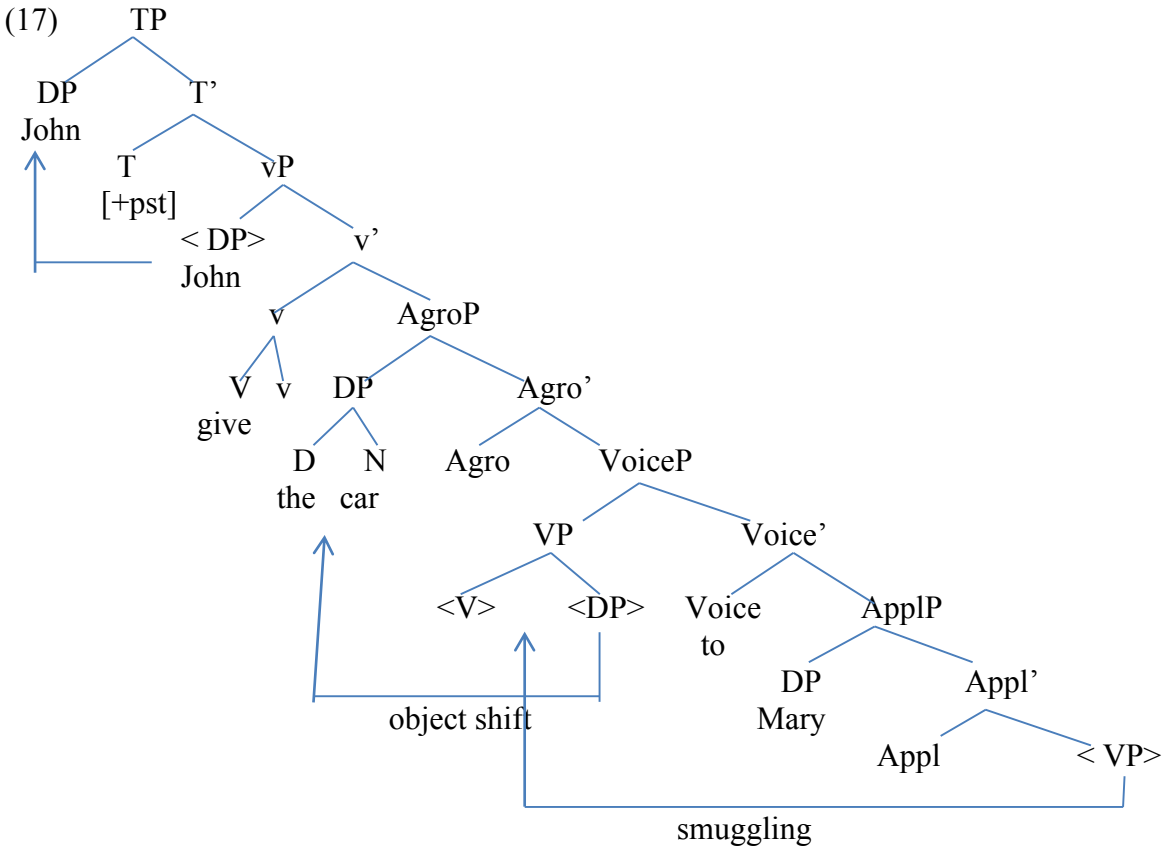
c. $[[_{VP}$ V $[_{DP}$ the car]] $[_{Voice'}$ Voice $[_{ApplP}$ Mary $[_{Appl'}$ Appl <VP>]]]]

A problem with the derivation in (15) is that it gives the wrong c-command relations between the theme and goal. As discussed by Barss and Lasnik (1986) and Larson (1988) the theme DP c-commands the goal DP in prepositional dative construction.

(16) I showed the students to each other's teachers

In (16), the DP *the students* c-commands the DP *each other,* and hence is able to bind it. However, in (15c), because of the presence of the fronted VP constituent, the theme does not actually c-command the goal (the theme DP is dominated by VP, which does not dominate the goal DP). Such considerations suggest that the theme DP in (15c) must undergo one subsequent A-movement out of the VP. I assume that Spec AgroP (object agreement phrase) is the relevant position. For analyses involving raising to object see Postal 1974. For vP internal functional projections, see Collins 2003, Collins and Thráinsson 1996 and Baker and Collins 2006.

Putting all these steps together yields the following structure (I leave out the movement of the verb to Agr_o, and Agr_o to v):



Let's verify that this structure meets all the requirements outlined in sections 1-4.

First, since the prepositional dative is derived from a structure underlying the DOC, we can account for the fact that they share identical selectional restrictions.

Second, since VP is moved over the DP *Mary* in Spec ApplP, there is no violation of Relativized Minimality or the MLC. The theme DP does not directly move over the goal DP, rather the theme DP is smuggled over the goal DP by VP movement.

Third, the DP *the car* c-commands the DP *Mary* (after raising to Spec Agro). Hence the standard c-command facts will hold (see (16)).

Fourth, since the theme DP *the car* originates in a position lower than the goal DP Mary, we can account for the acceptability of (3b).

The analysis in (17) is similar to the analysis of *faire* causatives given in Kayne 2005: chapter 5. And in fact the parallelism between my analysis and Kayne's analysis strongly supports the assumption I made earlier that the prepositional dative should be the derived structure (and not the underlying structure) in the dative alternation. In the *faire* causative of a transitive verb, the external argument of the causativized verb bears a dative preposition *à*. But the embedded clause corresponds to an underlying SVO structure (with no dative preposition).

6. Distribution of Particles

The distribution of particles offers independent support for VP movement. Particles of various kinds can appear between the two objects in a double object construction:

(18) We sent the boys up/over/down some pizza

(18) shows that the particle can appear after the goal argument in a double object construction. In the prepositional dative construction, the particle must appear before the goal argument. It may no longer appear after the goal, as shown in (19c).

(19) a. We sent some pizza up/over/down to the boys.
b. We sent up/over/down some pizza to the boys.
c. *We sent some pizza to the boys up/over/down.

I summarize the asymmetry as follows:

(20) In the double object construction, a particle may follow the goal.
In the prepositional dative, a particle may not follow the goal.

If the prepositional dative were derived by A-movement of the theme DP over the goal DP, there would be no reason that the position of the particles should change position as well. The theme DP would undergo movement, stranding the particle and yielding the order in (19c):

(21) some pizza to the boys up/over/down <some pizza>

A-movement of theme DP

Since this order is completely ungrammatical, it strongly suggests that the derivation in (21) is incorrect. Rather, some constituent XP bigger than a DP is moving to the left over the goal DP, and this XP contains both the particle and the following theme DP (see Collins 2005 for a similar conclusion about the distribution of particles in the passive):

(22) up/over/down some pizza to the boys up/over/down some pizza

XP movement over goal DP

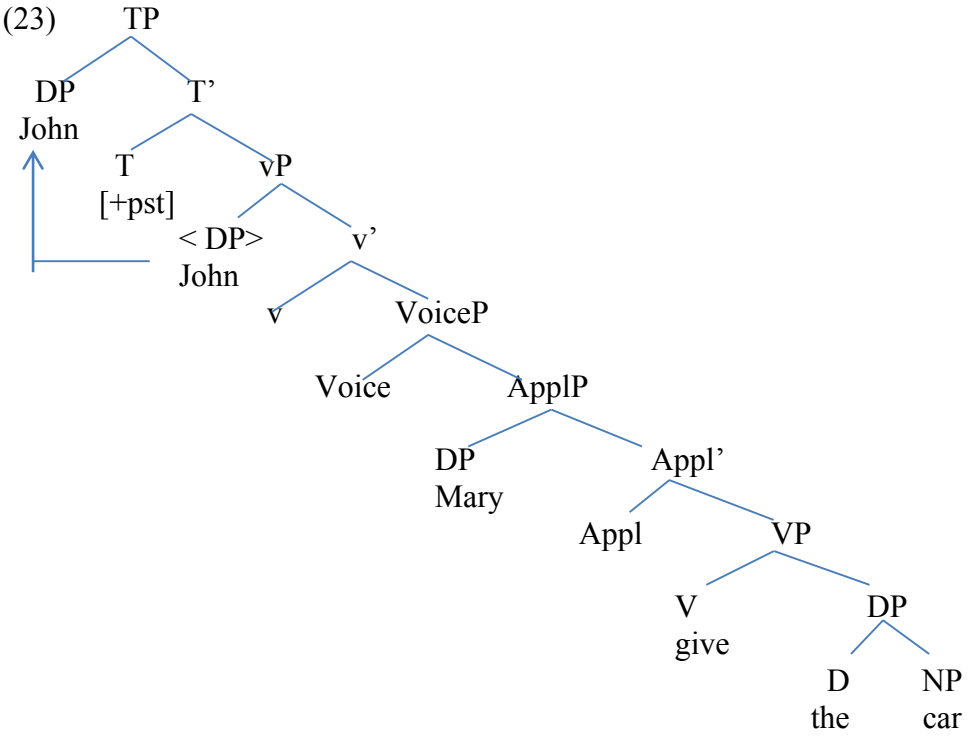
Kayne (1985: 104) argues that the order [V PP Prt] is excluded on the grounds that a PP cannot be the subject of a small clause. But it does not seem that such a principle can exclude (21), where there is no PP subject of a small clause.

The particle facts are sufficient to disprove a DP movement analysis (such as the one illustrated in (21)). But the derivation in (22) raises a number of further questions: (a) What is the structure of particle constructions? (b) How does one obtain the two possible word orders with particles and prepositional datives in (19a,b)? For brevity's sake, I do not purse these issues here.

7. Extraction of Indirect Object

The analysis in (17) raises the question of whether there is a VoiceP projection in the double object construction in (1a), where there is no VP smuggling. Assuming that such a VoiceP exists in (1a), the full structure is given below (once again leaving out head movements):

(23)



Such a representation may cast light on the fact that the goal DP in a double object construction resists extraction (see Postal 2010: 79, Baker 1997: 92):

(24) Fillmore (1965: 12-13)
a. Who did you give this book to?
b. *Who did you give this book?

In my idiolect, examples such as (24b) are grammatical (see Postal 2010: 401, fn. 3 for some references to the issue of variability). However, as reflected in the discussion of Postal 2010, quite a few authors reject similar sentences.

If we assume that there is a VoiceP in (23), it is possible to give an account of (24b) in terms of the following generalization (see Collins 2005c and Collins and Namaseb 2011 on N|uu where extraction of indirect objects is only possible if there is a resumptive pronoun):

(25) The null Voice head cannot be stranded.

I leave for future work the question of whether this assumption can also account for the long list of properties given in Postal (2010: section 3.2) of the first object of a double object construction (e.g., inability to undergo HNPS) (see Baker 1997: section 3.1 and Kayne 1983: 195 for a related proposals).

Some supporting evidence for (25) comes from the following extractions (similar facts hold for *inside and off)*. On the assumption that *out* in (26a) selects for an overt or null preposition, (26b) shows that only the overt preposition allows extraction.

(26) a. The rabbit jumped out (of) the window.
b. Which window did the rabbit jump out *(of)?

Collins (2007:5) gives independent evidence that extraction of the complement of null prepositions is unacceptable.

7. Conclusion

In this short squib, I have shown that the dative alternation should be understood in terms of smuggling, hence bringing it closer to the passive (see Collins 2005a) and raising over an experiencer (see Collins 2005b).

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