

Remarks and Replies

Double Objects Again

Sigrid Beck
Kyle Johnson

In this article, we explore the interaction of the verb *again* with double object constructions and the corresponding NP + PP constructions. The restitutive reading that *again* gives rise to in combination with these predicates supports an analysis of double object constructions according to which they contain a small clause with a head predicate HAVE, and an analysis of the corresponding NP + PP constructions that is not transformationally related and varies according to the verb contained in the structures.

Keywords: double object constructions, resultatives, restitutive *again*, lexical decomposition (in syntax), complement structure

1 Introduction

This article provides evidence from semantics for a particular view of the structure of English double object constructions and of their corresponding NP + PP constructions, as exemplified by (1a) and (1b). We will call (1a) the *double object frame* and (1b) the *NP + PP frame*.

- (1) a. Satoshi sent Thilo the Damron Guide.
b. Satoshi sent the Damron Guide to Thilo.

A modernized version of Kayne 1984c associates these two sentences with the structures in (2a) and (2b), respectively.¹

- (2) a. [Satoshi [sent [_{XP} Thilo [_{X'} X the Damron Guide]]]]
b. [Satoshi [v [_{VP}[_{NP} the Damron Guide] [sent [_{PP} to Thilo]]]]]

According to this view, the double object frame involves a small clause constituent combining the first and second object. In the NP + PP frame, on the other hand, the verb first combines with

We are grateful to Elena Anagnostopoulou, Jonathan Bobaljik, Željko Bošković, Uli Sauerland, Yael Sharvit, Ellen Woolford, the participants of the spring 2003 University of Massachusetts syntax seminar, the participants of the fall 2002 University of Connecticut semantics seminar, and two anonymous referees for comments and discussion. Our thanks to Thilo Götz and Satoshi Tomioka for the examples.

¹These representations embed Kayne's proposals into Larsonian models of the VP (see Larson 1988, Pesetsky 1995, Bruening 2001).

the PP, and then the resulting constituent combines with the NP via another verbal head and head movement.

From a semantic point of view, these structures are unexpected. A naïve view of the meaning of *send*, for example, would make this verb a three-place relation, represented as something like ‘send(Thilo)(Damron Guide)(Satoshi)’, in both the above examples. The additional structure that (2a) and (2b) contain is thus superfluous, and in the case of (2a) even an obstacle to normal compositional interpretation.

Our goal in this article is to resolve this apparent mismatch of semantic and syntactic analysis. We show that the above view of the syntax of these constructions receives unexpected support from the interpretational possibilities that they have in combination with the adverb *again*. *Again* will be used as a probe into the fine compositional structure of VPs like the ones above. We will confirm the fundamental aspects of the above analyses and refine them in several ways.

Section 2 of the article summarizes the (for us) central aspects of the discussion leading up to the above proposals. Section 3 introduces *again* as a test for the internal structure of VPs. This test is applied to the double object frame and the NP + PP frame in section 4. Section 5 concludes the article.

2 State of Affairs

Many have entertained the notion that there is a rule that relates the constructions illustrated in (1a) and (1b). This is suggested by the fact that it is possible to learn that a newly coined verb licenses one of them and automatically know that it licenses the other (see Marantz 1984 for this argument, and Gropen et al. 1989 for discussion). This is explained if there is a rule that ties the double object frame together with the NP + PP frame, making it sufficient to know that a verb licenses one if it licenses the other.

Frequently, the rule involved has been taken to be syntactic in nature (see, among many others, Fillmore 1965, Emonds 1972, 1976, Oehrle 1976, Baker 1988, Larson 1988). The leading idea under this view is that the two frames are simply different surface manifestations of the same underlying structure. Typically, this approach posits that the NP + PP frame represents the underlying structure from which the double object frame is transformationally derived.

There is evidence, however, that the two frames instead have different underlying structures and are not related by transformation. This evidence, then, suggests that the rule relating (1a) and (1b) must be found somewhere else, a likely candidate being the lexicon (see Gropen et al. 1989, Pesetsky 1995). We report here an argument from Kayne (1984c) to this end that is structural in nature and based on nominalizations.

With certain restrictions, deverbal nominalizations allow the object of the verb to surface either as the genitive of the resulting NP or inside an *of*-phrase.

- (3) examine the problem \Rightarrow
 the examination of the problem
 the problem’s examination

But this is only possible if the “object” of the verb is its logical object, that is, its argument. It

is not possible if it is instead the subject of a small clause, for example. The paradigm supporting this generalization originates with Ross (1974).

- (4) believe Thilo handsome \Rightarrow
 *the belief of Thilo handsome
 *Thilo's belief handsome

In this way, then, nominalizations can be used to determine whether the NPs that follow a verb are that verb's arguments or not. On this basis, Kayne argues that the first NP following a verb in the double object frame is not that verb's argument because in nominalizations it behaves like *believe* and not like *examine*.

- (5) present Satoshi the ball \Rightarrow
 *the presentation of Satoshi of the ball
 *Satoshi's presentation of the ball

In the NP + PP frame, by contrast, the first NP does behave like the verb's argument.

- (6) present the ball to Satoshi \Rightarrow
 the presentation of the ball to Satoshi
 the ball's presentation to Satoshi

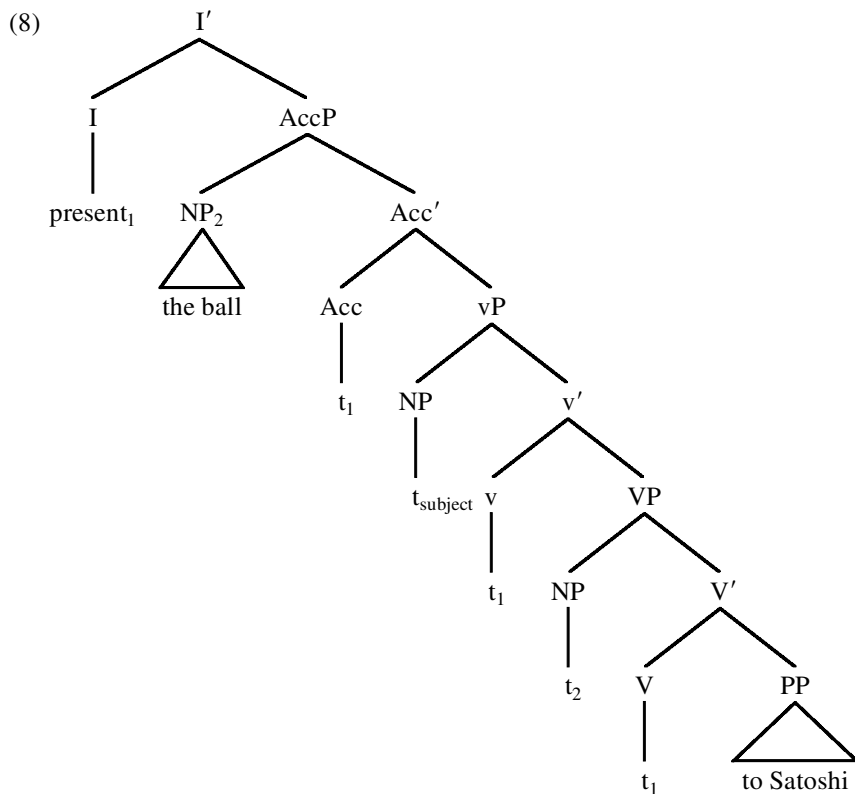
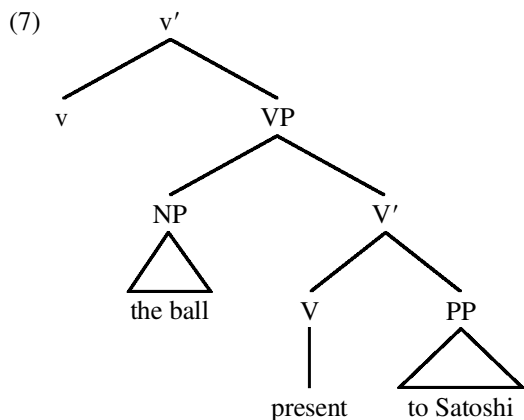
Kayne proposes that the two NPs following a verb in the double object frame are embedded in a small clause in much the same way that the two phrases following *believe* in (4) are. Just as *Thilo* in (4) is the subject of a small clause, then, Kayne proposes that *Satoshi* is the subject of a small clause in (5).²

Note that the same reasoning leads to the conclusion that the second NP of the double object frame is also not a direct object of the verb. It too cannot appear in nominalizations in the genitive, or marked with *of* (**the presentation of Satoshi of the ball* and **the ball's presentation of Satoshi* are both ungrammatical). And it fails to passivize or object-shift past participles (see Johnson 1991), both necessary criteria for objecthood. Contrary to appearances, then, neither NP of the double object frame is an argument of the verb.

If we adopt a Larsonian (Larson 1988, 1990), binary-branching representation of VPs, we can express the different structures that Kayne's proposal would give to the double object and NP + PP frames as follows. The NP + PP frame would place the two complements in the specifier and complement positions of a phrase headed by the verb, and this VP would be embedded in

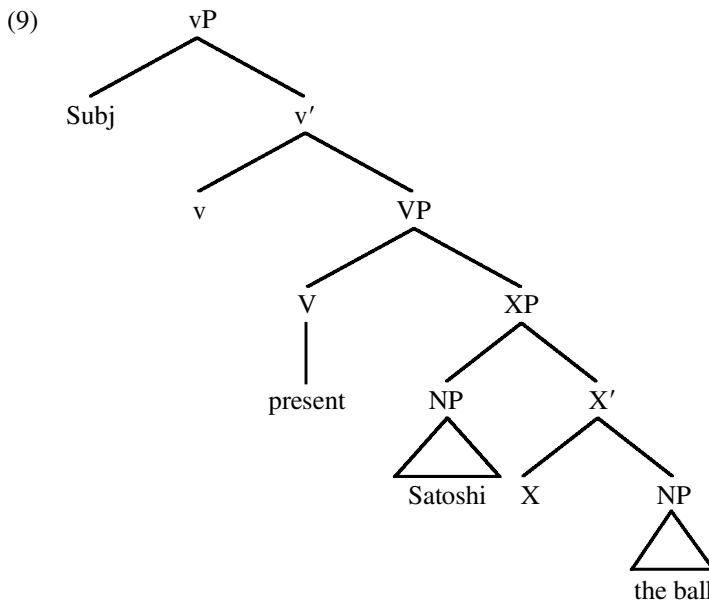
² We favor Kayne's (1984c) account of these data over, for instance, Pesetsky's (1995) for the following reasons. Kayne's proposal relates the absence of the double object frame in nominalizations to a more general fact about the complementation of nominals that follows almost immediately from independent properties of NPs. The general fact is that nouns do not take complements across which the Case-marking or A-movement relation is allowed. Thus, there are no 'raising' or exceptional Case-marking nouns, nor do nouns take small clauses. This plausibly follows from the fact that clausal complements to nouns are islands, as indicated by the Complex NP Constraint (see Ross 1967), and the A-movement/Case-marking relation is subject to island constraints. Kayne's proposal removes the mysteriousness of the absence of double objects in nominalizations by reducing it to this larger, expected generalization. Note also that Kayne's proposal is corroborated by the fact that the first object of the double object frame behaves like a subject of a small clause with respect to extraction; see (11) and (12).

another phrase (“vP”) whose head has no phonological reflex (for the existence and nature of vP, see Hale and Keyser 1993, 1997, Kratzer 1996, and much subsequent work). There is controversy about which argument goes into which position inside VP; we will take the position that the NP occupies the specifier position, as in (7).



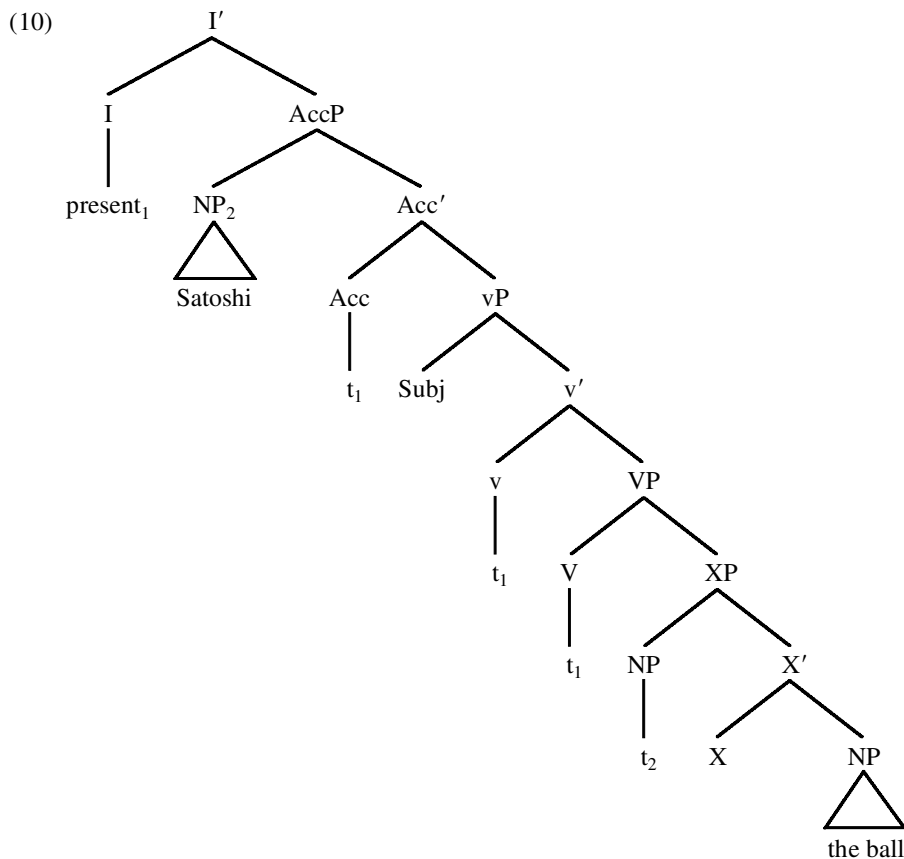
There are various ways of deriving a surface form from this underlying representation. One option is to move the verb through the position occupied by *v* and into a higher I^0 position. In addition, the ‘object’ NP is moved into a position that determines its Case—a position located between the surface position of the verb and *vP*. There are presently many differing proposals about how to operationalize this system; any of them will do for our purposes. For concreteness, we will move the object NP into the specifier of a functional projection, *AccP*, responsible for assigning accusative Case. The verb moves to a yet higher functional projection that we will call simply I^0 . From (7), then, the surface representation of the NP + PP frame will be (8). This is a standard way of representing two-object verbs, and the NP + PP frame is simply one of these.

By contrast, under Kayne’s proposal the double object frame has a small clause hidden in it, which gives it an underlying representation like (9).



X is the silent head of the small clause. From the underlying (9), the same verb movement + object movement form the surface representation, shown in (10).

That the first NP in the double object frame has a different status than the first NP in the NP + PP frame is corroborated by other syntactic phenomena besides nominalizations. For instance, extraction data like those in (11) indicate that the first NP of the double object frame is an island in a way that the NP of the NP + PP frame is not.



- (11) a. What did you send a book about to my friend?
 b. *Who did you send a friend of a book?

This is expected on the difference just posited for these two constructions, as the subject of a small clause is known to constitute an island for extraction and differs in this regard from “true” objects (see Ross 1967, Kayne 1984a, Chomsky 1986, Diesing 1992, and references therein).

- (12) a. Who did you visit a friend of yesterday?
 b. *Who did you believe a friend of satisfied?

These are the syntactic reasons, then, for giving these two frames different underlying structures. A complete theory would link the many other unique properties of the double object frame to the existence of this small clause.³ But that’s not what we will do here.

³ The most famous of which are the scope rigidity of the two objects (see Barss and Lasnik 1986, Richards 1997, Bruening 2001), its behavior in particle constructions (see Kayne 1984b, Den Dikken 1992, Johnson 1991), the inability of the first object to undergo heavy NP shift (see Pesetsky 1982, Larson 1988), and the patterns of Case marking allowed (see Zaenen, Maling, and Thráinsson 1985, Collins and Thráinsson 1993).

In addition to syntactic contrasts such as these, there are semantic reasons for believing that the double object frame and the NP + PP frame are not mere surface variants of the same sentence. There are sometimes truth-conditional differences between a double object frame sentence and the corresponding NP + PP frame sentence. Moreover, Green (1974) argues that these differences form a pattern, which we suggest gives a clue to the identity of X heading the small clause in the double object frame.

Green observes several differences between these frames. One that we will discuss here is that the double object frame always has a meaning component that is not necessarily found in the NP + PP frame: specifically, a possession, or HAVE, component.⁴ Very roughly, the meaning of (1a) might be expressed with (13a).⁵ By contrast, the NP + PP frame does not necessarily include the HAVE component in its meaning. The meaning of (1b) might be expressed with (13b).⁶

- (13) a. [Satoshi's sending the Damron Guide] CAUSE [BECOME [Thilo HAVE the Damron Guide]]
 b. [Satoshi's sending the Damron Guide] CAUSE [BECOME [the Damron Guide is AT Thilo]]

Green's conclusion is built on the claim that the meaning of every double object frame has properties that derive from the presence of HAVE, and that these properties are not always present in the meaning of the NP + PP frame. The contrast in (14) is one resulting difference.

- (14) a. Satoshi sent the Damron Guide to Tübingen.
 b. #Satoshi sent Tübingen the Damron Guide.

Because the indirect object (i.e., the PP) in the NP + PP frame denotes a location, it is free to refer to inanimate places as well as to animate ones. But because the double object frame makes the indirect object (i.e., first NP) the subject of a HAVE relation, it is confined to referring to objects that can be possessors. The oddness of (14b) derives from imputing to Tübingen this ability. All motion verbs that can appear in the double object and NP + PP frames show this kind of contrast. (Motion verbs of this sort include *kick*, *throw*, *mail*, *ship*, *hurl*, *push*, *roll*, *toss*.)

Another contrast pointing in the same direction can be seen in (15).

- (15) a. Thilo cooked kisimen for Satoshi.
 b. Thilo cooked Satoshi kisimen.

⁴ We must account for such cases as *deny* and *spare*. A sentence like (i) can be forced into this pattern only by allowing NOT-HAVE, as in (ii), to be part of the generalization.

(i) Thilo denied Satoshi the victory.

(ii) Thilo's denying CAUSE [BECOME [Satoshi NOT-HAVE the victory]]

Or, preferably, we can fold these cases into one of the other classes of verbs that license two NPs in their VP but are plausibly not members of the double object frame (e.g., *Satoshi elected Thilo class president* or *The book cost Thilo 60 euro*).

⁵ See Harley 1996, 2003, for an attempt to link the underlying presence of HAVE in the double object construction to its crosslinguistic distribution.

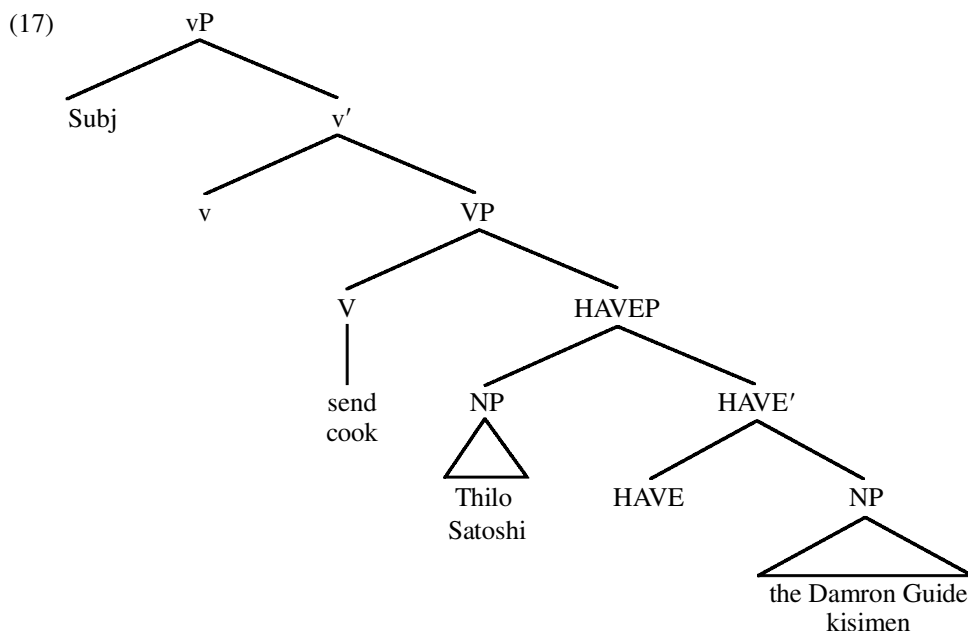
⁶ We express the locative meaning that *to* has in this context with (*is*) AT.

The indirect object in (15a) has a significantly wider range of roles than does the indirect object in (15b). It's possible to understand (15a) to describe a situation in which Thilo cooked kisimen in place of Satoshi—perhaps Satoshi doesn't know the recipe, for example, but is supposed to bring some to a potluck. But that meaning is absent in (15b), which can only mean that Thilo cooked kisimen for Satoshi to have. This follows if the meaning of *cook* in the double object frame is roughly (16a), whereas in the NP + PP frame it is something like (16b).

- (16) a. [Thilo's cooking kisimen] CAUSE [BECOME [Satoshi HAVE kisimen]]
 b. [Thilo's cooking kisimen] CAUSE [BECOME [EXIST (kisimen)]] for the benefit of Satoshi

Note that in (16b), *for Satoshi* is a kind of modifier and therefore has a considerably different status than does the argument *Satoshi* in (16a). This difference between the double object and NP + PP frames is reproduced with every benefactive verb that can appear in both these frames (e.g., *bake, boil, fry, knit, sew, cut, make, build, fashion*).

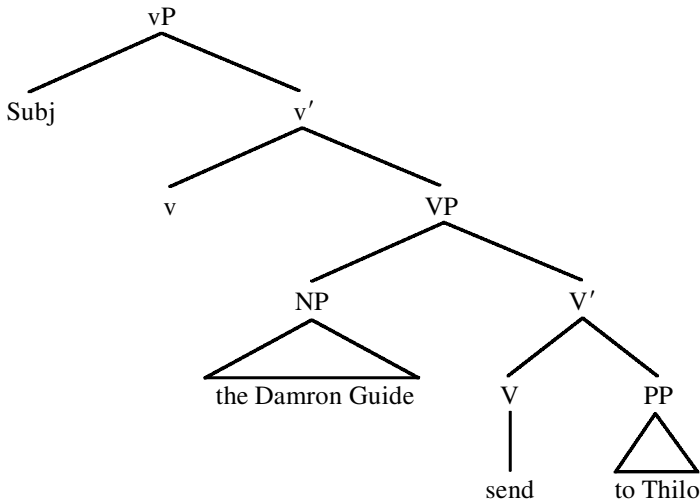
The syntactic and semantic evidence can be tied together if the small clause head X is the source of the constant HAVE meaning component of the double object frame. Thus, the double object frame for *send* and *cook* would be as in (17).⁷



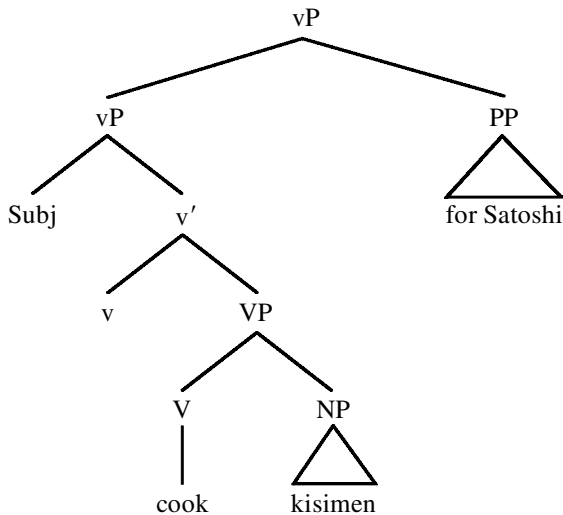
By contrast, the underlying representation for the NP + PP frames for these verbs would be as in (18).

⁷ In Johnson 1991, HAVEP is posited to be a kind of DP, and in Pesetsky 1995 it is taken to be a PP. Its syntactic category is not important for our purposes here.

(18) a.



b.



In (18b), we have adjoined the modifier *for Satoshi* to vP.⁸ (We return to the position of the *for*-phrase in section 3.)

What this evidence shows, then, is that the double object frame differs from the NP + PP frame in two correlative ways. The lexical semantics of the predicates used in one frame differs

⁸ The literature is rife with alternatives, but almost all of them share with (18b) what is crucial for us: that the verb and its arguments form a constituent underlyingly that does not include the modifier. (Interestingly, Larson 1988 is one of the rare counterexamples to this.)

from the semantics of the predicates used in the other frame, and this difference is reflected in the underlying structure of the double object and NP + PP frames. These differences cannot be captured by theories that relate the double object and NP + PP frames transformationally. Transformations as they are conceived in modern theory do not change the lexical semantics of predicates and so would be incapable of capturing this difference between the two frames. The difference in nominalizations that these two frames exhibit also speaks against a transformational relationship. The nominalization paradigm shows that an argument's ability to be associated with the Case particle *of* is diagnostic of its occupying complement position underlyingly. What is needed, then, is something that allows the first object of the NP + PP frame, but not the double object frame, to occupy complement position underlyingly. Because transformations cannot distinguish underlying representations, this contrast is beyond its reach. We conclude that the two frames have different structures, namely, the ones exemplified in (7)/(8) and (9)/(10).

In this article, we will produce new evidence that largely confirms this picture of the difference between the double object and NP + PP frames. The evidence comes from the behavior of the adverb *again*. Section 3 sketches an analysis of *again* from von Stechow 1995, 1996, which is applied to the double object and NP + PP frames in section 4. The results confirm the essentials of the analysis introduced here, but will lead to refinements of both the double object frame and the NP + PP frame.

3 A Structural Theory of *Again*

In this section, we introduce our proposed test for the internal makeup of the predicates from section 2: the adverb *again*. The theory we discuss is that proposed by von Stechow (1995, 1996), who argues that the different readings that *again* gives rise to serve as a probe into the syntactic and semantic composition of predicates. Section 3.1 illustrates the basic theory. Section 3.2 summarizes the crucial argument for the structural nature of the theory.

3.1 Repetitive and Restitutive *Again*

The basic fact to be captured regarding *again* is the ambiguity of sentences like (19); the two possible readings are paraphrased in (20).

(19) Sally opened the door again.

- (20) a. Sally opened the door, and that had happened before. (repetitive)
 b. Sally opened the door, and the door had been open before. (restitutive)

On both interpretations, what makes the sentence in (19) appropriate is some previous eventuality. On the repetitive reading, that event has to be a previous opening of the door by Sally. On the restitutive reading, by contrast, that eventuality is the door's being open.

The repetitive reading in (20a) is the straightforward one. For this reading, we assume the interpretation of *again* given in (21) (see, e.g., von Stechow 1996, Fabricius-Hansen 2001 for recent discussion and references). *Again* operates on a property of events and indicates repetition of events characterized by that property. More precisely, *again* expresses a relation between a

property of events and an event. It presupposes that there was a previous event that has that property, and asserts that the property is true of the event.⁹

$$(21) \llbracket \text{again} \rrbracket (P\langle i, t \rangle)(e) = 1 \text{ iff } P(e) \ \& \ \exists e' [e' < e \ \& \ P(e')] \\ = 0 \text{ iff } \sim P(e) \ \& \ \exists e' [e' < e \ \& \ P(e')] \\ \text{undefined otherwise.}$$

The input to *again* on the repetitive reading is the predicate of events given (very roughly) in (22): openings of the door by Sally. This can be straightforwardly derived from the sentence in (20); we will see one particular way of doing so below.

$$(22) \lambda e. \text{Sally_opened_the_door}(e)$$

More challenging, and the source of considerable debate in the literature, is the restitutive reading. Von Stechow (1995, 1996) assumes that the semantic contribution of *again* is always the one in (21); that is, *again* always indicates repetition. The difference between the two readings lies in what event is repeated. On the restitutive reading, only the result state of the opening of the door is repeated; thus, *again* operates on the predicate of events in (23).

$$(23) \lambda e. \text{open}_e(\text{the_door})$$

The problem is how to derive the property of events in (23) from the syntactic structure of (19). Von Stechow (following earlier suggestions by McCawley (1968), among others) proposes that a constituent with the meaning in (23) is in fact part of the structure of (19). *Again* adjoins to, and hence modifies, that constituent on the restitutive reading of the sentence. The ambiguity of this and similar examples is thus analyzed as purely structural in nature.

Since there is no obvious constituent with the meaning ‘the door is open’ in our example, this analysis relies on a more abstract structure for VPs with the verb *open* (and other verbs that show a similar ambiguity). *Open* is decomposed into the adjective *open*, plus other material contributing a causal and a development component. This decomposition is reflected in the syntactic structure. An example analysis in the style of von Stechow (1995, 1996) is given in (24)–(26). The underlying structure of (24a) is (24b). (24c) is derived by head movement from (24b). The underlying structure (24b) can be compositionally interpreted as indicated in (26), using the interpretation in (25) for V*. This yields the desired interpretation.

- (24) a. Sally opened the door.
 b. $[_{VP} \text{ Sally } [_{V'} v \ [_{VP} V^* \ [_{VP} \text{ BECOME } [_{AP} \text{ open the door}]]]]]$
 c. $[_{VP} \text{ Sally } [_{V'} v \ [_{VP} V^* + \text{open}_I \ [_{VP} \text{ BECOME } [_{AP} t_I \text{ the door}]]]]]$

$$(25) \llbracket V^* \rrbracket = \lambda Q \lambda x \lambda e \exists P [P_e(x) \ \& \ \exists e' [Q(e') \ \& \ \text{CAUSE}(e')(e)]]$$

- (26) a. $\lambda e \exists P [P_e(\text{Sally}) \ \& \ \exists e' [\text{BECOME}_{e'}(\lambda e''. \text{open}_{e''}(\text{the_door})) \ \& \ \text{CAUSE}(e')(e)]]$
 b. There was an action of Sally’s that caused the door to become open.

⁹Like von Stechow, we assume a standard framework of compositional translation into a formal language. The logic we use makes use of event variables (see Davidson 1967). The semantic type of events is $\langle i \rangle$.

Von Stechow's proposal is similar to suggestions by Hale and Keyser (1993, 1997); see von Stechow 1996 for some discussion. We assume the standard interpretations of the expressions CAUSE and BECOME in (26a). Informal descriptions of the intended meanings are given below (see Lewis 1973, Dowty 1979, von Stechow 1996 for the formal details).

(27) $[[\text{BECOME}]](P)(e) = 1$ iff e is the smallest event such that P is not true of the prestate of e but P is true of the result state of e .

(28) $[[\text{CAUSE}]](e')(e) = 1$ iff e' occurred, e occurred and if e had not occurred, then e' would not have occurred.

The assumption that the verb *open* has the structure in (24b) gives us a straightforward way of deriving the ambiguity. *Again* has two different adjunction sites and consequently two different constituents it can modify. The two structures for the ambiguous example (19) are given in (29). (29a) can straightforwardly be interpreted as in (31)—the desired restitutive reading. (29b) is interpreted as in (30), a complete derivation of the repetitive reading.¹⁰

(29) a. $[_{VP} \text{ Sally } [_{V'} \text{ V } [_{VP} \text{ V}^* [_{VP} \text{ BECOME } [_{AP} [_{AP} \text{ open the door}]] \text{ again}]]]]]$
 b. $[_{VP} [_{VP} \text{ Sally } [_{V'} \text{ V } [_{VP} \text{ V}^* [_{VP} \text{ BECOME } [_{AP} \text{ open the door}]]]]]] \text{ again}]$

(30) a. $\lambda e''. \text{again}_{e''}(\lambda e. \exists P[P_e(\text{Sally}) \ \& \ \exists e'[\text{BECOME}_{e'}(\lambda e^*. \text{open}_{e^*}(\text{the_door})) \ \& \ \text{CAUSE}(e')(e)]]]$
 b. Once more, there was an action of Sally's that caused the door to become open.

(31) a. $\lambda e. \exists P[P_e(\text{Sally}) \ \& \ \exists e'[\text{BECOME}_{e'}(\lambda e''. \text{again}_{e''}(\lambda e^*. \text{open}_{e^*}(\text{the_door}))) \ \& \ \text{CAUSE}(e')(e)]]]$
 b. There was an action of Sally's that caused the door to become once more open.

The analysis is thus that on the restitutive reading, *again* has its regular meaning in (21), but syntactically adjoins to and semantically modifies the result state of the event described by the sentence.¹¹

While the result state in (19) is not visible, there are examples in which it is more immediately obvious that the restitutive reading of *again* can be derived by having *again* modify a result-state-denoting constituent. These are examples with resultative constructions such as (32). (32) is ambiguous between (33a) and (33b).

(32) Sally hammered the metal flat again.

(33) a. Sally hammered the metal flat, and that had happened before. (repetitive)
 b. Sally hammered the metal flat, and the metal had been flat before. (restitutive)

¹⁰ For simplicity, semantically vacuous movements will be ignored in this and in all following representations for which we give an interpretation.

¹¹ In principle, the structure would permit adjunction of *again* just above the BECOME operator, yielding a third reading. It is not easy to document conclusively either the presence or the absence of such intermediate readings (see von Stechow 1996, Rapp and von Stechow 1999 for some discussion). In general, however, intermediate readings seem to be absent. We will disregard them here.

Resultatives will become important later. We will use this opportunity to introduce our assumptions about resultatives under the pretext of further illustrating the workings of restitutive *again*. We first provide an analysis of the plain resultative in (34), following in the crucial respects the analysis in von Stechow 1995. We assume, with von Stechow, the structure in (35) (rendered in the notation of Heim and Kratzer (1998), in which the index 1 adjoined to VP is a binder index for semantic variables).¹²

(34) Sally hammered the metal flat.

(35) [[the metal] [1 [_{VP} Sally v [_{VP} t₁ [_{V'} hammered [BECOME [_{SC} PRO₁ flat]]]]]]]]

This structure is not interpretable with standard interpretational mechanisms. The transitive verb *hammer* needs to combine with a type $\langle e \rangle$ object, but finds instead something of type $\langle i, t \rangle$. This type mismatch would normally lead to uninterpretability (hence ungrammaticality) of the whole structure. Von Stechow proposes that a special interpretation principle is responsible for the combination of the verb with the resultative small clause. Our version of this principle is given in (36).

(36) *Principle (R)* (following von Stechow 1995)

If $\alpha = [V\gamma SC\beta]$ and β' is of type $\langle i, t \rangle$ and γ' is of type $\langle e, \dots \langle e, i, t \rangle \rangle$

(an n -place predicate), then

$\alpha' = \lambda x_1 \dots \lambda x_n \lambda e. \gamma'_e(x_1) \dots (x_n) \ \& \ \exists e' [\beta'(e') \ \& \ \text{CAUSE}(e')(e)]$

Let's apply the principle to the example structure in (34); the relevant substructure is (37).

(37) [_{V'} hammered [BECOME [_{SC} PRO₁ flat]]] \rightarrow

$\lambda x \lambda y \lambda e. \text{hammer}_e(x)(y) \ \& \ \exists e' [\text{BECOME}_{e'}(\lambda e'' \text{flat}_{e'}(x_1)) \ \& \ \text{CAUSE}(e')(e)]$

The result of this application of Principle (R) can be combined with the rest of the structure according to standard assumptions, yielding (38a). A paraphrase is given in (38b). This captures the intuitive interpretation of resultatives.

¹² Our assumptions differ from von Stechow's in one respect: while we represent the BECOME component in the meaning of resultatives in the structure, for von Stechow it was part of the interpretation principle in (36) below. We suggest that resultatives like the ones in (i), and perhaps also the ones in (ii), require a version of Principle (R) that does not entail a change of state. (ib) is paraphrased in (iii) for illustration.

- (i) a. The string held the pole upright.
b. The bracket held the battery in place.

- (ii) a. The dam kept the water out.
b. The candle kept the tea warm.
c. The rug kept the smell outside.

- (iii) The bracket holding the battery caused the battery to remain in place.

Dissociating the BECOME component from Principle (R) will also be helpful in the analysis of two-object verbs; see section 4.

- (38) a. [[the metal] [I [_{VP} Sally v [_{VP} t_i [_{V'} hammered [_{SC} PRO_i flat]]]]]] →
 λe .hammer_e(the₋metal)(S) &
 $\exists e'$ [BECOME_{e'}($\lambda e''$.flat_{e''}(the₋metal)) & CAUSE(e')(e)]
 b. Sally's hammering the metal caused it to become flat.

Von Stechow (1995) suggests that Principle (R) may be related to the crosslinguistic variation observed with respect to the availability of resultatives (on the crosslinguistic variation, see also Green 1974, Levin and Rapoport 1988, Aske 1989, Talmy 1991). If a language does not have Principle (R), resultatives will be uninterpretable, hence ungrammatical. (Un)availability of Principle (R) can thus account for (un)availability of resultative constructions in a language. Beck and Snyder (2001) connect Principle (R) to a parameter of crosslinguistic variation suggested by Snyder (2001). Snyder presents evidence from crosslinguistic variation and language acquisition that the availability of a whole set of constructions is governed by one parameter setting. Those constructions, which he calls complex predicate constructions, include resultatives, verb-particle constructions, double object constructions, *to*-datives, and *put*-locatives. He further observes that the availability of complex predicate constructions depends on whether or not a language has productive N-N compounding: only a language that has compounding can have the parameter setting that permits complex predicate constructions. Hence, he suggests a parameter responsible for compounding. A positive setting for the compounding parameter is a necessary (but not a sufficient) condition for acceptability of complex predicate constructions.

Beck and Snyder (2001) propose that availability of Principle (R) in the interpretation component is a crucial aspect of permitting complex predicate constructions. This leads us to expect that Principle (R) will play a role in the interpretation of all the constructions Snyder calls complex predicate constructions. The gentle reader will now be alerted to the connection between resultatives and two-object verb constructions that Snyder's work establishes. We will come back to this point in section 4.

Once the above analysis of resultatives is in place, it is obvious that resultatives offer an adjunction site for *again* that yields a restitutive reading. The two interpretations of (32) can be derived with the LF representations in (39).

- (39) a. [_{VP}[the metal]][I [_{VP}[_{VP} Sally v [_{VP} t_i [_{V'} hammered [BECOME [_{SC} PRO_i flat]]]]]]
 again]]]
 b. [_{VP}[the metal]][I [_{VP} Sally v [_{VP} t_i [_{V'} hammered [BECOME [_{SC}[_{SC} PRO_i flat]
 again]]]]]]]]

Using Principle (R), we can interpret these structures straightforwardly as in (40) and (41), respectively.

- (40) a. λe .again_e($\lambda e'$.hammer_{e'}(the₋metal)(Sally) &
 $\exists e''$ [BECOME_{e''}($\lambda e'''$.flat_{e'''}(the₋metal)) & CAUSE(e'')(e')])
 b. Once more, Sally's hammering the metal caused it to become flat.
 (41) a. λe .hammer_e(the₋metal)(Sally) &
 $\exists e'$ [BECOME_{e'}($\lambda e''$.again_{e''}($\lambda e'''$.flat_{e'''}(the₋metal)) & CAUSE(e')(e))]
 b. Sally's hammering the metal caused it to become once more flat.

The resultative example thus makes it intuitively more plausible that restitutive *again* syntactically attaches to a result-state-denoting constituent, since in this example we have an obvious candidate for that constituent in the resultative small clause.¹³ In a nutshell, on von Stechow's theory of restitutive *again*, *again* always indicates repetition. Therefore, all properties of events that can, intuitively, be modified by *again* must be available as the denotations of syntactic constituents that *again* attaches to.

3.2 Evidence for a Structural Analysis

It might be thought rather costly to introduce the whole decomposition structure in (24) into the syntax for the purposes of deriving the ambiguity in (19). Indeed, other researchers have argued that result states are available on a conceptual level, and that *again* has a reading in which it indicates repetition of those result states rather than of the property of events that it modifies (see, e.g., Fabricius-Hansen 2001 for a recent proposal in this spirit, and references therein). Under such an analysis, *again* would no longer be a detector of constituents that denote result states, since the result states need not be the meaning of any constituent in the syntactic structure. The ambiguity in (19) would be lexical (two interpretations of *again*) rather than structural.

Von Stechow's most important argument for the syntactic solution is the fact that the availability of the restitutive reading hinges on syntactic context. Since we will use *again* as an indicator of syntactic structure, we will briefly review this argument. It comes from the German word order facts illustrated by (42). A restitutive reading of *wieder* 'again' is only possible when *wieder* follows the direct object. If *wieder* precedes the object, only the repetitive reading is available.

- (42) a. (weil) Satoshi die Tür wieder öffnete (repetitive and restitutive readings)
 because Satoshi the door again opened
 b. (weil) Satoshi wieder die Tür öffnete (repetitive reading only)
 because Satoshi again the door opened

Von Stechow's explanation for these facts is that the direct object in German obligatorily moves to a fairly high position in the structure (Spec,Agr₀ for von Stechow; AccP for us). That position is higher than the elements in the structure that express the CAUSE BECOME meaning compo-

¹³ This analysis of restitutive readings in resultatives runs into a problem when the object NP is an indefinite, as in (ia). The sentence has a reading whose presupposition is given in (ib).

- (i) a. Thilo painted a cone blue again.
 b. There had been a blue cone before.

The problem is that in order for the presupposition to come out existential, *a cone* should take scope within the resultative small clause. On the other hand, in order to establish an anaphoric relationship between the matrix and the resultative small clause (as shown in the structure in (38a) in the text), *a cone* needs to take scope in the matrix. This is reminiscent of the scope paradox discussed by Jäger and Blutner (2000) for the example in (ii).

- (ii) A Delaware settled in New Jersey again.

Our analysis of restitutive readings in the NP + PP frame inherits this problem (see section 4.2). We think that the problem is real, because syntactic evidence indicates that the control structure in (38a) is the right analysis (in particular, the NP in question is an object of the matrix verb, and therefore an anaphoric relationship has to be established to get the right result-state-denoting constituent). The only solution to this problem that we have found is to shift the type of the PRO in the small clause to the quantifier type $\langle\langle i, (e, t) \rangle, t \rangle$.

ment. Thus, when *wieder* precedes, and hence is higher than, the direct object, it must take scope over CAUSE BECOME. On the other hand, when *wieder* follows the direct object, it may take scope above or below CAUSE BECOME. The relevant structures are given in (43) and (44). The empty verbs are responsible for the CAUSE and BECOME components. In (43), *wieder* can adjoin either below the verb (to the small clause) or above the verb (to the vP), as indicated. In (44), word order tells us that the sister of *wieder* includes the entire vP. Thus, the example can have only the repetitive interpretation.

(43) [_{AccP}[die Tür]₂ Acc [_{vP} wieder [_{vP} t₁ v [_{vP} V* [_{vP} BECOME [_{AP} wieder [_{AP} t₂ öffnete]]]]]]]]]

(44) [_{AccP} wieder [_{AccP}[die Tür]₂ Acc [_{vP} t₁ v [_{vP} V* [_{vP} BECOME [_{AP} t₂ öffnete]]]]]]]]]

The data show that a proper analysis of restitutive *wieder* has to rely on syntactic structure. Conceptual availability of a result state is not sufficient for the existence of a restitutive reading.

The German facts can be reproduced in English. While (45a) is ambiguous, (45b) with *again* preceding the finite verb is unambiguously repetitive.

- (45) a. Thilo opened the door again. (repetitive and restitutive)
 b. Thilo again opened the door. (repetitive only)

Von Stechow's structural explanation extends straightforwardly to English. In (45a), as we showed earlier, two adjunction sites for *again* are possible. *Again* could adjoin to the small clause (resulting in a restitutive reading) or to vP (resulting in a repetitive reading).

(46) [_{vP}[_{vP} Thilo [_{v'} v [_{vP} V* [_{vP} BECOME [_{AP}[_{AP} open the door] again]]]]]] again]

On the other hand, it is clear that in (45b) the adjunction site of *again* is above I⁰ and must include vP.

(47) [_{IP} again [_{vP} Thilo [_{v'} v [_{vP} V* [_{vP} BECOME [_{AP} open the door]]]]]]]

We conclude that there is support for the structural nature of von Stechow's analysis in both German and English.¹⁴ His theory implies that the properties of events that *again* operates on

¹⁴ English data also provide support for von Stechow's account of certain counterexamples to the generalization just described. There are some verbs that, in combination with *wieder*, allow a restitutive reading even when *wieder* precedes the object. One of these is *verlassen* 'leave'.

- (i) Als Anna wieder das Haus verliess, war es dunkel. (repetitive and restitutive)
 when Anna again the house left was it dark
 'When Anna left the house again, it was dark.'
 (von Stechow 1996:sec. 6)

Von Stechow's account of these counterexamples is that the verbs in question allow objects to surface in a lower position. This allows *wieder* to be adjoined to the constituent that denotes the result state, and still precede the object. Interestingly, in the cases where our judgments are clear, these verbs in English do not allow the restitutive reading when *again* precedes the verb.

- (ii) Anna again left the house. (repetitive only)

This is expected on von Stechow's account, as his solution involves manipulating the relative positions of the object and the adverb, and in the English data it is the relative positions of the verb and adverb that matter.

are directly provided as the denotations of constituents in the syntax. *Again* adjoins to those constituents. The word order facts support this. Additional evidence that favors a structural theory over its alternatives has been presented by Beck and Snyder (2001). In what follows, we use this analysis of *again* to gather information about the predicates discussed in section 2.

4 *Again* and Two-Object Verbs

In this section, we will apply *again* as a test for constituent structure and for semantic composition to the constructions discussed in section 2. We first look at double object constructions and then compare them with the corresponding NP + PP frames. The result will be a refined version of the analyses from section 2.

4.1 *Double Objects and Again*

(48) is ambiguous between the repetitive reading in (49a) and the restitutive reading in (49b).

(48) Thilo gave Satoshi the map again.

(49) a. Thilo gave Satoshi the map, and that had happened before.

b. Thilo gave Satoshi the map, and Satoshi had had the map before.

According to the structural theory of *again*, *again* must operate on the two predicates of events given (roughly) in (50) for these readings.

(50) a. $\lambda e.$ Thilo_gave_Satoshi_the_map(e)

b. $\lambda e.$ have_{*e*}(the_map)(Satoshi)

The restitutive reading, in particular, requires the presence of a constituent whose meaning is (50b). This leads us to suggest the interpretation in (51) for (48) on that reading.¹⁵

(51) a. $\lambda e.$ give_{*e*}(Thilo) &

$\exists e'[\text{BECOME}_{e'}(\lambda e''.\text{again}_{e'}(\lambda e'''.\text{have}_{e'''}(\text{the_map})(\text{Satoshi}))) \& \text{CAUSE}(e')(e)]$

b. A giving by Thilo caused Satoshi to come to once more have the map.

¹⁵ The expression *give_e(Thilo)* in this and the following representations has to be read as 'e is a giving, whose agent is Thilo'. Our representation thus uses an impoverished meaning for the verb *give*, which only includes information about the type of the event and its agent (in the style of Parsons 1990). A more normal semantics would be *give_e(the_map)(Thilo)*: 'e is a giving of the map by Thilo'. Such a semantics would be derived from a structure like (ib) for (ia), as opposed to (54) in the text.

(i) a. Thilo gave Satoshi the map.

b. [Thilo [[the map]₁ [give [_{HAVEP} Satoshi HAVE pro₁]]]]

c. $\lambda e.$ give_{*e*}(the_map)(Thilo) &

$\exists _e'[\text{BECOME}_{e'}(\lambda _e''.\text{HAVE}_{e''}(\text{the_map})(\text{Satoshi})) \& \text{CAUSE}(e')(e)]$

Note that the referent of *the map* is the object of both *give* and HAVE; hence, there is an empty pronominal element in (ib) that is anaphorically related to the NP *the map*, which is an object of *give* in the matrix predicate. This structure would be analogous to example (34). It is, however, incompatible with the syntactic evidence from section 2, which shows that *the map* is not an object of *give*. Our structure in (54) follows that syntactic evidence and necessitates the impoverished verb meaning used in (51) and (52).

A fully specified interpretation for a double object *give* example without *again* therefore looks like this:

- (52) a. Thilo gave Satoshi the map.
 b. $\lambda e.give_e(\text{Thilo}) \ \& \ \exists e'[\text{BECOME}_e(\lambda e''.have_{e'}(\text{the_map})(\text{Satoshi})) \ \& \ \text{CAUSE}(e')(e)]$
 c. A giving by Thilo caused Satoshi to come to have the map.

According to section 2, the interpretation in (49b) would have to be derived from the structure in (53).

- (53) $[_{VP} \text{Thilo} [_{V'} v [_{VP} \text{give} [_{HAVEP} \text{Satoshi} [\text{HAVE} \text{the map}]]]]]$

This structure does not contain any elements that would carry the causal and development meaning components in (52b). We propose that double object constructions are interpreted analogously to resultative constructions, with the help of Principle (R). This suggestion is derived from Beck and Snyder's (2001) interpretation of Snyder's (2001) work. Accordingly, we suggest that the structure of double object constructions, like that of resultatives, contains a BECOME operator. More precisely, it looks like this:

- (54) $[_{VP} \text{Thilo} [_{V'} v [_{VP} \text{give} [\text{BECOME} [_{HAVEP} \text{Satoshi} [\text{HAVE} \text{the map}]]]]]]]$

Principle (R) allows us to combine the verb *give* with its sister. This crucial step is illustrated in (55). The interpretation of the whole structure will yield (52b), according to standard mechanisms of interpretation.

- (55) $[_{VP} \text{give} [\text{BECOME} [_{HAVEP} \text{Satoshi} [\text{HAVE} \text{the map}]]]] \rightarrow$
 $\lambda x \lambda e.give_e(x) \ \& \ \exists e'[\text{BECOME}_e(\lambda e''.have_{e'}(\text{the_map})(\text{Satoshi})) \ \& \ \text{CAUSE}(e')(e)]$

Note that with this analysis of the structure of a double object construction, *again* can find an adjunction site that yields the restitutive reading (the small clause) as well as adjunction sites that yield the repetitive reading (e.g., vP). Thus, our account makes the desired predictions. When *again* is adjoined to the small clause, as in (56), the interpretation in (57) results; and when it adjoins to vP, as in (58), the interpretation in (59) is derived.

- (56) Thilo [give [BECOME [**HAVEP**_{HAVEP} Satoshi HAVE the map] again]]

- (57) a. $\lambda e.give_e(\text{Thilo}) \ \& \ \exists e'[\text{BECOME}_e(\lambda e''.again_{e'}(\lambda e'''.have_{e'''}(\text{the_map})(\text{Satoshi}))) \ \& \ \text{CAUSE}(e')(e)]$

b. A giving by Thilo caused Satoshi to come to once more have the map.

- (58) $[_{VP}[_{VP} \text{Thilo} [\text{give} [\text{BECOME} [_{HAVEP} \text{Satoshi} \text{HAVE} \text{the map}]]]]] \text{ again}]$

- (59) a. $\lambda e.again_e(\lambda e'.give_e(\text{Thilo})) \ \& \ \exists e''[\text{BECOME}_e(\lambda e'''.have_{e'''}(\text{the_map})(\text{Satoshi}))) \ \& \ \text{CAUSE}(e'')(e')]$

b. Once more, a giving by Thilo caused Satoshi to come to have the map.

As a first conclusion, we see that the existence of a restitutive reading and the nature of that reading confirm the suggestions made in section 2 regarding the structure of double object constructions. The proposed small clause is available as the constituent that denotes the result state, and its head predicate HAVE yields the intuitively correct restitutive reading. Double objects are modeled after the structure and interpretation of resultatives, in that they include a BECOME predicate and are interpreted with the help of Principle (R).

The other types of double object verbs mentioned above have restitutive readings parallel to (48), as would be expected from the analysis sketched in section 2; see (60) and (61).

(60) *Benefactives*

Thilo sewed Satoshi a flag again.

- a. Thilo sewed Satoshi a flag, and that had happened before.
- b. Thilo sewed Satoshi a flag, and Satoshi had had a flag before.

(61) *Motion verbs*

Thilo sent Satoshi the map again.

- a. Thilo sent Satoshi the map, and that had happened before.
- b. Thilo sent Satoshi the map, and Satoshi had had the map before.

All types of double object verbs have restitutive readings, and that reading is the same across verbs: the first object is restored to possession of the second object. This confirms the existence of a small clause with a head predicate HAVE in all these data: *again*, on the restitutive reading, takes as its semantic argument a property of events of the possession type, and must modify the corresponding constituent in the syntax. We conclude that the combination of the analysis of double object constructions presented in section 2 and von Stechow's theory of *again* makes precisely the desired predictions.

Careful consideration of the semantics of double object constructions leads to one complication of the analysis as it has been presented so far. Assuming that the structure and interpretation of (62a) and (63a) exactly parallel those of (52a) makes the wrong predictions about reaching the result states of the sewing and the sending, respectively. A similar point is made by Green (1974:122ff.).

(62) a. Thilo sewed Satoshi a flag.

- b. Thilo's sewing caused Satoshi to come to have a flag.

(63) a. Thilo sent Satoshi the map.

- b. Thilo's sending caused Satoshi to come to have the map.

The complication is that things could have gone wrong after the sewing, or after the sending, and that Satoshi never actually received the flag or the map, respectively. We are reminded of the so-called imperfective paradox, illustrated by (64) (see, e.g., Dowty 1979, Landman 1992 for discussion).

(64) Mary was opening the door. \nRightarrow

Mary opened the door.

We would normally expect that if Mary was opening the door at some past time, then the event continued until the door was open, and so Mary in fact opened the door. However, this is not necessarily the case: Mary could have been interrupted and never finished opening the door. It seems to us that the same intuitions about “normal continuation” and “interruptions” hold of (62a) and (63a). To be more precise, they hold of the meaning components of (62a) and (63a) that are Satoshi coming to have the flag or the map (not of the sewing or sending components). We propose that a hidden intensional operator affects those meaning components in our examples in the same way that the progressive overtly affects (64). We conjecture that the hidden operator is in fact the progressive. This leads us to suggest that (63) can be analyzed as in (65).¹⁶

- (65) a. [Thilo [sent [PROG [BECOME [_{HAVEP} Satoshi HAVE the map]]]]]
 b. Thilo’s sending brought it about that Satoshi was coming to have the map.

We understand PROG as an intensional operator and envision Landman’s semantics for PROG; we give a very informal and simplified version here (see Landman 1992 for details).¹⁷

- (66) $[[\text{PROG}]](P)(e) = 1$ iff e could plausibly have continued and become a larger event f such that $P(f) = 1$

As desired, (65a) no longer entails that Satoshi is or was in possession of the map.

Interesting questions arise regarding the interaction of PROG with lexical decomposition in the syntax.¹⁸ We must leave those for another occasion. Our conclusions based on restitutive *again* in double object constructions are unchanged by the optional addition of PROG in the structure of these double object verbs.¹⁹

4.2 The NP + PP Frame and Again

We now turn to the NP + PP frame of the same verbs. The relevant facts are listed in (67)–(69).

- (67) *The verb give*
 Thilo gave the map to Satoshi again.
 a. Thilo gave the map to Satoshi, and that had happened before.
 b. Thilo gave the map to Satoshi, and Satoshi had had the map before.

¹⁶ Note that PROG takes scope between CAUSE and BECOME. This is incompatible with both CAUSE and BECOME being introduced by Principle (R). This is the evidence from double object constructions that motivates separating the two meaning components (see footnote 12).

¹⁷ We have no theory of the distribution of the PROG operator. The phenomenon we are trying to capture with it has received a certain amount of attention in the literature (see Den Dikken 1992, Emonds 1993). An intensional operator like PROG is required to capture these data on our analysis.

¹⁸ For example, lexical decomposition in the syntax would make it possible to let PROG take scope only over the BECOME part of a lexical accomplishment predicate like *open* in (26). It seems to us that this was in fact Dowty’s (1979: chap. 3) intention, but his approach did not permit a syntactic operator like PROG to look inside the lexical semantics of the verb.

¹⁹ Remember that *again* appears to be able only to modify the result state or the whole event type; it cannot take intermediate scope. This seems to us to be true also of the additional scope option that the PROG operator would create. Thus, our conclusions regarding what *again* reveals are indeed unchanged.

(68) *Benefactives*

Thilo sewed a flag again for Satoshi.²⁰

- a. Thilo sewed a flag for Satoshi, and Thilo had sewed a flag before.
- b. Thilo sewed a flag for Satoshi, and there had been a flag before.

(69) *Motion verbs*

Thilo sent the plane to Yubara again.

- a. Thilo sent the plane to Yubara, and that had happened before.
- b. Thilo sent the plane to Yubara, and the plane had been in Yubara before.

Observe that the result states that restitutive *again* detects in these data are not uniformly states of possession. In the benefactive case, it is a state of existence. In the case of motion verbs, an object is restored to a location. This variation as such confirms the claim from section 2 that the semantics of the NP + PP frame is not identical to that of the double object frame and in particular does not uniformly involve HAVE. Restitutive *again* sharpens our intuitions about the semantic differences between the two frames.

What more does restitutive *again* tell us about the syntax and semantics of the NP + PP frame? The restitutive readings possible with these predicates show that the following result states must be available as the meanings of syntactic constituents:

(70) $\lambda e.HAVE_e(\text{the_map})(\text{Satoshi})$

(71) $\lambda e.\exists x[\text{flag}_e(x)]$

(72) $\lambda e.AT_e(\text{Yubara})(\text{the_plane})$

Let's look at motion verbs first. We propose that the result states that arise with those predicates are the denotations of the PPs in their structures, since the crucial information about the result state comes from the preposition. This is seen more clearly in the following paradigm (in each case, the sentence in (a) has the restitutive reading in (b)):

- (73) a. Satoshi pushed the cookies under the bed again.
 b. Satoshi pushed the cookies under the bed, and the cookies had been under the bed before.

- (74) a. Satoshi kicked the ball onto the field again.
 b. Satoshi kicked the ball onto the field, and the ball had been on the field before.

- (75) a. Thilo threw the ball behind the fence again.
 b. Thilo threw the ball behind the fence, and the ball had been behind the fence before.

Hence, we suggest that the structure that is the input to compositional interpretation for (76a) is (77). The resulting interpretation is (76b).

²⁰ For the reason that *again* must precede the *for*-phrase in this example, see the discussion surrounding (87).

- (76) a. Thilo sent the plane to Yubara.
 b. $\lambda e.\text{send}_c(\text{the_plane})(\text{Thilo}) \ \&$
 $\exists e'[\text{BECOME}_c(\lambda e''.\text{AT}_{e'}(\text{Yubara})(\text{the_plane})) \ \& \ \text{CAUSE}(e')(e)]$
 c. Thilo's sending the plane caused the plane to come to be in Yubara.
- (77) $[[\text{the plane}]_i \ [1 \ [\text{Thilo} \ [t_i \ \text{sent} \ [\text{BECOME} \ [_{\text{PP}} \ \text{PRO}_1 \ \text{at Yubara}]]]]]]]$

A few more comments on this. First, note that in order to combine the verb with the PP + BECOME, Principle (R) is needed. This is in keeping with Snyder's (2001) finding that *to*-datives are complex predicate constructions. The step involving Principle (R) is the one in (78).

- (78) $[\text{send} \ [\text{BECOME} \ [_{\text{PP}} \ \text{PRO}_1 \ [\text{at Yubara}]]]] \rightarrow$
 $\lambda y\lambda x\lambda e.\text{send}_c(y)(x) \ \&$
 $\exists e'[\text{BECOME}_c(\lambda e''.\text{AT}_{e'}(\text{Yubara})(x1)) \ \& \ \text{CAUSE}(e')(e)]$

Furthermore, the structure in (77) departs from the structure in section 2 in that the PP *to Yubara* has a PRO subject, which is anaphorically related to the object NP *the plane*. This is made necessary by the nature of the result state that restitutive *again* tells us about ('the plane is in Yubara') in conjunction with the fact that the object NP behaves as if it were really an object of the verb (*send* in this case). Thus, the referent of *the plane* needs to be an argument of *send* as well as the subject of the PP. The PP becomes in effect a small clause—a view defended on independent grounds by Pesetsky (1995) and Heim and Kratzer (1998).²¹

The PROG operator that we used in the double object frame could easily be made part of the NP + PP frame as well. Our intuitions about reaching the result state are less clear in the case of the NP + PP frame, however. We will leave this point open.

The structure in (77) offers adjunction sites for *again* that yield the restitutive and repetitive readings. When *again* adjoins to the PP, as in (79), the restitutive reading results (see (80)). When it adjoins to vP, as in (81), the repetitive reading emerges (see (82)).

- (79) $[[\text{the plane}]_i \ [1 \ [_{\text{VP}} \ \text{Thilo} \ \vee \ [_{\text{VP}} \ t_i \ \text{sent} \ [\text{BECOME} \ [[_{\text{PP}} \ \text{PRO}_1 \ \text{at Yubara}] \ \text{again}]]]]]]]$
- (80) $\lambda e.\text{send}_c(\text{the_plane})(\text{Thilo}) \ \&$
 $\exists e'[\text{BECOME}_c(\lambda e''.\text{again}_c(\lambda e'''.\text{AT}_{e'''}(\text{Yubara})(\text{the_plane}))) \ \& \ \text{CAUSE}(e')(e)]$
- (81) $[[\text{the plane}]_i \ [1 \ [_{\text{VP}} \ \text{Thilo} \ [t_i \ \text{sent} \ [\text{BECOME} \ [_{\text{PP}} \ \text{PRO}_1 \ \text{at Yubara}]]]] \ \text{again}]]]$
- (82) $\lambda e.\text{again}_c(\lambda e'.\text{send}_c(\text{the_plane})(\text{Thilo})) \ \&$
 $\exists e''[\text{BECOME}_c(\lambda e'''.\text{AT}_{e'''}(\text{Yubara})(\text{the_plane})) \ \& \ \text{CAUSE}(e'')(e')]$

²¹ Note that the NP + PP frame, like the resultative, involves a control-like structure and therefore need not make use of the impoverished verb meaning that the double object construction uses. Our suggestions for both frames are based on the syntactic evidence regarding the status of the NP in question (*the plane* in (i)).

- (i) a. Thilo sent [Satoshi HAVE the plane]
 b. Thilo sent the plane [PRO to Satoshi]

The syntactic evidence in section 2 shows that *the plane* is an object of *send* in (ib) but not in (ia). Our semantic analysis has followed the syntactic evidence; this entails a change in the contribution of the verb from the NP + PP frame to the double object frame. It's possible that this is part of the lexical rule that connects the two frames (see section 2).

One may balk at the unconventional claim in (79) that *again* can adjoin to a PP. But note that this PP is a small clause, and as such has the same status as the bracketed PP in (83).

(83) Satoshi talked [_{PP} Thilo into a stupor].

This PP can host *again*, as the restitutive reading in (84) shows.

(84) a. Satoshi talked [_{PP}[_{PP} Thilo into a stupor] *again*].

b. Satoshi's talking brought it about that Thilo was once more in a stupor.

Benefactives, as in (68), look a little different from motion verbs. Let's first make sure that the restitutive reading of (68) is what we claim it is, and is indeed weaker than the restitutive reading of the corresponding double object frame.

(85) Satoshi's favorite little cousin has a tree house, which used to include its own exciting and exotic flag. The flag has vanished under mysterious circumstances, and the cousin is devastated. Satoshi would like to make her a new flag, but he can't sew. Satoshi's friend Thilo, ever helpful, . . .

a. . . . sewed a flag *again* for Satoshi.

b. #. . . sewed Satoshi a flag *again*.

The sentence in (85a) is appropriate, and according to our claims, its presuppositions are met (i.e., there used to be a flag). The sentence in (85b) is not appropriate, confirming the stronger presuppositions we assume for it (i.e., Satoshi used to have a flag), which are not met in this context. As expected, the restitutive readings for those two frames differ in the way that the observations in section 2 suggest.

The question is, then, how to derive the restitutive reading of the NP + PP frame for these verbs. We assume, once more following section 2, that the *for*-PP is some kind of adjunct modifier. It does not figure into the derivation of the restitutive reading at all. Thus, we expect that the restitutive reading of the sentence with the *for*-PP is the same as the restitutive reading of the corresponding sentence without the *for*-PP, and this is indeed the case.

(86) a. Thilo sewed a flag *again*.

b. Thilo sewed a flag, and there had been a flag before.

The adjunct status of the *for*-phrase is confirmed by the fact that (87), where *again* is outside the constituent containing the *for*-phrase, allows only a repetitive reading.

(87) Thilo sewed a flag for Satoshi *again*.

The lexical semantics of *sew*, and its syntactic representation, are thus responsible for the restitutive reading. Following Dowty (1979) and von Stechow (2001), we suggest that the structure of (88a) includes a temporally opaque operator BECOME taking scope over the indefinite NP. This is motivated by the intuitive paraphrase (88b) of (88a)'s truth conditions.

(88) a. Thilo sewed a flag.

b. Thilo's sewing causes a flag to come into existence.

The nature of the restitutive reading in (86) shows us that the following predicate of events must be available as the result state.

(89) $\lambda e. \exists x[\text{flag}_e(x)]$

This leads us to suggest that the truth conditions of (88a) are as in (90).²²

(90) $\lambda e. \text{sew}_e(\text{Thilo}) \ \& \ \exists e'[\text{BECOME}_e(\lambda e''. \exists x[\text{flag}_e(x)]) \ \& \ \text{CAUSE}(e')(e)]$

We propose that the constituent denoting the result state in (91a) is available as an adjunction site for *again*, yielding the restitutive reading in (91b). And of course there is also an adjunction site for *again* yielding the repetitive reading, as shown in (92). We will remain silent on the details of semantic composition with creation verbs beyond this.

(91) a. [Thilo [sew [BECOME [[a flag] again]]]]
 b. $\lambda e. \text{sew}_e(\text{Thilo}) \ \& \ \exists e'[\text{BECOME}_e(\lambda e''. \text{again}_e(\lambda e'''. \exists x[\text{flag}_e(x)]))] \ \& \ \text{CAUSE}(e')(e)]$
 c. Thilo's sewing brought it about that there was once more a flag.

(92) a. [[Thilo [sew [BECOME [a flag]]]] again]
 b. $\lambda e. \text{again}_e(\lambda e'. \text{sew}_e(\text{Thilo}) \ \& \ \exists e''[\text{BECOME}_e(\lambda e'''. \exists x[\text{flag}_e(x)]) \ \& \ \text{CAUSE}(e'')(e')])$
 c. Once more, Thilo's sewing brought it about that there was a flag.

Finally, a comment on our first example in this subsection: a sentence with *give* (see (67)). In this case, as far as our intuitions can tell, the restitutive reading of the NP + PP frame is the same as the restitutive reading for the double object frame. We predict that the derivation of the NP + PP frame follows the steps of the *send* example in (68). The predicate of events that *again* modifies would then be the one in (93), while our intuitions were described with (94).

(93) $\lambda e. \text{AT}_e(\text{the_map})(\text{Satoshi})$

(94) $\lambda e. \text{HAVE}_e(\text{the_map})(\text{Satoshi})$

We suggest that (93) is intuitively indistinguishable from (94):²³ that is, the map's being with Satoshi is semantically indistinguishable from the map's being in Satoshi's possession.

²² These truth conditions are very similar to those suggested by Dowty (1979), except that we use an event semantics. Von Stechow (2001) criticizes Dowty's semantics on the grounds that *a flag comes into existence* can only be true if there was no flag at all prior to the event described. This is intuitively too strong. We propose that appropriate use of the event semantics may solve this problem. (90) can only be true if there was no flag *in the prestate of e'*.

Note that we cannot use von Stechow's alternative semantics for verbs of creation because he characterizes the result state as 'there is a flag created by e'. Restitutive *again* shows that 'created by e' cannot be part of the result state.

²³ The connection between HAVE and *be* + AT has already been made by Freeze (1992), who suggests deriving HAVE from *be* + AT transformationally in an attempt to explain the crosslinguistic evidence that they are related. Note, however, that we still need to capture the contrast between *send the plane to Yubara* and **send Yubara the plane*, which weighs against relating these two transformationally in the way that Freeze suggests. Note that our proposal as it stands leaves unexplained the oddness of *Thilo gave the plane to Yubara*.

5 Conclusions

Restitutive *again* is a detector of result-state-denoting constituents and a clue to their meanings. The *again*-test confirms Kayne's (1984c) conjecture that double object constructions have a small clause constituent in them, and it identifies the head of that small clause as HAVE. It confirms that the corresponding NP + PP constructions are different and are not transformationally related to the double object frame. Specifically, the lower predicate is not in general HAVE. It is provided by the preposition in the case of motion verbs, and by the lexical result state of creation verbs.

It is interesting that the evidence gained from a closer look at the syntax of these constructions converges with the evidence gained from a closer look at their semantics—particularly in view of the fact that the resulting analysis is not what a naïve approach to either syntax or semantics would suggest. This finding is a relief to those among us who try to make the semantics tie in with the syntax in a motivated way.

Beyond reestablishing a match between the semantics and the syntax of two-object constructions, our analysis of restitutive *again* in those constructions has led to several further suggestions. Most importantly, there is the semantic glue that is needed to relate the result state to the event expressed by the verb (giving, sending, etc.). We suggest that the same interpretation principle that is at work in resultative constructions is at work here as well. This ties in with Snyder's (2001) evidence that these constructions are governed by the same grammatical parameter as resultatives. Interesting recent confirmation for this approach comes from Oda (to appear), who investigates double object constructions and restitutive readings in Japanese. Further crosslinguistic research in this area will be a test of our analysis.

We have argued that in the NP + PP frame of motion verbs, the PP actually constitutes a small clause, which contains a silent argument anaphoric to the object of the higher verb. Putting an empty pronoun in the specifier of PP has a precedent in proposals by Heim and Kratzer (1998). It is also needed in the analysis of resultatives like (95) (see von Stechow 1995).

(95) Thilo pounded the kisimen into the counter.

We conclude that a syntactic theory of empty categories is called for that would allow silent pronouns in these positions.

Finally, we have found interesting confirmation of von Stechow's (1996) proposal to do lexical decomposition in the syntax. The hidden modal operator PROG that we suggest double object constructions may contain requires such an approach, in addition to the argument from restitutive *again* that carries over from von Stechow's work.

References

- Aske, Jon. 1989. Path predicates in English and Spanish: A closer look. In *Proceedings of the Fifteenth Annual Meeting of the Berkeley Linguistics Society*, ed. by Kira Hall, Michael Meacham, and Richard Shapiro, 1–15. Berkeley: University of California, Berkeley Linguistics Society.
- Baker, Mark. 1988. *Incorporation*. Chicago: University of Chicago Press.
- Barss, Andrew, and Howard Lasnik. 1986. A note on anaphora and double objects. *Linguistic Inquiry* 17: 347–354.

- Beck, Sigrid, and William Snyder. 2001. The resultative parameter and restitutive 'again'. In *Auditor vox sapientiae: A festschrift for Arnim von Stechow*, ed. by Caroline Féry and Wolfgang Sternefeld, 48–69. Berlin: Akademie Verlag.
- Bruening, Benjamin. 2001. QR obeys Superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, Mass.: MIT Press.
- Collins, Chris, and Höskuldur Thráinsson. 1993. Object shift in double object constructions and the theory of Case. In *Papers on Case and agreement II*, ed. by Colin Phillips, 131–174. MIT Working Papers in Linguistics 19. Cambridge, Mass.: MIT, Department of Linguistics and Philosophy, MITWPL.
- Davidson, Donald. 1967. The logical form of action sentences. In *The logic of decision and action*, ed. by Nicholas Rescher, 81–95. Pittsburgh: Pittsburgh University Press.
- Diesing, Molly. 1992. *Indefinites*. Cambridge, Mass.: MIT Press.
- Dikken, Marcel den. 1992. *Particles*. Dordrecht: Holland Institute of Generative Linguistics.
- Dowty, David R. 1979. *Word meaning and Montague Grammar*. Dordrecht: Kluwer.
- Emonds, Joseph. 1972. Evidence that indirect object movement is a structure-preserving rule. *Foundations of Language* 8:546–561.
- Emonds, Joseph. 1976. *A transformational approach to English syntax*. New York: Academic Press.
- Emonds, Joseph. 1993. Projecting indirect objects. *The Linguistic Review* 10:211–263.
- Fabricius-Hansen, Catherine. 2001. Wi(e)der and again(st). In *Auditor vox sapientiae: A festschrift for Arnim von Stechow*, ed. by Caroline Féry and Wolfgang Sternefeld, 101–130. Berlin: Akademie Verlag.
- Fillmore, Charles. 1965. *Indirect object constructions in English and the ordering of transformations*. The Hague: Mouton.
- Freeze, Ray. 1992. Existentials and other locatives. *Language* 68:553–595.
- Green, Georgia M. 1974. *Semantics and syntactic regularity*. Bloomington: Indiana University Press.
- Gropen, Jess, Steven Pinker, Michelle Hollander, Richard Godberg, and Ronald Wilson. 1989. The learnability and acquisition of the dative alternation in English. *Language* 65:203–257.
- Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20*, ed. by Kenneth Hale and Samuel Jay Keyser, 53–110. Cambridge, Mass.: MIT Press.
- Hale, Ken, and Samuel Jay Keyser. 1997. On the complex nature of simple predicates. In *Complex predicates*, ed. by Alex Alsina, Joan Bresnan, and Peter Sells, 29–66. Stanford, Calif.: CSLI Publications.
- Harley, Heidi. 1996. If you have Have, you can Give. In *Proceedings of the Fifteenth West Coast Conference on Formal Linguistics*, ed. by Brian Agbayani and Sze-Wing Tang, 193–207. Stanford, Calif.: CSLI Publications.
- Harley, Heidi. 2003. Possession and the double object construction. In *Yearbook of linguistic variation*, ed. by Pierre Pica and Johan Rooryck, 29–62. Amsterdam: John Benjamins.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Malden, Mass.: Blackwell.
- Jäger, Gerhard, and Reinhart Blutner. 2000. Against lexical decomposition in syntax. In *The Proceedings of Israel Association of Theoretical Linguistics 16*, ed. by Adam Zachary Wyner, 113–137. Haifa: Haifa University.
- Johnson, Kyle. 1991. Object positions. *Natural Language & Linguistic Theory* 9:577–636.
- Kayne, Richard S. 1984a. *Connectedness and binary branching*. Dordrecht: Foris.
- Kayne, Richard S. 1984b. Principles of particle constructions. In *Grammatical representation*, ed. by Jacqueline Guéron, Hans-Georg Obenauer, and Jean-Yves Pollock, 101–140. Dordrecht: Foris.
- Kayne, Richard S. 1984c. Unambiguous paths. In *Connectedness and binary branching*, 129–164. Dordrecht: Foris.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase structure and the lexicon*, ed. by Johan Rooryck and Laurie Zaring, 109–137. Dordrecht: Kluwer.

- Landman, Fred. 1992. The progressive. *Natural Language Semantics* 1:1–32.
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:335–392.
- Larson, Richard. 1990. Double objects revisited: Reply to Jackendoff. *Linguistic Inquiry* 21:589–632.
- Levin, Beth, and Tova R. Rapoport. 1988. Lexical subordination. In *CLS 24*, ed. by Lynn MacLeod, Gary Larson, and Diane Brentari, 275–289. Chicago: University of Chicago, Chicago Linguistic Society.
- Lewis, David. 1973. Causation. *The Journal of Philosophy* 70.17:556–567.
- Marantz, Alec. 1984. *On the nature of grammatical relations*. Cambridge, Mass.: MIT Press.
- McCawley, James D. 1968. The role of semantics in a grammar. In *Universals in linguistic theory*, ed. by Emmon Bach and Richard Harms, 124–169. New York: Holt, Rinehart and Winston.
- Oda, Toshiko. To appear. *Again* in Japanese and the visibility parameter. In *University of Connecticut working papers in linguistics* 13.
- Oehrle, Richard. 1976. The grammatical status of the English dative alternation. Doctoral dissertation, MIT, Cambridge, Mass.
- Parsons, Terence. 1990. *Events in the semantics of English: A study in subatomic semantics*. Cambridge, Mass.: MIT Press.
- Pesetsky, David. 1982. Paths and categories. Doctoral dissertation, MIT, Cambridge, Mass.
- Pesetsky, David. 1995. *Zero syntax*. Cambridge, Mass.: MIT Press.
- Rapp, Irene, and Arnim von Stechow. 1999. *Fast* “almost” and the visibility parameter for functional adverbs. *Journal of Semantics* 16:149–204.
- Richards, Norvin W. 1997. What moves where when in which language? Doctoral dissertation, MIT, Cambridge, Mass.
- Ross, John Robert. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT, Cambridge, Mass.
- Ross, John Robert. 1974. Nouniness. In *Three dimensions of linguistic theory*, ed. by Osamu Fujimura, 137–257. Tokyo: TEC Corporation.
- Snyder, William. 2001. On the nature of syntactic variation: Evidence from complex predicates and complex word-formation. *Language* 77:324–342.
- Stechow, Arnim von. 1995. Lexical decomposition in syntax. In *The lexicon in the organization of language*, ed. by Urs Egli, Peter E. Pause, Christoph Schwarze, Arnim von Stechow, and Götz Wienold, 81–118. Amsterdam: John Benjamins.
- Stechow, Arnim von. 1996. The different readings of *wieder* “again”: A structural account. *Journal of Semantics* 13:87–138.
- Stechow, Arnim von. 2001. Temporally opaque arguments in verbs of creation. In *Semantic interfaces: Reference, anaphora and aspect*, ed. by Carlo Cecchetto, Gennaro Chierchia, and Maria Teresa Guasti, 278–319. Stanford, Calif.: CSLI Publications.
- Talmy, Leonard. 1991. Path to realization—via aspect and result. In *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistics Society*, ed. by Laurel A. Sutton, Christopher Johnson, and Ruth Shields, 480–519. Berkeley: University of California, Berkeley Linguistics Society.
- Zaenen, Annie, Joan Maling, and Höskuldur Thráinsson. 1985. Case and grammatical functions: The Icelandic passive. *Natural Language & Linguistic Theory* 3:441–483.

(Beck)

Department of Linguistics, U-1145

University of Connecticut

337 Mansfield Road

Storrs, Connecticut 06269-1145

sbeck@sp.uconn.edu