

## THE SEMANTIC BASIS OF CONTROL IN ENGLISH

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Our intent here, in the face of a persistent tradition of studying control in purely syntactic terms, is to reiterate the fundamental importance of semantics in the control problem, and to articulate some of the semantic factors more precisely than has heretofore been possible. After presenting familiar obstacles to a theory of control based on syntactic binding, we make a three-way distinction between ‘unique control’ (usually called OBLIGATORY CONTROL), ‘free control’, and ‘nearly free control’ (the last two falling under traditional NONOBLIGATORY CONTROL). We show that in a very large class of cases of unique control, the controlled VP denotes an action and the controller is the character who has the onus for that action. This analysis is applied to four major classes of control verbs and their nominals, as well as a class of adjectives, showing that semantic role reliably identifies the controller, and syntactic position does not. Through a formalization in terms of CONCEPTUAL STRUCTURE, we begin to be able to explain much of control directly from the lexical decomposition of the matrix verb. Several classes of exceptions to the conditions on unique control are treated as cases of coercion, in which extra conventionalized semantic material is added that is not present in syntax.\*

1. PRELIMINARIES. The control problem concerns how to determine the understood subject of infinitival or gerundive VPs that lack an overt local subject, for instance the bracketed constituents in 1.

- (1) a. John<sub>i</sub> likes [to <sub>i</sub>dance with Sarah]  
 b. John<sub>i</sub> enjoys [<sub>i</sub>dancing with Sarah]  
 c. John<sub>i</sub> talked to Sarah<sub>j</sub> about [<sub>i/j/i+j/gen</sub>dancing with Jeff]  
 d. John<sub>i</sub> urged Sarah<sub>j</sub> [to <sub>j/\*i/\*i+j/\*gen</sub>dance with Jeff]

In 1a,b, John is understood as the character whose dancing is under discussion; *John* is said to control the complement VP or be its controller. We notate this relation by coindexing *John* with the verb it controls.<sup>1</sup> In 1c, either *John* or *Sarah*—or both together—can be understood as the dancer(s) under discussion; the last of these possibilities is notated with the subscript *i+j*. John may also be talking about dancing with Jeff in the abstract, with no particular dancer in mind; this interpretation is generally called ARBITRARY CONTROL and is notated here with the subscript *gen* (generic). Like 1c, 1d presents two potential controllers in the main clause. But in this case only *Sarah* can be construed as controller, and joint and generic control are impossible. Solving

\* This article is a companion piece to Culicover & Jackendoff 2001, which argues against Hornstein’s (1999) proposal that control is actually a species of movement. Some of the discussion here requires repeating material discussed in our earlier paper, for which we beg the indulgence of readers familiar with it.

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<sup>1</sup> We use this notation rather than the conventional null pronoun PRO so as not to prejudice whether the infinitive has a genuine syntactic subject. Some theories of control, notably those in the Chomskyan tradition, assume the presence of PRO and an S or IP node above the VP; others such as lexical-functional grammar (LFG) and some formal semantics approaches (e.g. Dowty 1985) assume the infinitival is simply a subjectless VP in phrase structure. While we are generally more sympathetic to the latter approach (see Culicover & Wilkins 1986, Jackendoff 1990), the work presented here is largely neutral on this issue.

the control problem thus requires identifying the factors that determine possible controllers in any given circumstance.

The past four decades have produced an extensive literature on control. One tradition, beginning with Rosenbaum 1967 and continuing to such works as Chomsky 1981, Bresnan 1982, Manzini 1983, Larson 1991, Hornstein 1999, Landau 2000, and Wurmbrand 2001, contends that the solution to the control problem involves primarily syntactic factors (while generally acknowledging that semantics plays some role). Another tradition, beginning with Jackendoff 1969 and continuing through Jackendoff 1972, 1974, Růžička 1983, Nishigauchi 1984, Williams 1985, Dowty 1985, Farkas 1988, Chierchia 1988, Sag & Pollard 1991, Pollard & Sag 1994, van Valin & LaPolla 1997, and Culicover & Jackendoff 2001, focuses on the importance of semantic factors, in particular the lexical semantics of the predicate that selects the infinitival or gerundive complement.

Our intent, in the face of a persistent tradition of studying control in purely syntactic terms, is to reiterate the fundamental importance of semantics in the control problem, and to articulate some of the semantic factors more precisely than has heretofore been possible. At the same time, we also pinpoint some syntactic factors relevant to control. We can by no means solve all the complexities of the control problem here, but we do cover a rich and important subclass of cases in detail, demonstrating their semantic basis.

A quick survey of where we are headed: We first briefly present some of the obstacles to a theory of control based on syntactic binding, then sort out some aspects of control which are nevertheless purely syntactic. This sets the stage for a descriptive typology of control—the distinction between free control, nearly free control (the case shown in 1c), and unique control (shown in 1d), each offering a different range of possible controllers. Some aspects of this three-way distinction are familiar, but some are new; we take this distinction to replace the traditional distinction between obligatory and nonobligatory control.

The question then arises: What is responsible for this distinction? Most of the rest of our discussion is devoted to unique (obligatory) control: we show that in a very large class of cases of unique control, the controlled VP denotes an action—usually a voluntary action—and the controller is the character who has the onus for that action. We discuss lexical selection of actional arguments and show that there is no reliable syntactic cue for this semantic category. We then apply this analysis to four major classes of control verbs and their nominals, as well as a class of adjectives. In particular, we show that semantic role reliably identifies the controller, and syntactic position absolutely does not. With that result established, we begin to formalize the semantics, showing how the descriptive generalizations follow from the formal character of predicates that select actions as arguments. As a consequence, we begin to approach the goal of explaining much of control directly from the lexical decomposition of the matrix verb.

We turn next to a well-known class of exceptions to the conditions of unique control, and, following Sag & Pollard 1991 and Pollard & Sag 1994, we propose that they are cases of ‘coercion’ (Pustejovsky 1995), in which extra conventionalized semantic material is added that is not present in syntax. We differ from Pollard and Sag, however, in our view of how coercion fits into the grammar (LFG) and in the content of the specific coercions involved in these cases of control. Finally, we propose a further instance of coercion to account for the phenomenon of partial control discussed at length in Landau 2000.

Our study suffers from the limitation that it is restricted to English. Our impression from the literature (e.g. van Valin & LaPolla 1997) is that control behaves crosslinguistically in much the same fashion, although we do not verify this here. But we make frequent appeal to control in English nominals, a class of evidence that is seldom cited in the literature (exceptions are Jackendoff 1972, 1974, Williams 1985, and Sag & Pollard 1991, Pollard & Sag 1994) but that proves exceptionally revealing.

## 2. A TYPOLOGY OF CONTROL.

**2.1. MOTIVATION FOR PURSUING A SEMANTIC SOLUTION.** We begin with some relatively simple observations, most of which have appeared several times in the literature (yet are often neglected). First, a thoroughly syntactic theory of control (e.g. Chomsky 1981, Manzini 1983) treats control as a subcase of syntactic binding. This requires a syntactic NP (usually called PRO) to serve as the subject of the controlled VP, plus a syntactic NP that serves as the antecedent of PRO, to which PRO can be bound. In this approach, 1a is notated as 2.

(2) John<sub>i</sub> likes [PRO<sub>i</sub> to dance with Sarah]

The problem immediately arises of how to confine PRO to the subject of controlled complements and prohibit it in other NP positions; a considerable literature has been devoted to this problem alone (e.g. Chomsky 1981, Wurmbrand 2001, many of the papers in Larson et al. 1992).

One argument against such an approach to control is that on occasion there is no independently motivated NP that can serve as controller. Examples like 3a,b appear in Williams 1985; 3c appears in Sag & Pollard 1991; we believe 3d represents a new type.

- (3) a. Any such attempt [to leave] will be severely punished.  
 b. Yesterday's orders [to leave] have been canceled.  
 c. How about [taking a swim together]? (controller is speaker and hearer jointly)  
 d. Undressing myself/yourself in public may annoy Bill.

In 3a,b, the specifiers of the nominals *order* and *attempt* preclude an independent NP controller in the appropriate position. One could stipulate a phantom position in the specifier that can never be realized by anything but a null NP; alternatively one could stipulate a null *by*-phrase in 3a and a null *to*-phrase in 3b. Such stipulations, however, are patently motivated by the desire to provide a syntactic controller (as well as by theory-internal considerations such as the theta-criterion), and have no independent syntactic motivation. In 3c,d the situation is still worse, since the controller is the speaker and/or hearer, nowhere overtly mentioned in the discourse. Unless one is willing to resurrect Ross's theory (1970) of performative deletion, long in disgrace (see Newmeyer 1986:ch. 5) there is no way to provide a syntactic NP as the controller.<sup>2</sup>

A second sort of argument against a purely syntactic account of control—whether or not there is a PRO—comes from the fact that the choice of controller is often doubly dissociated from syntactic configuration: (i) the same syntactic configuration can be associated with different controller choice, as seen in 4; and (ii) the controller can appear in different syntactic configurations, while preserving meaning, as seen in 5.

<sup>2</sup> As stressed in Culicover & Jackendoff 2001, these situations where an NP controller is absent are especially problematic for an alternative syntactic account of control offered by Bowers 1981 and Hornstein 1999, among others, in which the controlled NP moves to the position of the controller.

- (4) a. John<sub>i</sub> persuaded Sarah<sub>j</sub> to <sub>j/\*i</sub>dance.  
 b. John<sub>i</sub> promised Sarah<sub>j</sub> to <sub>i/\*j</sub>dance.  
 c. John<sub>i</sub> talked about <sub>i/gen</sub>dancing with Jeff.  
 d. John<sub>i</sub> refrained from <sub>i/\*gen</sub>dancing with Jeff.
- (5) a. Bill ordered Fred<sub>i</sub> [to <sub>i</sub>leave immediately]  
 b. Fred<sub>i</sub>'s order from Bill [to <sub>i</sub>leave immediately]  
 c. the order from Bill to Fred<sub>i</sub> to <sub>i</sub>leave immediately  
 d. Fred<sub>i</sub> received Bill's order to <sub>i</sub>leave immediately

Should one wish to find a relevant syntactic difference between 4a and 4b and between 4c and 4d, it has to be motivated by the dogma that control is syntactic; there is no independent motivation. On the one hand, intuition suggests that the differences are a consequence of what the verbs mean; we will be able to be more explicit later on. On the other hand, the syntactic differences among 5a–d are blatant; what remains constant is that Fred is recipient of the order, a semantic constancy. Many more such cases will appear below.

We therefore seek a treatment of control as a relation stated over the level of conceptual structure (in the sense of Jackendoff 1983, 1990) rather than over syntactic structure. On the face of it, conceptual structure (CS) is an appropriate level for stating control for three reasons:

- At the level of CS, syntactically implicit arguments are explicit, so that an antecedent is readily available for cases like 3.
- At the level of CS, the meanings of verbs are explicitly represented in such a way that they can directly bear on control relations without special added machinery.
- Finally, CS is the level at which thematic roles are structurally represented, so that the association of control with constant thematic roles is natural.

No other level of linguistic structure offers these possibilities. Syntactically implicit arguments are indeed explicitly encoded in lexical-functional grammar's level of functional structure (Bresnan 1982), the level of argument structure (Grimshaw 1990), event structure (Levin & Rappaport Hovav 1999), the government-binding/minimalist program level of logical form (Chomsky 1981), and standard formal semantics logical representations (e.g. Bach 1979, Chierchia 1988). But the structured meanings of verbs and the structural representation of thematic roles are not explicit in these levels. Thus they all require control to be handled in terms of item-by-item lexical marking (or diacritics such as 'object-control verb' or 'agent-control verb') rather than as an organic part of meaning. Our own intuition (shared by Dowty (1985), Farkas (1988), Sag and Pollard (1994), and van Valin and LaPolla (1997)) is that the control behavior of *persuade* and *promise* is an essential part of their meanings; there could not be a verb that meant the same thing as *persuade* but that had the control behavior of *promise*. This requires a level of representation where the requisite aspects of meaning are structurally explicit: conceptual structure.

**2.2. ONE PURELY SYNTACTIC DIMENSION: POSSIBILITY OF A LOCAL SUBJECT.** It is well known that some infinitival and gerundive complements permit a local subject and others do not. Examples 6–11 present some minimal pairs, selected to present as close a semantic parallelism as possible.

- (6) a. John attempted (\*for his kids) to have a better life.  
 b. John strove (for his kids) to have a better life.<sup>3</sup>

<sup>3</sup> Richard Oehrle has pointed out to us that the difference in 6 correlates with some difference in syntax and semantics of the verbs' nonclausal complements: *John attempted a somersault* vs. *John strove for happiness*.

- (7) a. Sally beseeched Bill (\*for his kids) to leave.  
 b. Sally begged Bill (for his kids) to leave.
- (8) a. Fred hoped (for Sally) to leave.  
 b. Fred's hopes of (\*Sally's) leaving
- (9) a. Vera left George so as (\*for Fred) not to go crazy.  
 b. Vera left George in order (for Fred) not to go crazy.
- (10) a. Before (\*John('s)) mentioning Harry, Bill was already nervous.  
 b. Without (John('s)) mentioning Harry, Bill was already nervous.
- (11) a. the best place at which (\*for you) to buy hummus  
 b. the best place (for you) to buy hummus

Examples 6 and 7 contrast semantically related verbs; 8 contrasts a verb and its nominal; 9 and 10 contrast semantically parallel subordinating conjunctions. Example 11 is the well-known case of infinitival relatives, where the contrast turns on whether there is an overt *WH*-phrase.

It is hard to imagine anything in the semantics of these pairs that could be responsible for the syntactic distinction, particularly since each pair represents a different semantic class. We therefore conclude that this distinction is a matter of lexically determined syntactic selection, cutting broadly across semantic classes. Some heads such as *attempt*, *beseech*, and *so as* select a simple *to*-VP complement; others such as *strive*, *beg*, and *in order* select a (*for*-NP)-*to*-VP complement. We know of no heads that require *for*-NP before an infinitive complement.

Using the pretheoretical terminology of Baker 1995, we call the former case an INFINITIVAL PHRASE (InfP) and the latter an INFINITIVAL CLAUSE (InfC). Thus, *attempt* selects an InfP and *strive* an InfC. Similarly, *before* selects a GERUNDIVE PHRASE (GerP) and *without* a GERUNDIVE CLAUSE (GerC). With a fronted *WH*, an infinitival relative requires an InfP; without a *WH*, it permits the more liberal InfC. Exactly how this distinction is formalized need not concern us here; different syntactic theories will account for these possibilities for selection in different ways.

The early literature (e.g. Rosenbaum 1967, Lakoff 1971) used terms such as OBLIGATORY SUBJECT DELETION and OBLIGATORY EQUI for the prohibition of a local subject with the infinitive or gerund. More recent literature (beginning as early as Williams 1980 and extending to Hornstein 1999 and Landau 2000, among many others) recognizes two major types of control, called OBLIGATORY CONTROL (OC) and NONOBLIGATORY CONTROL (NOC) (Bresnan 1982 uses instead FUNCTIONAL and ANAPHORIC control in much the same sense). However, this more recent use of 'obligatory' does not align with the earlier use, as we see next.

**2.3. FREE CONTROL, NEARLY FREE CONTROL, AND UNIQUE CONTROL.** A more complex dimension of variation in control, and the one that concerns us here, is the choice among FREE, NEARLY FREE, and UNIQUE control. Two other dimensions of variation, EXHAUSTIVE VS. PARTIAL control and OBLIVIOUS VS. NONOBLIVIOUS control, are discussed in §§7 and 8 respectively.

Many complements in subject position (and extraposed subjects) have the broadest range of possible controllers, as illustrated in 12. The gerund in 12 can be controlled by either NP, by both jointly (split antecedent control), or by an implicit generic person. The literature generally calls this range of possibilities NONOBLIGATORY CONTROL; since there prove to be so many ways that control can be nonobligatory, we call this case FREE CONTROL.

- (12) a. Amy<sub>i</sub> thinks that <sub>i/j/i + j/gen</sub>dancing with Dan intrigues Tom<sub>j</sub>.  
 b. Amy<sub>i</sub> told Tom<sub>j</sub> that <sub>i/j/i + j/gen</sub>dancing with Dan might be fun.

Notice that *Amy* is outside the minimal clause that contains the controlled complement (as is *Tom* in 12b). This configuration for control was called ‘Super-Equi’ in the early literature (Grinder 1970); Ladusaw and Dowty (1988) call it ‘remote control’; it is now generally termed LONG-DISTANCE CONTROL, which is what we call it here.

As observed in Bresnan 1982, the controller in this configuration can be a discourse antecedent (13a). Cantrall (1974) observed that the controller can also be the speaker and/or hearer (13b). The speaker and an NP in the sentence can also jointly control the complement (13c).

- (13) a. Brandeis<sub>i</sub> is in a lot of trouble, according to today’s newspaper. Apparently, <sub>i</sub>firing the football coach has turned off a lot of potential donors.  
 b. Here’s the thing: undressing myself/yourself/ourselves [ = you and me] in public could cause a scandal.  
 c. Here’s the thing: it might really upset Tom to have to undress ourselves [ = Tom and me] in public.

Speaker/hearer control is also the usual option in the curious construction illustrated in 3c above, as seen in 14a. Richard Oehrle has suggested the final sentence of the dialogue 14b as a case where this construction has split discourse antecedents.

- (14) a. How about undressing myself/yourself/ourselves in public?  
 b. How about the girls taking a swim? —Okay.  
     How about the boys taking a swim? —Well, okay.  
     How about taking a swim together? (i.e. boys and girls)

In short, free control is a configuration in which the range of possible controllers includes (i) any NP in the sentence or surrounding discourse plus the speaker and hearer, (ii) the possibility of split antecedents, and (iii) the possibility of a generic controller.

Free control is not confined to subject complements; it also appears in certain object complements:

- (15) a. Amy thinks that what you propose beats undressing herself/oneself/myself/yourself/ourselves [ = you and me, Amy and me] in public.  
     (also *outranks*, *entails*, *is as good as*)  
 b. Fred makes undressing himself/oneself/myself/yourself/ourselves [ = you and me, Fred and me] in public almost appealing.

Landau (2000:109–11), citing previous literature, discusses some cases where the controller is not an argument of the main verb but is rather embedded in an argument, for instance 16.

- (16) a. It would help Bill<sub>i</sub>’s development to <sub>i</sub>behave himself in public.  
 b. <sub>i</sub>Finishing his work on time is important to John<sub>i</sub>’s development/John<sub>i</sub>’s friends.  
 c. It would ruin Steve<sub>i</sub>’s figure/career to <sub>i</sub>eat so much ice cream.

Given that *help*, *important*, and *ruin* all take subject complements with free control, our inclination is to see these as further examples of free control.

A slightly less free version of control occurs in a class of object complements such as 1c above. Here the controller may be either of two NPs in the sentence; split antecedents and generic controllers are also possible (17a). But the options in 13 are not available: long-distance control (17b), a discourse controller (17c), and control by the

speaker and/or hearer (17d). Discourse control is, however, possible in circumstances such as 17e (pointed out by Sag and Pollard (1991), based on Higgins 1973).

- (17) a. John<sub>i</sub> talked to Sarah<sub>j</sub> about <sub>i/j/i + j/gen</sub>taking better care of himself<sub>i</sub>/herself<sub>j</sub>/ themselves<sub>i + j</sub>/oneself<sub>gen</sub>.
- b. \*Amy<sub>k</sub> knows that John<sub>i</sub> talked to Bill<sub>j</sub> about <sub>k</sub>taking care of herself<sub>k</sub>.
- c. \*Brandeis<sub>i</sub> is in a lot of trouble. John talked to Sarah about <sub>i</sub>firing the football coach.
- d. \*John talked to Sarah about undressing myself/yourself in public.
- e. A: John<sub>i</sub> talked to Sarah<sub>j</sub> about something.  
B: What was it?  
A: I think it was <sub>i/j/i + j/gen</sub>taking better care of himself<sub>i</sub>/herself<sub>j</sub>/ themselves<sub>i + j</sub>/oneself<sub>gen</sub>.
- (also *speak to NP, think, many others*)

We call this case NEARLY FREE CONTROL. It occurs consistently as a complement of verbs of communication and thought and of nouns that denote information-bearing objects such as *book* and *hypothesis*. The controlled complement always denotes a proposition being communicated, considered, or contained in an information-bearing object (as in *a book about defending oneself*). The controlled complement is typically a gerund serving as complement of *about*, but it also occurs as the direct object complement of the verbs *mention* and *discuss* (18).

- (18) a. John mentioned/discussed Sally('s) taking care of herself.
- b. John<sub>i</sub> mentioned/discussed <sub>i/gen</sub>taking care of himself/oneself.
- c. John<sub>i</sub> { mentioned to } Sally<sub>j</sub> <sub>i/j/i + j/gen</sub>taking care of himself/herself/ themselves/oneself.  
{ discussed with }
- d. A: I think John mentioned/discussed something important.  
B: What was it?  
A: It might have been taking care of himself.
- e. \*Amy<sub>i</sub> thinks that John mentioned <sub>i</sub>taking care of herself.
- f. \*John discussed undressing myself in public with Sally.

We believe the distinction between free and nearly free control has not been made clearly in the literature before, both usually taken to fall under nonobligatory control.

The most restricted form of control is generally called obligatory control in the literature; it appears in many object complements and in adjunct clauses under *in order to, before, without*, and so on. Standard examples appear in 19a,b: there are two possible targets of control in the matrix clause, but only one of them can serve as controller. There can be no split antecedents (19c), generic control (19d), long-distance control (19e), or speaker/hearer control (19f).

- (19) a. Sally persuaded Ben to take better care of himself/\*herself.
- b. Sally promised Ben to take better care of herself/\*himself.
- c. \*Sally promised/persuaded Ben to take better care of themselves.
- d. \*Sally promised/persuaded Ben to take better care of oneself.
- e. \*Amy thinks that Ben promised/persuaded Fred to take better care of herself.
- f. \*Ben promised/persuaded Fred to take better care of myself/yourself.

We call this situation UNIQUE CONTROL. A major question is how the unique controller is determined. Most of the present article concerns how one important class of cases

of unique control is determined by the semantics of the head that selects the controlled complement.

Another type of control occurs in infinitival indirect questions in object position: there is a choice between a single controller in the main clause and generic control, but the other options available in free and nearly free control are excluded (20a). If the WH-word is *whether*, generic control is excluded (20b). However, infinitival indirect questions in subject position can behave like free control (20c).

- (20) a. Harry<sub>i</sub> told Sally<sub>j</sub> how to <sub>j/gen/\*i/\*i + j</sub> defend herself/oneself/\*himself/  
\*themselves/\*myself.  
b. Harry asked Sally whether to take care of himself/\*oneself/\*herself.  
c. Amy<sub>i</sub> knows that how to take care of herself/oneself/myself/yourself/  
ourselves [ = you and me, Amy and me] is a tough question.

We might call the situation in 20a UNIQUE + GENERIC CONTROL; we have nothing to say about it here (though not for lack of interest!).

We emphasize that the syntactic position of a complement plays no direct role in the type of control it displays, contrary to a frequently cited claim of Manzini (1983). One half of her claim is that object complements require a controller (i.e. unique control) within the immediately dominating clause. But we have shown above examples of postverbal complements with free control (15), nearly free control (18), and unique control (19). The other half of her claim is that, in our terms, subject complements all have free control. We disprove this claim in §4.2, where we discuss some subject complements with unique control.

Our claim, by contrast, is that the type of control a complement displays is a consequence of the semantic role it is assigned by the head that selects it, not a consequence of its syntactic position or that of its controller.

**3. ACTIONAL COMPLEMENTS.** Most of the rest of this article is devoted to illustrating the following claim, which is prefigured in the literature as early as Lasnik & Fiengo 1974.<sup>4</sup>

- (21) Infinitival and gerundive complements that are selected by their head to be of the semantic type Action have unique control. The unique controller is the character to which the head assigns the role of Actor for that action—whatever its syntactic position.

The notion of action is relatively familiar, but we take a moment to make our use of it clear. We use the term SITUATION for any sort of state or event. ACTIONS are a special subclass of situations, detectable by the standard test *What X did was*.

- (22) a. Actions  
What Roberta did was run the race/read a book/think about physics.  
b. Nonactions  
What Roberta did was ?grow taller/\*strike Simmy as smart/\*realize it was raining.

When the actor of an action is animate, the default interpretation is that the action is performed voluntarily. Voluntary actions can be detected by standard tests such as the imperative and the adverbials *voluntarily* and *on purpose*.

<sup>4</sup> See also Steele 1981:ch. 4, which notes a number of semantic conditions on infinitival complements that we touch on in this article.

- (23) Voluntary actions
- |                             |   |
|-----------------------------|---|
| a. Run the race!            | Roberta ran the race voluntarily.             |
| b. Be quiet!                | Roberta was quiet voluntarily.                |
| c. Be examined by a doctor! | Roberta was examined by a doctor voluntarily. |
- Nonvoluntary (non)actions
- |                            |   |
|----------------------------|---|
| d. *Grow taller!           | *Roberta grew taller voluntarily.             |
| e. *Strike Simmy as smart! | *Roberta struck Simmy as smart voluntarily.   |
| f. *Realize it's raining!  | *Roberta realized it was raining voluntarily. |

As observed as long ago as Fischer & Marshall 1969, the possibility of a VP expressing a voluntary action is heavily conditioned by pragmatics. For example, passives are normally nonvoluntary, but the well-worn example *be examined by a doctor* can be voluntary; as an imperative it is understood as *get yourself examined by a doctor*. Similarly, *be hungry* cannot be voluntary, but *be quiet* can, under the interpretation *make yourself quiet*.

We call complements that express actions ACTIONAL complements and those that express situations (which include actions) SITUATIONAL complements. Some verbs select specifically for voluntary actions; some for any kind of action; others, still less choosy, permit their complements to be any sort of situation. The verb *urge*, for instance, selects voluntary actional complements: its complement must be something one can do voluntarily (24a), and this complement has unique control (24b). By contrast, *talk to NP about NP* allows its complement to be any state or event (25a), and control is nearly free (25b). (The residue of situations that are NOT actions does not appear to form a natural semantic class; there is no verb that selects for only such complements.)

- (24) a. Miriam urged Norbert to dance with Jeff/\*be six years old.  
 b. Miriam<sub>i</sub> urged Norbert<sub>j</sub> to  $j^{*/i^{*i}} + j^{*/gen}$  dance with Jeff.
- (25) a. Miriam talked to Norbert about dancing with Jeff/being six years old.  
 b. Miriam<sub>i</sub> talked to Norbert<sub>j</sub> about  $i/j/i + j/gen$  dancing with Jeff.

This illustrates the basic generalization stated in 21.

We eventually show (§6) that various interesting cases of control arise when the semantic type of a complement diverges from the type selected by the verb. Under such conditions the semantic composition of the sentence is subject to COERCION, which inserts extra semantic material to establish well-formedness. Such coercions account for some well-known exceptions to control equations, as well as for some cases not previously cited.

As part of our argument that control is essentially a semantic phenomenon, we need to show that the selection of actional vs. situational complements cannot be reduced to some sort of syntactic selection—that the two do not correlate precisely.

Can actional vs. situational be correlated with infinitivals vs. *that*-complements? No. Some verbs, such as *wish*, *hope*, and *claim*, select *that*-complements and infinitival complements, both of which are situational.

- (26) a. Nancy wishes/hopes that she will run the race/that she will grow taller.  
 b. Nancy wishes/hopes to run the race/to grow taller.  
 c. Beth claims that she ran the race/that she has grown taller.  
 d. Beth claims to have run the race/to have grown taller.

*Plan* selects either a *that*-complement or an infinitival, both of which are actional.

- (27) a. Hilary planned that she would run the race/\*that she would grow taller.  
 b. Hilary planned to run the race/\*to grow taller.<sup>5</sup>

And some verbs, for instance *tell* and *persuade*, select situational *that*-complements and actional infinitival complements.<sup>6</sup>

- (28) a. Nancy told/persuaded Ben that he could run the race/that he would grow taller.  
 b. Nancy told/persuaded Ben to run the race/\*to grow taller.  
 (also *swear, decide, forget, occur to NP, teach, learn*)

Thus the distinction between situational and actional complements does not correlate with *that*-clauses vs. infinitivals in syntax.

Can situational vs. actional be correlated with selecting InfC vs. InfP? No. At first glance this might seem promising. For instance, as seen above, *hope* and *wish* take situational complements; they also allow InfC. By contrast, *try* and *attempt* require actional complements and allow only InfP.

- (29) a. Bill hoped/wished (for Harry) to run the race/to grow taller.  
 b. Bill tried/attempted (\*for Harry) to run the race/\*to grow taller.

However, *plan* allows an InfC but requires an actional complement (30a), and *lucky* and *unlucky* allow a situational complement but require an InfP (30b) (although see also n. 5).

- (30) a. Hilary planned (for Ben) to run the race/\*to grow taller.  
 b. Norman is lucky/unlucky (\*for Ben) to have run the race/to have grown taller.

Thus there is no correlation here either.

Finally, both situational and actional complements can be expressed as gerunds. Gerundive complements of verbs like *discuss* and *mention* express situations, but gerundive complements of verbs like *refrain from* and *pressure into* require voluntary actions.

- (31) a. Sue discussed/mentioned running the race/growing older.  
 b. Sue refrained from running the race/\*growing older.  
 c. Sue pressured Joe into running the race/\*growing older.

Still, despite all this variation, there are strong tendencies: the default situational complement is a tensed *that*-clause, and the default actional complement is an InfP.

<sup>5</sup> Richard Oehrle has pointed out to us that only *plan to VP* requires an action complement, as the complement in (i) is clearly a situation. This difference appears to correlate with the difference between (ii) and (iii).

- (i) Hilary planned for there to be thirty people at the meeting.  
 (ii) Hilary planned a meeting.  
 (iii) Hilary planned for winter.

In 27b and (ii), the complement denotes an action Hilary is planning to perform; in (i) and (iii), the complement denotes a situation whose contingencies are addressed by Hilary's plans.

It appears that *plan that* has two senses. In one sense, which is equivalent to 'make a plan', it selects an actional complement, which explains 27a. But *plan* may also have the sense of *expect*; hence (iv) is acceptable.

- (iv) Hilary planned that there would be thirty people at the meeting.

<sup>6</sup> This class of verbs provides an important piece of evidence for the semantic difference between situational and actional complements. The infinitival complements in 28b have a close paraphrase with a *that*-clause: *Nancy told/persuaded Ben that he should run the race*. However, as observed in Searle 1983, Klein & Sag 1985, Jackendoff 1985, and Bratman 1987, the two forms are not entirely equivalent, since we can without contradiction juxtapose each with the negation of the other.

- (i) Nancy persuaded Ben to run the race, but she never persuaded him that he SHOULD run it.  
 (ii) Nancy persuaded Ben that he should run the race, but she never actually persuaded him to RUN it.

InfC, GerC, and GerP seem to fall somewhere in between. Although many verbs are lexically marked with a nondefault syntactic selection, no verb totally reverses the default case, assigning a situational complement to an infinitival and an actional complement to a *that*-clause.

With the notion of selection of actional complements in place, we return to our proposed generalization 21: predicates that select actional complements require unique control. Examples 32–34 illustrate the generalization.

- (32) Free control predicates: not restricted to actional complements
- a. Volitional actions
- |   |                      |
|---|----------------------|
| $\left. \begin{array}{l} \text{Running the race} \\ \text{Being quiet} \\ \text{Being examined by a doctor} \end{array} \right\}$ | annoys Max/is a drag |
|---|----------------------|
- b. Nonvolitional actions
- |   |                      |
|---|----------------------|
| $\left. \begin{array}{l} \text{Growing taller} \\ \text{Striking Simmy as smart} \\ \text{Realizing it's raining} \end{array} \right\}$ | annoys Max/is a drag |
|---|----------------------|
- (33) Nearly free control predicates: not restricted to actional complements
- a. Volitional actions
- |                          |   |
|--------------------------|---|
| Marsha spoke to Ed about | $\left. \begin{array}{l} \text{running the race} \\ \text{being quiet} \\ \text{being examined by a doctor} \end{array} \right\}$ |
|--------------------------|---|
- b. Nonvolitional actions
- |                          |  |
|--------------------------|--|
| Marsha spoke to Ed about | $\left. \begin{array}{l} \text{growing taller} \\ \text{having struck Simmy as smart} \\ \text{realizing it's raining} \end{array} \right\}$ |
|--------------------------|--|
- (34) Unique control predicates: restricted to actional complements
- |  |  |
|--|--|
| $\left. \begin{array}{l} \text{Fred promised (Louise) . . .} \\ \text{Fred persuaded Louise . . .} \end{array} \right\}$ |  |
|--|--|
- a. Volitional actions
- |  |  |
|--|--|
| $\left. \begin{array}{l} \text{to run the race} \\ \text{to be quiet} \\ \text{to be examined by a doctor} \end{array} \right\}$ |  |
|--|--|
- b. Nonvolitional actions
- |  |  |
|--|--|
| $\left. \begin{array}{l} \text{*to grow taller} \\ \text{*to strike Simmy as smart} \\ \text{*to realize it was raining} \end{array} \right\}$ |  |
|--|--|

As further confirmation of the generalization, notice that verbs such as *tell*, *shout*, and *call* (belonging to a class discussed in §4.2) show an alternation in their complement types. When they occur with *about* + gerund, they select situations and take nearly free control. When they occur with infinitives, they select voluntary actions and take unique control.

- (35) a. Fred<sub>i</sub> told/shouted to/called to Louise<sub>j</sub> about <sub>i/j</sub><sub>i + j/gen</sub>running the race/  
growing taller.
- b. Fred<sub>i</sub> told/shouted to/called to Louise<sub>j</sub> to <sub>j/\*i/\*i + j/\*gen</sub>run the race/\*grow taller.

**4. UNIQUE CONTROL BY OBJECTS AND BY SUBJECTS.** We now turn to differentiating some of the cases of unique control. Among the standard cases of unique control are

transitive verbs for which the object is unique controller, such as *persuade* (19a), and transitive verbs for which the subject is unique controller, such as *promise* (19b). The *promise* class was Rosenbaum's (1967) leading exception to the MINIMAL DISTANCE PRINCIPLE (MDP), which claimed to determine the controller uniquely on the basis of counting nodes from potential controller to the complement in syntactic structure. This class retains its exceptional status in Hornstein's (1999) approach to control, which seeks to derive the MDP from constraints on movement. Of course the MDP already fails to account for long-distance control in subject complements and for free and nearly free control in object complements (e.g. *John talked to Sarah about defending himself*). This suggests that, whatever its attractions, the MDP should be abandoned forthwith. The question is therefore what accounts for the difference in controller choice with *persuade* and *promise*.

The touchstone of semantically based analyses of unique control (see references in §1) is that the difference has something to do with the meanings of these predicates. In §4.1 we review the evidence that the difference between *persuade* and *promise* has to do with semantics, not syntax; in §4.2 we review two classes of communication verbs and a class of adjectives with unique control, driving the conclusion home further.

**4.1. UNIQUE CONTROL IS DETERMINED BY SEMANTIC ROLES.** The verbs that require their objects to be unique controller span a number of semantic classes, some of which are shown in 36a,b, and c. There are also verbs and nominals whose unique controller is the object of a PP complement, seen in 36d,e. The sentences in 37 verify that the verbs in 36 select for actional complements.

- (36) a. John<sub>i</sub> forced/helped/enabled/pressured Susan<sub>j</sub> to <sub>j/\*i/\*gen</sub>take care of herself/\*himself/\*oneself.  
 b. John<sub>i</sub> kept/prevented Susan<sub>j</sub> from <sub>j/\*i/\*gen</sub>taking care of herself/\*himself/\*oneself.  
 c. John<sub>i</sub> ordered/instructed/encouraged/reminded Susan<sub>j</sub> to <sub>j/\*i/\*gen</sub>take care of herself/\*himself/\*oneself.  
 d. John<sub>i</sub> counted on/relied on/called upon Susan<sub>j</sub> to <sub>j/\*i/\*gen</sub>take care of herself/\*himself/\*oneself.  
 e. John<sub>i</sub>'s order/instructions/encouragement/reminder to Susan<sub>j</sub> to <sub>j/\*i/\*gen</sub>take care of herself/\*himself/\*oneself.
- (37) John \*forced/?helped/?enabled/\*pressured Susan to be tall.  
 ?John kept/prevented Susan from being tall.  
 \*John ordered/instructed/encouraged/reminded Susan to be tall.  
 John ?counted on/?relied on/\*called upon Susan to be tall.

There seems to be only one transitive verb, *promise*, that requires the subject to be the unique controller (38a). But there are several other verbs and adjectives that take PP complements and assign unique control to the subject (38b,c). The nominals of these verbs (38d), plus quite a few semantically related nominals (38e), also require unique control by the subject.<sup>7</sup> Example 39 shows that the verbs in 38 select actional complements.

<sup>7</sup> Why has the size of this class not been previously recognized? The reason seems to be that people have not looked at the nominals. Most of the verbal counterparts of the nominals in 38e do NOT SYNTACTICALLY license the relevant argument structure. They do allow an InfP (i); and they do allow an indirect object plus some other complement (ii–iv). But for some reason they exclude the combination of indirect object plus InfP (v); this is presumably a fact of syntactic selection.

- (i) John offered/pledged to leave.  
 (ii) John offered a cookie to Susan; John offered Susan a cookie.

- (38) a. John<sub>i</sub> promised Susan<sub>j</sub> to <sub>i/\*j/\*gen</sub>take care of himself/\*herself/\*oneself.  
 b. John<sub>i</sub> vowed to/pledged to/agreed with/is obligated to Susan<sub>j</sub> to <sub>i/\*j/\*gen</sub>take care of himself/\*herself/\*oneself.  
 c. John<sub>i</sub> learned from Susan<sub>j</sub> to <sub>i/\*j/\*gen</sub>take care of himself/\*herself/\*oneself.  
 d. John<sub>i</sub>'s vow to/pledge to/agreement with/obligation to Susan<sub>j</sub> to <sub>i/\*j/\*gen</sub>take care of himself/\*herself/\*oneself  
 e. John<sub>i</sub>'s offer/guarantee/oath/commitment to Susan<sub>j</sub> to <sub>i/\*j/\*gen</sub>take care of himself/\*herself/\*oneself
- (39) \*John promised Susan to be tall.  
 \*John vowed to/pledged to/agreed with/is obligated to Susan to be tall.  
 \*John learned from Susan to be tall.

Since 36 and 38 are completely parallel in syntactic constituency, there is no overt syntactic basis for the difference in control. Manipulation of the nominals makes this even clearer. Compare 40, with *order*, and 41, with *promise*. These completely elude a solution in terms of syntactic structure: the controller is in too many different positions—including in a previous sentence. The clear generalization is that the complement is controlled by the recipient of the order and the giver/maker of the promise, wherever that character may be located in the syntax. (The thematic roles giver and recipient are notated by pre-subscripts and post-subscripts respectively on *order* and *promise*.)<sup>8</sup>

- (40) a. the order to Susan<sub>j</sub> from John<sub>i</sub> to <sub>j/\*i</sub>take care of herself/\*himself  
 b. John<sub>i</sub> gave Susan<sub>j</sub> some kind of <sub>i</sub>order<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 c. Susan<sub>j</sub> got from John<sub>i</sub> some kind of <sub>i</sub>order<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 d. A: Susan got an order from John.  
     (or John gave Susan an order.)  
     B: What was it?  
     A: I think it was to take care of herself/\*himself.  
     (also *instructions, encouragement, reminder, invitation, advice*)
- (41) a. the <sub>i</sub>promise<sub>j</sub> to Susan<sub>j</sub> from John<sub>i</sub> to <sub>i/\*j</sub>take care of himself/\*herself  
 b. John<sub>i</sub> gave Susan<sub>j</sub> some sort of <sub>i</sub>promise<sub>j</sub> to <sub>i/\*j</sub>take care of himself/\*herself.  
 c. Susan<sub>j</sub> got from John<sub>i</sub> some sort of <sub>i</sub>promise<sub>j</sub> to <sub>i/\*j</sub>take care of himself/\*herself.  
 d. A: John made Susan a promise.  
     B: What was it?  
     A: I think it was to take care of himself/\*herself.  
     (also *vow, offer, guarantee, pledge, oath*)

The two paradigms together show that no principle based on syntactic structure can account for controller position, since apart from control the paradigms are syntactically

- (iii) John guaranteed Susan that Fred would come.  
 (iv) John pledged to Susan that Fred would come.  
 (v) \*John offered/guaranteed/pledged (to) Susan to leave.

<sup>8</sup> Note that, as in §1, we have given *order* and *promise* in 40b,c and 41b,c a specifier that precludes a genitive NP (*\*John's some sort of order, \*some sort of John's promise*), so it is impossible to treat the controller of the complement as a null NP in the specifier of *order*. Rather, control has to be passed down via conceptual structure, where the giver of the promise is explicitly represented. (This argument appeared in Jackendoff 1974 and Williams 1985.)

identical. All that varies is the lexical semantics of the nominal. Control with the verbs *order* and *promise* follows the same generalization. With both verbs, the role of giver falls in subject position, and recipient falls in object position.<sup>9</sup>

*Order* of course undergoes a normal passive, in which case the surface subject is controller (42a). This case alone cannot show us whether control is syntactic or semantic. But *order* and some other verbs in this class permit an impersonal passive of the form 42b—for which there is no corresponding active (42c).

- (42) a. Susan was ordered by John to take care of herself.  
 b. It is ordered/advised/encouraged by the authorities not to shoot oneself/  
 \*themselves.  
 c. ??The authorities order/advise/encourage not to shoot oneself.

The controller in 42b is not the syntactically overt argument, but rather an implicit generic argument that functions as recipient of the order, advice, or encouragement.

As is well known, the verb *promise* is exceptional in that 43a, the passive of 38a, is ungrammatical—despite the fact that another subcategorization frame of *promise* does passivize (43b), and despite the fact that the corresponding nominal passive 43c is grammatical. We take this to be a syntactic fact but have no further explanation.<sup>10</sup>

- (43) a. \*Susan was promised by John to take care of himself/herself.  
 b. Susan was promised a new bike by John.  
 c. the promise to Susan by John to take care of himself/\*herself

However, a passive IS possible in the very special case 44 pointed out by Hust and Brame (1976); here, again exceptionally, the controller is the surface subject of the passive—the RECIPIENT of the promise.

- (44) Susan<sub>j</sub> was promised (by John<sub>i</sub>) to <sub>j/\*i</sub>be allowed to take care of herself/  
 \*himself.

Hust and Brame (and many subsequent writers) take this as a fatal counterexample to the thematically based theory of control in Jackendoff 1972, but a little further examination is revealing. The relevant configuration is strikingly narrow: it is fully acceptable only when the complement is a passive verb of permission, as seen from the contrast between 44 and 45a. Example 45b shows that the same complement shifts control to the recipient of the promise in the nominal construction; 45c, pointed out in Bresnan 1982, shows an impersonal passive, closer in form to 45b. Examples 45d,e, from Sag & Pollard 1991, are in our judgment less acceptable than 44 and 45b,c, but certainly better than 45a. We find the previously uncited 45f better than 45d,e.

- (45) a. \*Susan was promised  
 { to permit John to leave }  
 { to get permission to leave }  
 { to leave the room }  
 { to be hit on the head }

<sup>9</sup> This conclusion also has as a consequence that constructional meaning (à la Fillmore et al. 1988 and Goldberg 1995) has little to do with the control problem. It is true, as Takagi (2001) observes, that there is a strong bias toward interpreting *NP V NP to VP* as object control, and this may be a default constructional meaning that makes it hard for some speakers (especially young ones, as in C. Chomsky 1969) to get subject control readings. But in the end the choice of control type is a matter of predicate and complement semantics, as revealed especially by the nominals.

<sup>10</sup> The literature recognizes the absence of the passive 43a as ‘Visser’s generalization’ (Bresnan 1982). Pollard and Sag (1994) offer an explanation in terms of their version of binding theory, but have no explicit solution for why the corresponding nominal 43c is good.

- b. the promise to Susan to be allowed to take care of herself
- c. It was promised to Susan to be allowed to take care of herself.
- d. ?Grandma promised the children to be able to stay up for the late show.
- e. ?Montana was promised (by the doctor) to be healthy by game time on Sunday.
- f. Susan was promised to be helped/encouraged/enabled to take care of herself.

Thus, if anything, this exceptional case depends MORE heavily on semantics than do the cases cited in 41. In particular, to the extent that 45d–f are acceptable, it is because the situation described by the complement is more plausible for the recipient of the promise than for the promiser (the source). This case generalizes with a paradigm to appear in §4.2; we work towards a solution in §6.<sup>11</sup>

Our other example of a subject control verb, *learn from* (38c), assigns control not to the source (the teacher), but to the recipient, which happens to fall in subject position. Examples like 46 demonstrate this dependency.

- (46) a. It was learned from Susan to take care of oneself/\*herself.
- b. A: John learned something from Susan.
- B: What was it?
- A: I think it was to take care of himself/\*herself.

(*Oneself* in 46a presumably is appropriate because the impersonal passive has an implicit generic underlying subject.)

<sup>11</sup> The other predicates in this class, *vow*, *be obligated*, and *guarantee*, each have different behavior in this paradigm. Since *vow* takes a PP rather than an NP complement before an infinitive, it simply does not undergo passive. *Be obligated to NP to VP* is adjectival, so it too does not undergo passive. *Guarantee* occurs only marginally in the active with a recipient argument (??*John guaranteed (to) Susan to take care of her*). However, surprisingly, it does occur in a passive parallel to 44: *Susan was guaranteed to be allowed to take care of herself*. Some of the nominals, such as *offer*, can be substituted into 45b with no problem; others, such as *obligation*, cannot.

Larson (1991) attributes the curious control behavior of the verb *promise* to its occurring syntactically in the ditransitive construction, as in *I promised (you) a rose garden*. He compares *promise* to numerous other verbs that do not occur in the ditransitive construction and do not take subject control. However, there are three important omissions in his account. (1) Larson does not look at all at the behavior of the nominal *promise*, in particular at the facts adduced here, which in fact have been in the literature since at least Jackendoff 1974; (2) he does not look at the verb *pledge*, which, as shown in 38b, does not occur in a ditransitive but still allows subject control; and (3) he does not consider the verb *tell*, which has almost the same syntactic distribution as *promise*, in particular occurring in a ditransitive with optional indirect object (*tell (Bill) a story*), yet has object control (§4.2).

The syntactic peculiarities of *promise* are amplified in its evil twin, *threaten*. In particular, fewer combinations are possible; in the passive the complement must be a *with*-GerP instead of an infinitive; in the nominal the complement must be an *of*-GerP; and control can switch to the (underlying) object given the right semantics.

- (i) Susan threatened Bill
- (ii) Susan threatened to punish Bill.
- (iii) \*Susan threatened Bill to punish him.
- (iv) Susan<sub>i</sub> threatened Bill<sub>j</sub> with \*<sub>i</sub>punishing him/?<sub>j</sub>being punished.
- (v) Bill was threatened with being punished/?leaving the room.
- (vi) \*Susan's threat to Bill of punishing him/being punished
- (vii) Susan's threat to punish Bill
- (viii) the threat to Bill of being punished
- (ix) What Susan<sub>i</sub> threatened Bill<sub>j</sub> with was <sub>j</sub>being made fun of/?<sub>i</sub>making fun of him

We have no explanation for this distribution, which so far as we know has not been explored in the literature.

Further light is thrown on the contrast between the *promise* and *persuade* classes by four predicates that allow either subject or object control: *contract with*, *bargain with*, *arrange with*, and *make a deal with*—not surprisingly, semantically related to each other. Example 47b shows that this is not nearly free control, since split antecedents and generic control are not possible.

- (47) a. John<sub>i</sub> contracted with Susan<sub>j</sub> to <sub>i/j</sub>take care of himself/him.  
 b. \*John<sub>i</sub> contracted with Susan<sub>j</sub> to <sub>i+j/gen</sub>take care of themselves/oneself.  
 (also *bargain with*, *arrange with*, *make a deal with*)

We think that these verbs, like *rent* (*rent X to Y/rent X from Y*), have ambiguous thematic roles. One reading of *contract with* parallels *hire*: the object gets paid by the subject and controls the complement (48a). The other parallels *hire oneself out*: the subject gets paid by the object and controls the complement (48b). Examples 48c and d are another pair with exactly parallel semantics and different syntax.

- (48) a. John<sub>i</sub> hired Susan<sub>j</sub> to <sub>j/\*i</sub>take care of him/\*himself.  
 b. John<sub>i</sub> hired himself out to Susan<sub>j</sub> to <sub>i/\*j</sub>take care of her/\*herself.  
 c. John<sub>i</sub> gave Susan<sub>j</sub> \$500 to <sub>j/\*i</sub>take care of him/\*himself.  
 d. John<sub>i</sub> got \$500 from Susan<sub>j</sub> to <sub>i/\*j</sub>take care of her/\*herself.

In each case the recipient of the money is controller of the complement. We can see no independent motivation for a syntactic difference between the two control possibilities in 47a, nor any plausible candidates for alternative structures.

**4.2. SOME COMMUNICATION VERBS AND SOME ADJECTIVES WITH UNIQUE CONTROL.** A class of verbs pointed out by Perlmutter (1971) has a paradigm like 49. With infinitival complements, they all express communication of an order or advice, and control generally goes with the addressee, expressed as the object of *to* (49b).

- (49) a. John shouted (to Sally) for Harriet to leave.  
 b. John<sub>i</sub> shouted to Sally<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself/ \*themselves.<sup>12</sup>  
 (also *say*, *yell*, *call*, *signal*)

Moreover, they all occur also with a *that*-complement; and as seen in 35a, many of them also take a gerundive complement with nearly free control. As seen in 35, the infinitival complements are restricted to voluntary actions (e.g. \**John shouted to Sally to get hungry*), but the *that*-complements and gerundives can be any situation.

Semantically, *tell* also belongs in this class, but syntactically it differs, in that when it takes a clausal complement, the addressee is expressed as an indirect object.

- (50) John told (\*to) Sally to take care of herself.

Control might be construed here as an ordinary case of the minimal distance principle. However, given the failures of the MDP demonstrated in §4.1, we might instead seek a semantic explanation. The syntactic and semantic accounts make different predictions when the addressee is implicit, as in 51. The MDP predicts that control should shift to the subject, while the semantic account correctly predicts that control is still assigned to the addressee. (We take it that *yourself* in 51 refers to an implicit addressee.)

- (51) John<sub>i</sub> just shouted to <sub>j≠i</sub>look out for him<sub>i</sub>/yourself/\*himself/\*oneself.

<sup>12</sup> The complement in 49b has another reading in which *himself* is acceptable: as a purpose reading, (*In order*) *to take care of himself*, *John shouted to Sally*. We are concerned here however with the reading of 49b in which the complement expresses the content of the speech-act.

We also note the possibility of indirect control, as in *Sherman shouted to Lt. Jones not to fire*, where the order is for the troops to fire, not Lt. Jones himself. However, this case falls under more general phenomena of indirect agency, as in *Sherman/Lt. Jones fired on Atlanta*, so we need not make special provision for it here.

Sag and Pollard (1991:93) present further examples of this sort, for instance 52a,b (their 89). Moreover, if the sentence is explicitly marked as generic, a generic implicit addressee immediately becomes possible (52c).

- (52) a. Mary realized that John had signaled to position herself near the door.  
 b. Mary was on the alert. John had signaled to position herself behind the door.  
 c. John always signals to position oneself/yourself near the door.

This paradigm closely resembles free control. For a number of reasons, however, we believe it is not free control but rather unique control, as our analysis above predicts. First, free control permits any NP in the main clause or above to function as controller; by contrast, the present case specifically excludes control by the subject, who is the agent and source of the communicative act denoted by the verb. Second, free control permits generic control; the present case permits it only in a generic sentence. Third, the interpretation of a communication verb always includes an intended addressee, whether explicit or implicit. When the complement is infinitival, the controller always turns out to be the addressee, even if determined by pragmatic factors in the discourse. Consider a case like 53.

- (53) John was waving out the window in the direction of some police<sub>k</sub> down the street. Mary<sub>j</sub>, standing next to John, realized that he<sub>i</sub> was signaling to <sub>k/\*j</sub>rescue her/\*herself.

The context fixes the implicit addressee as *the police*. Consequently the controller must be *the police*, not *Mary*, despite the fact that *Mary* is in the same structural position as in 52a. We conclude that the discourse effects in 51–53 are due to the pragmatics of determining the implicit addressee, not to how control is determined.<sup>13</sup>

Paradigms involving nominals, parallel to those for the *promise* and *persuade* classes, confirm this thematic assignment of control.

- (54) a. the signal from Mary<sub>i</sub> to John<sub>j</sub> to <sub>j/\*i</sub>look out for himself/\*herself  
 b. Mary<sub>i</sub> made some kind of <sub>i</sub>signal<sub>j</sub> to John<sub>j</sub> to <sub>j/\*i</sub>look out for himself/\*herself.  
 c. John<sub>j</sub> got some kind of <sub>i</sub>signal<sub>j</sub> from Mary<sub>i</sub> to <sub>j/\*i</sub>look out for himself/\*herself.  
 d. A: John got some kind of signal from Mary.  
 B: What was it?  
 A: I think it was to look out for himself/\*herself.

(also *shout*)

Another class of communication verbs is illustrated in 55; here the complement expresses the content of a request. As with the *shout* class, control generally goes with the addressee (55a), and the infinitival must express a volitional action (55b). The major difference from the *shout* class is that when the addressee is implicit, control shifts to the source of the speech act (55c). (Of course, this may look like a classic case of the MDP; we hope that by now the MDP is sufficiently discredited that we don't have to argue specifically against it here.)<sup>14</sup>

<sup>13</sup> As Sag and Pollard (1991) point out, 51 is an immediate counterexample to what they call 'Bach's generalization' (Bach 1979): that object-control verbs do not permit omission of their object. We therefore disregard various attempts in the literature to account for this non-fact. One such attempt is Manzini's (1983), who posits a null NP serving as addressee in such examples, thereby saving both Bach's generalization and her own claim that object complements must have controllers in the immediately dominating clause; we have addressed this claim above and return to it in a moment.

<sup>14</sup> *Ask* is unusual in this class in also permitting a gerundive complement with nearly free control, as in *Bill asked Sue about taking care of herself/himself/themselves/oneself*; the other verbs in this class, however,

- (55) a. John<sub>i</sub> asked Sally<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 b. John asked Sally to run the race/\*grow taller.  
 c. John<sub>i</sub> asked to <sub>i</sub>take care of himself<sub>i</sub>/\*him<sub>i</sub>/\*oneself/\*yourself.  
 (also *request, beg*)

Examples 56–58 add further members of the class with different syntactic properties but parallel semantics and identical control properties.

- (56) a. John pleaded (with Sally) for Harriet to leave.  
 b. John<sub>i</sub> pleaded with Sally<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 c. John<sub>i</sub> pleaded to take care of himself<sub>i</sub>/\*him<sub>i</sub>/\*oneself/\*yourself.  
 (57) a. John prayed (to Athena) for Harriet to leave.  
 b. John<sub>i</sub> prayed to Athena<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 c. John<sub>i</sub> prayed (to be able) to <sub>i</sub>take care of himself.  
 (also *appeal*)  
 (58) a. John beseeched \*(Sally) (for Harriet) to leave.  
 b. John<sub>i</sub> beseeched Sally<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 c. \*John beseeched to leave. (bad because addressee is syntactically obligatory)

As with various other classes we have examined, the syntactic variation among these verbs and the overlap of their syntax with other classes preclude a syntactic solution to control. In particular, suppose one were to adopt a solution to the *shout* verbs (like that of Manzini 1983) in which a null addressee in syntax controlled the infinitive structurally. Then, by parallelism, the *ask* verbs in 55–58 should also have a null addressee in syntax, and it too should control the infinitive. The contrast between 51 and 55c shows that this is the wrong solution; hence we have another case where syntactic structure cannot determine control.

Again we can test for thematically determined control, using situations in which the controller varies its syntactic position but retains its thematic role.

- (59) a. the plea by John<sub>i</sub> to Athena<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself  
 b. Athena<sub>j</sub> received a <sub>i</sub>plea<sub>j</sub> from John<sub>i</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 c. John<sub>i</sub> made a <sub>i</sub>plea<sub>j</sub> to Athena<sub>j</sub> to <sub>j/\*i</sub>take care of herself/\*himself.  
 d. A: John made a plea to Athena for something.  
 B: What was it?  
 A: I think it was to take care of herself/\*himself.  
 (also *request, prayer*)

In addition to switching control with an implicit addressee, these verbs are also capable of shifting control even when the addressee is explicit—if the VP complement is of a certain sort (60a); the same complements are simply ungrammatical with the *shout* class (60b), unless the verb is construed pragmatically as conveying a request.<sup>15</sup>

- (60) a. John<sub>i</sub> asked/begged/beseeched Sally<sub>j</sub> to <sub>i/\*j</sub>be allowed to defend himself/\*herself.  
 John<sub>i</sub> pleaded with Sally<sub>j</sub> to <sub>i/\*j</sub>be allowed to defend himself/\*herself.  
 John<sub>i</sub> prayed to Athena<sub>j</sub> to <sub>i/\*j</sub>be allowed to defend himself/\*herself.

do not. *Scream* seems ambiguous between this class and the *shout* class, presumably related to the fact that screaming is more readily construed as a request for help than shouting is.

<sup>15</sup> There are some examples in the literature where there appears to be controller shift:

- (i) The car signaled to turn left. (Sag & Pollard 1991)  
 (ii) The goalkeeper signaled (to the coach) to be replaced. (Růžička 1999)

We find (i) interpretable but a bit strange. In (ii), the goalkeeper is requesting an action, so *signal* is being used pragmatically as a verb of the *ask* class—thereby predicting this behavior.

- b. \*John shouted/said/yelled/signaled to Sally to be allowed to defend himself/herself.

A parallel contrast appears in the corresponding nominals.

(61) Indirect requests

- a. John<sub>i</sub>'s request to Sally<sub>j</sub> to <sub>j/\*i</sub>defend herself/\*himself  
 b. John<sub>i</sub>'s request to Sally<sub>j</sub> to <sub>i/\*j</sub>be allowed to defend himself/\*herself  
 Indirect orders or advice  
 c. John<sub>i</sub>'s shout to Sally<sub>j</sub> to <sub>j/\*i</sub>defend herself/\*himself  
 d. \*John's shout to Sally to be allowed to defend herself/himself

Strikingly, the complements that permit this shift of control are the same ones that allow shift of control in the *promise* class.

- (62) a. John<sub>i</sub> asked Sally<sub>j</sub> to <sub>i/\*j</sub>be allowed/able/encouraged/helped/enabled to leave.  
 b. He<sub>i</sub> begged me<sub>j</sub> to <sub>i/\*j</sub>be able to stop taking German. (recorded in conversation)

The usual tests show that the shift of controller is thematic, that is, to source, not to subject:

- (63) a. a plea to Sally<sub>j</sub> from John<sub>i</sub> to <sub>i/\*j</sub>be allowed to defend himself/\*herself  
 b. John<sub>i</sub> offered a <sub>i</sub>prayer to Athena<sub>j</sub> to <sub>i/\*j</sub>be able to defend himself/\*herself.  
 c. Athena<sub>j</sub> received a <sub>i</sub>request<sub>j</sub> from John<sub>i</sub> to <sub>i/\*j</sub>be able to defend himself/\*herself.  
 d. A: John offered a prayer to Athena for something.  
 B: What was it?  
 A: I think it was to be able to defend himself/\*herself.

Sag and Pollard (1991), as part of their thematically based theory of control, propose a solution to the controller shift in passive permission complements of *ask* and *promise* verbs. We agree with the spirit of their solution but find it needs some revision. We return to this problem in §6.

For a final case of unique control, consider a class of adjectives that select voluntary actions as subject complements. These clearly fall into a couple of relatively delimited semantic classes.

- (64) a. <sub>i</sub>Calling Ernie/\*Growing taller was rude/thoughtful of Bert<sub>i</sub>.  
 b. It was rude/thoughtful of Bert<sub>i</sub> to <sub>i</sub>call Ernie/\*<sub>i</sub>grow taller.  
 (also *polite, considerate, helpful, boorish, stupid, wise, smart, clever*)

Our hypothesis 21 predicts that these selected actional complements should have unique control, and in fact they do. (Note that this observation is fatal to the second half of Manzini's (1983) putative generalization: that, in our terms, control in a subject complement is always free control.)

- (65) Amy<sub>j</sub> thinks that <sub>i/\*j/\*i + j/\*gen</sub>calling attention to himself/\*herself/\*themselves/\*oneself/\*myself was rude of Bert<sub>i</sub>.

Control is semantically parallel in an alternate syntactic form with an object complement (66a), as well as in the nominal form (66b).

- (66) a. Amy<sub>j</sub> thinks that Bert<sub>i</sub> was rude to <sub>i/\*j/\*i + j/\*gen</sub>call attention to himself/\*herself/\*themselves/\*oneself/\*myself.  
 b. Amy<sub>j</sub> ignored Bert<sub>i</sub>'s rudeness in <sub>i/\*j/\*i + j/\*gen</sub>calling attention to himself/\*herself/\*themselves/\*oneself/\*myself.

Thus unique control again appears to be correlated with the semantic type of the predicate, and not with the syntactic position of the complement and controller; here control goes with the actor of the clause or NP dominating the complement.

The semantic nature of control here is further confirmed by situations in which the actor is implicit in the clause dominating the complement.

- (67) a. Bert<sub>i</sub> doesn't realize that <sub>i/gen</sub>calling attention to himself/oneself is rude.  
 b. Amy<sub>j</sub> is in big trouble: Bert<sub>i</sub> feels that <sub>j</sub>talking to him<sub>i</sub> that way was rude.  
 c. Amy<sub>j</sub> is in big trouble: Bert<sub>i</sub> can't stand such rudeness in <sub>j</sub>talking to him<sub>i</sub> that way.

This looks superficially like free control. Notice, however, that in every case the controller is the person who is being rude—that is, the controller is still the actor, a character explicit in conceptual structure but implicit in syntax.<sup>16</sup> In short, the apparent free control in 67a is actually due to freedom in assigning the implicit actor role. This precisely parallels the account of implicit addressee controllers with the verbs of communication such as *shout*.

**5. TOWARD A SEMANTICALLY BASED THEORY OF UNIQUE CONTROL.** Two descriptive generalizations were established in the previous section. First, heads (verbs, nouns, and adjectives) that select actional complements govern unique control; second, unique control is determined in terms of thematic roles that the head assigns to its arguments—though the thematic role that serves as controller differs from one semantic class of heads to the next. We now work out a somewhat deeper account of these generalizations.

First consider the conceptual structure associated with a controlled VP. Because all the arguments of the verb are saturated except the subject, the overall form of the conceptual structure is a function of one variable. A subset of such VPs denote actions. For present purposes it is not critical how this subset is formalized; let us use the notation *x ACT* for action VPs.<sup>17</sup> Then a semantic function that selects an actional complement will designate this argument as of the type [*x ACT*].

What semantic functions select for actional complements? One of the insights of Pollard & Sag 1994 and of van Valin & LaPolla 1997 is that the lexical items that govern unique control fall into a delimited number of semantic classes, and that each class determines a particular thematic role that serves as controller. We attribute this fact to the existence of a limited number of basic predicates that select actions as arguments; each of these can serve as a component of the meaning of verbs, nouns, and/or adjectives. Crucially for our purposes, each basic predicate establishes a control relation—a type of semantic binding—between its action argument and one of its other arguments. The syntactic control behavior exhibited by a particular word containing one of these basic predicates is then a consequence of how the arguments of the basic control predicate are mapped into syntax.<sup>18</sup>

<sup>16</sup> And this character cannot in general be represented in syntax by a null NP: we have chosen the form of 67c to preclude an NP in the relevant position.

<sup>17</sup> *ACT* can be understood as a general cover term feature for actions, as a feature of action predicates, or as the name of the category that contains actions, depending on one's theory of semantic decomposition. In the notation of Jackendoff 1990, the relevant class of VPs are those that contain *AFF(x)* on their action tier.

<sup>18</sup> Pollard and Sag's *CONTROL THEORY* (pp. 288, 302) enumerates three such predicates: influence (including causation), commitment (including intention and promising), and orientation (including desire and expectation). We think this approach is on the right track, but that one need not extract a special principle of grammar

Let us enumerate some of the more prominent cases of basic semantic predicates that select actional complements. Perhaps the simplest to explicate is *intend*. Contrast your *believing you will do X* (a situational complement) with your *intending to do X* (an actional complement). The difference is that in the case of an intention you are committed to playing an active role in making X take place—to executing the intention. Now, although someone else can *believe* you will do X, no one else can *execute your intention* to do X. That is, someone who holds an intention is necessarily identical with the individual who executes the intended action. (An apparent counterexample is *A intends for B to do X*. But in fact this sentence implicitly conveys an intended action on the part of A to *bring it about* that B does X. We deal with this case in §6.)

The predicate *INTEND* is thus a two-place function, one of whose arguments is an animate entity, the intender, and the other of which is an action. The point of the above observation is that the actor of the action argument of *INTEND* is necessarily bound to the intender. Hence the structure of the predicate has to be notated something like 68. In 68, we notate argument positions and the semantic restrictions on them (selectional restrictions) in italics. A bound position is notated by a Greek variable, which corresponds to a superscript on the binder. (See Jackendoff 1995 for a more detailed analysis of intending and its relation to believing.)

(68)  $X^\alpha$  INTEND [ $\alpha$  ACT]

As a consequence, any verb that contains the predicate *INTEND* as part of its meaning will have a control equation in which the intender uniquely controls the actional complement. Besides the verb *intend* itself, this class includes *decide* ‘come to intend’, and *persuade* ‘cause to come to intend’. In the latter case, the intender appears in object position and therefore the verb exhibits object control.

Another predicate that selects an actional argument is ‘be obligated’. This is a function of three arguments: person A is obligated to person B to perform some action. One cannot be obligated to perform someone else’s action; that is, the action is necessarily bound to the person under obligation. Person B is the person who benefits from the obligation being performed; this may or may not be the same person who has imposed the obligation on A (Jackendoff 1999). Note that obligation is not a special case of intention: one can have an obligation with no intention of carrying it out, and one can intend some action without being obliged to do it.

More formally, the basic semantic structure of obligation is therefore something like 69a; if we break out the beneficiary role with a special notation we get something like 69b.<sup>19</sup>

(69) a.  $X^\alpha$  OBLIGATED [ $\alpha$  ACT] TO  $Y$   
 b.  $\left[ \begin{array}{l} X^\alpha \text{ OBLIGATED } [\alpha \text{ ACT}]^\beta \\ \beta \text{ BENEF } Y \end{array} \right]$

The notion of obligation plays a rich role in control verbs. *Ordering* involves an individual in authority imposing an obligation on someone to perform an action. The person under obligation falls in object position, so the verb *order* is an object control verb. *Instructing* someone to do something conveys a similar sense (though instructing someone *how* to do something is different). For a different configuration, *promising*

called ‘control theory’. Rather, we would like the control equations of heads to follow insofar as possible directly from their meanings, couched in terms of conceptual structure.

<sup>19</sup> In the notation of Jackendoff 1990, the beneficiary role is indicated by the  $Y$  argument in the function  $AFF^*(Y)$  on the action tier.

is undertaking an obligation to the promisee. Since in this case the person under obligation falls in subject position, this is a subject control verb. Most of the subject control predicates of §4.1 are of this type: *pledging*, *vowing*, *taking an oath*, *guaranteeing*, and so on. Verbs like *contract with*, *hire*, and *hire oneself out* describe a transfer of money in exchange for an obligation to perform an action; the character that receives the money undertakes the obligation, and is therefore the controller.

Another basic semantic predicate that selects an actional argument is ‘be able’—a relation between an entity and an action. One cannot have an ability with respect to someone else’s performance of an action; that is, the person with the ability must be bound to the actor position in the action.

(70)  $X^\alpha$  ABLE [ $\alpha$  ACT]

This predicate is a component of the adjective *able*, the noun *ability*, and the root modal *can*. It is also a component of one sense of *learn to VP*, roughly ‘come to be able to VP’ and *teach NP to VP*, roughly ‘cause to come to be able to VP’. Thus *learn* is a subject control verb and *teach* is an object control verb.

Another sense of *learn to VP* involves normativity, as in *Elmer learned not to wear sneakers to work*. This implies both that Elmer learned that it is a norm not to wear sneakers to work, and also that he came to comply with that norm. Another sort of normativity appears in *remind NP to VP*, which carries the sense that NP is supposed to VP (because of either obligation or social norm); similarly, *remember to VP* and *forget to VP* carry the presupposition that the subject is supposed to VP. The basic predicate for normativity appears to range over the various senses of the root modal *should*. Again there is an inherent control equation: one cannot, by performing some action, comply with the norm that someone else is supposed to perform that action. So the predicate looks something like 71.

(71)  $X^\alpha$  SHOULD<sub>root</sub> [ $\alpha$  ACT]

The consequence is that *learn*, *is supposed to*, *remember*, and *forget* are subject-control predicates and *remind* is an object-control predicate.

A slightly more complicated case involves the class of force-dynamic predicates (Talmy 1985, Jackendoff 1990). These include predicates of causing, preventing, enabling, and helping; they also include variants in which the outcome is uncertain, such as pressuring and hindering; they include predicates both in the physical domain such as pushing and in the social domain such as encouraging. Talmy and Jackendoff analyze all of these as featural variants of a basic configuration: one character, the antagonist or agent, is involved in influencing the execution of an action by another character, the agonist. The features include:

- (72) a. Agent is working toward the execution of the action (e.g. causing, forcing) vs. agent is working against the execution of the action (e.g. preventing)
- b. Action is completed (causing, forcing) vs. not completed (pressuring, hindering)
- c. Agonist, in absence of agent’s influence, would not (attempt to) execute action (e.g. forcing),  
vs. agonist would naturally (attempt to) execute action (e.g. helping),  
vs. agonist would be unable to execute action (e.g. enabling, permitting)

The basic configuration looks like 73, where *CS* is the basic predicate to which the feature distinctions in 72 are applied.

(73)  $X$  CS  $Y^\alpha$  [ $\alpha$  ACT]

This is of course the control configuration in all the causative verbs like *force*, *help*, *assist*, *enable*, *prevent*, *hinder*, *pressure*, *encourage*, *discourage*, *permit*, *allow*, and so on. Because the agent always maps into subject position, these are all object-control verbs.<sup>20</sup>

What more conventional thematic role is assigned to the agonist? When the agent is working against the agonist's natural tendencies (the first option in 72c), the agonist passes the standard test for patients (74a). When the agent is working with the agonist's natural tendencies (the second and third options in 72c), the agonist behaves like a beneficiary (74b).

- (74) a. What Pat did to/\*for Stan was force him to leave/pressure him to quit/prevent him from talking.  
 b. What Pat did for/\*to Stan was help him leave/enable him to quit/allow him not to talk.

This observation will play a role in the next section.

The communication predicates like *shout* and *signal* now fall under our analysis. The meanings of these verbs appear to have two parts. First, the speaker is trying to influence the addressee to perform the action denoted by the complement—that is, these verbs are in part force-dynamic verbs. The addressee, being agonist, is controller. Second, the speaker's means of exerting influence is by communicating either an order or advice described by the VP complement. An order is the imposition of an obligation on the addressee; by 69, the person under obligation is controller of the action. Therefore the addressee of the order has to be controller. Advice is normative: you SHOULD do such-and-such. So conveying advice invokes schema 71, and again the addressee is controller.

Requesting is also attempting to influence the addressee to perform some action, so once again the addressee is the controller. But asking someone to do something is neither conveying an order nor giving advice. What seems to make requesting different is that the requester is saying 'do such-and-such FOR ME': the addressee of a request is the actor of the action as usual, but in addition the speaker is explicit or implicit beneficiary of the action. Using the notation for beneficiary in 69b, we arrive at the rather complex schema in 75.

$$(75) X^\alpha \text{ REQUEST } Y^\beta \left[ \begin{array}{l} [\beta \text{ ACT}]^\gamma \\ \gamma \text{ BENE} \text{F } \alpha \end{array} \right]$$

<sup>20</sup> At least some force-dynamic predicates display another configuration as well. In *The gas caused an explosion*, *The gas prevented a fire*, and *The window lets the light come in*, the subject is not acting on anything, it is just causing or preventing an event pure and simple. In this case there is no independent agonist; rather the agonist and the action are coalesced into a simple event, the effect, as in (i).

- (i) X CS [EVENT]

This provides an explanation of cases like (ii).

- (ii) a. Bill prevented there from being an explosion.  
 b. The new phone system enabled tabs to be kept on our private calls.

Here the expletive NP and the idiom chunk are obviously not arguments of the main verb; they play a role only in the interpretation of the subordinate clause. Thus, although these verbs are usually control verbs, here they look like raising to object or ECM verbs. The explanation is that the raising/ECM configuration is a mismatch between semantic argument structure, where there is a single situational argument such as that in (i), and syntactic argument structure, where there is an NP plus infinitive. The NP has no argument role in the main clause, only in the subordinate clause. This is the standard HPSG/LFG account.

This says that the requested act is performed by the addressee of the request (indexed  $\beta$ ), and that the act itself (indexed  $\gamma$ ) is for the benefit of the requester (indexed  $\alpha$ ). Complexity on this order seems inescapable in a description of what it means to request.

Finally, the adjectives with unique control have the curious characteristic of ascribing the same property to an actor as to his or her action. Spitting in public is a rude action; so someone who spits in public is a rude person. It is not clear how to formalize this, but the control equation is intuitively obvious: one cannot have such a property on the basis of someone else's action. So control follows from the semantics again.

Let us contrast the basic predicates in 68–75, which select actional complements, with the nearly free control predicates. As observed in §2, nearly free control occurs in gerundive complements of verbs of communication and thought and in complements of nouns that denote information-bearing objects like *book* and *hypothesis*, usually but not always with the preposition *about*. The controlled complement always denotes a proposition being communicated, considered, or contained in an information-bearing object (as in *a book about defending oneself*). Crucially, the characters transmitting and receiving information need bear no relation to the content of the information being transmitted. Thus there is no necessary semantic constraint on control as there is in the predicates in 68–75.

Let us also reexamine the situations with true free control presented in §2.3. Complements with free control occur both in object complements (76a–c) and in subject complements (76d–e).<sup>21</sup>

- (76) a. Jeff thinks that this outcome beats undressing himself/oneself/myself/yourself/ourselves [ = you and me, Jeff and me] in public.  
(also *outranks, is as good as, feels like*)
- b. Jeff thinks that this outcome entails undressing himself/oneself/myself/yourself/ourselves [ = you and me, Jeff and me] in public.  
(also *requires*)
- c. Jeff makes undressing himself/oneself/myself/yourself/ourselves [ = you and me, Jeff and me] in public almost attractive.
- d. Undressing himself<sub>i</sub>/oneself/myself/yourself in public wouldn't help Jeff<sub>i</sub>.  
Jeff<sub>i</sub> is in big trouble. Undressing himself<sub>i</sub> in public has caused a big scandal.
- e. It wouldn't help Jeff<sub>i</sub> to undress himself<sub>i</sub>/oneself/myself/yourself in public.  
Jeff<sub>i</sub> is in big trouble. It's caused a scandal to undress himself<sub>i</sub> in public.

These predicates select situational complements: examples like *Being taller wouldn't help Jeff* and *Jeff's being fat caused a scandal* are grammatical. Thus our generalization correctly predicts that they do not have unique control. These complements are also not understood in the way characteristic of nearly free control: as information being conveyed or understood by one of the characters in the sentence.

The predicates in 76a compare one situation to another; those in 76b describe contingencies between two situations. Now notice that the remaining three verbs in 76 are

<sup>21</sup> The standard examples of free control are subject complements of experiencer predicates, for example, *Amy thinks that undressing herself in public would bother Tom*. We have used examples here with nonexperiencer predicates, because we suspect that experiencer predicates have special control properties, requiring at least defeasibly that the experiencer control the complement. It is also possible that experiencer predicates fall under what Williams (1992) calls 'logophoric control'; since logophoricity depends on semantics, such

force-dynamic verbs: *cause*, *help*, and *make*.<sup>22</sup> Here, however, the complement clauses do not correspond to the EFFECT argument, as they do in the standard cases like *X forced Y to VP*. Rather, the subject complements in 76d,e are the agent causer argument—a situation is causing or helping something to happen; and the object complement in 76c is the agonist/patient argument—Jeff is making this situation become attractive.<sup>23</sup> The basic schema for force-dynamic verbs (73) says nothing to restrict control in these arguments, so they govern free control. The contrast between these cases and the standard cases shows that control cannot be determined by simply marking a verb ‘object control’: it is a particular argument of the verb over which the control equation is defined.

To sum up this section, we have shown how unique control is determined by the meanings of the predicates that govern it. For example, *promise* means ‘undertake an obligation’, and its control behavior follows from the inherent control equations of the constituent basic predicates. The verb could not mean the same thing and display different control. In particular, controller position is determined by semantic argument structure and not syntactic position. Moreover, we have seen the connection between unique control and actional complements: a variety of basic predicates that select actional complements have inherent control equations. We have not by any means dealt with the whole range of control predicates, but we have shown the plausibility of our approach in a significant range of cases.

**6. COERCION THAT SHIFTS CONTROL.** According to the story of unique control so far, a basic predicate that selects an actional argument inherently assigns control of this argument to a particular one of its other arguments. We now deal with two cases in which the designated character does not end up as controller. The second of these cases includes the exceptions with *promise* and the control shifts with *ask*. Following the approach of Sag & Pollard 1991, Pollard & Sag 1994, we argue that each of these cases is indicative not of defects in the basic theory, but rather of further complications going on in the syntax-semantics interface that fall under the class of specialized coercions.

**6.1. THE *bring about* COERCION.** According to the description of intention in the previous section, a verb of intending should not permit a local subject: the intender

a solution supports our overall argument. But we have not worked through the details and this article is long enough already.

<sup>22</sup> Under Talmy’s construal of force dynamics, *entail* and *require* are also force-dynamic verbs, in the logical rather than the physical or social domain.

<sup>23</sup> One might decide that  $[[_{VP}V\text{-ing} \dots ] \textit{attractive}]$  in 76c is a small clause complement of *make*, in which case we have yet another syntactic configuration with free control.

We should also remember a class of examples observed by Postal (1970) in which the predicates come from the classes in 76a,b, and both the subject and object are controlled VPs. Significantly, control in the two must match (ii).

- (i) Amy knows that shaving herself/myself/oneself is like torturing herself/myself/oneself.
- (ii) \*Amy knows that shaving herself is like torturing myself/oneself.

In (iii) the two freely controlled complements are both in the VP and again control must match; (iv) has yet another combination, not quite the same.

- (iii) Fred makes shaving myself like torturing myself/\*oneself/\*himself.
- (iv) Shaving himself reminds Fred of torturing himself/oneself.  
Shaving oneself reminds Fred of torturing oneself/\*himself.

We have no explanation for either this need for matching or for the discrepancy in (iv).

should not be able to intend someone else's action. But this prediction is immediately counterexemplified by the most basic verbs of intending, *intend* and *plan*. Both allow an InfC (77a); *intend* also allows a *that*-subjunctive (77b) and *plan* a *that*-indicative complement (77c). What's worse, such complements can describe nonvoluntary situations as well as actions (77d–f).

- (77) a. Hilary intends/plans for Ben to come along to the party.  
 b. Hilary intends that Ben come along to the party.  
 c. Hilary plans that Ben will come along to the party.  
 d. Hilary plans for Ben to understand physics. (\*Ben voluntarily understands physics.)  
 e. Hilary plans for the cat to be fed. (\*The cat is voluntarily fed.)  
 f. Hilary plans for there to be more light in here. (\*There is voluntarily more light in here.)

The resolution to this apparent anomaly comes from observing that these sentences can be paraphrased approximately by 78.

- (78) a. Hilary intends/plans **to bring it about** that Ben comes along to the party/understands physics.  
 b. Hilary plans **to bring it about** that the cat be fed.  
 c. Hilary plans **to bring it about** that there is more light in here.

Hilary's intended action in 77, then, is understood to be a bringing about of the situation expressed in the complement. These ARE actions that Hilary can execute, restoring the generalization that one's intentions can be executed only by oneself.

We can verify this analysis by noting that the InfC and *that* complements of *intend* and *plan* have to be situations that CAN be brought about by voluntary actions. So, for instance, in 77, *Ben understands physics* and *the cat is fed* are not voluntary actions, but they can be voluntarily brought about (by someone other than Ben and the cat respectively). By contrast, a situation that cannot be voluntarily brought about by ANYONE is still unacceptable in these complements (except under a construal where, say, Nancy is a calendar reformer and Louise is casting a movie).

- (79) a. \*Nancy intends for next year to be 1636.  
 b. \*Louise asked Ben for Fred to be six years younger.

This contrasts with true situational complements, in which such situations are still normally acceptable, as in 80.

- (80) a. For next year to be 1636 would be astounding.  
 b. Louise wished for Fred to be six years younger.

This notion of bringing about is not explicitly present in any of the sentence's lexical items. Where does it come from? Any time we find a paraphrase relation like that between 77 and 78, where the paraphrases differ only in the presence of some extra material, we have the marks of a COERCION—a conventionalized omission of semantic material in syntactic expression. The mechanisms for licensing such extra material in the interpretation are now beginning to be fairly well understood (Briscoe et al. 1990, Pollard & Sag 1994, Pustejovsky 1995, Jackendoff 1997, for instance): the extra material is introduced by a conventionalized principle of interpretation that inserts extra semantic operators when necessary for semantic/pragmatic well-formedness. Two well-studied cases are illustrated in the single sentence 81. Note how the paraphrase differs just in containing the material in boldface.

- (81) One waitress says to another:  
 The ham sandwich over in the corner wants another coffee.

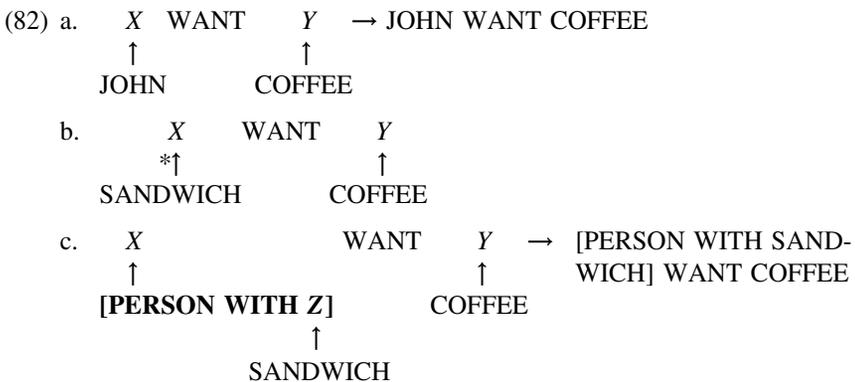
[ = The **person contextually associated with a ham sandwich** wants another **cup of coffee**.]

It is clear that *ham sandwich* does not lexically denote a person, and that *coffee* is lexically a mass rather than a count noun. The consensus in the literature (see Jackendoff 1997 and references therein) is that the parts of interpretation shown in bold are the product of auxiliary principles of interpretation. These are often termed principles of pragmatics and hence outside of grammar; yet they contribute material that makes the sentence semantically well-formed and that plays a role in the sentence’s truth-conditions (and Jackendoff 1992 demonstrates that they also play a role in anaphoric binding). However, the operators expressed by boldface material in the paraphrase are present only in semantics, not in syntax; this, if anything, is the sense in which they are pragmatic.

We can regard a coercion either as the insertion of extra semantic material in the course of converting syntax into semantics, or the omission of this material in the course of expressing the meaning. In short, a coercion is an abbreviation in the syntax-semantics interface.<sup>24</sup>

It is crucial to recognize that coercions are conventionalized—it is not as if anything goes. For instance, the coercion responsible for the interpretation of *coffee* in 81 is sometimes called the UNIVERSAL PACKAGER, but it is far from universal. It is truly productive only when applied to edible portions of liquid or semiliquid food (*water, pudding, etc.*). It is far less appropriate applied to, say, the portion of water necessary to fill a sprinkling can or to a truckload-sized portion of cement (in such a context, *\*I’ll bring you a water/cement* is out). That is, generally a coercion is restricted to certain (conventionalized) contexts, within which it is fully productive.

Example 82 shows how a coercion might work formally. We can think of the normal composition of a sentence meaning as insertion of the meanings of the arguments into the argument positions of the verb, as in 82a for *John wants coffee*. However, because of the selectional restrictions on the X argument of *want*, *sandwich* cannot be integrated into it (82b). Therefore the coercion (shown in boldface) is interposed as an ‘adapter’ that fits into the socket above and into which in turn the errant argument is plugged (82c).



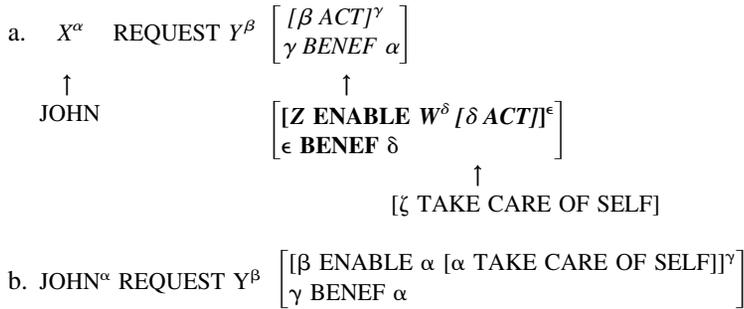
<sup>24</sup> Pollard and Sag treat the coercion involved in control as a lexical rule that adds the semantic material in question to the head verb before it combines with the rest of the sentence. We do not find such an approach conducive to a general treatment of coercion. For instance, it is odd to think of *ham sandwich* as undergoing a lexical rule to form a new lexical item that means ‘person with a ham sandwich’. Our preference is to see the coerced material as a conventionalized but freely available piece of semantic structure that is inserted to avoid anomaly. In any event, we concur with Pollard and Sag in emphatically NOT regarding coercion as the deletion of words from a syntactic structure, as in old-fashioned transformational grammar, or as the deletion of empty nodes from syntax. See Jackendoff 1990:ch. 3 for discussion.



This suggests that the coercion with *ask* abbreviates not the semantic material ‘bring it about that’ but rather a different force-dynamic relation: ‘allow/enable *X* to’, where *X* is bound to the asker in conceptual structure.<sup>25</sup>

Why should such a coercion be more plausible with asking than with shouting? The difference might be that an asker, unlike a shouter, is a beneficiary of the addressee’s action, and the character to whom permission is granted is also a beneficiary. An attempt at formalizing this coercion appears in 87. The individual pieces and where they are plugged into each other are shown in 87a, with the coercion in boldface; 87b shows the composed semantic structure (in which coinciding binding indices are resolved into a single index).

(87) John asked to take care of himself.



Thus the standard semantics of *ask* assigns control for the action to its addressee (index  $\beta$  in 87a) and binds the asker to the beneficiary of the action (index  $\alpha$ ). When the coercion is plugged into the requested action, the addressee becomes the enabler and the asker becomes the enablee. In turn, the coercion imposes its own binding conditions: the enablee performs the action enabled (index  $\delta$ ). Thus through this chain of binding, the asker comes to control the complement.

The crucial piece that establishes connection between the asker and the complement is the beneficiary role. It is the fact that this role is connected both to the asker and the enablee that permits the asker to be connected to the enablee and therefore to control the complement. This piece is missing with the *shout* verbs, which is why such a coercion does not work with these verbs.

This solution suggests a direct connection to the other problematic case with the *ask* verbs:

(88) John asked Susan to be allowed to take care of himself.

Sag and Pollard (1991) observe that *to be allowed to take care of himself* is not a voluntary action, and therefore that it does not satisfy the semantic selection of *ask*. They propose to invoke the *bring about* coercion, claiming that the coerced form of 88 is the interpretation 89.

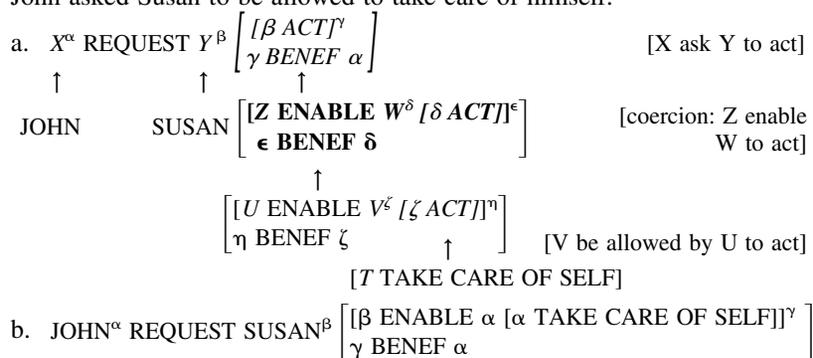
<sup>25</sup> Růžička 1999 is largely concerned with explaining such shifts with *ask* and *promise*. Lacking the notion of coercion, he resorts to (what we find) complex and unintuitive conditions on theta-grids. Eventually, though, he adverts (p. 61) to ‘silent’ *be allowed*, without any characterization other than conventionally motivated compression or conceptual-pragmatic ‘reconstruction’, which is essentially our solution here. What is interesting about his account is his claim that (in our terms) languages differ in whether they permit (or have conventionalized) these coercions involved in control. It is also our impression that Farkas’s (1988) treatment of control in terms of responsibility is somewhat loose because the mechanism of coercion was not known at the time of her work.

(89) John asked Susan **to bring about that he** be allowed to take care of himself. While we agree that the interpretation of 88 involves a coercion, we disagree with Sag and Pollard's invocation of the *bring about* coercion, for the same reasons we argued against it in 85: it is too broadly applicable. It predicts incorrectly that 90 should be acceptable, under the interpretation shown.

- (90) \*John asked Susan to be forced to leave.  
 (= 'John asked Susan to **bring it about that** he be forced to leave')  
 \*John asked Susan to understand physics.  
 (= 'John asked Susan to **bring it about that** he understand physics')

Our proposal is that in this case the complement is unified with (or overlaid on) the *allow/enable* coercion, instead of being plugged into its variable. The pieces of the interpretation are shown in 91a, and the composed structure appears in 91b.

(91) John asked Susan to be allowed to take care of himself.



This solution helps explain why the coercion is restricted to a delimited class of complements. As mentioned earlier, the only complements that we find really acceptable in this context are listed in 92.

- (92) John asked Susan to be allowed/encouraged/helped/enabled to take care of himself.

What *encourage*, *help*, and *enable* have in common with *allow* is that they are force-dynamic verbs whose agonist is a beneficiary rather than a patient, as shown in 74 above. The fact that just these verbs are permitted in 92 gives us an idea of the tolerances of the coercion—how closely an overlaid complement has to match the coerced material. Sag and Pollard's examples in 93 (1991:ex. 42e,f) are variations on this theme; they are less acceptable, we believe, because they fit the template less rigorously.

- (93) a. ?The children asked Grandma to be able to stay up for the late show.  
 [to be able here = 'be permitted by Grandma']  
 b. ??Montana asked the doctor to be healthy by game time on Sunday.

A remaining puzzle is precisely how the application of the coercion is regulated. For instance, *John asked Susan to leave the room* could potentially undergo the coercion and mean 'John asked Susan to allow him to leave the room'. In our dialect it cannot, but Farkas (1988) and Landau (2000) report that some speakers accept this reading (especially if there is an implied authority relation, as in *The student asked the teacher to leave the room* or *The goalkeeper asked the coach to be replaced*). Also, there seems no reason why *John asked to go* could not also have a reading that did not undergo

the coercion, and therefore meant ‘John asked [discourse addressee]<sub>i</sub> to go’. We do not understand the mechanics of coercion well enough yet to predict these exact results.<sup>26</sup>

Next consider the *promise* class, where control can shift to the recipient of the promise just in case the complement involves permission or enabling. We repeat the relevant examples from §4.1.

(94) Susan was promised (by John) to be allowed to take care of herself/\*himself.

- (95) a. \*Susan was promised  $\left\{ \begin{array}{l} \text{to permit John to leave} \\ \text{to get permission to leave} \\ \text{to leave the room} \\ \text{to be hit on the head} \end{array} \right\}$
- b. the promise to Susan to be allowed to take care of herself
- c. It was promised to Susan to be allowed to take care of herself.
- d. ?Grandma promised the children to be able to stay up for the late show.
- e. ?Montana was promised (by the doctor) to be healthy by game time on Sunday.
- f. Susan was promised to be helped/encouraged/enabled to take care of herself.

The arguments against a *bring about* coercion apply here just as they did with the *ask* verbs: the possibilities are too broad. However, the fact that the same complements appear in the problematic cases with *promise* and in the *ask* coercion suggests that the specialized *allow to* coercion can be generalized to the *promise* class. To argue that this is plausible, it is necessary to show that *ask* and *promise* have some relevant semantic factor in common.

The relevant factor appears to be the presence of a beneficiary. The asker is beneficiary of the requested action; the *recipient* of a promise is the beneficiary of the promised action. Thus, just as the beneficial granting of permission goes to the asker in 91, it should go to the recipient of the promise—as it in fact does in 94 and 95b–f. In short, we think the generalization is that control of the *be allowed to* coercion is determined by the beneficiary role in both cases. Significantly, this role is missing in the *shout* and *persuade* classes, and they do not undergo this coercion.

This still leaves the puzzle of why the *promise* coercion is so severely restricted—much more so than the *ask* coercion (see n. 11 for the parallel but more severe problems with *threaten*). Whatever accounts for these further restrictions, we believe that the *promise* class too is subject to a semantically specialized coercion. But we are not prepared at this point to go any further.

To sum up this section: three important exceptions to thematically based control prove to be constrained by very precise semantic conditions. We have proposed accounting for them in terms of two specialized coercions that license extra semantic material in the interpretation that is not present in syntactic structure. Once we recognize the presence of this material, we see that the semantic conditions on control are preserved—it is just that the relevant elements are not visible in syntax.

<sup>26</sup> There is some variation among verbs of asking which suggests that the matter may ultimately be a lexical one. For example, (i) and (ii) are ambiguous, while (iii) is not, to our ears.

- (i) John pleaded with Mary to go to the football game.  
 (ii) John begged Mary to go to the football game.  
 (iii) John asked Mary to go to the football game.

The variable here appears to be the strength of the benefit to the asker.

7. PARTIAL CONTROL AND THE JOINT INTENTION COERCION. We now turn to another dimension in the control problem, developed in detail in Landau 2000. This dimension cuts across the distinction among free, nearly free, and unique control. It is detectable when the complement contains a verb such as *meet*, which, when used intransitively, requires a collective subject: *John and Bill/the group met at six*, but *\*John met at six*. Naturally, when such verbs appear in a controlled complement, one expects that the controller should be collective, and so it must be—at least sometimes, as in 96a. Surprisingly, though, many predicates, such as those in 96b, do permit noncollective controllers of a collective complement.

- (96) a. John and Bill/\*John managed to meet at six.  
The committee/\*the chair dared to gather during the strike.  
b. John wanted to meet at six.  
The chair was afraid to gather during the strike.

The interpretation of 96b is that the controller performs the action IN ASSOCIATION WITH OTHERS. These others may be determined pragmatically from context or may be present as discourse antecedents. Landau calls this situation ‘partial control’, contrasting it with the ‘exhaustive control’ shown in 96a.

It is important to distinguish partial control from split-antecedent control. Split-antecedent control permits a plural reflexive in the infinitive complement; but partial control does not.<sup>27</sup> (Following Landau, we notate partial control with the subscript  $j + .$ )

- (97) Split antecedent control  
a. John<sub>i</sub> talked to Sarah<sub>j</sub> about  <sub>$i+j$</sub> meeting each other <sub>$i+j$</sub>  at six.  
b. Amy<sub>i</sub> figured that John<sub>j</sub> would discuss  <sub>$i+j$</sub> protecting themselves <sub>$i+j$</sub>  during the strike.  
(98) Partial control  
a. \*John<sub>i</sub> knows that Sarah<sub>j</sub> wanted to  <sub>$j+$</sub> meet each other at six.  
b. \*Amy<sub>i</sub> figured that John<sub>j</sub> was afraid to  <sub>$j+$</sub> protect themselves during the strike.

The problem is to figure out exactly what partial control means, and why it is available only with certain matrix predicates.

The key to understanding partial control, we believe, comes from the idea of COLLECTIVE INTENTION first proposed (to our knowledge) by Searle (1995); a similar idea is Clark’s (1996) notion of a JOINT ACTIVITY. Consider Amy and Beth together carrying a long table, one at each end. Amy does not simply intend to carry one end of the table, although that is all she is doing. Rather, according to Searle, her intention should be characterized as ‘WE intend to carry the table, in which MY role is to carry this end’. Similarly, a member of a team has the joint intention ‘WE intend to win the game, and MY role in this activity is to do such-and-such’. Note that although one can HOLD a joint intention, one cannot EXECUTE it; one can only execute one’s own role in the joint activity.

A presupposition of the joint intention ‘we intend’ is that the other participants share it. Of course this presupposition may be false, leading to various possibilities for

<sup>27</sup> One exception to this generalization is the verb *vote*, cited by Landau as an example of partial control pointed out as long ago as Lawler 1972. Oddly, it DOES permit plural reflexives in the complement. The semantically related predicates *propose*, *opt for*, and *be in favor of* have the same property.

- (i) I voted to  <sub>$i+$</sub> immolate ourselves, but I was overruled.  
(ii) I {proposed/opted for/was in favor of}  <sub>$i+$</sub> immolating ourselves, but I was overruled.

We have no explanation for these exceptions, but they certainly do form a natural class.

misunderstanding, defection, and deception. Clark shows how these possibilities play out in the context of conversation, which he describes as a particular sort of joint activity.

Establishing a joint intention requires some overt signal on the part of each partner; Clark calls these signals OFFER and UPTAKE. They may be as elaborate as a contract or as simple as shaking hands, saying 'okay', or giving a head nod. Consider the situation in 99 (based on an example of Landau's).

- (99) John and Mary have agreed to learn the same language, but they haven't decided which one yet.

Each participant must internally describe the plan as 'We agree to learn the same language'. But the choice of language cannot be established unilaterally; it must be established by offer and uptake: 'How about Romanian?' 'OK.'

Our hypothesis is that partial control occurs in contexts where the controller holds a joint intention with respect to the activity described by the complement. This hypothesis makes a number of predictions. First, complements exhibiting partial control should be voluntary collective activities. This is clearly true of *meet* and *gather* in 96b, and appears to be true in all the many examples cited by Landau. By contrast, collective states and collective nonvoluntary events do not appear to be felicitous as complements of partial control. Consider 100–102.

- (100) a. Hildy and I formed/constitute an alliance.  
 b. Hildy told me that she<sub>i</sub> wants to <sub>i+</sub>form/??<sub>i+</sub>constitute an alliance.  
 (101) a. ?George told Dick that he<sub>i</sub> looked forward to <sub>i+</sub>being jointly examined by the doctor.  
 b. ??George told Dick that he<sub>i</sub> looked forward to <sub>i+</sub>being jointly elected by the voters.  
 (102) a. The chair<sub>i</sub> hopes to <sub>i+</sub>disband soon after calling a vote.  
 b. ??The chair<sub>i</sub> hopes to <sub>i+</sub>disband soon in reaction to a bomb threat.

In 100, *forming* an alliance can be understood as an activity, but *constituting* an alliance is only a state; the latter is decidedly worse as a complement with partial control. Likewise, in 101, one can voluntarily be jointly examined by the doctor, but one cannot voluntarily be jointly elected by the voters; hence the latter is worse with partial control. Finally, in 102, disbanding after a vote is more of a preplanned voluntary action than disbanding in reaction to a bomb threat; hence the latter is worse with partial control.

A second prediction concerns Landau's observation about the temporal properties of complements that exhibit partial control. Verbs that prohibit partial control in their complements time-lock the complement to the main clause (103), whereas the complements of verbs that allow partial control are nonpast-oriented with respect to their main clause (104).

- (103) a. No partial control  
 \*Dan managed/dared/was unwise/was rude to meet at six.  
 b. Time-locked  
 This morning, Dan managed/dared/was unwise/was rude to run the race (?right then/\*tomorrow/\*yesterday).  
 (104) a. Partial control  
 Dan intended/planned/agreed to meet at six.  
 b. Nonpast-oriented  
 This morning, Dan intended/planned/agreed to run the race right then/tomorrow/\*yesterday.

Landau suggests that the complements exhibiting partial control have a tense in their syntax, and he attempts to derive the phenomena of partial control from this stipulation. We take a different tack. Syntactically, partial-control infinitives look exactly like non-partial control infinitives. However, since (on our account) partial control involves a joint intention, and since intention is by its nature nonpast directed, the temporal properties of partial control follow directly from the semantics. No distinction whatsoever need be made in the syntax.

The account can be made somewhat more precise and general. Recall that although one can hold a joint intention, one cannot execute it. Now consider two senses of *dare*. Intransitive *dare*, shown in 103, has a time-locked complement and entails that the complement is executed—daringly. Thus it cannot involve holding a joint intention—only execution of an intention—and hence partial control is impossible. By contrast, transitive *dare* concerns the formation of an intention to act in the future—which CAN be a joint intention. Thus this use of the verb permits partial control (but not split antecedents).

(105) Frankie dared Pat<sub>i</sub> to <sub>i+</sub>kiss (\*each other) in the alley.

Similarly, *rude* and *unwise* in 103 characterize the execution—not the intention—of a voluntary action, and therefore prohibit partial control. By contrast, *eager* characterizes an attitude toward a future action or situation and can therefore tolerate partial control when the complement is a volitional action.

(106) Frankie thinks Johnnie<sub>i</sub> is eager to <sub>i+</sub>kiss (\*each other) in the alley.

It remains to figure out exactly what semantic structure to attribute to joint intention, such that it makes partial control possible. Joint intention is certainly an aspect of meaning that is not expressed directly in syntax—we can see it only indirectly through its effects on control and so forth. This suggests that it is introduced by another coercion. Without a formal account of joint intention and of the exact place of intention in actional complements, it is difficult to determine exactly what material this coercion would introduce. An informal guess would be 107, in which the coerced material is in boldface.

(107) JOHNIE<sup>α</sup>  $\left[ \begin{array}{c} \text{INTEND} \\ \text{EAGERLY} \end{array} \right] \llbracket \text{GROUP INCLUDING } \alpha \rrbracket^\beta \llbracket \beta \text{ KISS} \rrbracket$

The crucial part of this is *GROUP*: Johnnie's intention is directed toward the action of the group rather than just his own.

Landau points out that the subject of partial control, despite being semantically plural, is syntactically singular; *GROUP* has the requisite property. Note that, like partial control complements, *group* permits collective predicates (108a) but not plural pronouns or reflexives (108b).<sup>28</sup>

- (108) a. The group gathered/met/disbanded at six.  
           The group formed an alliance.  
           The group has ten children altogether.  
           The group was jointly elected by the voters.  
       b. \*The group met/kissed each other at six.  
           \*The group has ten children between them.

The composition of the group introduced in 107 would have to be determined pragmatically, as partial control indeed requires. A discourse antecedent is a prime candidate

<sup>28</sup> Although, as Richard Oehrle has pointed out, our analysis might also predict that \**The chairman moved to disband itself* is acceptable, where the antecedent of *itself* is the implicit group.

for another member of the group, as observed in partial control. Furthermore, the application of this coercion would be automatically constrained by the semantics of joint intention; the introduction of a group into a control equation would be illformed except in the very special cases described above.

**8. FURTHER PROBLEMS.** Many questions about control still remain. This section enumerates a few.

**8.1. FOUR MORE CASES OF CONTROL.** First, we have said nothing here about control in adjunct complements such as purpose and absolute clauses (where, unlike the cases discussed here, identification of the controller indubitably has some syntactic dimension—see Culicover & Jackendoff 2001), nor about control in infinitival relative clauses.

Second, we have given no reason why information complements have a slightly more restricted distribution of controllers than free control complements—in particular, disallowing just the case of speaker/hearer control.

Third, selected actional complements are not the only instances of unique control. Verbs like *hope* and *wish* take situational infinitival complements, but they exclude generic, long-distance, and speaker-hearer control. And *remind* and *strike* present two possible controllers in the clause, of which only one is actual controller.

- (109) a. Judy<sub>j</sub> thinks that Henry<sub>i</sub> hopes/wishes to <sub>i/\*j/\*gen</sub>redeem himself/\*herself/oneself/\*myself.  
 b. Judy<sub>j</sub> reminds Henry<sub>i</sub> of <sub>i/\*j</sub>being much younger.  
 c. Judy<sub>j</sub> strikes Henry<sub>i</sub> as <sub>j/\*i</sub>being much younger.

Thus there are sources of unique control other than being a selected actional complement. We suggest that these reasons too be sought in the semantics of the verbs in question—in these cases, perhaps because they are experiencer verbs.

Fourth, infinitival indirect questions all express voluntary actions.

- (110) { Fred asked }  
 { Sally told Fred }  
 a. how to win the race/\*how to grow taller  
 b. what to talk about/\*what to resemble  
 c. when to leave/\*when to understand physics

Our account of volitional action suggests therefore that they should have unique control, tied to the recipient of the answer (*Fred* in both cases of 110). Yet there is also the possibility of generic control (111).

- (111) Fred asked/Sally told Fred  
 a. how to defend oneself  
 b. what to promise oneself under these conditions  
 c. when to excuse oneself

It is not clear to us where this possibility comes from.

**8.2. OBLIVIOUS VS. NONOBLIVIOUS CONTROL.** A further distinction in control has not to our knowledge been noted in the literature. Consider the predicates that permit a local subject (i.e. that select InfC/GenC). Suppose that when the complement is *to VP*, its normal controller is NP<sub>i</sub>. Then the question is, when the complement is *for NP to VP*, can the NP be a pronoun bound to NP<sub>i</sub>? In the context in 112a,b it can; in 112c,d it cannot.

- (112) a.  $Nelda_i$  discussed  $\downarrow$ leaving early. (controller is *Nelda*)  
 b.  $Nelda_i$  discussed  $her_i$  leaving early. (*her* can corefer with *Nelda*)  
 c.  $Beth_i$  hopes to  $\downarrow$ leave early. (controller is *Beth*)  
 d.  $Beth_i$  hopes for  $her_{*i}$  to leave early. (*her* cannot corefer with *Beth*)

The ungrammaticality of *her* = *Beth* in 112d has the flavor of a Condition B violation (the inability of a nonreflexive object pronoun to corefer with the subject, as in *Beth<sub>i</sub> saw her<sub>\*i</sub>*). We might call the situation in 112c,d OBVIATIVE CONTROL, and that in 112a,b NONOBVIATIVE CONTROL. Examples 113–114 offer further illustration, in a variety of syntactic configurations. (These represent our judgments; apparently speakers differ.)

- (113) Nonobviative control  
 a. (For  $her_i$ ) to  $\downarrow$ have to leave early wouldn't bother Susan.  
 b.  $Amy_i$  thinks it's possible (for  $her_i$ ) to  $\downarrow$ leave early.  
 c.  $Amy_i$  mentioned the possibility of ( $her_i$ )  $\downarrow$ leaving early.
- (114) Obviative control  
 a. Diane begged  $Daniel_i$  to  $\downarrow$ leave early.  
    Diane begged  $Daniel_i$  for  $him_{*i}$  to leave early.  
 b.  $Fred_i$  is eager to  $\downarrow$ leave early.  
     $Fred_i$  is eager for  $him_{*i}$  to leave early.

Curiously, obviative-control contexts still permit a bound pronoun if it is conjoined with something else (a fact pointed out to us by Joan Maling).

- (115) a.  $Beth_i$  hopes for  $Amy$  and  $her_i$  to leave early.  
 b. Diane begged  $Daniel_i$  for  $him_i$  and his friends to come home early.  
 c.  $Louise_j$  thinks  $Fred_i$  is eager for the two of  $them_{i+j}$  to leave early.

This differs from standard Condition B contexts such as 116a,b, which shows that obviative control should not be assimilated to Condition B. But a reader has pointed out that certain verbs do permit such conjoined configurations (116c).

- (116) a.  $Beth_i$  likes  $Amy$  and  $her_{*i}$ .  
 b.  $Louise_j$  thinks  $Fred_i$  likes the two of  $them_{*i+j}$ .  
 c.  $Bill_i$  differentiated between  $Mary$  and  $him_i$ .

It is not clear to us whether the distinction between obviative and nonobviative control is determined by syntax or semantics. However, given our prejudices stated in §1 and our previous work on semantic factors in binding (Jackendoff 1992, Culicover & Jackendoff 1995, 1997), we would be most inclined to seek semantic factors.

**8.3. CONTROL OF NOMINALS.** The control problem should ultimately be embedded in a larger inquiry, that of determining the arguments of any head that lacks local syntactic arguments. Well-known cases include long-distance depictive predicates such as 117a, adjunct predicates such as 117b, and light verb constructions such as 117c,d. (We notate argument assignment again by co-subscripting; the subscript before the nominal in 117c,d indicates the agent, and those after the nominal crudely indicate the other arguments.)

- (117) a.  $Susan_i$  appreciates  $Bill_j$  (only)(when)  $i_j$  drunk.  
 b.  $Bill_i$  examined  $Susan_j$  without glasses on  $i_j$ .  
 c.  $Harry_i$  put [the  $\downarrow$ blame $_{j,k}$ ] on  $Sam_j$  for the disaster $_k$ .  
 d.  $Sam_j$  got/received/was assigned [the blame $_{j,k}$ ] for the disaster $_k$ .

Sentence 117a is ambiguous as to who is drunk during Susan's appreciation of Bill, although there seems to us to be a preference for Susan; 117b is ambiguous about who was not wearing glasses. In 117c it is clear that Harry is doing the blaming, Sam is

being blamed, and the blame concerns the disaster; in 117d, despite the difference in syntactic configuration, Sam is still being blamed.

The case of nominals differs importantly from control in that all arguments of a nominal, not just the subject, can be satisfied nonlocally. A good contrast is 118.

- (118) a. Nominal: Kathy<sub>i</sub> promised Ted<sub>j</sub> a <sub>i</sub>hug<sub>j</sub>.  
 b. Control: Kathy<sub>i</sub> promised Ted<sub>j</sub> <sub>i</sub>hug \*(him<sub>j</sub>).

But there are other differences as well: 119 and 120 offer some cases where a controlled complement alternates with a nominal or adjunct predicate, with what would seem to be similar interpretations. Yet thematic role assignment is quite different.

- (119) a. Nominal  
 Bill<sub>i</sub> avoided/resisted <sub>j≠i</sub>attempts to <sub>j</sub>shoot him<sub>i</sub>.  
 Bill<sub>i</sub> expected an <sub>j≠i</sub>attempt to <sub>j</sub>shoot him<sub>i</sub>.  
 Bill<sub>i</sub> anticipated an <sub>j≠i</sub>attempt to <sub>j</sub>shoot him<sub>i</sub>.  
 b. Control  
 Bill<sub>i</sub> avoided/resisted <sub>i</sub>attempting to <sub>i</sub>shoot himself<sub>i</sub>.  
 Bill<sub>i</sub> expected to <sub>i</sub>attempt to <sub>i</sub>shoot himself<sub>i</sub>.  
 Bill<sub>i</sub> anticipated <sub>i</sub>attempting to <sub>i</sub>shoot himself<sub>i</sub>.  
 (120) a. Adjunct predicate  
 Bill<sub>i</sub> examined Susan<sub>j</sub> without glasses on<sub>i/j</sub>.  
 b. Control  
 Bill<sub>i</sub> examined Susan<sub>j</sub> without <sub>i/\*j</sub>having glasses on<sub>i/\*j</sub>.

We do not have an account for this difference, but we are sure that such an account must be a part of a complete treatment of control.

**9. CONCLUSIONS.** Our goal here has been to show that most of the factors involved in solving the control problem are semantic rather than syntactic. One factor has proven clearly syntactic: the choice of selection between InfC, InfP, GerC, and GerP. But this does not correlate precisely with semantic selection, and it is semantic selection, not syntactic position, that determines whether a predicate governs free, nearly free, or unique control.

In all the cases of unique control examined in §4, the controller is determined by thematic role, not by syntactic position. Moreover, the choice of thematic role is not an arbitrary diacritic. In the cases we were able to analyze in §5, the meaning of the matrix predicate determines which thematic role serves as controller, through the inherent control equation of the basic predicate(s) embedded in its lexical decomposition. Thus the theory of unique control reduces to the theory of the content of basic predicates that select actional arguments.

The systematic exceptions to thematically determined control are the outcome of a number of coercions—pieces of semantic structure that are not expressed syntactically. In every case we have treated in terms of implicit arguments and coercion, a syntactic account of control must make heavy use of idiosyncratic covert elements that violate the natural texture of syntactic distribution.

Our conclusion can be put a bit more dramatically. In the cases we have examined here, the only thing syntax can ‘see’ that pertains to control is that there is some infinitival or gerund lacking a local subject. Syntax cannot see what kind of control is possible, nor, if there is unique control, what the controller should be. All these factors are determined by conceptual structure, in particular the verb meaning interacting with the meaning of the complement.

More generally, we take these results to be confirmation of our overall approach to syntax, where we take it that syntax is the minimal structure necessary to mediate between semantics and phonology. Although for a first approximation syntax mirrors semantic structure, on closer examination it has its own semi-autonomous patterns of distribution. As a consequence, the syntax-semantics interface is somewhat dirty. As argued in Jackendoff 2002, this is what is to be expected in a mentalistic theory of language: it is characteristic of the way the brain connects its disparate functions to each other.

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