Chapter 8: Control Theory Reimagined

1. Introduction: What is essential to control theory?

There are many excellent reasons to study less common and even rare constructions in understudied languages. One is as a strong test of theories of Universal Grammar: we can investigate whether these theories supply the resources that are needed to analyze such constructions successfully by appropriate standards. That is the sort of goal that has driven the first seven chapters of this work. I have shown that constructions like upward C-agreement, allocutive agreement, indexical shift, logophoric pronouns, indexiphoric agreement, and switch-reference in complement clauses can be explained using the right mix of C-heads licensing ghostly (null) DPs, the ghostly DPs undergoing obligatory control, the ghostly DPs binding pronouns, and the ghostly DPs being the goals of different kinds of Agree. In Chapter 1, I analogized this project to a familiar one in biology: that of showing that all mammalian forelimbs have the same skeletal structure (syntax) despite their wide range of functions and superficial appearances.

But another, equally important reason to investigate rare constructions in understudied languages is for the new insight that it can give into even the most familiar notions of linguistic theory. Seeing a certain theoretical notion manifested in a range of new ways can give a new and fuller perspective into what the fundamental generalizations surrounding that notion are. In the best-case scenario, this in turn can give new ideas about the nature of the concepts and principles themselves. That is the sort of project that drives this last chapter, in which I study the theory of obligatory control from this perspective. OC is ripe for this treatment in two respects. On the one hand, there is some opportunity here to study OC in that it has been crucially involved in the analysis of every one of the seven rare constructions under consideration. Some of them involve Agree but not pronoun binding; others involve pronoun binding but not Agree. But I have

argued that every one involves OC. On the other hand, there is some need to study OC, in that even sixty years into its study there is little stable consensus about exactly where it fits into our theories of universal grammar and what its central principles are. For decades people have had the intuition that OC should reduce to some more basic linguistic phenomenon: to anaphora, agreement (Agree), movement, predication, pronoun binding, or whatever. However, some aspects of a theory of OC have remained elusive.

I have argued that OC is at work not only in the interpretation of the null subject of nonfinite clauses, its original home base, but also in the constraints on where ghostly DP operators can appear and how they are interpreted. If this is right, how does it shift or clarify our perspective on the phenomenon as a whole? I think it does so in two ways. First, it makes Landau's (2013) "Obligatory Control Signature" stand out more clearly as the central fact about control theory. One might think there is nothing new in this; after all, Landau already stated the OCS out of his careful and sustained study of standard cases of control and the extensive literature on this topic. However, just because something has been stated clearly does not mean that its importance has become clear to all, or that it remains clear. For example, it is not at all clear from the perspective of Landau's (2015) newer "Two-tiered" theory of control that the OCS is central to control theory. (In that work, Landau is more focused on which clauses can have a controlled subject and which ones cannot—on the control-noncontrol distinction, rather than on the OC/NOC distinction.)

The second key fact about OC that the ghostly DP constructions make to stand out more clear is that some kind of thematic-role matching requirement is involved in OC. This has been prefigured in a few previous studies of standard control, such as Panther & Köpcke (1993) and Jackendoff & Culicover (2003). However, the sorts of "thematic roles" used in those works are abstract and nonstandard, and there are many apparent counterexamples, such that thematic role matching has never gotten much traction in this domain. The ghostly operator constructions (and, I claim, serial verb constructions) make it much more obvious that some kind of thematic matching is at work. It is reflecting on what kind of theory could in principle explain this that leads me to a new proposal about what is at the core of the OC phenomenon.

I outline these lessons in a bit more detail. There are two grammatical

conditions embedded in Landau's OCS which have proved themselves over and over in the study of ghostly DP constructions. The first is that there is something special about complement clauses as being the context in which OC happens and is indeed obligatory. When a clause is the complement of a verb (or other lexical head, such as an adjective or noun), all of the ghostly operator constructions are possible and have stable properties. In contrast, when the clause containing a ghostly DP operator is not a complement, but rather a subject, a relative clause, a high adjunct clause, or a root clause, the constructions diverge toward one of two outcomes: either the ghostly operator construction is ruled out entirely (agreeing C, logophoric pronouns, indexiphoric constructions, some SR constructions), or it is possible but has notably different antecedence properties (allocutive agreement, LD-anaphoric constructions). One then needs to fit low adjunct clauses into this generalization, especially 'so that' clauses, which descriptively behave more like complement clauses than like other kinds of adjunct clauses. These patterns replicate the fact that true OC is possible in nonfinite complement clauses and some kinds of adjunct clauses, but not in subject clauses, relative clauses, root clauses, and other kinds of adjoined clauses (Manzini 1983, Landau 2001, Landau 2013).

The second grammatical condition on OC relationships that is included in Landau's OCS and has proved itself over and over in the study of ghostly operator constructions is that there are constraints on what can be the controller/antecedent of the controlled item: it has to be an argument of the verb (lexical head) which the clause that contains the controlled element is the complement of. The controller of a ghostly DP operator can be the subject of the matrix clause, the object of the matrix clause, or even a PP/oblique argument of the matrix clause, in the case of source phrases or the agents of long passives. The controller cannot, however, be the possessor of one of these arguments. This is like the OC of PRO in familiar languages, but different from both NOC and ordinary pronoun binding. Also falling under this generalization is the fact that the subject or object of the verb that selects a given CP can control a null DP near the top of that CP, but the subject or object of a higher verb cannot. This is a classic property of standard control, a kind of locality that has made it stand out as different from the simple binding of a null pronoun. It is also a kind of locality that is manifest in upward C-agreement constructions, switch-reference constructions, and indexiphoric constructures, and which can be revealed with some care in indexical shift and LD-

anaphoric constructions.

The third major property of the OC relationship that ghostly operator constructions brings to the fore is one that is not encoded in Landau's OCS, but rather something about which Landau is purposefully silent. This is the fact that which argument of the matrix verb can control a given ghostly DP in the complement clause is regulated by thematic roles. Agents, causers, experiencers, and sources can control the primary ghostly operators Sp, SoK, lOp, zOp (EmpOp), 1lOp and SROp. I have said that these specific thematic roles are the ones that can count as having the initiator macrorole. In contrast, goal and theme/patient arguments can control the secondary ghostly operators Ad, AdOp, OoK (if it exists), and 2AdOp. These are arguments that can count as having the undergoer macrorole. This factor is more important than the grammatical function of the controller across all the ghostly DP constructions. In addition, I have taken the theoretical step of saying that this thematic condition is really a condition of thematic-role *matching*, assuming that Sp, SoK, lOp and their kin receive an initiator role from the C-like heads that license them, whereas Ad, AdOp, and their kin get an undergoer role from the C-like heads. This is not directly observable, but it is loosely motivated by the fact that the C involved in the ghostly operator construction is often cognate to a verb like 'say'—and by the fact that it works.

This third property of control in ghostly DP constructions is much less obviously connected to the study of PRO in English and other languages. Indeed, a condition of thematic role matching seems to be false for the OC of PRO. For example, a theme or goal argument of the matrix verb can control an agent argument of the complement clause in sentences like those in (1).[1]

[1] For the English examples in this chapter (and beyond), I flipped a coin to decide whether each third person DP would be a feminine name or a masculine name. When it is useful in an example to have two DPs contrast in gender, I flipped the coin to decide about the subject and picked a contrasting object accordingly. Hopefully, then, any appearance of gender bias or stereotyping is an illusion of the reader's (or a statistical anomaly).

(1) English (personal knowledge)
   a. Mary persuaded John$_i$ [PRO$_i$ to bring wine to the party].
   b. The general ordered the troops$_i$ [PRO$_i$ to march out at dawn].
   c. Sue taught Peter$_i$ [PRO$_i$ to make tiramisu].

It is also possible for an agent argument of the matrix clause to control a theme or goal argument in the embedded clause. This can happen when a commitment verb in the matrix clause, which induces subject control, is used together with the right kind of passive or unaccusative predicate in the embedded clause. Examples are in (2).

(2) English (personal knowledge)
   a. Paul$_i$ promised Sue [PRO$_i$ to be examined by a doctor].
   b. Sara$_i$ vowed to Mary [PRO$_i$ to get/be promoted soon].
   c. Pat$_i$ swore (to Chris) [PRO$_i$ to wake up by 6:00am].

Despite such facts, linguists who have pondered the phenomenon of control shift have proposed that some kind of thematic role matching plays a role in controller choice for PRO (Panther and Köpcke (1993), Jackendoff & Cullicover (2003)). But the matched thematic roles are in some cases different from the ones normally used for argument projection and other issues at the interface of syntax and lexical semantics: they are roles like BEN (benefactive) and OBLIGATED, rather than the familiar agent, theme, and goal. It is far from obvious, then, that thematic role *matching* is a key facet of control that applies to both ghostly operator constructions and PRO constructions.

Whether it is thematic role matching or not, it is worth having it very clear in our minds that OC of PRO (like OC of ghostly operators) is determined by lexical semantics/thematic roles in a way that is quite distinctive, going well beyond ordinary considerations of semantic and pragmatic felicity. To drive this home, compare the OC of PRO with the antecedence of PRO in nonobligatory control (NOC) environments. This is a natural comparison in that the two kinds of constructions have significant properties in common. Both are taken to involve PRO, the special null nominal element that can only be in the subject position of a nonfinite clause. Moreover, both kinds of PRO can have logophoric properties in a broad sense (see Landau 2015: 84-85). Neither PRO is restricted to having its antecedent be an agent, the way lOp is, or a goal, the way that Ad is. Nevertheless, both need to be anteceded by an agent or a goal; they cannot be controlled by the

object of *about* for example. (3) shows this for OC in the complement of the verb *ask*.

(3) English (personal knowledge)
  a. Jill asked Mary$_i$ [PRO$_i$ to come early].
  b. Johnnie$_i$ asked his mother [PRO$_i$ to (be allowed to) stay up late on New Year's Eve].
  c. *John asked about Mary$_i$ [PRO$_i$ to defend herself $_i$]

The examples in (4) show the same thing for NOC in the extraposed CP subject of the predicate *would be easy*. The antecedent of PRO can be the goal of the matrix event of saying ((4a)), or the agent of the matrix event of saying ((4b)), but not the object of an *about* phrase associated with the saying ((4c)) (Kuno 1987: 134-135, Landau 2013: 245)

(4) English (personal knowledge)
  a. John$_i$ said to Mary$_k$ [that it would be easy [PRO$_k$ to prepare herself$_k$ for the exam]].
  b. John$_i$ said to Mary$_k$ [that it would be easy [PRO$_i$ to prepare himself$_i$ for the exam]].
  c. ??John said about Mary$_k$ [that it would be easy [PRO$_k$ to prepare herself$_k$ for the exam]].

With patterns like this in mind, Landau (2015: 83) imagines a unified theory of OC and NOC.

I want to emphasize that despite these similarities, there are clear differences in how the two control-like constructions are thematically restricted. For example, it matters very much to OC whether the matrix predicate is *promise* or *persuade*. In (5a), we observe only subject control, not object control, whereas in (5b) we see only object control, not subject control.

(5) English (personal knowledge)
  a. John$_i$ promised Mary$_k$ [PRO$_{i,*k}$ not to contradict himself$_i$/*herself$_k$ before the jury].
  b. John$_i$ persuaded Mary$_k$ [PRO$_{k,*i}$ not to contradict herself$_k$/*himself$_i$ before the jury].

It can also matter to OC whether the embedded predicate has an

agentive subject or a passive subject—the phenomenon known as control shift. For many speakers (and to varying degrees), (6a) allows object control in contrast to (5a) and (6b) allows subject control in contrast to (5b) (Bresnan 1982, Farkas 1988, Sag and Pollard 1991, Panther and Köpcke 1993, Landau 2013: Sect. 5.1.2).

(6) English (personal knowledge)
a. John$_i$ promised his young daughter$_k$ [PRO$_k$ to be allowed to stay up late on New Year's Eve]
b. Little Mary$_i$ persuaded her father$_k$ [PRO$_i$ to be allowed to stay up late on New Year's Eve]

We see, then, that thematic roles constrain OC in relatively tight and fine-grained ways.

Now semantic and pragmatic factors restrict the interpretation of NOC PRO too. Thematic roles can play a part in that, no doubt. But they do not constrain NOC as tightly as they do OC. Both the matrix subject and the matrix object can antecede NOC PRO regardless of whether they are arguments of the verb *promise* or *persuade*, and both can antecede PRO regardless of whether PRO is the subject of an active agentive verb or of a passive modal verb. This is shown in (7).

(7) English (personal knowledge)
a. Mary$_i$ promised John$_k$ that [PRO$_{i,k}$ contradicting herself$_i$/himself$_k$ before the jury] would be a big mistake.
b. Mary$_i$ persuaded John$_k$ that [PRO$_{i,k}$ contradicting herself$_i$/himself$_k$ before the jury] would be a big mistake.
c. Mary$_i$ promised John$_k$ that [PRO$_{i,k}$ being allowed to do her$_i$/his$_k$ own thing would be fun].
d. Mary$_i$ persuaded John$_k$ that [PRO$_{i,k}$ being allowed to allowed to do her$_i$/his$_k$ own thing would be fun].

Like the control of NOC PRO in this respect is assigning an antecedent to an anaphor like *each other* and bound variable anaphora involving ordinary pronouns. In contrast to these less constrained antecedence relationships, something special is going on with OC.

This pattern affects how we look at the relationship between syntax and semantics when it comes to OC. Two of my direct theoretical predecessors with respect to the OCS, Manzini (1983) and Landau (2013, 2015), hold that it is the job of syntax to determine that either

the subject or the object of a verb controls PRO in a CP complement of that verb, but it is not syntax's job to determine which of these is the controller. The structures allowed by the syntax are then filtered by the semantics/pragmatics, in a way that they leave open. But they say nothing about why the semantic/pragmatic constraints on OC have quite a different character than semantic/pragmatic constraints on other relations involving binding or coreference, being more restrictive and more sensitive to thematic roles. Indeed, Manzini reduces control to anaphora, and Landau to a kind of variable binding, neither of which is subject to tight thematic constraints.

In this chapter, I pursue a generalized control theory that does account for the relatively tight thematic constraints that are characteristic of OC, as well as being designed to cover both ghostly DP operator constructions and control into infinitival clauses in an even-handed way. I develop the view in the following stages. I start with a brief look at a third kind of construction, argument sharing serial verb constructions (SVC), which inspires an idea about how to think about control more generally (§8.2). Next, I use that idea to analyze control in ghostly operator constructions in a deeper way (§8.3). Then I go on to face the OC of PRO in infinitival complements (§8.4). The crucial idea is that there is argument sharing not between the matrix verb and the embedded verb, but rather between the resulting state component of the matrix verb and a covert modal that is the true head of the complement clause in many cases (Wurmbrand 2014). This will explain why OC seems to be driven by a kind of thematic roles, but they are modal-thematic notions like OBLIGATED rather than standard thematic roles like agent and theme (cf. Jackendoff & Culicover 2003). This theory is developed and tested by an investigation into the subtleties of controller choice and control shift with triadic verbs. §8.5 takes a preliminary look at control of both PRO and ghostly DPs in adjunct clauses. §8.6 considers clauses that have both a ghostly DP operator and a controlled PRO, to make sure that the two analyses are compatible with each other. Finally, §8.7 reflects on the question of what obligatory control must really be in the syntax and the semantics in the light of this investigation. The result is a broader and deeper view of control theory, and one that applies to a wider range of phenomena than is normally considered under this heading.

2. Thematic uniqueness and control in serial verb constructions

2.1. Control in serial verb constructions

We have seen that OC is a very special grammatical relationship in that it is heavily constrained by the thematic roles of the two DPs involved in the control relationship. A key theoretical question, then, is what kind of account could in principle capture this special character of OC? I arrive at a possible answer by first changing the topic temporarily—by starting with a different construction all together, the *serial verb construction* (SVC) found in many West African languages. More specifically, my interest will be in SVCs that exhibit argument sharing.

SVCs are standardly defined as constructions in which a single clause contains more than one verb in sequence, without the verbs being connected by any overt coordinating or subordinating morpheme. There are many subtypes, but one important kind consists of two transitive verbs. (8)-(10) gives some canonical examples from Edo, Ewe, and Igbo.[2]

(8) Edo (Stewart 2001: 60, 25)

a. Ozó dẹ́ LGB tié.
Ozo buy *LGB* read
"Ozo bought *LGB* (Chomsky's *Lectures on Government and Binding*) and read it."

b. Ozó gie!gié ghá dún!mwún èmà khién.
Ozo quickly ITER pound yam sell
"Ozo quickly pounded yams and sold them repeatedly."

(9) Ewe (Collins 1997: 461)

Wo ɖa fufu ɖu.
they cook fufu eat
"They cooked fufu and ate it."

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[2] On the surface, the Igbo example is a resultative V-V compound rather than a true SVC. However, many researchers derive these from an SVC source by way of head movement; see Déchaine (1993), Stewart (2001), Collins (2002).

(10) Igbo (Stewart 2001: 152)
Adhá tì-gbu-ru Ezè.
Adha beat-kill-RV Eze
"Adha beat Eze to death."

What is notable about these examples is that the agent argument of the first verb is also understood as the agent argument of the second verb, and the patient/theme of the first verb is also understood as the patient/theme of the second verb. As far as selectional restrictions and real-world knowledge go, an example like (10) could have a 'crossed' reading, in which Adha beat Eze and this caused Eze to kill Adha out of anger or revenge. On this reading, the patient of the killing would be the agent of the beating rather than the patient of the beating. But this reading is impossible with these constructions.

An SVC can also consist of a transitive first verb and an unaccusative second verb (either eventive or stative), as in (11)-(13).

(11) Edo (Stewart 2001: 8, 58)
a. Ozó sùá Úyì dé.
Ozo push Uyi fall
"Ozo pushed Uyi down."

b. Ẹ̀sósa gbé émátọ́n pẹ̀rhẹ́.
Esosa hit metal be.flat
"Esosa beat the metal flat."

(12) Ewe (Collins 1997: 465, 461)
a. Ekpe a fo kɔpo yi xɔ-me.
rock FUT hit cup go room-in
"A rock will hit the cup into the room." (Not: "A rock will hit the cup and then go into the room.")

b. Me nya ɖevi-ɛ dzo.
I chase child-DEF leave
"I chased the child away."

In these examples too the theme argument of the second verb is the same as the theme argument of the first verb, not the agent argument of the first verb. An interpretation of (11a) in which Ozo falls as a result of pushing Uyi, causing him to lose his balance, or of (12a) in which the rock ricochets off the cup and therefore enters the room is

either impossible or tests out as a coordination construction, with different syntactic properties. Some studies draw a distinction between these two sorts of SVCs (Stewart 2001, Collins 1997), but they have some important properties in common, especially when it comes to control-like behavior, and I focus on these common properties.

SVCs are relevant to my topic because one important analysis, that of Collins (1997), holds that they involve control. Collins claims that the second verb heads a VP that is the complement of the first verb. The visible object is projected as the specifier of the first verb (which moves higher up to Voice/v in the usual way). In addition, the second verb has a silent DP as its internal argument—a pro, even though that element is not generally licensed in object positions in these languages. Collins supports the existence of this pro in Ewe with evidence from the distribution of the case marking postposition *yi*; Stewart (2001) supports it for Edo with evidence from the distribution of the floated intensifier *tobọre* 'him/her/itself'.[3] The structure for these examples is thus roughly as in (13) (Collins 1997: 491).[4]

(13) a. They v $[_{VP}$ fufu$_i$ cook $[_{VP}$ eat pro$_i$]] (=(9))

b. Rock v $[_{VP}$ cup$_i$ hit $[_{VP}$ pro$_i$ go room-in]] (=(12a))

Collins (1997: 478-479) then makes the further claim that the pro argument of the V2 is controlled by the object argument of the V1, which gives these examples the interpretation that we observe.

In the current theoretical context, we can test Collins's hypothesis using the (G)OCS, Landau's (2013) criterion for recognizing cases which can reasonably be classified as having obligatory control. Indeed, the DP-pro relationship in (13) does have the key properties of OC that I recapped in §8.1. First, the relationship holds when and only

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[3] However, Collins's test works only for transitive+unaccustive SVCs, for reasons he discusses, whereas Stewart's test works only for transitive+transitive SVCs. I abstract away from any difference that this may imply (see fn. Xx).

[4] Collins (1997) has the pro argument of 'eat' in Spec VP2 rather than as the complement of V2. This depends on how one thinks theme arguments are projected: whether they go in the lowest available position in VP (which I assume here for simplicity) or are always in Spec VP (Collins' version).

when the VP headed by the second verb is the complement of first verb. The relevant languages all have a contrasting coordination construction, with or without an overt coordinator. The coordination construction has two VPs that are in close proximity to each other in terms of linear order, but they are in parallel, rather than one being the complement of the other. In this alternative construction, it is not possible to have a null DP in second verb phrase controlled by the object of first verb. For example, (14) from Ewe is different from (12a) in that it has the tense particle *a* repeated before the second verb. As a result, it cannot have the VP-complement-of-V structure in (13b); rather Collins (1997: 483-484) analyzes (14) as a case of I´ (T´) coordination. In this case, a silent DP inside the VP headed by 'go' cannot be controlled by 'cup', the theme argument of 'hit'.

(14) Ewe (Collins 1997: 465)
Ekpe a fo kɔpo a yi xɔ-me.
rock FUT hit cup FUT go room-in
"A rock will hit the cup and then go into the room." (Not: "A rock will hit the cup so that the cup goes into the room.")

The same thing can be seen by comparing SVCs with overt VP coordination in Edo, using the coordinator *vbè* 'and'. The second verb in the true SVC in (15a) can have a silent DP as its object, controlled by 'tree', the object of the first verb. However, in the superficially similar (15b) with an overt conjunction, a covert pronoun referring to the object of 'see' is bad; rather, an overt pronoun must be used.

(15) Edo (fieldwork, O.T. Stewart 1995)
a. Òzó guàlọ́ èrhán vú.
Ozo find tree uproot
"Ozo found a tree and uprooted it."

*b. Òzó miẹ́ èrhán vbè vú *(érẹ̀).*
Ozo see tree and uproot it
"Ozo saw a tree and uprooted it."

This is evidence that theme arguments in these languages can only be controlled in a specific structural environment, when the VP headed by the verb that selects that argument is merged directly with the first verb as its complement. This is similar to the fact that clauses in complement position have special OC behavior both for the ordinary

control of PRO and for the ghostly operator constructions.

The second characteristic property of control that is found in these SVCs is that the controller of the null argument of the second verb must be an argument of first verb, the head that the VP headed by the second verb is the complement of. It cannot be (say) the possessor of the object, as shown in (16).[5]

(16) Edo (Stewart 2001: 119-121, 127)
#Uyì vbó [ìgan òkhókhò] khién.
Uyi pluck feathers chicken sell
Not: "Uyi plucked the chicken$_i$'s feathers and sold it$_i$." (Possibly OK as 'Uyi plucked the chicken$_i$'s feathers$_k$ and sold them$_k$.")

This can be seen as a manifestation of the second central property of OC, on a par with possessors not being OC controllers of PRO or ghostly DP operators. It is also true that the argument of a higher verb cannot antecede/control the null object of the second verb of an SVC verb. For instance, nothing like (17) has been attested in the literature, such that *Uyi* the theme argument of 'convince' is the understood antecedent of the theme argument of 'beat', rather than *Adesuwa* the object of 'find'. It has been understood/assumed that such structures are not possible (see Collins 1997: 476 for a similar point).

(17) Hypothetical example from Edo or Ewe
Ozo convinced Uyi that he will [$_{VP}$ find Adesuwa [$_{VP}$ beat *pro*]]
"Ozo$_n$ convinced Uyi$_k$ that he$_n$ will find Adesuwa$_i$ and beat her$_i$/*him $_k$."

The third property of OC that these SVC constructions manifest is the thematic role matching requirement that I have made extensive use for ghostly operator constructions and that Panther & Köpcke (1993) consider to be a factor in the control of PRO in English and German. We have already observed in (8)-(12) that it is always the theme argument of the first verb that must be equated with (must control) the theme argument of the second verb, even when that would not be

[5] The emphasis of Stewart's discussion is that raised possessors cannot antecede pro in an SVC, but it is also true that unraised possessors cannot either.

forced by general pragmatic considerations. Compare these true SVCs with similar English examples which conjoin two sentences, the second of which has a pronoun subject that matches the gender and number of both the subject and the object of the first conjunct, as in (18). In (18), it is quite possible for the pronoun to refer to either argument of the first conjunct.

(18) English (personal knowledge)
a. Ozo$_i$ pushed Uyi$_k$ and (then, as a result) he$_{i,k}$ fell down.
b. The rock$_i$ hit the ball$_k$ and (then) it$_{i,k}$ went into the room.

We can also see thematic role matching in SVCs in examples in which the first verb is a ditransitive, with a source or goal argument as well as a theme argument, while the second verb takes only a theme argument. The theme of the first verb can control the theme of the second, but the source or goal argument of the first verb cannot.

(19) Edo (Stewart 2001: 127)
Úyì kòkó Àdésúwà ùkpòn mú (pro).
Uyi gather Adesuwa cloth carry it/her
"Uyi gathered the cloth$_i$ from Adesuwa$_k$ and carried it$_i$/*her$_k$ away."

Looking at these potentially ambiguous examples, I acknowledge that themantic and pragmatic factors will often make one of these interpretations more likely than another in a given context. But we still have to consider why some of these factors, especially the thematic role of the antecedent, are much stronger in the SVCs than they are in TP or VP coordination. This question is parallel to the one of why particular thematic factors have a much stronger effect on OC than they do on NOC, as discussed in §8.1. Therefore, an answer to this question about SVCs might lead to an answer to the question about OC as well.

Overall, then, SVCs have the characteristic properties of OC that Landau's (2013) OCS codifies for conventional control, and that I have documented for ghostly DP operator constructions throughout this book. As such, they provide us with a third possible domain for a generalized control theory. Furthermore, they have the potential to be a bridge between the ghostly operator constructions and the conventional control constructions. On the one hand, SVCs connect

naturally to the ghostly operator constructions, in that some of them have a 'say'-like complementizer that may have evolved out of a SVC of some sort. This seems especially clear in Ibibio, for example (see the appendix to Chapter 2). It makes sense, then, that the control properties of one could be parallel to those of the other. On the other hand, the SVC connects to standard control constructions in that both the controlling clause and the controlled clause are headed by verbs which are open class items and whose properties can be studied separately. (This is in contrast to contrast to the C-type heads in ghostly operator constructions, whose semantic and argument-taking properties are relatively abstract or underspecified by the available data.) The SVCs are also important in that they suggest that it is possible to control an internal argument—something that I have posited for the control of ghostly DPs like Ad in Magahi, but which is not known from the control of PRO.

2.2. Thematic uniqueness as the engine of obligatory control

My leading idea is to derive the thematic restrictions on antecedence in this class of SVCs from the principle of thematic uniqueness, as put forward by Carlson (1984), who was fleshing out some assumptions implicit in the Theta theory of the Chomskian syntax of the time. Carlson emphasizes the intermediate status of thematic roles with respect to syntax and semantics. On the one hand, they are not intrinsic to the syntactic apparatus, and they are not part of the core syntactic vocabulary. On the other hand, they are not purely semantic either. This intermediate status is similar to what we are wrestling with in terms of controller choice in contexts of OC: it seems not to be fully determined by observable syntactic structure, but it is not as free as one would expect on the grounds of mere semantic compatibility either. Carlson (1984: 271) writes: "One of the more fundamental constraints is that of 'thematic uniqueness' — that no verb seems to be able to assign the same thematic role to two or more of its arguments." He then goes on to show that thematic uniqueness is not a property of verbs per se, but rather of the events that they express. Given this, we can state the constraint of thematic uniqueness as in (20).[6]

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[6] Although (20) is stated quite simply, I want to leave open the possibility that there is some semantic complexity lurking around the statement "x=y". I do not

(20) Thematic Uniqueness:
If x bears thematic role θ_a to event e1, and y bears the same thematic role θ_a to event e2, and e1=e2, then x=y.

Carlson illustrates (20) with the contrast shown in (21). (21a) is acceptable, but (21b) is not.

(21) English (Carlson 1984: 272)
a. Before trying it with an ax, John opened the present with a sharp instrument.
b. *John tried with a sharp instrument to open the present with an ax.

Both sentences have two verbs, *try* and *open*, and both have an instrumental phrase in construction with each verb. However, they differ sharply in acceptability. In (21a), the trying event is different from the opening event (and is ordered temporally after it). Each of the two events can involve an instrument, expressed by distinct *with* phrases. In contrast, there is only one event under discussion in (21b), an event of trying-to-open something. (Note that this is an OC construction, within the broad domain of my inquiry; see (57)-(60) below.) This single event can only have one instrument related to it, even though there are arguably two distinct VPs which a PP could attach to syntactically.[7] This then is a motivation for thematic

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consider in this work the topic of partial control: the much-discussed fact that sometimes a controlled item can refer to a larger group that contains the referent of the controller, as in *The department chair$_i$ wanted PRO$_{i+}$ to meet at noon*. See Landau (2016) and Pearson (2013) for two relatively recent treatments of this phenomenon, both of which involve adding something extra to the core account of control. Landau adds an associative plural marker to PRO (or the predicate); see also Madigan (2008). Pearson adds the notion of the extension of a world-time-individual triple to cover both partial control and temporal mismatches in control complements. See also Baker and Camargo Souza (2020: (66)) for brief discussion of analogous issue of referential overlap (as opposed to identity) in same subject SR constructions.

[7] Carlson goes on to point out that (21b) is bad not only if the DPs *a sharp object* and *an ax* refer to different items, but also if they refer to the same item—a possibility given that most axes are also sharp objects. I assume that this is due to a conflict between thematic uniqueness, which would force the two DPs to corefer, and Condition C, which forces them to be disjoint in reference. A key

uniqueness phrased in terms of events, as in (20).

Thematic uniqueness is very relevant to SVCs because there is evidence that this construction is like the control construction in (21b) in that the two verbs work together to characterize a single event. Evidence for this comes from adding a manner adverb like 'quickly' to the SVC, as discussed by Stewart (2001), Baker and Stewart (2002), and more recently Zimmermann and Amaechi (2018). Assuming that adverbs of this sort are predicates of events, as in Davidsonian semantics, they give us a way of probing into the event structure of the SVC. Edo has two kinds of manner adverbs that one can consider: a more verbal kind that comes before the core VP and a more nominal kind that comes after it. (Note that the post-VP version starts with a vowel, which is a property of nouns in Edo.) The data are given in (22).

(22) Edo (Stewart 2001: 24, 26, 36)

a. Ozó giẹ́!giẹ́ ghá sú!á ọ̀gọ́ dé.
Ozo quickly ITER push bottle fall.
"Ozo quickly pushed the bottle down repeatedly." (Each pushing+falling event is quick.)

*b. *Ozó sùá ọ̀gọ́ giẹ́!giẹ́ dé.*
Ozo push bottle quickly fall.
("Ozo pushed the bottle such that it quickly fell.")

*c. *Ozó sùá ọ̀gọ́ ẹ̀gìẹ́gìẹ́ dé.*
Ozo push bottle quickly fall.
("Ozo pushed the bottle quickly such that it fell.")

d. Ozó kòkó Àdésúwà mòsé ẹ̀gìẹ́gìẹ́.
Ozo raise Adesuwa be.beautiful quickly
"Ozo raised Adesuwa to be beautiful quickly." (the raising+becoming-beautiful is quick)

(22b,c) shows that neither kind of adverb can come between the two verbs of the SVC, modifying only one of them. (22a,d) show that both

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reason why one of the elements (the lower one) in a control relationship needs to be a minimal pronoun like PRO, pro or one of the ghostly DPs is to avoid this sort of Condition C violation, I suggest. See below for discussion of why the controlee must be null in many cases, but not all.

kinds of adverb can appear on their favored side of the SVC as a whole. However, the adverbs cannot be interpreted as modifying only the event that is denoted by the verb that is closest to them. Rather, they must be interpreted as modifying an event that consists of both the pushing and the falling.[8] Other considerations also support this conclusion, including the position and interpretation of the iterative particle *gha* and the behavior of the predicate cleft construction in Edo (Stewart 2001).

The crucial idea is that the fact that 'bottle', the structural object of 'push', must control the argument of 'fall' can be derived from the fact that 'push' and 'fall' are predicates of the same event together with thematic uniqueness. I continue to assume Collins's (1997: 491) phrase structure in (23).

(23) Ozo voice/v [$_{VP1}$ bottle push [$_{VP2}$ fall *pro*]]

head mov't

Let us do a rough-and-ready compositional semantics of this structure. The VP headed by 'fall' will have a meaning like (24a) once the

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[8] Stewart (2001) and Baker & Stewart (2002) report partially different facts when an adverb modifies an SVC consisting of two transitive verbs, as in (8). Then it is possible for 'quickly' to modify only the first verb or only the second verb, although it can also modify a more complex event that includes both. Collins (1997) and Zimmermann & Amaechi (2018) do not notice such a distinction in Ewe or Igbo. If the Stewart-Baker distinction holds up, it could motivate a more nuanced version in which (say) the pounding and the selling in (8b) are distinct events, but each is part of a larger event of pounding+selling. It is plausible to think that if NP X is the theme of e1 (it undergoes a change in e1) and e1 is a part of e2, then X is the theme of e2 as well (since X undergoes a change in e2). Then 'yams' is the theme of the pounding in (8b), so it is the theme of the pounding+selling. Pro is the theme of the selling, so it is the theme of the cooking+selling. Since 'rice' and pro are themes of the same event of cooking+selling, they must be the same, by thematic uniqueness. In this way, thematic uniqueness could induce OC in SVCs not only when there is identity between the events denoted by the two verbs (as in the text) but also when there is a mereological relationship between then. I do not develop this further here, waiting to know whether Stewart's distinction is crosslinguistically robust or not. (It is also possible that the more nuanced mereological approach should be applied even to the transitive+unaccusative SVCs, while there is a small difference in structure that affects where adverbs can be merged in the two different kinds. I leave this possibility open.)

unaccusative verb combines with its null pro argument inside VP. 'Push' has a meaning like (24b), assuming that the external argument of the transitive verb 'push' is "severed" (and the internal argument is not), following Kratzer (1996). 'Push' can now combine with the VP headed by 'fall' using Kratzer's rule of event identification—the same principle of composition that combines Voice heads with verb phrases in her treatment. The result is (24c) as the meaning of the larger V´. Applying this function to the denotation of 'the bottle' gives (24d). Combining this predicate of events with Kratzer's meaning for the agentive Voice head (λx λe agent(e)=x) by another instance of event identification gives (24e). Finally, applying the result to 'Ozo' gives (24f) as the meaning of the core SVC, abstracting way from tense, aspect, and modality (as I do throughout this chapter).

(24) a. [[VP2]]= λe fall(e) & theme(e)=pro
b. [[V1 push]]= λx λe push(e) & theme(e)=x
c. [[V1´]]= λx λe push(e) & theme(e)=x & fall(e) & theme(e) = pro.
d. [[VP1]]= λe push(e) & theme(e)=the.bottle & fall(e) & theme(e)=pro.
e. [[Voice´]]= λx λe agent(e)=x & push(e) & theme(e)=the.bottle & fall(e) & theme(e)=pro.
f. [[VoiceP]]= λe agent(e)=Ozo & push(e) & theme(e) = the.bottle & fall(e) & theme(e)=pro.
… so pro=the.bottle

This is all a very standard Kratzerian approach, except for the addition that V can merge with a VP, composing by the independently motivated rule of event identification. This depends on the crucial ontological assumption that 'fall' and 'push' can be predicates of the same event (or near enough, see fn 8). But since since pro refers to the theme of the falling event and 'the bottle' refers to the theme of the pushing event, and these are the same event, and an event can only have one theme (Carlson's thematic uniqueness), it follows that pro must refer to the bottle. I propose that this is the engine of OC. OC is induced to satisfy thematic uniqueness in cases where two argument-taking predicates are predicates of the same event (or closely related events). This takes place at the border of syntax and semantics, where thematic roles play their role, in Carlson's view. (See §8.7 for some further theoretical discussion.)

An advantage of this view is that we can already see how it has the

potential to give a unified explanation of the Generalized Obligatory Control Signature, as it applies to SVCs. The first key claim of the GOCS is that OC is something special that happens when a constituent that contains a controllable DP (here a VP) merges directly with a projection of a verb, as its complement or a low adjunct modifier. This follows from the hypothesis that event identification is at the heart of obligatory control, since event identification is a compositional principle that applies when two syntactic expressions merge together to form a unit. Other, less direct relationships between an argument-taker and a constituent with a controllable DP will not in general feed this rule of interpretation. Rather, they will be interpreted in other ways, and in accordance with the details of the more elaborate structure that they are found in and the contribution of other heads that may be involved in that structure (coordinators, subordinating elements, tense-mood-aspect heads, and so on).

The second key claim of the GOCS is that OC is something special that relates an argument of a head to something inside a constituent that is merged with that head. This restriction that the controller must be an argument, not an adjunct or something contained in an argument, follows from the hypothesis that OC is induced by thematic uniqueness applied to the event that the first/higher verb is a predicate of. By definition, thematic uniqueness holds of entities that bear a thematic relationship to a particular event. Therefore, it will only induce control between a DP that bears a thematic relationship to the first verb (a predicate of events) and a DP that bears a thematic relationship to the second verb (also a predicate of events—indeed, a predicate of the same event). Now the DPs that bear a thematic role with respect to a particular event are the DPs that are arguments of the verb that is a predicate of that event. It therefore follows from this hypothesis that the controller must be an argument of the verb which the second VP is the complement of.

The third key characteristic of OC as I have presented it is that it is sensitive to the particular thematic roles of the controller and the controlee—not just to grammatical functions or the coarse-grained structure of the construction. This also follows organically from the current proposal, couched in terms of thematic uniqueness. This is obviously a principle that pays attention to the specific thematic roles that grammatical elements bear. It licenses the outcome that one DP is equated with another one only if the DP has a particular thematic role—say theme—as opposed to some other one. Indeed, thematic uniqueness requires a very specific relationship between the thematic

roles of the controller and the controllee: they must be the same thematic role. For SVCs, this is empirically warranted in that the theme argument of the second verb must be controlled by the theme argument of first verb, not by its agent argument or its goal argument, as we have seen. For example, 'Ozo push Uyi fall' must mean that Ozo pushed Uyi down, not that Ozo pushed Uyi such that he (Ozo) (lost his balance and) fell down. Similarly, 'Adha beat Eze kill' means that Adha beat Eze with the result that Adha killed Eze, not that Adha beat Eze thereby causing Eze to kill Adha (e.g., in revenge). This follows organically from the compositional semantics in (24). For example, if there is one event that is both a pushing and a falling, it is fine for Ozo to be its agent and Uyi to be its theme, but it is impossible for Ozo to be both its agent and its theme (of the falling part) while Uyi is also its theme (of the pushing part). Either the event does not have distinct pushing parts and falling parts, or the parts are not accessible to linguistic processes such as attaching thematic roles and adverbial modification. Therefore, a rigid sensitivity to thematic roles follows for this case.[9]

I conclude that this analysis in terms of event identification and thematic uniqueness can account rather elegantly for the core properties of OC as it appears in SVCs: the fact that the controlee is in

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9 I note that this account of SVCs might work for resultative constructions in English too, which have adjectives (or PPs) as the result rather than verbs. Collins (1997: 493) among others draws a direct connection between SVCs like those in (11) and (12) and the English resultative construction in (i). He follows a GB-era tradition of positing a PRO in the AP complement of the verb *water*, which is controlled by the theme argument of that verb (see also Bowers 1993).

(i) a. John watered the tulips all flat

b. [John Voice [$_{VP}$ tulips$_i$ water [$_{AP}$ [all [PRO$_i$]] flat]]

If there is a PRO in (i), then this is surely a case of OC. Moreover, the control is tightly constrained by thematic roles: only the theme argument of the verb can control the PRO inside AP. Thus, it is possible to say *#John$_i$ watered the tulips [PRO$_i$ tired]*, but *tired* is a depictive predicate not a resultative; it expresses that John was tired throughout the watering event, not just at the end as a result of the watering event. It is plausible to say that PRO is the theme argument of 'flat' (compare *John flattened the tulips*, also Baker 2003). *The tulips* is the theme argument of *water*. The same event is both an event of watering and an event of be(com)ing flat. This event has a single theme. Therefore, PRO must be bound to *the tulips*—an instance of obligatory control. My leading idea can thus be grounded in data that are nearer at hand to the English speaker.

a complement of the higher verb, the fact that the controller is an argument of the higher verb, and the fact that only controllers with a particular thematic role can control a given null pronoun. It should then be worthwhile to see whether this reasoning can be extended to the control of ghostly DP operators and the PRO subjects of nonfinite clauses.

Before moving on to those constructions of primary interest, it is worth considering one further feature of argument-sharing SVCs. This is the fact that, at least in the languages considered here, the object of the second verb must be a null pronoun; it cannot be an overt pronoun or a full DP, as shown in (25). There is a double dissociation when one compares the true SVC with coordination constructions with or without an overt coordinator. The SVC allows a null pronoun and forbids an overt one, as in (25a), whereas the coordination structure allows an overt pronoun and forbids a null one (see (15b)).

(25) Ewe (Collins 1997: 480 (60b), and inferred)

*a. Wo-a ɖa fufu ɖu-(*i).*
they-FUT cook fufu eat-(*it)
"They will cook fufu and eat it."

*b. *Wo-a ɖa fufu/i ɖu fufu.*
they-FUT cook fufu/it eat fufu
"They will cook fufu/it and eat fufu."

If an account for the nullness of the controlled element also emerges from the proposed account, it could give us a paradigm for explaining why other controlled items must be null, including ghostly DP operators and ordinary controlled PRO. That would be nice, since in the body of this work I have just stipulated this, building it into the statement of the GOCS.

Does the nullness of the controllee in SVCs follow from this account? Maybe. It does not follow from event identification and thematic uniqueness themselves. Thematic uniqueness only requires that two DPs refer to the same entity, which should in principle be possible for an overt pronoun as much as for a null pronoun. However, this result might potentially be derived from the Binding theory, given favorable assumptions about the latter. It is easy to envision ruling out (25a) with the overt pronoun following the second verb as a violation of Condition B: the pronoun has a c-commanding antecedent ('fufu')

inside the same minimal clause, which is ruled out (see the structure in (13a)). SVCs are minimally different from coordinations in that the second VP of a coordination is not inside the first VP; therefore, the object of the first verb does not c-command the object of the second verb in the coordination structure. Therefore, Condition B allows the pronoun to refer to the object of the first verb in this case, in Edo and Ewe as in English. Similarly, Condition C would rule out the version (25b), in which a full NP/DP is the object of second verb rather than the first verb: such an NP/DP cannot have a c-commanding antecedent at all. So that is all to the good. The question that arises, then, is why the object of the second verb cannot be an overt anaphor, such as a *self*-form. (26) with 'himself' is also unattested in the literature on SVCs and is assumed to be ungrammatical.

(26) Edo (fieldwork, O.T. Stewart 1994)
*Òzó guàlọ́ Uyì gbé (*ẹ̀gb-ẹ́ré).*
Ozo find Uyi beat body-his
"Ozo found Uyi and beat him(*self)."

In the classical Chomskian binding theory, anaphors are taken to be in complementary distribution to pronouns; they both allow and require a c-commanding antecedent in the same clause-like domain. It seems that this condition is satisfied in (26), given a structure like (13). However, other theories about *self*-anaphors could give a different result on this point. In particular, in the binding theory of Reinhart & Reuland (1993), what *self*-anaphors do is flag the presence of a reflexive predicate—a predicate of the form λxλe predicate(e) & θ_a(e)=x & θ_b(e)=x (expressed in Neo-Davidsonian terms). But there is no reflexive predicate of this form in (26), given my semantics. The cooking event has two distinct arguments, the agent 'they' and the theme 'fufu', and so does the eating event (and indeed so does the cooking+eating event; on my view, they are all the same event). In (26), the *self*-anaphor would be saying that two DPs that express the same thematic role are the same, whereas normal uses of the *self*-anaphor express that two DPs that express different thematic roles are the same—a different matter. It is plausible, then, to think that (26) could be ruled out by a version of Reinhart & Reuland's predicate-based theory of Condition A. So if we can pair the Reinhart-Reuland view of Condition A with the Chomskian view of Condition B, we can account for why no overt DP is right for the object position of VP2 in sentences like these, given the requirements imposed by thematic uniqueness. This is a nonstandard packaging of ideas, but not an

impossible one; note that Reinhart & Reuland themselves challenge the perfect complementarity of Conditions A and B, saying that one of them applies to semantic predicates and the other to syntactic ones.

On this view, what would be special about pro that makes it possible in SVCs is not so much its intrinsic nullness, but its lack of intrinsic features. We can think of pro as being a "minimal pronoun" which avoids being classified as either a true pronoun subject to Condition B or a *self*-anaphor subject to Condition A. On this assumption, no binding condition is violated in (24) without the overt pronoun. Pro does have its own licensing conditions, often discussed in terms of identification, but it is reasonable to think that the OC forced in SVCs satisfies this condition (as in Collins 1997: 478).

If this approach works out, there may be no need to stipulate the nullness of a controlled item, as the basic logic of thematic uniqueness does not. In many cases, particular overt controlees will be blocked, either by Binding theoretic conditions or perhaps by language-construction-particular (Case) licensing conditions. However, when those conditions do not get in the way, control of an overt DP is not necessarily impossible. I claim that this is true for other OC constructions below.

3. Control in ghostly operator constructions

3.1. The base account

Now let us consider how the thematic uniqueness idea about OC in SVCs can extend to the ghostly operator constructions which are the primary focus of this book.

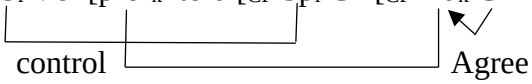
As a canonical example to get us started, consider (27a), a Magahi example involving allocutive marking and indexical shift of both first and second person pronouns, with the analysis sketched in (27b). Such examples are particularly interesting in that they involve two obligatory control relationships, not just one. The matrix subject controls Sp in the CP complement of 'tell', a sort of control also seen in upward C-agreement constructions and logophoric pronoun constructions. At the same time, the matrix goal controls Ad in the CP complement. This sort of double control is not familiar from the study

of normal control into nonfinite clauses.[10]

(27) Magahi (fieldwork, Deepak Alok)

a. Santee-aa profesar saaheb-ke kahk-ai ki ham apne-ke dekh-l-i-ain ha-l.
Santee-FM professor HH-DAT told-3.NS.S that I you.HH.ACC see-PFV-1.S-HH.AL be-PFV
"Santee$_i$ told the professor$_k$ that he/I$_i$ saw him/you$_k$."

b. S_i Voi [prof$_k$ told [$_{CP}$ Sp$_i$ C1 [$_{CP}$ Ad$_k$ C2 I$_i$ saw you$_k$]]]



Recall also that in ghostly operator constructions, the complementizer C is sometimes related to the verb 'say', such that the complementation construction might very well have evolved out—or even still be—a kind of SVC (Major 2021, Major and Torrence 2021, Driemel and Kouneli To appear). It should not be too big a leap, then, from control in SVCs to control in ghostly DP constructions.[11]

I continue to assume that relevant C heads in the left periphery (Fin, according to Alok (2020)) license Sp and Ad in their projections. Moreover, they do so by assigning them a sort of thematic role: agent in the case of Sp and goal in the case of Ad.[12] In neo-Davidsonian

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[10] Double control might also happen in transitive+transitive SVCs like 'They cook fufu eat' as in (8)-(10). This would be the case if the projection of 'eat' has two null DPs, one representing its agent and the other its theme, something like [They$_i$ Voice [fufu$_k$ cook [DP$_i$ eat DP$_k$]]]. However, the more common view is (13a), where the SVC has a single Voice head that takes a serialized VP as its complement and attaches an agent to the composite event of buying+eating. See Collins (1997: 491), Stewart (2001), Baker and Stewart (2002), among others.

[11] However, it is by no means necessary that the C of a ghostly operator construction be verbal either synchronically or diachronically. Indeed, *ki* in Magahi is not, nor is *ke* in Ibibio. My theory goes through as long as C assigns the right kind of thematic roles to its ghostly DP arguments, whether it is otherwise verbal or not. When there is a V-C relationship, it can help to motivate certain theoretical intuitions, but it is not part of the official theory.

[12] In previous chapters and later in this one, I assume that Sp actually bears the initiator macro/proto-role, and Ad the undergoer macro/proto-role. But I abstract

terms, this suggests that the C head(s), like verbs, are predicates of events—events that DPs can refer to the agents and goals of. But I assume that, in the limiting case, the C heads have no more semantic content than this; they are trivial predicates of events, true of any event that has an agent and a goal. This is a plausible formal expression of the widespread intuition that verbal complementizers are semantically bleached verbs, which have lost much if not all of their substantive semantic content. (This need not be entirely true for all cases. We saw in Chapter 2 that the Eval head that is present in upward C-agreement constructions does tend to have a substantive semantics. Whatever this is, exactly, I assume that it can be added into the base account relatively seamlessly.)

Now we can take a new step. Inspired by SVCs, the question arises of what is the semantic relationship of C to the verb that it heads the complement of. Since I have inferred that the operator-licensing C is a predicate of events, it is plausible to say that its projection combines with the matrix verb by event identification. Moreover, since C is a trivial predicate of events, with C(e) is true of all events (within a certain class), it follows that [verb(e) & C(e)] is true of an event if and only if [verb(e)] is true of that event. In other words, the CP headed by C can combine with any matrix verb by event identification. For instance, the CP headed by *ki* in (27b) can combine with 'tell' by event identification. Even though C has no substantive content as a predicate of events, thematic uniqueness still applies, implying that the agent of the telling event denoted by the matrix verb is the same as the agent of C, and the goal of the telling event is the same as the goal of C. As a result, the agent of 'tell' controls Sp in the complement clause, and the indirect object of 'tell' controls Ad in the complement clause—and never vice versa. (28) sketches the semantics I have in mind in a way parallel to the semantic derivation of an SVC in (23), with various details glossed over.[13]

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away from this temporarily to make clearer the similarity to control in SVCs.

[13] Here I assume that the clause complement of C (Fin) expresses the propositional content associated with the event that C is a predicate of—more precisely, the content of a content-bearing entity that is a covert argument of the event. (In (28), this is symbolized zc, a free variable—suitable for undergoing existential closure.) In this, I adapt a view of Kratzer (2006), Hacquard (2006, 2010), Moulton (2009, 2015) and Moltmann (2024) (see also Elliott (2017) for a variant). This is discussed in some detail in §8.4. I assume that the content-

(28) a. [[CP]]= λe C(e) & agent(e)=Sp & goal(e) = Ad & *of*(e) = z_c & content(z_c) = [pro saw pro]

b. [[tell]]= λx λe tell(e) & goal(e)=x

c. [[V′]]= λx λe tell(e) & goal(e)=x & C(e) & agent(e)=Sp & goal(e)=Ad & *of*(e) = z_c & content(z_c)= pro saw pro

d. [[VP]]= λe tell(e) & goal(e)=Bantee & C(e) & agent(e)=Sp & goal(e)=Ad & *of*(e) = z_c & content(z_c)=pro saw pro

e. [[Voice′]]= λy λe agent(e)=y & tell(e) & goal(e)=Bantee & C(e) & agent(e)=Sp & goal(e)=Ad & *of*(e) = z_c & content(z_c)=pro saw pro

f. [[VoiceP]]= λe <u>agent(e)=Santee</u> & tell(e) & *goal(e)=Bantee* & C(e) & <u>agent(e)=Sp</u> & *goal(e)=Ad* & *of*(e) = z_c & content(z_c) = pro saw pro

Therefore Sp=Santee and Ad=Bantee.

Because the e argument of C (C1 and C2) is identified with the e argument of 'tell', thematic uniqueness implies that the agent argument of 'tell' is the same as the agent argument of C(1), and that the goal argument of 'tell' is the same as the goal argument of C(2). As a result, the subject 'Santee' controls Sp, and the indirect object 'Bantee' controls Ad—the correct result.[14] The mechanics are parallel

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bearing entity bears the same thematic role as *the news* does in *Mary informed John <u>of the news</u>*. There not being a standard name for this role, I simply call it the *of* role. (Moulton and Kratzer treat the content-bearing entity as the theme argument of the event. Perhaps it is in many cases, but this runs into some trouble with the matrix verb 'convince'; see the discussion of (41).)

[14] In this discussion, I am assuming that the agent and the goal (and/or theme) are both participants in the same event, following Kratzer (1996). This is the simplest assumption. In §8.4, I adopt aspects of Ramchand's (2008) "first phase" syntax, in which verbs are more radically decomposed, semantically as well as syntactically. One feature of this is that the initiator (agent) is taken to be the argument of an initiating event, different from the "process" event which the undergoer (theme, goal) is an argument of. For Ramchand, the initiating event causes (or "leads to") the process event. I can adopt Ramchand's semantic decomposition of the verb as long as I adopt a parallel decomposition (both syntactic and semantic) of the C head(s) that license the ghostly DPs in a structure like (27b). This would involve saying that C1 is a trivial predicate of one event e1, Sp is the initiator of e1, C2 is a trivial predicate of a different event e2, Ad is the goal of e2, and e1→e2. Then all the relevant identifications between the events denoted by the different V heads and those denoted by the different C heads go through as before. (I might also need to assume that if e1→e2 and e3→e4 and e1=e3, then e2=e4. This assumption would not be true

to those I motivated for SVCs, and the two different instances of thematic uniqueness go through without interfering with each other.[15]

If one started from the semantics of event identification and worked backwards towards a plausible syntax, it could play out in at least two ways. One can imagine the equation amounting to two DPs being projected where one binds the other, as presented here. Alternatively, one can imagine it amounting to only one DP being projected in the syntax even though it is understood as the argument of two predicates. Even for the best-studied case of PRO in control infinitives, it has been vigorously debated whether the complement has a syntactically projected DP (PRO) or not. The preponderance of syntactic evidence seems to show that PRO is present as a distinct DP in at least some infinitival complements, and that is what most Chomskyan syntacticians assume (see Landau 2013: Ch. 3 for an overview). For SVCs, the question is just as challenging, and there has not been a

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for causation in general, but it might well be true for →, a type of *direct* causation.)

[15] There are similarities and differences between this proposal and the related one put forward for the agreeing C-like element in Kipsigis by Driemel and Kouneli (to appear) (D&K). We share the idea that the C-like element is a predicate of events and it takes a null pronominal element as its agent argument, as well as potentially a null goal argument. (For me, C is a trivial predicate of events; for D&K, it is the verb 'say', which retains some lexical content, but a relatively bleached/abstract one.) A key difference is that I say that the event that C is a predicate of is equated with the event denoted by the matrix verb by event identification, whereas for D&K the embedded clause and the matrix VP are predicates of different events, which constitute the two arguments of a rather flexible "bidirectional causative" element (they associate this with subjunctive morphology). I then claim that the arguments of C are controlled by corresponding arguments of the matrix verb, where control is a tight relationship induced by thematic uniqueness. In contrast, D&K relate the arguments of C/V to those of the matrix verb by ordinary coreference, constrained (only) by general considerations of semantic consistency and coherence.

Very similar to D&K's view is that of Özyıldız et al. (2018), from which they borrow the "directly causally linked" connective. Many works by Travis Major share the idea that the putative C of a seeming complement clause is really a verb. However, for Major the details of how this works can vary from language to language: the 'say' complement construction is a type of serial verb construction in Avatime (Major and Torrence 2021), a kind of converb construction in Uyghur (Major 2021), a kind of "reduced manner adverbial clause" in Lubukusu (Major et al. 2023), etc. I do not go through the possible differences among these various constructions here.

consensus view. The answer may even be different for different types of SVCs (see Baker and Stewart 2002 for such a view; Zimmermann and Amaechi 2017 leave the question open). However, for the paradigm case of a ghostly operator construction in (27), there is a clear reason to say that C has its arguments syntactically projected, even though they must be controlled by the corresponding arguments of the matrix verb. This is because the arguments of C can differ in phi-features from the arguments of the verb that control them. We have seen that Ad in Magahi is [+2], as shown by the kind of agreement that it triggers on Fin (distinguishing three levels of honorificity, not just two) and by the features on pronouns that it binds in the embedded clause. This second consideration also implies that Sp in Magahi and other indexical-shifting languages is [+1]. If the semantic arguments of C were bound variables in the semantics but not projected as distinct DPs in the syntax, there would be no place for these features to be housed where they could influence syntactic processes of agreement. This is shown in (29), an enrichment of (27).

(29) Santee$_i$ Voi [prof$_k$ told [$_{CP}$ Sp$_i$ C1 [$_{CP}$ Ad$_k$ C2 [I$_i$ saw you$_k$]]]
[+3] [+3] [+1] [+2] [+2] [+1] [+2]
control Agree

Similarly lOp in the West African languages is [+log] (or [0log]), a feature that is not borne by its controller but which it does pass on to pronouns that it binds. There may be other ways to achieve this cluster of results, but positing an explicit pronoun in the syntax with its own bundle of features is a natural way. More generally, agreement processes tend to show that there are DPs in the CP space which the C-type heads can agree with locally, as I have argued throughout.

3.2. Extensions and variations

Now we can expand on this basic account in various ways. One of its positive features is that it iterates, allowing the agent of the matrix verb to control more than one ghostly DP in the periphery of the complement clause. One clear case in which this can happen is in Ibibio, where the subject of a CP-selecting verb can control both SoK in the Spec of one C-type head (Eval), resulting in upward C-agreement, and lOp in the Spec of another C-type head (C), resulting

in the binding of a logophoric pronoun. This is seen in (30).[16]

(30) Ibibio (fieldwork, Willie Willie)

a. Okon i-ki-dọkkọ-ke Emem i-bo ke imọ i-ya-i-nwam anye.
Okon 3SG-PST-tell-NEG Emem 3SG-C that LOG 3.LOG-FUT-3.LOG-help 3SG
"Okon$_i$ didn't tell Emem$_k$ that he$_i$ will help him$_k$."

b. [$_{VoilP}$ Okon$_i$ Voi not [$_{VP}$ tell Emem$_k$ [$_{EvalP}$ SoK$_i$ Eval…
…[$_{CP}$ lOp$_i$ C [Log$_i$ will help him$_k$]]]]]

The account based on thematic uniqueness generalizes to this case easily, without new stipulations. Here there are four predicates of events that combine by event identification, such that they end up applying to the same event: C (*ke*), Eval (*bo*), the verb 'tell' (*dọkkọ*), and the Voice head that selects 'tell'. Three of these predicates license a DP in their specifiers, to which the agent role is assigned (all but 'tell' itself). Since each of these DPs refers to the agent of the same event, thematic uniqueness entails that they must be the same. This licenses the agent of 'tell' controlling both SoK, the trigger of C-agreement, and lOp, the binder of logophoric pronouns. The semantic formula for (30b) is approximately (31).

(31) [[VoiceP]]= λe agent(e)=Okon & tell(e) & goal(e)=Emem & Eval(e) & agent(e)=SoK & C(e) & agent(e)=lOp & *of*(e) = z_c & content(z_c) = [pro will help pro]
Therefore lOp=SoK=Okon

It is thus possible, even expected, for an argument of the matrix verb to control more than one ghostly DP in its CP complement.

So far, we have looked at two examples with the matrix verb 'tell', a verb whose arguments match up very well with those that I hypothesize for the C-type heads. Now let us consider variations in

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[16] Recall from Chapter 5 that we know that C/Eval does not agree with lOp because in some cases the trigger of C-agreement can be different from the binder of a logophoric pronoun. This is possible within my current theory of control because lOp can get a source thematic role from C rather than an initiator role; see the discussion of (43) below.

which the matrix verb and the C-type head are not as similar in the arguments that they take as 'tell' and Fin are in Magahi. One possible mismatch is that the matrix verb might take a goal argument while C takes only an agent argument. That is true for C/Eval in the African languages with C-agreement other than perhaps Kipsigis. As already anticipated in (30b), this head takes an SoK argument but there is no evidence that it also takes an OoK argument. Other such cases are C in Ibibio and Japanese. These languages do not have special addressee pronouns, the way that Mupun and Tikar do, so there is no motivation for saying that their Cs license AdOp in addition to lOp or zOp. This variation also fits the current proposal about the nature of OC. The analysis is similar to the one in (27)/(28), except that there is no conjunct like "goal(e)=X" in the line corresponding to (28a), the formula for the CP complement. The agent of the matrix verb still gets equated with SoK or lOp, the agent of C, but there is no requirement that the goal of the matrix verb control anything. Thus, the analysis of an example like (32a) with the structure in (32b) is in (33).

(32) Kinande (fieldwork, Philip Mutaka)

a. ***Kámbale*** *mw-a-ka-bw-ira abá-kalí* ***a-ti*** *Maryá mw-á-gúl-iré ehí-lole.*
CL1.Kambale AFF-CL1.S-TNS-tell-APPL CL2-women CL1-that CL1.Mary AFF-CL1.S.TNS-buy-ASP CL19-bananas
"Kambale told the women that Mary bought bananas."

b. K_i tell women [$_{EvalP}$ SoK_i Eval [Mary bought bananas]]

(33) a. [[CP]]= λe Eval(e) & agent(e)=SoK & *of*(e) = z_c & content(z_c)=[M bought bananas]
b. [[tell]]= λx λe tell(e) & goal(e)=x
c. [[V′]]= λx λe tell(e) & goal(e)=x & Eval(e) & agent(e)=SoK & *of*(e) = z_c & content(z_c)=[M bought bananas]
d. [[VP]]= λe tell(e) & goal(e)=the.women & Eval(e) & agent(e)=SoK & *of*(e) = z_c & content(z_c)=[M bought bananas]
e. [[Voice′]]= λx λe agent(e)=x & tell(e) & goal(e) = the.women & Eval(e) & agent(e)=SoK & *of*(e) = z_c & content(z_c)=[M bought bananas]
f. [[VoiceP]]= λe agent(e)=Kambale & tell(e) & goal(e) = the.women & Eval(e) & agent(e)=SoK & *of*(e) = z_c & content(z_c)=[M bought bananas]

There is thus no requirement that the verb and C match exactly as to their arguments—only that when they do have corresponding arguments those arguments must enter into a control relationship. This is analogous to what we saw with SVCs, where the first verb may take an agent or a goal argument that is not shared with the second verb, as in 'Ozo push Uyi fall' (see (11a)). This extra argument is harmless, as long as the arguments that do get the same thematic role—for the SVC, the theme arguments—are identified via a control relationship.

A new issue is raised by the converse case, in which the C-type head has a goal argument but the matrix verb does not have one. This situation arises in Magahi and other indexical shift languages, where Fin selects both Sp and Ad, but the CP-selecting verb can be one that lacks a goal, like 'think'. From the point of view of event identification and thematic uniqueness, this case should work just like the previous one: the agent of the matrix verb controls the Sp argument of Fin, but there is no argument of the matrix verb to control the Ad argument of Fin. That should satisfy the basic principles. However, there is an asymmetry between the two cases. In (32)/(33), the substantive predicate (the verb) has extra arguments that the trivial one (C/Eval) lacks; in the new case, the trivial predicate has arguments that the substantive one lacks. Thematic uniqueness is not sensitive to this distinction, but other aspects of Theta theory might be. In fact, sentences like 'Santee thinks that I saw Bantee/you' are grammatical and sometimes allow indexical shift—but they have some special properties that are consistent over a range of languages including Uyghur, Nez Perce, and Magahi. As discussed in Chapters 3 and 4, a first person pronoun in the complement of 'think' can refer to the subject of 'think', as in (34a). However, when the first person pronoun has this reading, the embedded verb cannot show allocutive marking that resumes the marking on the matrix verb ((34b)), and the embedded clause cannot contain a second person pronoun ((34c)). These second person elements in the complement clause force a first person pronoun in that clause to be unshifted, referring to Sp*.

(34) Magahi (fieldwork, Deepak Alok)

*a. Santee-aa soch hai ki **ham** tej h-i.*
Santee-FM think be.3.NH.S that I smart be-1.S
"Santee$_i$ thinks that he/I$_{i,sp*,}$ am smart."

b. #Santee-aa soch-l-ain ki ham Ram-ke dekh-l-i-ain.
Santee-FM think-PFV-HH.AL that I Ram-ACC see-PFV-1.S-HH.AL
"Santee$_i$ thought that he/I$_{*i,sp*}$ saw Ram." (to a teacher)

c. #Santee-aa soch-l-ai ki ham toora dekh-l-i.
Santee-FM think-PFV-3.NH.S that I you.NH.ACC see-PFV-1.S
"Santee$_i$ thought that I$_{*i,sp,}$ saw you$_{ad*}$.'

Following Deal (2020), I described this as a defective addressee effect: Ad in the FinP of the embedded clause cannot have a referential value if 'I' is shifted. In particular, it cannot refer to the addressee, as Ad* in the root clause does. Compositionally, following the model of the examples we have seen so far, the semantic value of the matrix VoiceP for (34c) would be (35) (compare (33f)).

(35) [[VoiceP]]= λe agent(e)=Santee & think(e) & Fin(e) & agent(e)=Sp & goal(e)=Ad & *of*(e) = z_c & content(z_c) =[pro saw pro]

What is notable here is that this formula implies that Ad refers to the goal of an event of thinking. But 'think' is not a trivial property, which can apply to any event the way that C can. In particular, thinking events do not have goals. We know this from the elementary fact that we cannot add a goal argument to a clause anchored by 'think' in English (apart from belief in some kind of telepathy).

(36) English (personal knowledge)
#John thought to Mary that he is intelligent.

Therefore, there is something borderline incoherent about the formula in (35), which does attribute a goal to a thinking event. However, we need examples like (34a) with i-shift to be constrained in their meaning, but not incoherent. Suppose then that we describe the deviance of examples like (36) not as "there is no goal of a thinking event" but rather as "the goal of a thinking event is no one" (symbolize this as …think(e) & goal(e)=Ø). Then a subformula of (35) would be "… think(e) & goal(e)=Ø & Fin(e) & agent(e)=Sp & goal(e)=Ad…". This is not ill-formed, but Ad is constrained by thematic uniqueness to have the same referential value as Ø, to refer

to no one.[17] No one has no determinate social rank with respect to the referent of Sp, so this special Ad has no honorific features, and it cannot trigger agreement for honorificity on Fin, explaining (34b). Also 'you' in the domain of Ad must be bound by Ad according to the PLC, but such a 'you' cannot refer to anything because Ad does not, explaining (34c). Like my original discussion of these facts in Chapter 4, this necessitates a very specific way of understanding "no one" in the uncontroversial observation that the goal of a thinking event is no one—one that I would not have foreseen. But this analysis does shed light on why something special happens to Ad in just this situation.[18]

Another issue that arises in generalizing this control theory beyond verbs like 'tell' is how strict is the thematic matching between the matrix verb and the C-like head. I assumed in the previous paragraph that the subject of 'think' has the thematic role agent. And perhaps it does: thinking can be a volitional activity, as in *Every morning I spending some time thinking about the deep questions of Theta theory.* But even if 'think' does select an agent argument, there are other dyadic verbs do not, and their arguments can still control Sp and its kin. For example, in Magahi the animate argument of 'seem' can be the antecedent of a shifted first person indexical as in (37), as discussed in Chapter 4. This argument is considered an experiencer rather than an agent. This thematic distinction is visible to the morphosyntax in that the experiencer bears dative case, not nominative, which reflects its nonagentive role.

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[17] Note that we cannot say that the Ad argument of Fin is optional in Magahi and similar languages, as way of accommodating the argument structure of Fin to that of 'think'. That would account for impossibility of allocutive agreement in (34b), but not for the impossibility of 'you' in the complement clause in (34c). If Ad were missing in FinP of the complement of 'think' in (34c), I would expect 'you' to be possible referring to Ad*, its binder according to the PLC. See Chapter 4 on (34c) being a special kind of Shift Together effect.

[18] Shannon Bryant (p.c.) points out that 'think' in English does allow a goal phrase if it is reflexive, referring to the agent of thinking, as in *Francine thought **to herself** that she would leave early*. I do not know if languages like Magahi and Ibibio allow this or not. If they do, it could open the door to u-shift in the complement of 'think' referring to the thinker, under an analysis like [Francine$_i$ think (to self$_i$) [Sp$_i$ Ad$_i$ Fin [you $_i$ will leave]]]. If this is impossible, it might be because C/Fin cannot be a reflexive predicate, it not being marked as reflexive by any morpheme or reflexive argument (cf. Reinhart & Reuland 1993).

(37) Magahi (fieldwork, Deepak Alok)

Santee-aa-ke laga h-ai ki ham tej h-i.
Santee-FM-DAT seem be-3.NH.S that I smart be-1.S
"It seems to Santee$_i$ that he/I$_{i,sp*}$ is/am smart."

My analysis is that this sort of experiencer is generated as Spec of VP (or ApplP) and this causes it to receives dative case rather than nominative case (see Baker (2024) on closely related Hindi). In other examples, experiencer arguments may even stay inside VP while some other nominal—an expletive, body part nominal, or idiom chunk—occupies the Spec TP subject position, as in (38) from Ibibio. This experiencer can nevertheless control lOp, such that it is the ultimate antecedent for a logophoric pronoun in the CP complement.

(38) Ibibio (fieldwork, Willie Willie)

Esɪt a-nem *Okon* *ke Emem á-maá* *ímò*.
heart 3SG-sweet Okon that Emem 3.SG-like LOG
"Okon$_i$ is happy (lit. the heart is sweet on Okon) that Emem likes him$_i$."

Therefore, we cannot say that these experiencer arguments are simply agents in an extended sense, given that they are not projected in the same syntactic positions as agents (Spec VoiceP). Nevertheless, they can control Sp or lOp when circumstances are right (when there is no agent argument of the clause). It seems like this instance of OC is not induced by thematic uniqueness. A plausible formula for (37) given what I have said so far would be (39), where 'seem' takes an experiencer/goal argument and Fin takes an agent argument. (20) does not license the conclusion that Sp=Santee from this formula, however. (If anything, *Santee* would control Ad in this case, if experiencer and goal are the same role.)

(39) [[VoiceP]]= λe experiencer(e)=Santee & seem(e) & Fin(e) & agent(e)=Sp & goal(e)=Ad & *of*(e) = z_c & content(z_c) =pro is smart

Nor would it work to say that Sp is really the experiencer argument of C/Fin, not its agent. This would simply move the problem from sentences like (37) to sentences like (27) and (34); now the problem would be that the agent argument of 'tell' or 'think' would not control

the experiencer argument of C/Fin by thematic uniqueness.

In fact, I already introduced the key notion needed to address this issue back in §3.4.2 and §4.3.2. This is to say that there is a higher order, more coarse-grained thematic role that includes agent and experiencer as subtypes, namely initiator (Ramchand (2008: 53-55); see also Foley & Valin's (1984) "actor" and Dowty's (1991) "proto-agent"). For concreteness, I adopt a version of this in which a given nominal argument of a predicate can simultaneously bear both a fine-grained role like agent or experiencer and a compatible coarse-grained role like initiator (cf. Jackendoff 1990). I also return to my hypothesis—downplayed in this chapter so far—that C-heads like Fin in Magahi, C in Ibibio, and Eval in Kinande assign the initiator role to their external argument (Sp, LogOp, and SoK, respectively), rather than the agent role. Given these assumptions, the semantic formula for the matrix VoiceP of (37) will be (40) rather than (39).

(40) [[VoiceP]]= λe experiencer(e)=Santee & initiator(e)=Santee & seem(e) & Fin(e) & initiator(e)=Sp & undergoer(e)=Ad & *of*(e) = z_c & content(z_c) =[pro is smart]

I treat initiator as a full-fledged thematic role, having the same status as agent and theme and falling within the domain of Carlson's thematic uniqueness stated in (20). Thematic uniqueness then applies to the initiator role in (40), implying that Sp=Santee. This licenses the OC of Sp by *Santee*, as desired. In other examples, the subject bears the agent role as well as the initiator role, and the initiator role causes it to control Sp. Note that it does no harm to these control dynamics to have the finer-grained thematic role of experiencer present alongside initiator in a representation like (40). This role does not induce control of the ghostly DP, but it does not prevent it either. An advantage of including it is that one can claim that the absolute position of the DP (in Spec VP rather than Spec VoiceP) and its case marking (dative rather than nominative) is determined by its finer-grained thematic role experiencer (cf. the UTAH of Baker (1988)) while the OC relationship is determined by its coarser-grained thematic role initiator. It seems quite possible to have it both ways in this case. One can handle cases in which the source argument of a verb like 'hear' controls Sp or lOp in the same way: such DPs are sources and initiators, although not agents. The source role causes them to be projected as the object of a P like 'from' while the initiator role allows them to control Sp or lOp.

We can apply this line of thinking to canonical internal arguments as well. We have seen that the goal argument of 'tell' can control the Ad argument of Fin in Magahi in examples like (27)/(28), which is another case of thematic role matching. However, the theme argument of a verb like 'convince' can also control Ad, as in (41).[19]

(41) Magahi (fieldwork, Deepak Alok)
Bittu-aa Chhotu-aa-ke soch-wal-k-ai ki (pro) toraa dekhl-i.
Bittu-FM Chhotu-FM-ACC think-CAUS-PFV-3.NH.S that (I) you.NH.ACC see-PFV-1.S
"Bittu$_n$ convinced Chhotu$_i$ that he/I$_n$ saw him/you$_i$."

Here we can say that either a goal or a theme can bear the coarser-grained role undergoer, as does the Ad argument of Fin (as anticipated in (40)). This degree of flexibility as to what is an undergoer is part and parcel of Foley & Van Valin's (1984) original conception of an undergoer; it is designed to account for the possibility of locative alternations, differences between verbs like *report* and *inform* (*I reported the news to Chris* vs *I informed Chris of the news*), and perhaps dative shift alternations; see also Dowty (1991). Bearing the undergoer role causes either a goal or a theme to control Ad, while their different finer-grained roles can cause them to appear in slightly different positions inside VP and/or to receive different case markings in some languages. (42) is a formula for (41) that expresses this.[20]

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[19] I believe that the object of 'convince' in English and other languages is a theme argument rather than a goal argument, because it necessarily undergoes a change of (mental) state. Also this argument is marked with *of* rather than *to* in nominalizations, to the extent that these are possible: *The convincing ?of/*to John that he should leave took a long time*. However, this distinction is blurred in Magahi by the fact that dative and accusative case are syncretic (both *-ke*). ('Think+caus' can be parsed as a syntactic causative construction in Magahi as well as a monoclausal construction with a triadic verb, but I focus on the second use here. See Chapter 4 for discussion.)

[20] Here is where I cannot say that the covert content-bearing argument of the event is its theme argument, as Moulton (2015) does. If I did, then thematic uniqueness would imply that Chhotu and the content-bearing argument are the same in (42), which is false. I avoid that by saying that the content-bearing argument in CP has the *of* thematic role, distinct from both goal and theme (see fn 13). Alternatives may be possible, and the matter deserves further study.

(42) [[VoiceP]]= λe agent(e)=Bittu & initiator(e)=Bittu & convince(e) & theme(e)=Chhotu & undergoer(e)=Chhotu & Fin(e) & initiator(e)=Sp & undergoer(e)=Ad & *of*(e) = z_c & content(z_c)=pro saw pro
Thematic uniqueness: Sp=Bittu, Ad=Chhotu

The same example with 'told' instead of 'convinced' would have the same formula, except that it would have "goal(e)=Chhotu" rather than "theme(e)=Chhotu". This does not affect the OC, which depends on the undergoer role, not the theme or goal roles. The same factors could be relevant to the control of AdOp in Mupun and Tikar and to the control of OoK in Kipsigis, although the data is limited.

While my official Theta theory includes initiator and undergoer as well as agent, experiencer, theme, and goal, I often do not include both roles of the subject or both roles of the object(s) when it is not important for understanding a particular example.

There is one ghostly DP construction that needs special discussion in light of the new control theory. In Chapter 5, we saw that logophoric constructions in Ibibio and Yoruba are special in that there can be two lOps in the periphery of a single clause, each with a different controller. In this respect, logophoric constructions are different from shifted first person indexicals in Magahi and other languages and from LD anaphors in Japanese; for those constructions, two operator-bound pronouns in the same clause must refer to the same person. An Ibibio example of two logophors in the same clause referring to different antecedents in the higher clause is given in (43a) analyzed in (43b).

(43) Ibibio (fieldwork, Willie Willie)
a. Nditọ e-ke-kop e-to Okon ke ímọ̀ i-maa-gha mm-ímọ̀.
children 3PL-PST-hear 3PL-from Okon that LOG 3SG-like-NEG PL-LOG
"The children$_k$ heard from Okon$_i$ that he$_i$ doesn't like them$_k$."

b. The kids$_k$ heard from Okon$_i$ [lOp1$_k$ lOp2$_i$ that …
… [pro$_{i+log}$ not like pro$_{k+log}$]]

In terms of the current analysis, it is inescapable that the two lOps in the periphery of the embedded clause cannot both have the same thematic role, whether agent or initiator. If they did, thematic

uniqueness would require them to be coreferential, which they are not. At the same time, both lOps need to have some substantive subject-like thematic role; otherwise, one of them could potentially be controlled by the goal argument of 'tell'. This is not possible, as shown by the badness of (44).

(44) Ibibio (fieldwork, Willie Willie)
**Okon a-maa-dọkkọ Edem ke imọ i-ya-i-nwam imọ.*
Okon 3SG-PST-tell Edem that LOG 3.LOG-FUT-3.LOG-help LOG
("Okon$_i$ told Edem$_k$ that he$_i$ will help him$_k$.")

I am pushed to say that C in Ibibio has the special property of assigning the initiator role to one lOp and some other thematic role from the agent-like family to another lOp. For concreteness, I tentatively assume that C in Ibibio (and Yoruba) can assign the source role as well as initiator.[21] The semantic formula for (43) would then be composed as in (45). (Here I assume that there is a flavor of Voice that licenses an experiencer+initiator subject rather than an agent+initiator subject, a common view. Alternatives in which this is the argument of V itself or an Appl head would also be possible.)

(45) a. [[CP]]= λe C(e) & initiator(e)=lOp1 & source(e)=lOp2 & *of*(e) = z_c & content(z_c) =[pro not like pro]
b. [[hear]]= λx λe hear(e) & source(e)=x
c. [[V′]]= λx λe hear(e) & source(e)=x & C(e) & initiator(e) = lOp1 & source(e) = lOp2 & *of*(e) = z_c & content(z_c) =[pro not like pro]

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[21] One can think of this as the view that Ibibio has a logophoric complementizer that is basically a grammaticized version of 'hear', with an experiencer/initiator argument and a source argument, as well as a C that is a grammaticalized version of 'say', with an agent/initiator argument. A possible reason for saying that the second lOp has a source role rather than an experiencer role is that an initiatior/agent+experiencer argument structure for C might wrongly allow two lOps to be controlled in a sentence like (44), if the goal argument can count as an experiencer (see also §5.2.1 for agent-experiencer interactions with a matrix verb like 'remind').The two-lOp structure allowed by Ibibio is also what underlies its ability to have C-agreement with a different DP than one that antecedes a logophoric pronoun (again, see §5.2.1).

d. [[VP]]= λe hear(e) & source(e)=Okon & C(e) & initiator(e) = lOp1 & source(e) = lOp2 & *of*(e) = z_c & content(z_c)= [pro not like pro]

e. [[Voice′]]= λx λe experiencer(e)=x & initiator(e)=x & hear(e) & source(e) = Okon & C(e) & initiator(e) = lOp1 & source(e) = lOp2 & *of*(e) = z_c & content(z_c) = [pro not like pro]

f. [[VoiceP]]= λe experiencer(e)=children & initiator(e) = children & hear(e) & source(e)=Okon & C(e) & initiator(e) = lOp1 & source(e) = lOp2 & *of*(e) = z_c & content(z_c)= [pro not like pro]

Therefore, children=lOp1, Okon=lOp2

Here thematic uniqueness applied to the source argument of the hearing event implies that lOp2 is controlled by 'Okon', and thematic uniqueness applied to the initiator (/experiencer) argument of the event implies that lOp1 is controlled by 'the children'. Although this construction is not a special strength of the approach to OC based on event identification and thematic uniqueness, it does not fatally contradict it either. As far as I can see, any account needs to say something special about what thematic roles license the lOps in these multiple lOp structures, given that multiple Sp, zOp, and SoK structures are indeed not allowed.

We have seen that any of the ghostly DP operators can be controlled not only when the CP that contains them is the complement of a verb, but also when it is the complement of a noun like 'news' or 'rumor'. For example, in (46) from Ibibio the possessor of 'news' controls an lOp inside the noun-complement, such that it antecedes the logophoric pronoun inside the noun complement.

(46) Ibibio (fieldwork, Willie Willie)

a. Ndiṭọ e-me-kop mbʌk Emem ke ímọ̀ i-ma-i-due.
children 3PL-PERF-hear news Emem that LOG 3.LOG-PST-3.LOG-guilty
"The children heard Emem$_i$'s news that he$_i$ was guilty."

b. …[news Emem$_i$ [lOp$_i$ C [he$_i$ was guilty]]]

We can include this in the new theory of OC if we say that a noun like 'news' can also be a predicate of events, or event-like entities. At an intuitive level, (46) is possible because the possessor *Emem* is the

agent of some kind of news-communicating event, which the CP complement expresses the content of. We thus want the complex DP in (46) to work very similarly to a sentence like 'Emem said that LOG was guilty.' A simple way to achieve this goal is to say that 'news' can be interpreted as an event-denoting noun, a predicate that is true of events of sharing some news.[22] The C is a (trivial) predicate of events too, and its projection can undergo event identification with 'news'. Then the agent/initiator argument of 'news' in the possessor position is equated with the initiator argument of C, and the result is OC. In the end, the event argument of 'news' is bound by an iota operator rather than by an existential, in line with the fact that the whole constituent is a nominal rather than a clause. As a result, it can appear in argument positions, but not alone as a root utterance. A formula for the direct object of (46) is (47).

(47) [[NP/DP]]= ιe news(e) & initiator/poss(e)=Emem & C(e) & initiator(e)=lOp & *of*(e) = z_c & content(z_c) =[pro was guilty]

Next consider (48), where the lOp in the noun complement seems to be controlled by the subject of the matrix verb.

(48) Ibibio (fieldwork, Willie Willie)
Emem a-maa-dọkkọ Ekpe mbʌk ke ímọ̀ i-ma-i-due.
Emem 3SG-PST-tell Ekpe news that LOG 3.LOG-PST-3.LOG-guilty
"Emem$_i$ told Ekpe$_k$ the news that he$_{i,*k}$ was guilty."

Here the root clause asserts that there was an event of telling. The DP headed by 'news' refers to an event of news-imparting. What is the relationship between these events? A natural view is that they are the same event. In essence, this is the idea that 'tell-the-news' is a kind of

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[22] This is a simplification. 'News' does not have all the properties that one might expect of an event-denoting noun. It does not allow relevant modifiers ((ia)), nor can it be the subject of certain kinds of predicates ((ib)). In Moltmann's (2024) framework, 'news' is not a predicate of events but rather of a modal/attitudinal object that is created by a news-giving event. I assume that events and content-bearing objects are systematically related in a way that allows a version of the account to go through, but the semantic details should be worked out.

(i) English (personal knowledge)
a. Okon's (*quick/*reluctant) news that he won the lottery surprised everyone.
b. #Okon's news that he won the lottery occurred at 9:00pm/lasted 5 minutes.

light verb construction, in which the verb and the head of its direct object work together to express an event which can otherwise be expressed by the verb or its object alone. I do not go into how such predicates are constructed and interpreted (for two classic treatments, see (Jackendoff 1974, Grimshaw and Mester 1988)); for current purposes, it is enough just to observe that it is so. We can suppose that the NP headed by 'news' here does not have a covert definite determiner that corresponds to the iota operator, but remains a predicate of events. It can then combine with the verb 'tell' by event identification, rather than by receiving a theme thematic role, as thing-denoting objects of a verb normally do. Once the arguments and the Voice head are added, we get the formula in (49).

(49) [[VoiceP]]= λe tell(e) & initiator(e)=Emem & goal(e)=Ekpe & news(e) & (initiator/poss(e)=pro) & C(e) & initiator(e)=lOp & *of*(e) = z_c & content(z_c) =[Log was guilty]

This formula says that the agent/initiator of the event in question is Emem, and that its initiator is lOp, so lOp=Emem by thematic uniqueness, licensing OC. When I first discussed this example in §5.2.3, I claimed that 'news' had a null possessor which controls lOp and is itself controlled by the agent of the verb; this was needed to satisfy the GOCS as a structural condition on OC. That assumption is perfectly possible here as well: a null possessor argument of 'news' will be equated with both lOp (as in (46)/(47)) and with the agent of 'tell'. However, this assumption is no longer necessary, since in this formula the agent and the lOp are equated with each other even if they are not each equated with the possessor of the noun 'news'. The syntactic locality of one phrase being the complement of another, as stated in the GOCS, has now been explicated in terms of the semantic "locality" of two phrases being predicates of the same event via event identification. Those are pretty much equivalent in many cases, but may not be so here.

Overall, then, generalizing the thematic uniqueness of account of control in SVCs to the ghostly DP constructions works well. The crucial idea that a control relationship between the arguments of two predicates is induced by the two being predicates of the same event

can be carried over, and various of the details can be worked out.[23]

Another topic that should fit in here is the control of ghostly DPs in low adjunct clauses, especially 'so-that' clauses. However, I defer this topic until §8.5.2. My idea about how to do this will involve changing the theory of the Voice head somewhat. I have been assuming that Voice is a predicate of the same event as the V root, following Kratzer (1996). For 'so that' clauses, it will be useful to move to Ramchand's (2008) version, where Voice (what she calls Init) is a predicate of a different event, an initiating event, which causes the event named by the verb root. The 'so-that' clause expresses an eventuality of intending that can be identified with the eventuality of willing expressed by Voice/Init. But before developing this view, it will be helpful to gain some experience with predicate decomposition and how it interacts with event identification and thematic uniqueness.

3.3. Control and the nullness of operators

Before leaving the topic of controlling ghostly DPs in complement clauses, we can touch again on the question of whether a DP needs to be phonologically null to be obligatorily controlled. For the second object in SVCs, we saw that empirically it does need to be null in Ewe and Edo, but that there are reasonable prospects for deriving this from Binding theory, even though control theory reduced to thematic uniqueness does not itself require this. For ghostly operator constructions, the issue barely arises, given that most of them must be

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[23] In Baker & Ikawa (2024), we argued that a ghostly DP in the periphery of a clause could be controlled by a ghostly DP in the periphery of the next higher clause in a structure like "X_i think $Op1_i$ that1 Y said $Op2_i$ that2 …." We called this "chained control", and it played a role in our analysis of allocutive marking that resumes the allocutivity of the higher clause in Magahi and of super-long-distance anaphors in Japanese. That analysis is not consistent with the current theory of OC. 'That2' can be a predicate of the same event as 'say' and 'that1' can be a predicate of the same event as 'think', but those two events are different, and 'that2' is too far from 'that1' to be interpreted directly by event identification, which is a rule for interpreting sister nodes. If 'that2' and 'that1' are predicates of different events, then thematic uniqueness does not induce identity of their corresponding arguments. Fortunately, in this work I have already replaced the idea of chained control with the idea that a CP complement can extrapose, becoming structurally like a high adjunct, such that Op undergoes not OC but whatever kind of NOC/antecedence it is intrinsically prone to (if any). See Chapters 3-5 for discussion.

phonologically null even apart from control. For example, Sp in Magahi and other languages, Ad in Magahi and other languages, and EmpOp (zOp) in Japanese can exist outside of contexts of OC, but they cannot be overt pronouns (or DPs) even in those contexts. Presumably this has to do with some kind of licensing requirement—some descendant of the view that overt DPs need to receive case and case is not assigned in the CP periphery (plus perhaps selectional restrictions that the C-class heads put on their arguments, such that the C-heads identify the content of the ghostly DPs). There is, however, one striking outlier to this trend. Spadine (2020) shows that Tigrinya has a kind of agreeing C head, similar to what we saw in some Niger-Congo languages. (50) is an example that is maximally like the Niger-Congo ones, and I agree with Spadine that it contains a null DP that is the proximate trigger of agreement on C, a DP we may call SoK.[24]

(50) Tigrinya (Spadine 2020: 47 (51))
Kidane [(SoK) [baʕal-u näfoʕ ʔiy-ä] ʔil-u] yɨ-ʔammɨn.
Kidane.M -- self-3.M.SG smart.3.M.SG COP-1 that-3.M.SG M-believe
"Kidane$_i$ believes that he$_i$ is smart."

However, Tigrinya is unusual in that the SoK argument that C licenses and agrees with can be overt. (51) is an example in which SoK is a full nominal that has no semantic relationship to the subject of the root

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[24] Calling the trigger of agreement on C in (50) "SoK" is a simplification. Note that (50)-(52) also have indexiphoric first person agreement with the pronoun bound by "SoK", even though the bound pronoun itself is third person in (50) and (52). In this respect, this "SoK" has properties like those of 1lOp, as analyzed in Chapter 6. Spadine (2020: 45 (46), etc.) shows that SoK (whether overt or not) can also bind an overt first person pronoun, making it like Sp. I tentatively assume that the DP inserted in the Spec CP position in these examples is intrinsically third person, and it triggers that kind of agreement on the selecting C. At the same time, C imposes a first person layer of features on the DP in its Spec, similar to the way imperative heads can impose second person features on DPs in Spec TP that are otherwise third person in English imperatives like *Everyone wash yourself* (Zanuttini et al. 2012). Then either the first person features of this SoK or its third person features can be manifested on a pronoun that it binds. The ghostly DP in Tigrinya is thus not exactly like SoK, Sp, or 1lOp in terms of its feature content, although it is within the same range of possibilities. It is a very interesting intermediate/combined case that deserves more attention than I can give it in this work.

clause or anything else inside the sentence.

(51) Tigrinya (Spadine 2020: 46 (48))
Almaz [Mahari [riʕ-äy-a] ʔil-u] tɨ-ḥasɨb.
Almaz.F Mahari.M see-1SG-3.F.SG.O that-3.M.SG F-say
"Almaz$_k$ says Mahari$_i$ [thinks] that he$_i$ saw her$_k$."

It is not clear (to me) why Tigrinya allows this, when so many other languages do not. But what is relevant here is that the language that allows (51) also allows (52) as an alternative to (50). Here there is an overt pronoun that must in Spec CP, given that there are other overt manifestations of the matrix subject and the embedded subject.

(52) Tigrinya (Spadine 2020: 47 (51))
*Kidane **[ʔɨssu** [baʕal-u näfoʕ ʔiy-ä] ʔil-u] yɨ-ʔammɨn.*
Kidane.M 3.M.SG self-3.M.SG smart.3.M.SG COP-1 that-3.M.SG M-believe
"Kidane$_i$ believes that he$_i$ is smart."

Given that (52) has the same translation as (50), it is reasonable to suppose that (52) has the same kind of control between the matrix subject and the SoK that there is in (50) and its analogs in other upward C-agreement languages. In particular, the event denoted by the C head *ʔiy* does not seem to be distinct from the believing, as it is in (51) (where *ʔiy* denotes a thinking, distinct from Almaz's event of saying). This event identification should inevitably yield OC via thematic uniqueness, as it does with SVCs. But this control seems to be compatible with there being an overt pronoun in the CP space of the embedded clause, visible in (52). This points to the conclusion that overt pronouns can in principle be controlled just as null ones can be, as long as both licensing conditions and Binding theory conditions are satisfied. We will see a bit of further evidence in this direction when it comes to the subject of a nonfinite clause in §8.4.3.

4. Control of PRO in infinitival complements

4.1. Prospects and challenges

Now I shift attention from SVCs and ghostly operator constructions to

infinitival complements with null subjects. A key question for a new control theory is obviously whether it applies with insight to this core case. If it does not, then there is no true theoretical unification and it is disingenuous to call what we have a theory of OC. I have sketched how the hypothesis based on thematic uniqueness can account for the core generalizations summarized in Landau's OCS in the domain of SVCs. Can it also explain the analogous generalizations in the domain of nonfinite complements? I argue that the answer is yes, despite what seem like daunting challenges. It is true that in many cases the event denoted by the main verb cannot be identified with the event denoted by the embedded verb, such that thematic uniqueness comes into play. However, the possibility of there being a covert modal in the infinitival clause (Wurmbrand 2014) interacts with the syntactic decomposition of the matrix verb into a process event and a resulting state (Ramchand 2008). A modalized version of the embedded clause can be identified with the resulting state part of the matrix clause, activating thematic uniqueness and thus OC, I claim.

It is true that, at first glance, there seem to be plenty of disanalogies between the control of PRO and control in SVCs and ghostly DP constructions. The GOCS does express some similarities, in that the clause containing the controlled element must be merged directly with the matrix predicate and the controller must be an argument of the merged-with predicate. However, thematic-role matching seems not to hold. *Promise* is a subject-control verb and *order* is an object control verb, as illustrated in (53).

(53) English (personal knowledge)
a. The sergeant$_i$ (deliberately) promised the corporal [PRO$_i$ to relieve him at 0400].
b. The sergeant (deliberately) ordered the corporal$_i$ [PRO$_i$ to wake his troops at 0400].

This difference in OC does not follow from thematic role matching. The subject is an agent in both cases by standard considerations. Both can be the focus of agent-oriented adverbs like *deliberately*, and both pass the pseudo-clefting test, as shown in (54).

(54) English (personal knowledge)
a. What the sergeant did was promise the corporal to relieve him at 0400.

b. What the sergeant did was order the corporal to wake his troops at 0400.

Evidence that the objects of both verbs are goal arguments is that they are introduced by *to* rather than *of* in nominalized versions, as in (55).

(55) English (personal knowledge)
a. [The (sergeant's) promise to/*of the corporal] was to relieve him at 0400.
b. [The (sergeant's) order to/*of the corporal] was to wake his troops at 0400.

In (53a), the agent of the embedded verb is controlled by the agent of the matrix verb, a possible case of thematic role matching, but in the very similar (53b) the agent of the embedded verb is controlled by the goal of the matrix verb. This is not thematic role matching.

Another disanalogy between OC of PRO and SVC-type constructions is that the events denoted by the matrix clause and the embedded clause seem not to be closely related in many cases of OC. The verbs can be modified by different manner adverbs like *quickly* or *slowly*, for example. And the events can take place at different times, perhaps even 50 years apart in the case of examples like (56a,b).

(56) English (personal knowledge)
a. $John_i$ promised Mary [PRO_i to take her out to dinner at their 50^{th} high school class reunion]
b. Mary ordered $John_i$ [PRO_i to remarry if she died before age 70].

The hypothesis that OC is induced by event identification and thematic uniqueness thus does not look promising at first glance.

Before facing these issues directly, it is worth realizing that there are cases of standard OC for which the SVC-inspired analysis is a better fit out of the box. This includes implicative verbs like *manage* and *try*. For these, the event denoted by the embedded clause cannot happen at a different time from the event expressed by the main clause verb, as emphasized by Landau (2001, 2004) and Wurmbrand (2003, 2014), among others. Thus, (62a,b) are bad.

(57) English (personal knowledge)
a. #Today John tried to take Mary out to dinner in 50 years.
b. #Tomorrow Mary will manage to remarry when her husband dies in 25 years.

Indeed, I don't know that one can have conflicting adverbs of any type modifying the matrix verb and the embedded verb. The cases in (58) with manner adverbs are also deviant.

(58) English (personal knowledge)
a. #John accidentally tried to read the book deliberately.
b. #Mary slowly managed to read the book quickly.

Moreover, at least in prototypical cases, OC with implicative verbs involves thematic matching in that the agent argument of *manage* or *try* controls the agent argument of the complement verb, as in (58). The subject of *manage* or *try* qualifies as an agent by the pseudocleft test, and it controls the agent of the complement clause verb *read*.[25]

(59) English (personal knowledge)
What John did was manage/try to read the book.

It is plausible, then, to use event identification for these cases. Although I will not work out a detailed proposal, a derivation like (60)

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[25] In English, it is not hard to get a reading in which the subject of the implicative verb controls a theme subject in the embedded clause, as in (i). I assume that this is the result of coercion, where an agent thematic role is overlaid on what is normally a theme argument. Panther & Köpcke (1993) claim that this sort of interpretation is harder to get in German than in English, and 'try' constructions in some other languages are less flexible than in English in this regard. For example, *hia* 'try, manage' in Edo can have a transitive or unergative verb in its complement, but not an unaccusative one, as seen in (ii).

(i) English (personal knowledge)
a. John tried/managed [PRO to get sick] so as to get out of doing his work.
b. Mary tried to [PRO be criticized by the press] to draw attention to her campaign.

(ii) Edo (fieldwork, O.T. Stewart, 1996)
*Ozo hia so/rhule la owa/*wu/*de.*
Ozo try shout/run into house/*die/*fall
"Ozo managed to shout/run into the house/*die/*fall,"

is a good possibility. The key step is (60b), where 'manage' combines with its CP complement by event identification, rather than (say) the CP complement receiving a thematic role from 'manage'.

(60) a. [[PRO to read the book]] = λe read(e) & agent(e)=PRO & theme(e)=the.book.
b. [[manage [PRO to read the book]]] = λe manage(e) & read(e) & agent(e)=PRO & theme(e)=the.book.
c. [[John Voice [manage [PRO to read the book]]]] = λe agent(e)=John & manage(e) & read(e) & agent(e)=PRO & theme(e)=the.book.
Therefore: PRO=John

The hypothesis here is that there is only one event, which is both a reading and a managing. That event can be quick or slow, deliberate or accidental, in the past or in the distant future, but it cannot be both, accounting for (57) and (58). Since the same event is both a reading and a managing, it also follows that the agent of the reading must be the same as the agent of the managing. This induces control of PRO by *John*, by thematic uniqueness.

Of course, *try* and *manage* are not the most interesting cases of controller choice in English by a long shot, and there are several ways in which they might be handled. For example, Landau (2015) simply derives control in these cases from syntactic predication, where a predicate must be syntactically near its subject. The complement clause might not even have a PRO at all in these cases; Wurmbrand (2003) observes that they are canonical restructuring constructions, which she analyzes as having subjectless (extended) VP complements rather than CP complements.[26] I do not claim that the analysis-sketch

[26] Suppose we maintain my proposal in which a verb combines with its complement by event identification, but we apply this to a structure in which the complement is a subjectless VP rather than a clause with a PRO subject. Then the rough-and-ready composition for *John managed to read the book* is as in (i). The main difference is that there is no "agent(e)=PRO" term in (ia). However, an agent is still added to the managing event by Voice in the matrix clause (ic). Since the managing event is the same as the reading event, John is the agent of the reading. Therefore, the final formula in (ic) is essentially equivalent to (60c), although there is no control of a null subject. This could account for why it is often hard to tell whether the complement of these verbs has a PRO subject or

in (60) is necessarily better than alternatives like these. But it is a serious possibility opened up by the line of reasoning I have been developing. If it proves to be correct for at least some cases in some languages, it could constitute a bridge between the world of SVCs and argument sharing and the traditional domain of control theory. I conclude that there are some opportunities as well as challenges for an SVC-style analysis of control into infinitival clauses.

Rather, *promise* and *order* are the most interesting cases of OC in English, along perhaps with other triadic verbs like *advise* and *propose*. To keep the vast topic of control manageable and focused on the most interesting (challenging) cases, I focus on controller choice with verbs that take three arguments in English: a subject and an object or PP complement as well as an infinitival CP complement. (For general orientation to this topic, along with some history and references, see Landau 2013: §5.1.) The primary question to be explicated is which of the verb's two non-CP arguments is the controller of the PRO inside the CP. This is analogous to the question of which argument of a matrix verb controls a particular ghostly DP in a finite CP complement. My expectation is that a theory that works for these triadic verbs will also work for dyadic verbs where there is only one possible OC controller for PRO consistent with the GOCS. I have no reason to doubt this, but there may well be particular dyadic predicates that deserve special discussion that I do not consider here.[27]

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not, and both constructions may exist side by side within or across languages.

(i) a. [[[$_{VP}$ read the book]]]= λe read(e) & theme(e)=the.book.
b. [[[manage [$_{VP}$ (to) read the book]]]]= λe manage(e) & read(e) & theme(e)=the.book.
c. [[[John Voice [manage [PRO to read the book]]]]]= λe agent(e)=John & manage(e) & read(e) & theme(e)=the.book.

[27] Landau often distinguishes eight classes of control predicates across languages (e.g. Landau 2015: 6-7). Of these, half clearly have triadic members and are discussed here: desiderative (e.g. *promise*), propositional (e.g. *claim*), interrogative (e.g. *ask*—but a different sense), and implicative (*force*). Two other classes are classic restructuring predicates and may often take subjectless complements rather than complements with PRO: aspectuals (*begin*) and modals (*have to*). This leaves two other classes that are not considered here: factives (*hate, like*) and evaluative adjectives (*rude, smart*).

4.2. Subject control versus object control

4.2.1. A modal head in the infinitival complement

I start this phase of the investigation narrowly, drilling down on what assumptions in the vicinity of the SVC analysis could explain why *promise* and its synonyms normally trigger subject control whereas *order* and its synonyms trigger object control. I am guided by an insight of Jackendoff & Cullicover (2003), that in both cases it is the person who is under an obligation as a result of the matrix event that is understood as the performer of the action denoted by the embedded clause. I argue that both the infinitival complement clause and a resulting state part of the matrix clause are predicates of the same state of being under an obligation. These two eventualities are identified, and that results in OC. Then I go on to generalize this form of explanation to a wider range of control verbs.

The first step is to find an obligation-denoting predicate in the complement of both *order* and *promise*. A crucial idea toward this end comes from Wurmbrand (2014). She builds a detailed argument that (contrary to previous work by Landau and herself) even this class of infinitival clauses does not have a true tense value in English; they are neither present nor future (nor past). Using criteria based on sequence of tense phenomena, she claims that the appearance of future tense in infinitival complements like those in (56) stems from the fact that the complement contains a silent modal head, where modalized event descriptions are always understood as being future relative to some point of reference. She also argues that this modal, although silent, is syntactically represented because it blocks long passives in languages like German. More specifically, Wurmbrand claims that the modal head is *woll*, an abstract root whose present tense form is *will* and past tense form is *would* (see also Abusch (1985, 1988), among others). *Woll* is, however, null in nonfinite clauses. A sentence like *Chris will go to the store tomorrow* then has the syntactic structure in (61).

(61) [$_{TP}$ Chris$_i$ PRES [$_{ModP}$ e$_i$ woll [$_{VoiceP}$ e$_i$ [$_{VP}$ go to the store tomorrow]]]].

Control verbs with “future” complements like *promise* and *order* (as well as certain raising/ECM verbs) select ModPs as their complements, not TPs. The present tense in an example like (61) is on all accounts real and semantically interpreted. Based partly on this, I claim that there are two distinguishable eventualities in (61): it means

that Chris is now in a state such that he/she will go to the store in the future. Time adverbs like *tomorrow* normally attach to the future part, the VoiceP complement of the modal head. However, I can also say *Chris will now go to the store tomorrow*. This is felicitous in a situation in which plans have changed so that at the current point in time the world is such that is the case that Chris will go to the store tomorrow. Thus, it is not impossible for an adverb to attach to the present tense TP above *woll* as well as to the VoiceP under it.

This modal-eventuality analysis can set up an SVC-like analysis based on event identification and thematic uniqueness for control examples involving verbs like *promise* and *order*. Given Wurmbrand's hypothesis, typical examples have the structure shown in (62).

(62) English (personal knowledge)
  a. Peter promised John [$_{ModP}$ PRO$_i$ MODAL [$_{VoiceP}$ e$_i$ to sign the document]]
  b. Sue ordered Mary [$_{ModP}$ PRO$_i$ MODAL [$_{VoiceP}$ e$_i$ to sign the document]]

While Wurmbrand assumes that the null modal in the infinitival complement is always *woll*, she does not argue for this. Since all root modals have future-shifted meaning, any of them would serve in this basic respect; *woll* is merely the semantically most neutral one. In the complement of *promise* or *order* it is plausible to say that the null modal in the complement is actually something like *must* or *have to*, given the semantic equivalencies shown in (63).

(63) English (personal knowledge)
  a. Sue ordered Mary to sign the document.
  =Sue ordered Mary such that she must sign the document.
  b. Peter promised John to sign the document.
  =Peter promised John such that he must sign the document.

Indeed, the predicate in the complement of these verbs is restricted to being the sort that can combine felicitously with a deontic necessity modal or an imperative head (see Jackendoff & Cullicover (2003), among others). For example, one can sensibly command someone to be quiet or consider them under an obligation to be quiet, but in most real-world situations it is not felicitous to command them or consider them under an obligation to be tall. Similarly, one can command

someone to say that the sky is green, but one cannot reasonably command them to believe that the sky is green.[28]

(64) English (personal knowledge)
a. John must/has to be quiet.
b. Mary must/has to say that the sky is green.
c. #John must/has to be tall.
d. #Mary must/has to believe that the sky is green.

(65) English (personal knowledge)
a. Be quiet!
b. Say that the sky is green!
c. #Be tall!
d. #Believe that the sky is green!

Parallel to this, it is natural/ordinary for *to be quiet* or *to say that the sky is green* to be used as the complement of *promise* or *order*, but not for *to be tall* or *to believe that the sky is green* to be used there.

(66) English (personal knowledge)
a. Mary promised John to be quiet/#tall.
b. Mary promised Sally to say/#believe the sky is green.
c. Mary ordered John to be quiet/#tall.
d. Jill ordered Peter to say/#believe that the sky is green.

The contrasts in (66a,b) reduce to the ones in (64) and (65) under the assumption that there is a root necessity modal as the head of the ModP complement of these verbs.[29]

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[28] (64c,d) are felicitous on the epistemic modal reading of *must*, but not on the deontic root modal reading which is the relevant one here.

[29] I tentatively assume that (64) and (65) are essentially the same fact because, following Kaufman (2011), imperative heads are a kind of necessity modal that has some special felicity conditions. In fact, there may be some advantages to saying that the complement of a control verb contains a jussive/imperative head rather than a modal, in that many languages have verbs marked with imperative mood in the complements of control verbs; (88) is an example in Japanese. However, I state my proposals in terms of the complement having a modal head to avoid questions about the special illocutionary force of imperatives.

We can flesh out this leading idea with some additional details. I assume that the covert modal head in the CP complement of *promise* or *order* is, like a true verb, a predicate of eventualities; it is true of states of having an obligation. I also assume that the subject of ModP can bear a thematical role to the state/eventuality of having an obligation; let us call this the holder role (Kratzer 2006, etc.). (See also below. We will see that this behaves like a kind of undergoer, falling under the same macrorole as ordinary theme arguments.) These claims are perhaps less controversial for a lexical head like *be obligated* or a true verb like *need* or *müssen* in German than for a head of the special functional category Mod like *must* in English, but I assume that it is just as true of them. In foregrounding the idea that necessity modals and other root modals are predicates of events rather than quantifiers over possible worlds, I am extending a proposal made for attitude verbs like *believe* and *say* that has been pioneered by Kratzer (2006) and developed by Moulton (2009, 2015), Elliott (2017) (revised 2020), and Bondarenko (2022), among others (see also Hacquard (2006, 2010) for a related ideas). In particular, Moltmann (2024) takes this step very explicitly, arguing at length for a parallel (and nonquantificational) analysis of attitudinal predicates and modal statements as both involving content-bearing objects (or "satisfiables") of similar kinds. These authors emphasize that the *that* complement of a verb like *believe* or *say* is really a predicate of a content-bearing entity of some kind. This view is designed to capture the fact that CPs can be used as predicates of the nominalized verb as in (67a) as well as merging directly with the verb as in (67b) or with the nominalized form of the verb in (67c).

(67) English (Kratzer 2006)
  a. Lucy's belief was that there are ghosts.
  b. Lucy believes that there are ghosts.
  c. Lucy's belief that there are ghosts is not unjustified.

Example (68) shows that a parallel paradigm exists for a modal necessity predicate like *obligated* and its infinitival complement. (Here I use an open class item rather than a Mod head so we can consider relationships involving derivational morphology.[30]) This

[30] No similar paradigm is available for *must*, but I assume that is not because it is semantically different in these ways, but because as a defective verb (auxiliary, i.e. a modal) it does not have a nominalized form. Moltmann (2024: Ch. 2)

motivates giving *obligated* an analysis parallel to the Kratzer-Moulton-Elliott analysis of *believe*, where *obligated* is also a predicate of eventualities and the infinitival clause associated with it is a predicate of a content bearing-entity of some kind.[31]

(68) English (personal knowledge)
a. Clive's obligation is to go to the store.
b. Clive is obligated to go to the store.
c. Clive's obligation to go to the store was unfairly burdensome.

For explicitness, I follow the Kratzer/Moulton/Moltmann version in which what has content is an object argument of the predicate—often often covert and existentially bound—rather than the slightly simpler looking Elliott/Bondarenko version in which the eventuality itself has content. Thus, to believe is to have a belief, an abstract object that has content; to be obligated is to have an obligation, a different sort of abstract object, but one which also has content (i.e. satisfaction conditions). See especially Moltmann (2024) for arguments to this effect.[32] On this view, the denotation of *Clive must go to the store* can be rendered as in (69); this follows Moltmann (2024) most closely in substance, but some of the format is modeled on Moulton's (2015:

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argues explicitly that "auxiliary" verbs like *can* and *must* have the same sort of semantics involving modal objects with content as modal words with nominalizations do.

[31] An infinitival clause is also similar to a finite CP in that it can be a predicate of a simple nondeverbal noun like *duty* as in examples like *Clive's duty was to go to the store* and *Clive's duty to go to the store was burdensome*.

[32] For example, the examples in (i) suggest that states of believing cannot have contents attributed to them the way that beliefs can. (ii) shows the same thing for states of being obligated as compared to obligations. (This is based on Moltmann (2024: Ch. 1); see also Bondarenko (2022).)

(i) a. Lucy's belief/*state/*act/*event was that there are ghosts.
b. Lucy's belief/*state that there are ghosts is troubling.
c. ??Lucy's state of believing was that there are ghosts.

(ii) a. Clive's obligation/*state is to go to the store.
b. Clive's obligation/*state to go to the store was burdensome.
c. ??Clive's state of being obligated is to go to the store.

329) and Kratzer's (2006) formulas for attitude verbs.[33] (69a) is a more informal version that these authors often use, and that will sometimes be adequate for my purposes. (69b) is a more fully realized version that unpacks the content of the obligation as a proposition (a predicate of worlds) built compositionally out of an event description, the semantic value of the VoiceP inside the complement of *must*.

(69) a. [[ModP]]= $\lambda e\ \exists z_c$ holder(e)=Clive & obligated(e) & theme(e)=z_c & content(z_c)=Clive go to store.
b. [[ModP]]= $\lambda e\ \exists z_c$ holder(e)= Clive & obligated(e) & theme(e)=z_c & content(z_c)=$\lambda w\ \exists e_2$ [go(e_2) & Agent(e_2)=Clive & goal(e_2)=the.store & e_2 is in w]

There is a bit more to say about exactly how the holder thematic role is assigned in these sentences. On this point, a modal head like *must* is somewhat different from an open class verb or adjective like *obligated*. For concreteness, I assume that some DP from the VoiceP complement of *must* moves to Spec ModalP (and on to Spec TP, in finite clauses) to satisfy an EPP property. This follows the ordinary laws of DP-movement, including relativized minimality. Then the DP in Spec ModP may but need not count as the holder of the eventuality that the modal head is a predicate of. If the DP in Spec ModP is not taken as the holder of the obligation, then there is no linguistically represented holder.[34] This allows the range of outcomes in (70).

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[33] This is because Kratzer and Moulton are more explicitly (neo)-Davidsonian in including eventuality variables, and they discuss compositional derivations in more detail. In fact, there is a significant difference between Moulton (2015) and Kratzer (2006) in how formulas like (69) are derived compositionally, even though they arrive at the same kind of formula in the end. Kratzer combines the meaning of the predicate and the clause directly by a less standard rule of composition (Chung and Ladusaw's (2004) Restrict), whereas Moulton relies on the clause undergoing movement to repair a type mismatch. I do not consider this issue, tentatively assuming Kratzer's version for simplicity. (Infinitival clauses probably do not show all the extraposition and freezing effects that Moulton seeks to derive for finite *that*-clauses in his version.)

[34] The question arises of whether a DP that stays inside the VP can be interpreted as being the holder of the obligation—perhaps this can happen in (70b), for example. If this is possible, it is rarer and more marginal than the other interpretations and I do not make any theoretical use of it here. Compare Hacquard (2010), who shows that root modals are interpreted with respect to

(70) English (personal knowledge)

a. Toni$_i$ must [t $_i$ sign this document] (because she promised she would).
=λe ∃z_c obligated(e) & holder(e)=Toni & theme(e)= z_c content(z_c)=Toni sign this document.
=Toni has an obligation to sign this document.

b. Three people$_i$ must [t $_i$ sign this document] (because of the nature of the document).
=λe ∃z_c obligated(e) & theme(e)=z_c & content(z_c)=three people sign the document
Not = There are three people that are obligated to sign this document; rather =There is an obligation that three people sign the document.

c. Julia must [--be [tested t $_i$ for drugs every month]] (as a voluntary condition of her job)
=λe ∃z_c obligated(e) & holder(e)=Julia & theme(e)= z_c & content(z_c)=Julia be tested for drugs.
=Julia has an obligation to be tested for drugs every month.

d. David must [-- be [promoted t $_i$ to manager by May]].
=λe ∃z_c obligated(e) & theme(e)= z_c & content(z_c)=David be promoted
Not=David has an obligation to be promoted; rather = There is an obligation that we/someone promote David.

What I am aiming for here is a contemporary version of the early generative idea that modals are often ambiguous between a raising-like representation ((70b,d)) and a control-like representation ((70a,b)) (Ross 1969, Perlmutter 1971, Jackendoff 1972); see Hacquard (2010) for more recent discussion).[35] However, I crucially do not handle (70a) and (70c) as literal cases of control. That could lead me into a kind of

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some individual that originates inside the VP, usually the subject. However, it can also be a location, as in *It can rain hard here*. Hacquard (2010) does not discuss whether the direct object can be the locus of modal interpretation.

[35] The old generative idea was that epistemic modals are raising predicates and root modals are control predicates, but in fact root modals have both raising-like uses and control-like uses, as in (70). See Hacquard (2010) and references there.

infinite regress. I want to say that OC reduces to argument sharing between a main verb and the ModalP, so if the argument relationships inside the ModalP are in turn explicated in terms of OC, I risk circularity. To avoid this, I assume that what is happening in (70a,c) is a special kind of thematic role assignment that is fed by NP-movement. This is a bit like Hornstein's (1999) movement theory of control, but crucially for modal heads only. There may be more or better things to say about this, but for now it should suffice to make explicit what I take to be true and base my theory of genuine control on. Beyond this, I do not go into exactly how formulas like (70) are derived compositionally,[36] but take this for granted so as to concentrate on how the possibilities in (70) interact with a matrix predicate that selects the ModP.

(70a) is also the semantic value of the ModP complement of *promise* in (62a) and of *order* in (62b), by hypothesis, except that in place of *Toni* there is a PRO, the value of which is fixed by the control relationship—the main thing that we are trying to understand better.[37] The active case in (70a) with the subject of ModP/TP as the holder of the obligation is the crucial one for now. The passive cases in (70c,d) become important when we come to control shift in the section §8.4.4. ((70b) is here only the fill out the paradigm.)

4.2.2. A result phrase in the matrix clause

We have now found a predicate of eventualities of having an obligation inside the complement clause of simple control examples like (62a) and (62b). The next task is to find another predicate of eventualities of having an obligation inside the matrix clause—something that can plausibly be identified with the one expressed by

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[36] There may be nontrivial issues here. A significant part of the Kratzer-Moulton-Elliott program for treating matrix verbs as predicates of events is moving the quantification over possible worlds that is commonly associated with these verbs to the C head of the CP complement of the verb. However, the VoiceP complement of *must* does not have a C. I do not take a stand on exactly where this element of meaning comes from—if anywhere. See Moulton (2024) for quite a different view using truth-maker semantics, in which modal statements do not have quantificational force in the usual way.

[37] Tense will also be handed differently in the matrix clause and in the infinitival complement, but I am abstracting away from tense (and aspect) throughout this discussion.

the complement clause. I do this by invoking contemporary ideas about predicate decomposition.

It is common practice to say that morphological verbs that express complex events correspond to more than one head in the syntax. For example, the head that assigns the agent thematic role (Voice or v) is distinguished from the head that licenses the internal arguments (V proper), as I have assumed throughout. Similarly, it is common to distinguish a head that expresses the process of an event from a head that expresses the state that comes about as a result of the process. Sometimes the process and the resulting state are realized by distinct morphological words, as in (71a), and sometimes they are expressed by a single word, which may or may not be morphologically complex, as in (71b,c). It is often assumed that (71b) and perhaps (71c) is derived from an underlying form like (71a), perhaps by some kind of head movement. In (71a), the resulting state is expressed by an AP, but in (71b,c) it may not be; Ramchand (2008) calls it ResP (result phrase), distinguishing it from the ProcP (process phrase) headed by *wipe* in (71a) (see also Baker (2003: Sec 2.9)).

(71) English (personal knowledge)
  a. Kate wiped the table clean.
  b. Kate cleaned the table.
  c. Kate polished the table.

Against this background, it is reasonable to claim that *order* and *promise* and their synonyms also decompose into a sequence of distinct syntactic heads including Voice, process, and result.[38] Moreover, it makes sense to say that the state that results from an event of ordering or an event of promising is an event of someone having an obligation. This is supported by the fact that the inferences in (72b,c) hold in English, on par with the ordinary resultative

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[38] Ramchand (2008) assumes that the highest of the three heads in a verbal decomposition is Init (initiator), not Voice. Init is like Voice in that it licenses the DP with the agent role. However, they are semantically different in that Ramchand's Init is a predicate of a distinct event that leads to (causes) the process event, whereas Kratzer's Voice head does not introduce a new event variable but simply adds an agent to the event already denoted by its VP complement. I stick to Kratzer's slightly simpler view for my most of my discussion, which simplifies the formulas some. However, I use Ramchand's version in my analysis of 'so that' adjuncts in §8.5.2.

inference in (72a).

(72) English (personal knowledge)
a. Kate wiped the table clean.
Therefore (as a result), something is clean (namely, the table).
b. Peter promised John to sign the document.
Therefore (as a result), someone is obligated to sign the document (namely Peter).
c. Sue ordered Mary to sign the document.
Therefore (as a result), someone is obligated to sign the document (namely Mary).

Focusing first on *promise*, an example like (72b) has the Ramchand-style decomposed representation in (73).[39] Here I assume that the infinitival complement (a ModP) is merged with the lowest head in the complex structure, namely Res. Then *promise-res*, *promise-proc*, and Voice combine together to yield the visible verb *promise*. (This happens as the result of head movement plus late insertion of the root for a cluster of heads, according to Ramchand (2008)).

(73) [$_{\text{VoiP}}$ Peter Voice [$_{\text{ProcP}}$ John promise-proc [$_{\text{ResP}}$ promise-res [$_{\text{ModP}}$ PRO$_{\text{i}}$ MODAL [$_{\text{VoiceP}}$ t_{i} sign the document]]]]]

The advantage of factoring V into a Proc head and a Res head for the current project is that the eventuality of which Res is a predicate is distinct from the larger eventuality of promising. As such, it can by itself be equated with the eventuality of which the ModP is a predicate. The Res head and ModP to combine by simple event

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[39] I assume for simplicity that the intrinsic goal arguments of some verbs, including *promise* and *order*, are direct arguments of the Proc head, generated in Spec ProcP. Ramchand (2008) saves this position for undergoer arguments. The two assumptions are not incompatible, given my assumption that goals, like themes, are potential undergoers. The alternative is to say that all goal arguments are introduced by a high applicative head (cf. Pylkkänen 2008). I assume that this implementation would be possible too, but it makes the formulas slightly more complex. A more serious issue is it could be hard to find the best place to locate the lexical semantic difference between *promise* and *order* that determines subject control versus object control, if both have goal arguments introduced by the same goal-introducing applicative head. (In my implementation, the difference is located in the meaning of the Proc head. See (76a) versus (79).)

identification (Kratzer 1996: 122), the same mode of combination that we used in SVCs and ghostly operator constructions. This expresses formally the intuition that the result of a promising event is someone being in a state of being obligated in a certain way.[40] The infinitival clause then characterizes the content of this obligation. Res and ResP have the semantic formulas in (74).[41] (74b) uses the formula in (70a) as the value for the ModP sister of Res, as discussed in §8.4.2.1

(74) a. [[Promise-res]]= λy λe promise-res(e) & holder(e)=y
b. [[ResP]]= λy λe $\exists z_c$ promise-res(e) & holder(e)=y & obligated(e) & holder(e)=PRO & theme(e)= z_c & content(z_c)=PRO sign the document

We can already see that the y argument of *promise-res* is going to be equated with the PRO argument of the Modal head, since both are said to be holders of the same state, one which is simultaneously an

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[40] Moltmann (2024) claims that a promising event creates both a promise and an obligation, two distinct attitudinal/modal objects. However, the two are systematically related, especially in terms of their content. If there is a distinction to be made here, I assume that it is a fine-grained one which we can overlook for current purposes.

[41] Ramchand (2008) assumes that there is a DP in Spec ResP, which she calls the resultee. Depending on the verb, this is equated with either the Spec InitP (the initiator) or the Spec ProcP (the undergoer). Ramchand assumes that this relationship is created by movement, but it is another control-like relationship of sorts. I could adopt her view on this. However, I choose the execution of building this relationship into the meanings of the verbal heads, as a way of emphasizing that this kind of "control" is part of the lexical semantics of the verbal complex—not the syntactic OC that holds between the arguments of different lexical items that I am analyzing here. As with (70), I want to avoid the appearance of a circularity in which one OC relationship is explicated in terms of another relationship of the same type.

An anonymous reviewer points out that if a resultee DP is projected in Spec ResP a la Ramchand, then controller choice for *promise* versus *order* is in line with the Minimal Distance Principle after all. This could pave the way for a more conventionally syntactic approach to controller choice, for example by reducing it to the locality of A-movement (Hornstein 1999) or some other syntactic relationship that is subject to Relativized Minimality-type locality. That may be true for simple *promise* versus *order*, but it does not carry over to the control shift examples discussed in §8.4.4. These violate the Miminal Distance Principle even if a DP is present in Spec ResP.

obligation to sign the document and an obligation that exists as the result of a promising event. This identification then invokes thematic uniqueness, resulting in obligatory control.

The next step is to consider how ResP combines with ProcP and VoiceP to build up the complex event of promising. Ramchand's (2008: 42-45) view is that Proc is a predicate of a different event from Res; it denotes the process of promising, which "causally implicates" (also "leads to") the eventuality denoted by ResP. She symbolizes this relationship between events as e1 → e2. Crucial for our purposes is how the arguments of the causing event relate to the argument of the resulting event. For events of promising, my claim is that the agent of the causing event is also the holder of the resulting state—of the obligation that is the result of the promising. In other words, *promise* means inherently that the agent puts her/himself under an obligation to the goal (Jackendoff and Culicover 2003). This fact about promising events can be observed apart from obligatory control. We can observe this aspect of lexical meaning even when *promise* takes as its theme argument a DP or a finite CP rather than a ModP, as in (75).[42]

(75) English (personal knowledge)
   a. Mary promised Jean a favor. (Mary must do Jean a favor)
   b. Sue promised Eve a cookie. (Sue must give Eve a cookie.)
   c. Kathy promised David that she will sign the document. (Kathy must sign the document).

So part of the lexical-semantic analysis of *promise* is that the agent of the larger event is also the holder of a related (resulting) state of obligation. This meaning is not contributed by the meaning of PRO or the infinitival complement itself, either directly or by some form of coercion/accommodation between the matrix verb and the meaning of the CP. This observation can be captured by giving *promise-proc* a meaning like (76a), where it combines with a relation between an

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[42] A different way of understanding the similarity between *promise* with a DP theme argument and *promise* with an infinitival clause is to say that examples like (75a) and (75b) have a CP complement with a covert verb, something like *Mary promised John [PRO TO DO a favor]*. This view is proposed by Larson, den Dikken and Ludlow (1997). I do not adopt it, but if it is correct it could undermine somewhat my claim that the crucial aspects of lexical semantics of *promise* can be observed in examples that do not involve PRO.

entity and an event to create a relation between two entities and a different event. This combines with the meaning of ResP given in (74b) by function application to give (76b). This then combines with the DP in Spec ProcP, with agentive Voice, and with the DP in Spec VoiceP in familiar ways ((76c-e)) to give the formula in (76e).

(76) a. [[*Promise-proc*]]= $\lambda R\, \lambda y\, \lambda x\, \lambda e$ promise(e) & goal(e)=y & $\exists e_1$ [e$\rightarrow e_1$ & R(x, e_1)]

b. [[Proc´]]= $\lambda y\, \lambda x\, \lambda e$ promise(e) & goal(e)=y & $\exists e_1\, \exists z_c$ [e$\rightarrow e_1$ & promise-res(e_1) & holder(e_1)=x & obligated(e_1) & holder(e_1)=PRO & theme(e_1)= z_c & content(z_c)=PRO sign the document]

c. [[ProcP]]= $\lambda x\, \lambda e$ promise(e) & goal(e)=John & $\exists\, e_1\, \exists z_c$ [e$\rightarrow e_1$ & promise-res(e_1) & holder(e_1)=x & obligated(e_1) & holder(e_1)=PRO & theme(e_1)=z_c & content(z_c)=PRO sign the document]

d. [[Voice´]]= $\lambda x\, \lambda e$ agent(e)=x & promise(e) & goal(e)=John & $\exists e_1\, \exists z_c$ [e$\rightarrow$ e_1 & promise-res(e_1) & holder(e_1)=x & obligated(e_1) & holder(e_1)=PRO & theme(e_1)= z_c & content(z_c)=PRO sign the document]

e. [[VoiceP]]= λe agent(e)=Peter & promise(e) & goal(e)=John & $\exists e_1\, \exists z_c$ [e$\rightarrow e_1$ & promise-res(e_1) & <u>holder(e_1)=Peter</u> & obligation(e_1) & <u>holder(e_1)=PRO</u> & theme(e_1)= z_c & content(z_c)=PRO sign the document]
Therefore PRO=Peter

Notice that (76d) is derived by a form of predicate modification, rather than event identification. This results in the same individual being both the agent of the promising event and the holder of the obligation that is the result of that event, given the meaning attributed to *promise-proc* in (76a)—i.e., given what promising events are. This in turn results in the agent of *promise* controlling PRO in the ModP complement *promise*, by thematic uniqueness applied to the holder argument of the state of obligation denoted by ModP, which is also the resulting state of the promising event. Thus, subject control is the result of two events being identified, thematic uniqueness, and what *promise* means (what promising events are). This is the SVC-inspired account of subject control with *promise* that I was aiming for. In addition, this result readily carries over to other matrix verbs with a similar lexical semantics: to other commitment verbs in English, like *swear, vow, pledge, threaten*, … (Sag and Pollard 1991), and to close

analogs of *promise* in other languages. This is a positive result, as emphasized by Farkas (1988) and Jackendoff & Cullicover (2003). After all, what makes something a commitment verb is the fact that the one who initiates the event takes on a commitment, putting themself under an obligation.

It is worth emphasizing that there is a kind of thematic role matching here, but it is not the agent of *promise* matching the agent of *go* that is crucial (contrast the matching of the Ag role assumed by Panter and Köpcke (1993) but criticized by Landau (2013)). Rather it is the holder of the state of obligation that is intrinsically associated with an event of promising that matches the holder of the state of obligation denoted by the Modal head. Less familiar thematic roles are matched rather than normal ones, because one of the argument-taking words involved is a modal, and those are associated with less familiar thematic roles. The other factor is that we do not have event identity between the promising event itself and the event expressed by the ModP complement, but between a subpart of the promising event, namely its resulting state.

4.2.3. Object control versus subject control

Now let us compare this analysis of subject control in (62a) with (62b), the same sentence with the matrix verb *order* rather than *promise*. The goal of setting things up the way that I have is that the very same factors that result in subject control with *promise* produce object control with *order*, following an intuition of Farkas (1988) and Jackendoff & Cullicover (2003). The embedded clause in (62b) has the same structure as in (62a): it is a ModP, with a covert necessity modal. As a result, the predicate has the same kinds of semantic restrictions on it (see (66)). The matrix clause also has the same structure: it is a triadic verb with an agent subject, a goal indirect object, and the CP in the complement position. It also implies a resulting state, which is a state of having an obligation. So a Ramchandian decomposition of the verb into Voice, Proc, and Res is appropriate here as well, giving the structure in (77).

(77) [$_{\text{VoiceP}}$ Sue Voice [$_{\text{ProcP}}$ Mary order-proc [$_{\text{ResP}}$ order-res [$_{\text{ModP}}$ PRO$_i$ MODAL [$_{\text{VoiceP}}$ t_i sign the document]]]]]

The only difference is what the verb *order* means, what events of ordering are. Whereas a promising event is one in which the agent of the event puts themself under an obligation, an ordering event is one

in which the agent of the event puts the goal of the event under an obligation. This intrinsic property of *order* can also be observed apart from OC and infinitival complementation by observing the meanings of (admittedly somewhat stretched) sentences in which *order* is used with a finite CP complement ((78a)) or a DP argument ((78b)).

(78) English (personal knowledge)
  a. ?The sergeant ordered the corporal that he must clean out the latrine. (The corporal must clean the latrine.)
  b. ?The sergeant ordered the corporal a very difficult task. (The corporal must do a very difficult task)

The overall thematic analysis of an *order* sentence is thus very similar to that of a *promise* sentence, but there is a crucial difference in how the resulting state of an ordering event relates to the participants in that event. I build this into the meaning of the *order-proc* head, giving it the denotation in (79). Here the variable associated with the goal of ordering is the same as the variable associated with the relation involving the resulting state, whereas with *promise-proc* they were different variables.

(79) [[order-proc]]= $\lambda R\, \lambda x\, \lambda e$ order(e) & goal(e)=**x** & $\exists e_1$ [e$\rightarrow e_1$ & R(x, e_1)]

Everything else is essentially the same. The ModP complement is the same. There is no relevant difference between *order-res* and *promise-res*; perhaps the states these are predicates of are slightly different, but both count as states of having an obligation. And the Voice head is the same. The higher stages of the composition go as in (80).

(80) a. [[Proc´]]= $\lambda x\, \lambda e$ order(e) & goal(e)=x & $\exists\, e_1\, \exists z_c$ [e$\rightarrow e_1$ & order-res(e_1) & holder(e_1)=x & obligated(e_1) & holder(e_1) = PRO & theme(e_1)= z_c & content(z_c)=PRO sign the document]
  b. [[ProcP]]= λe order(e) & goal(e)=Mary & $\exists e_1\, \exists z_c$ [e$\rightarrow e_1$ & order-res(e_1) & holder(e_1)=Mary & obligated(e_1) & holder(e_1)=PRO & theme(e_1)= z_c & content(z_c)=PRO sign the document]
  c. [[Voice´]]= $\lambda x\, \lambda e$ agent(e)=x & order(e) & goal(e)=Mary & $\exists e_1\, \exists z_c$ [e$\rightarrow e_1$ & order-res(e_1) & holder(e_1)=Mary & obligated(e_1) & holder(e_1)=PRO & theme(e_1)= z_c & content(z_c)=PRO sign the document]

d. VoiceP: λe agent(e)=Sue & order(e) & goal(e)=Mary & $\exists e_1$
$\exists z_c$ [e→e_1 & order-res(e_1) & holder(e_1)=Mary &
obligated(e_1) & holder(e_1)=PRO & theme(e_1)= z_c &
content(z_c)=PRO sign the document]
Therefore PRO=Mary

In this case, thematic uniqueness applied to the holder argument of the *order-res* eventuality (a state of being obligated) implies that the goal Mary is identical to the referent of PRO. This induces object control, not subject control. Again, the result is correctly expected to carry over to other verbs with meanings similar to *order* (*command, enjoin, assign, compel*…) and to near-equivalents of *order* in other languages.

This analysis is a kind of implementation of Farkas's (1988) and Jackendoff & Culicover's (2003) insight that it is the lexical semantics of *promise* and *order* that induces subject control or object control—not some covert difference in syntactic structure or some exceptional feature associated with 'promise', as in in tradition the Minimal Distance Constraint (Rosenbaum 1967), including its more recent versions in Larson (1991) and the control-as-movement variant championed by Hornstein (1999) and related work. The idea is that the very same factors that cause "unmarked" object control with *order* also cause "marked" subject control with *promise*. In both cases, there is matching of the one who is under an obligation. The only difference is whether the agent undertakes an obligation themselves (*promise*) or imposes it on someone else (*order*). I have fleshed out this insight some and embedded it in a more general framework that relates it to SVCs, operator constructions, and the very general ideas of event identification and thematic uniqueness.

4.2.4. Other cases of nonsubject control

Of course, not all control verbs have the semantics of imposing an obligation. But we can generalize this account to other verbs by opening up the possibility that the infinitival ModP complement of a verb can have different covert modals; it need not be a deontic necessity modal akin to *must* (or imperative). For example, (81a) with the object control verb *persuade* does not imply that Mary is obligated to go to the store. But it does imply that Mary intends to go to the store, as a result of the persuading event. We can say that the complement of *persuade* has a covert modal meaning INTEND (cf. *will* in older English and its cognates in other Germanic languages). The example in (81a) then has the syntactic structure in (81b), and its

ModP complement can be ascribed the meaning in (81c).

(81) English (personal knowledge)
a. John persuaded Sue to sign the document.
b. [$_{VoiP}$ John Voi [$_{ProcP}$ Sue persuade-proc [$_{ResP}$ persuade-res [$_{ModP}$ PRO$_i$ INTEND [$_{VoiP}$ t_i sign the doc]]]]]
c. $\lambda e \exists z_c$ intend(e) & holder(e)=PRO & theme(e)= z_c & content(z_c)=PRO sign doc

Next, we need to consider the meaning of the verb *persuade*. The key is to convince ourselves that it is intrinsic to (one sense of[43]) persuading someone that it results in that person intending to do something. Indeed, this sense is present in uses of *persuade* that do not have an infinitival complement, as in (82).

(82) English (personal knowledge)
a. John persuaded Sue of this course of action.
Therefore (as a result), Sue intends to take this course of action.
b. John persuaded Sue that she should sign the document.
Therefore (as a result), Sue intends to sign the document.

Now we can explain object control with *persuade* in the same way we did object control with *order*, except that thematic uniqueness applies to the holder of a state of intending rather than to the holder of a state of being obligated. These are different states, related to different kinds of modal objects, but their fundamental logic is the same (Moltmann 2024).[44] *Persuade-res* is a predicate that is true of (some) states of

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[43] *Persuade* is a bit more complex than *order* in that it has multiple meanings. It can mean 'cause to believe' rather than 'cause to intend', as in examples like *Mary persuaded Sarah that it will rain* and *Karen persuaded Linda of her point of view*. This is just the familiar fact that verbs can have a range of meanings, which may share some properties in common but not others. (The fact that this sense of *persuade* does not induce object control may be related to the fact that most propositional verbs in English do not allow OC, in contrast to related languages; see Landau (2013: 89 n.5) and Wurmbrand (2014).)

[44] Moltmann classifies intentions as a type of attitudinal object whereas obligations are a type of modal object, but this is a relatively slender difference, since both are content-bearing "satisfiables" (although they might have different types of satisfaction conditions). My only stake in this is I want to say that "intend" can

intending, and a denotation for *persuade-proc* is in (83a). The meaning for the VoiceP in (81b) is given in (83b). This is derived compositionally in a way that is exactly parallel to (80).[45]

(83) a. [[persuade-proc]]= $\lambda R\, \lambda x\, \lambda e$ persuade(e) & theme(e)=x & $\exists e_1$ [e$\rightarrow e_1$ & R(x, e_1)]
b. [[VoiceP]]= λe agent(e)=John & persuade(e) & theme(e)=Sue & $\exists e_1\, \exists z_c$ [e$\rightarrow e_1$ & persuade-res(e_1) & holder(e_1)=Sue & intend(e_1) & holder(e_1)=PRO & theme(e_1)=z_c & content(z_c)=PRO sign document]
Therefore PRO=Sue

Here thematic uniqueness implies that PRO=Sue. Similar to *persuade* are words with related meanings like *convince* and *entice*.

We could go on from here to develop a typology of object control structures based on what kind of modal meaning is shared between the Modal head in the complement and the resulting state of the matrix verb. (84) gives some plausible examples.[46]

(84) English (personal knowledge)
a. John permitted/allowed his daughter to go to the mall.
As a result, his daughter has permission to go to the mall; His

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be the meaning of what is syntactically a modal head in English.

[45] One difference is that I assume that the object of *persuade* is a theme rather than a goal, since *persuade* implies that its internal argument undergoes a change of state. Note that its internal argument cannot be marked by *to* in nominal constructions the way that the internal arguments *order* and *promise* can be (**Mary's persuasion to John was to go to the store*). This difference does not affect the overall derivation in any significant way, however.

[46] An interesting follow-up question arises here: why are there many types of object control verbs, classified by the kind of modal meaning in their complements, but there is only one major class of subject control verbs (commitment verbs)? From the current perspective, this would be a fact about lexical semantics. Apparently, there are no verbs that have meanings such that X acts on/for Y with the result that X has a new intention, ability, permission, or possibility. I do not speculate as to why this is so, beyond observing that it might follow from the definition of a theme that it is usually the theme of an event that is involved in the event's resulting state. (This hunch does not say why commitment verbs behave differently in this respect, however.)

daughter $CAN_{deontic}$ go to the mall.

b. Mary taught/enabled John to cook moussaka.
As a result, John has the ability to cook moussaka; John $CAN_{ability}$ cook moussaka.

c. Peter suggested/proposed/asked/requested John to cook moussaka.
As a result, John has the possibility of cooking moussaka; John MIGHT cook moussaka.

English and many other languages allow not only subject control and object control but also oblique control, in which the object of an adposition acts as the OC controller of the PRO subject of an infinitival complement. (85) gives an example that is semantically similar to (84a) with *persuade*.

(85) English (personal knowledge)
Mary prevailed upon $Jane_i$ [PRO_i to sign the document].

Notice that oblique control happens not only with a P like *to* (*Wendy signaled to Francine$_i$ PRO$_i$ to turn right*), which might be considered a manifestation of dative case, but also with Ps like *on* (*I'm counting on Chris$_i$ PRO$_i$ to go to the store*), *from* (*We demanded from him$_i$ PRO$_i$ to turn himself in*; Landau (2015: 15)) and even *upon* ((85)). Landau (2015: 15) points out that this is a serious problem for his earlier Agree-based theory of OC, since objects of P cannot normally be targets for Agree, perhaps because P is a phase head. It is also a problem for Hornstein's (1999) movement-based theory of OC, since DPs cannot normally move into an object of P position. Indeed, it is a problem for any theory in which the controller needs strictly to c-command the controllee. However, such examples are not a problem for the current theory, as long as we hold that these PPs express arguments of the verb which the nonfinite clause is a complement of; exactly what thematic role the argument has is not crucial. Suppose that *Jane* in (85) is expressed as the object of a P because it bears some very particular thematic role to the event of prevailing, call it the "upon" role. OC is still induced as long as the variable that fills that sui generis role is also the one that is the holder of the resulting state of the prevailing event. (85) can be associated with the formula in

(86), parallel to the one for *persuade* in (83b).[47]

(86) [[VoiceP]]= λe agent(e)=Mary & prevail(e) & **upon(e)=Jane** & $\exists e_1 \exists z_c$ [e→e_1 & prevail-res(e_1) & holder(e_1)=Jane & intend(e_1) & holder(e_1)=PRO & theme(e_1)=z_c & content(z_c)=PRO sign doc]
Therefore PRO=Jane

We can compare these cases of the potential controller being inside a PP with ones in which the potential controller is the possessor inside a larger DP. Possessors cannot be obligatory controllers, as shown in (87), a fact I have attributed to the GOCS throughout.

(87) English (personal knowledge)
*Lisa's$_i$ letter promised Sally [PRO$_i$ to come for a visit].

From the perspective of c-command being a condition on many syntactic relationships, it might be obscure why (85) is allowed and (87) is not. But from the perspective of argumenthood, this makes sense: the object of a P can be the argument of the verb that heads the clause, the P having only a role-flagging function, whereas the possessor inside DP does not count as an argument of the verb.[48]

4.3. The nullness of PRO

Now that I have an analysis of OC in the most canonical cases, I can

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[47] If we can clearly distinguish Ps that mark arguments of the verb from Ps that themselves take arguments, then my approach makes the prediction that the former but not the latter can participate in OC. For example, there is a tradition in Binding theory of saying that Ps like *near* are themselves predicates (different from *to*), such that *Mary$_i$ saw a snake [near her$_i$]* is not a Condition B violation. The prediction, then, is that the object of *near* cannot be an OC controller in as sentence like **I shouted near Mary$_i$ [PRO$_i$ to duck]*, which is correct. This topic should be explored more systematically, however.

[48] It is conceivable that a DP that is formally the possessor of a noun in the object position could be an OC controller in some kind of light verb construction, in which the verb and the noun constitute a single predicate for purposes of thematic role assignment. I do not explore this possibility here.

add one more reflection on whether OC is possible only with null pronominals like PRO and pro. Recall that no such requirement is implied by the basic logic of event identification and thematic uniqueness; these notions point to sameness of referential value, but not nullness of either of the equated DPs. My conjecture, originally motivated by SVCs, has been that control of overt pronominals is possible in principle, as long as the pronominal is properly licensed and passes the binding theory requirements—which often it does not. For example, an overt pronoun object of the second verb of an SVC violates Condition B of the Binding theory, whereas an overt pronoun in the SoK position of a CP periphery fails to be licensed—except in Tigrinya, where an overt pronoun used as an SoK can be controlled.

As for control of the subject of a complement clause, the literature suggests some crosslinguistic variation. The East Asian languages Japanese, Korean, and Chinese all allow an anaphoric element (*zibun*, *caki*, *ziji*) as an alternative to PRO in the complement of a canonical control verb like 'order'. Like PRO, the anaphoric element is constrained in what it refers to. For example, in (88) it must refer to the matrix object, even though in other contexts *zibun* can always refer to a c-commanding subject (Madigan 2008, Landau 2013: 118; see also Yang (1985) and Borer (1989) for early work on this).

(88) Japanese (Madigan 2008)
Sachie-ga Karthik-ni PRO/zibun-ga shukudai-o shi-ro-to meeree-shi-ta.
Sachie-NOM Karthik-DAT PRO/self-NOM homework-ACC do-IMPER-C order-do-DECL
"Sachie$_i$ ordered Karthik$_k$ (for self$_{k,*i}$) to do the homework."

In contrast, the European languages have long been thought to allow control only with the null subject PRO (which may or may not be distinct from pro). (89) and (90) give English examples with *promise* and *persuade*. (89a) is a standard subject control example with PRO; (90a) a standard object control example.[49] (89b) and (90b) show that both verbs marginally allow the nonfinite complement clause to have an overt subject, as long as the case-marking prepositional

[49] With *to be allowed* included, this can also be an example of control shift. See §8.4.4 for discussion.

complementizer *for* is there to license it.[50] Nevertheless, (89c,d) and (90c,d) show that an overt pronominal cannot be coreferential with the potential controller in the matrix clause, regardless of whether it is a plain pronoun or a *self*-anaphor. English then seems not to allow the control of an overt element on a par with (88) in Japanese.

(89) English (personal knowledge)
a. John$_i$ promised Mary PRO$_i$ to help her with the yardwork.
b. ?John$_i$ promised Mary for his$_i$ son to help her with the yardwork.
c. *John$_i$ promised Mary for him$_i$ to help her with the yardwork.
d. *John$_i$ promised Mary for himself$_i$ to help her with the yardwork.

(90) English (Ken Safir, personal communication)
a. Al$_i$ persuaded $_k$ Ben$_{k(i)}$ (to allowed) to leave.
b. ?Al$_i$ persuaded Ben$_k$ for his$_k$ hostage to be allowed to leave.
c. Al$_i$ persuaded Ben$_k$ for him$_{*i,*k}$ (to be allowed) to leave.
d. *Al$_i$ persuaded Ben$_k$ for himself$_{i,k}$ (to be allowed) to leave.

I see this pattern of data as encouraging for my theoretical perspective. (88) shows that an overt element can in principle be the controlee in an OC relationship, which is the default theoretical assumption, all things being equal. (89) and (90) can be interpreted as showing that English does not have the right sort of pronominal or anaphoric element to be used in this environment, by reasoning similar to what I used for SVCs in Ewe and Edo. (89c) and (90c) could be Condition B violations, if government of the subject by *for* causes the matrix clause to be its binding domain; then the pronoun wrongly has a c-commanding antecedent in its binding domain . At the same time, (91d) and (92d) could plausibly violate Reinhart & Reuland's predicate-based version of condition A: a *self*-anaphor is present even though neither the matrix verb nor the embedded verb is semantically reflexive in the sense of having two argument slots filled by the same variable. Therefore, PRO is the only possibility in English, it being neither intrinsically pronominal nor a reflexive marker. Japanese and

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[50] This kind of CP complement seems to be rare and marked for triadic verbs, whereas it is natural with dyadic verbs like *hope* and *prefer*. I do not know why.

the other East Asian languages are different from English in that they have a larger stock of anaphoric elements, including simplex anaphors like *zibun* as well as pronouns like *kare* and complex anaphors like *zibun-zisin* and *kare-zisin. Zibun* is not subject to condition B (examples like 'Taro criticized *zibun'* are OK), neither is it a reflexive marker in Reinhert & Reuland's sense (there is no reflexive predicate in long distance uses). We may hope, then, that no binding condition (or licensing condition) rules it out in (88). This allows the fundamental nature of control theory to shine through.[51]

If this is right, then OC is not something induced by the intrinsic properties of the controlee—like its being both anaphoric and pronominal, or it having special features, or lacking features. This point was made long ago by Borer (1989), on the basis of examples like (88). Rather, on my view OC is induced by a special relationship between two argument-taking predicates in close construction, induced by event identification and thematic uniqueness without any special regard for what kind of DPs are involved.[52]

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[51] It goes without saying that this is a programmatic outline, not a fully established result. It needs at least a more full-fledged Binding theory to complete it. This includes needing to explain why (89c) violates Condition B but *John$_i$ promised Mary that he$_i$ would help her with the yardwork* does not, and why (89d) violates Condition A but *John would prefer for himself to be the candidate* and other ECM-like sentences do not. (This last sentence might even be considered an instance of controlling an overt anaphor in English, depending on how the details work out.) At the highest level, one would need a coherent Binding theory in which anaphors and pronouns are not in strict complementary distribution. A fuller theory also needs to take into account how any positive conditions on simplex anaphors like *zibun* are satisfied in (88). For example, *zibun* is normally subject-oriented, but OC apparently overrides this condition in (88). There is plenty for a researcher well-versed in Binding theory to do here.

[52] Another issue to consider is backwards control, in the sense of Polinsky and Potsdam (2002, 2006). This refers to constructions found in some languages in which an overt DP is in the embedded clause while a null DP is in the matrix clause in an otherwise normal-looking control structure. This has been taken to be an argument in favor of the movement theory of control, and a problem for conventional theories. My theory could open up new prospects here as well. It is based on thematic uniqueness, which is a symmetrical condition, simply saying that two DPs need to have the same referential value. It should not matter to thematic uniqueness which of the two DPs has substantive semantic content and which is some kind of minimal pronoun. The trick then is whether having a PRO-like thing in the matrix clause in a structure like [Δ_i began [the girl$_i$ to-

4.4.Control Shift

4.4.1. Shift to subject control

I now have a prototype account of controller choice for canonical cases of control into infinitival clauses, capable of explaining why some examples involve object control whereas others involve subject control. Let us go on to consider so-called *control shift*. This is a somewhat marginal and unstable phenomenon, but a very interesting one. It is a challenging test for any theory of controller choice, hence for a general theory of OC. See Landau (2013: §5.1.2) for a good overview. A theory of OC that does well on control shift is doing well overall, I would claim.

The broad outlines of the control shift phenomenon are as follows. *Promise* is normally a subject control verb, but it can be used as an object control verb with a particular kind of complement and in a particular context, as in (91a). Conversely, *persuade* is normally an object control verb, but it can be used as a subject control verb with a particular kind of complement and in a particular context, as in (91b). Moreover, in many cases it is similar factors that allow both kinds of shift to happen. For example, it matters for both kinds of control shift whether the thematic role of the embedded subject is agent or not, and what the modal force of the embedded infinitival is. When the subject of the infinitival complement is a theme or benefactive and the embedded clause is about permission rather than obligation, *promise* can switch to object control and *persuade* can switch to subject control (to varying degrees for different speakers).

(91) English (personal knowledge)
a. Her father promised little Susie$_i$ [PRO$_i$?(to be allowed) to stay up late].
b. Little Johnnie$_i$ persuaded his mother [PRO$_i$??(to be allowed) to stay up late].

Unlike standard theories, mine is concerned with how the thematic

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feed the cow]] (see Polinsky & Potsdam 2002: 246) violates Condition C or not. Saying it does could explain why backwards control is out in many languages; saying that it does not could explain why backwards control is possible in some languages. Perhaps one can get both results with some new insight into the nature of the null DP Δ in the matrix clause in backwards control examples and how it is licensed in Tsez and other relevant languages.

roles of the arguments in the matrix clause match up with those of the arguments of the embedded clause. Therefore, it has some distinctive resources for addressing the issue of control shift. Let us consider how to capitalize on this opportunity.

I start with the shift from object control to subject control. This is a good starting point because there is a wider range of object control verbs to draw upon, which gives us the opportunity to explore the factors that influence this. Indeed, the literature documents some significant range in this phenomenon; see especially Panther and Köpcke (1993) for some graded experimental data in English and German. At one end of the spectrum are verbs like *ask* and *request*, which are normally object control predicates, but which allow the shift to subject control quite readily, without special measures being taken. (For example, they do not need the facilitating phrase *to be allowed* inside their infinitival complement.) At the other end of the spectrum, verbs like *order* and *advise* strongly resist control shift, regardless of what is in the infinitival complement. Somewhere in between are verbs like *persuade* and *convince* which allow control shift with some noticeable "effort" and with considerable variation across examples and speakers. For example, some speakers are only comfortable with it as long as *to be allowed to* is included in an example like (91b). Panther and Köpcke (1993) and Jackendoff & Cullicover (2003: 545-547) both have an idea (independently, as far as I know) about what underlies this variation, which I adopt and develop. Their insight is that what is being matched in control shift examples is a benefactive (BEN) role. From the perspective of the embedded clause, having a passive or unaccusative verb in the complement clause means that the PRO subject of that clause does not have an agent role, but rather a benefactive thematic role (in addition, perhaps, to a theme or goal role). From the perspective of the matrix clause, the notion of benefactive is relevant to why matrix verbs vary in their compatibility with control shift. *Ask* is different from *advise* in that if X asks Y to do Z, the normal assumption is that Z will benefit X, whereas if X advises Y to do Z, the normal assumption is that Z will benefit Y. Therefore, the possibility of matching benefactive roles creates an impetus toward subject control with *ask* but not with *advise*. This is the leading idea about control shift that I develop.[53]

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[53] It is important to keep in mind that the type of benefactive role that distinguishes *ask* from *advise* is a benefactive role that is overlaid on some other argument in

Consider first the verb *ask*. I claim that the just-made observation that the agent of an asking event is also the normal/expected beneficiary of the event is a property of the lexical semantics of this verb itself, apart from it taking an infinitival complement. It is visible when *ask* takes a DP or finite CP complement as its second internal argument as well as when it takes a nonfinite ModP. This can be seen in (92). These are not strict implications, but they are natural default assumptions.

(92) English (personal knowledge)
   a. John asked Mary a question.
      (John would benefit from Mary answering the question.)
   b. John asked a favor of Mary.
      (Mary might do something for John's benefit.)
   c. John asked Mary if she would come early.
      (Mary coming early would benefit John.)

Like *promise* and *persuade*, *ask* can appear with an agent argument and a goal argument.[54] More challenging is to say exactly what the resulting state of an asking event is. It should be the sort of thing that naturally includes a benefactive argument, to capture the Panther-Kopke/Jackendoff-Cullicover observation. Positing a state of intending would do the trick, since it is plausible to say that it can be part of someone's intention to do a certain action that the action benefit a particular person. But that is not quite right for an example

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the clause, either the agent or the goal, as permitted in Jackendoff's conceptual structure, for example. This is quite different from a benefactee in the sense of a distinct DP thematically licensed by an applicative head—the type of benefactive that is most familiar to generative syntacticians. The overlaid benefactive is seen overtly in languages like Hindi, which use light verbs to distinguish between "Ram-ERG book buy take" and "Ram-ERG book buy give." Here the auxiliary verbs 'take' and 'give' do not add additional arguments, but 'take' adds the sense that the buying event was for the benefit of the agent, whereas 'give' adds the sense that the event was for the benefit of someone else. See Ikawa (2022: 163-165) for a recent analysis of this and of a somewhat similar auxiliary constructions in Japanese.

[54] The entity-denoting internal argument of *ask* might be a source, rather than or in addition to being a goal, given that it is marked with an ablative case in some languages, including Magahi. It seems like the internal argument is both the goal of the communication event of asking and the anticipated source of the event that the asker hopes to elicit by asking. The exact thematic role of this argument does not matter for current purposes.

like *John asked Mary to come early*. The result of the asking is not that Mary intends to come early, necessarily; *ask* is different from *persuade* in this respect. Rather, the result of asking is that Mary considers whether to intend to come early for John. In other words, there is the possibility of her intending to come early, which the asking event causes her to entertain. I suggest, then, that the result of asking (*ask-res*) is equivalent to a complex modal eventuality: it is Mary being in a state of possibly intending to do something for John. This modal meaning is not expressible using overt Modal heads in standard English, perhaps because of their special property of not having nonfinite forms *(*Mary might will/woll come early for John*), but when one or more of the words expressing a modal eventuality is a main verb in English or other languages, this stacking is perfectly possible (*OK: Mary might intend to come early for John*). For simplicity, I assume that there are modal eventualities of "might-intending", which (like other root modals) have a content-bearing theme argument and optionally a holder argument.[55] (It is possible that an expression like "Mary might-intend [t come early]" can and should be unpacked as "Mary might [t intend [t come early]]", but I use the former version to abstract away from issues about embedding one modal state inside another one.[56])

The common object control usage of *ask* now comes together exactly like that of *order* or *persuade*, except for the difference in the precise character of the modal resulting state. The structure of (93a) is (93b).

(93) English (personal knowledge)
a. Frank asked Bill to come early.
b. [Frank Voice [Bill ask-proc [ask-res [PRO_i MIGHT-INTEND [t_i come early]]]]]

The semantic formula for the ModP complement of *ask* would be

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[55] Another way of saying this would be to couch it in terms of having an option, where an option is a type of modal object for Moltmann (2024).

[56] It should be possible to unpack in this way, given the assumption within the Kratzer-Moulton-Elliott framework that the content of a content-bearing entity or event is unique. Thus, if the contents of two possibilities are the same, then the intentions are the same, and the contents of the intentions are also the same.

something like (94), given my simplifying assumption about the complex modality. (Here the content is spelled out more fully as a proposition, in the format of Elliott (2017/2020).)

(94) [[ModP]]= λe $\exists z_c$ might-intend(e) & holder(e)=PRO & theme(e)=z_c & content(z_c)=λw [$\exists e_1$ e_1 is in w & come-early(e_1) & agent(e_1)=PRO]

This meaning for ModP is chosen to fit well with the meaning we have observed for *ask-res*, which I express as (95). This says that the resulting state of an asking is that a variable x has the option of intending some event that would benefit another individual y. This statement about the content of the theme argument of the resulting state is the new element.

(95) [[*Ask-res*]]= λx λy λe $\exists z_c$ might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=λw [$\exists e_1$ e_1 is in w & ben(e_1)=y]]

The formulas in (94) and (95) match in that they are both predicates of a possible intention (of having an option). They differ in that ModP gives a relatively full description of the content of the option: it is an early coming by someone. *Ask-res* gives a much more schematic description of the content of the option, saying only that it is for the benefit of someone to be named later. When *ask-res* combines with ModP to form ResP, (94) and (95) are composed using event identification to get (96).[57]

(96) [[ResP]]= λx λy λe $\exists z_c$ $\exists z'_c$ might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=λw [$\exists e_1$ e_1 is in w & ben(e_1)=y] & might-intend(e) & holder(e)=PRO & theme(e)=z'_c & content(z'_c)=λw [$\exists e_2$ e_2 is in w & come-early(e_2) & agent(e_2)=PRO]

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[57] In type-theoretic terms, this is a slightly different form of event identication from the one explicitly stated in Kratzer (1996). It combines something of type <e<e<s, t>>> (not <e<s, t>>) with something of type <s,t> to get a new predicate of type <e<e<s, t>>> (not <e<s, t>>). I do not consider how exactly to state a type-flexible version of event identification.

Here there are two expressions of the theme argument of the state of possibly-intending: it is z and z´. Thematic uniqueness implies that these must be the same thing, a particular modal object. Moreover, the Kratzer/Moulton/Elliott framework assumes "content" is also a function; it maps a content-bearing individual to its unique content (Moulton 2009: 28-29, Elliott 2017: 63-64, 105, 126) (or to the proposition that has the same satisfaction conditions, for Moltmann 2024). This implies that an analog of Carlson's thematic uniqueness holds for content expressions as well. In (96), the possible intention described by *ask-res* and the possible intention described by ModP are identified. This entails that these possible intentions have the same content. Therefore, we can reduce (96) to (97).[58]

(97) [[ResP]]= $\lambda x\ \lambda y\ \lambda e\ \exists z_c$ might-intend(e) & holder(e)=x & theme(e)=z_c & holder(e)=PRO & content(z_c)=λw [$\exists e_1$ e_1 is in w & ben(e_1)=y & come-early(e_1) & agent(e_1)=PRO]

Ask-proc then takes ResP as its complement. It can be given a meaning like (96)—like that of *order-proc* or *persuade-proc* except for nuances of it being an asking event not an ordering event.

(98) [[*Ask-proc*]]= $\lambda R\ \lambda x\ \lambda y\ \lambda e$ ask(e) & goal/source(e)=x & $\exists e_1$ [e$\rightarrow$ e_1 & R(x, y, e_1)].

This combines with (97) by function application to give (99).

(99) [[Proc´]]= $\lambda x\ \lambda y\ \lambda e$ ask(e) & goal/source(e)=x & $\exists e_1\ \exists z_c$ [e$\rightarrow e_1$ & might-intend(e_1) & holder(e_1)=x & holder(e_1)=PRO

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[58] There are some subtleties about the nature of contents here. Moulton and Elliott assume that two content-expressing conditions cannot in general be unified, even when they are semantically compatible. Their concern is to explain, for example, why a content-bearing noun like *rumor* cannot be modified by two different CPs (e.g., **The rumor that the prime minister would step down that new elections would be called spread rapidly*). I assume that there is a distinction between two partial descriptions of the same proposition (my case), which can be unified, and two full descriptions of distinct but compatible propositions (Moulton's case), which cannot be unified. This gets into questions about what propositions are and how they are individuated, which I am not the right person to discuss.

& theme(e_1)=z_c & content(z_c)=λw [∃e_2 e_2 is in w & ben(e_2)=y & come-early(e_2) & agent(e_2)=PRO]].

The rest of the derivation is (also) very normal. Proc´ combines with a DP to fill in its x argument. The resulting ProcP combines with Voice. This adds an agent argument to the description of the event e; that argument is also the one for whose benefit the possible intention is, by predicate modification. This y argument is filled in when Voice´ combines with its DP specifier to form VoiceP. The final formula for the VoiceP in (93b) is (100).

(100) [[VoiceP]]= λe agent(e)=Frank & ask(e) & goal/source(e)=Bill & ∃e_1 ∃z_c [e→e_1 & might-intend(e_1) & holder(e_1)=Bill & holder(e_1)=PRO & theme(e_1)=z_c & content(z_c)=λw [∃e_2 e_2 is in w & ben(e_2)=Frank & come-early(e_2) & agent(e_2)=PRO]
Therefore PRO=Bill

The OC-relevant part of this is that PRO=Bill, because the holder role of the possible-intention eventuality is unique. This is object control because the resulting state of an asking event is the goal of that event entertaining the possibility of intending to do something, by the meaning of *ask*. This is like the examples from the previous subsection, except that the resulting state has a different modal flavor. Notice that the fact that *ask* has (or can have) the additional element of meaning that the asked-for action benefits the asker does not have any impact on control in this case. It adds a bit of extra information to the content of the possible intention, but that is all. Object OC goes through as before.

To move from basic control to control shift, compare this with examples in which the infinitival complement of *ask* has a nonagentive subject, such as a passive or an unaccusative clause, as in (101). In many cases, these allow subject control quite readily. The infinitival complement could also include a permission modal, implicit or explicit, as in (101a,b), but this is not required for subject control to be a possibility. For example, (101c) does not mean that Mary is seeking permission to be promoted, but rather that she is seeking to be in fact promoted.[59]

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[59] Many of these examples with *ask* can also be read as having object control rather

(101) English (personal knowledge)

a. Little Susie$_i$ asked her mother [PRO$_i$ to be allowed to stay up late on New Year's Eve].

b. ?Little Susie$_i$ asked her mother [PRO$_i$ to stay up late on New Year's Eve].

c. Mary$_i$ asked Bob [PRO$_i$ to be promoted to manager by the end of the year].

d. Little Johnnie$_i$ asked his father [PRO$_i$ to get a pony for Christmas].

Therefore, there is still a possibility modal similar to *might* in the ModP complement of *ask* in these examples. It is true that a permission meaning is prominent in (101a) with *be allowed*, but that is simply the lexical meaning of the verb *allow*. The sense of 'might' is still there, in that the resulting state of the asking is not that Susie is allowed to stay up, but that she *might* be allowed to stay up. There would have to be a further event of her mother deciding to grant her request for her to actually have the permission that she seeks. I conclude that a change of modality in the complement clause is not crucial to inducing control shift. The thematic role of the embedded subject is the bigger factor in this (see Panther & Köpcke 1993).

Here is where my assumptions about how thematic roles are assigned in modal clauses from §8.4.2.1 become crucial. I said that a DP moves out of the VoiceP complement of Mod by DP-movement, and the derived subject may or may not be taken as the holder of the eventuality denoted by the modal head (see (70)). Therefore, the embedded clause in (101c), with structure [$_{ModP}$ PRO$_i$ Mod [$_{VoiP}$ Pass [$_{VP}$ promote t_i …]]], can have either of the meanings in (102). I assume that part of the lexical meaning of *promote* is that events of promoting (are usually intended to) benefit those who undergo them.

(102) a. [[ModP]]= $\lambda e\ \exists z_c$ might-intend(e) & holder(e)=PRO & theme(e)=z_c & content(z_c)=λw [$\exists e_1$ e_1 in w & promote(e_1) & theme(e_1)=PRO & ben(e_1)=PRO]]

b. [[ModP]]= $\lambda e\ \exists z_c$ might-intend(e) & theme(e)=z_c & content(z_c)=λw [$\exists e_1$ e_1 in w & promote(e_1) &

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than as subject control, including (102b-d). My analysis includes this possibility.

theme(e_1)=PRO & ben(e_1)=PRO]]

The meaning in (102a) is not different from (94) in any way that is relevant to OC. It too results in an object control reading in which Mary asks Bob to do what he can to get himself promoted. It is the meaning in (101b) that leads to control shift. It can combine with the meaning of *ask-res* in (95), repeated in (103a) by event identification to get (103b). This can be simplified to (103c) given that the possible intention is associated with a unique content-bearing modal object.

(103) a. [[*Ask-res*]]= λx λy λe ∃z_c might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=λw [∃e_1 e_1 is in w & ben(e_1)=y]

b. ResP: λx λy λe ∃z_c ∃z'_c might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)= λw [∃e_1 e_1 is in w & ben(e_1)=y] & might-intend(e) & theme(e)=z'_c & content(z'_c)=λw [∃e_2 e_2 in w & promote(e_2) & theme(e_2) = PRO & ben(e_2)=PRO]

c. ResP: λx λy λe ∃z_c might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=λw [∃e_1 e_1 is in w & ben(e_1)=y & promote(e_1) & theme(e_1)=PRO & ben(e_1)=PRO]

This ResP then combines with *ask-proc*, *Bob*, Voice, and *Mary* in the usual way to create the VoiceP in (104).

(104) [[VoiceP]]= λe. agent(e)=Mary & ask(e) & goal/source(e)=Bob & ∃e_1 ∃z_c [e→e_1 & might-intend(e_1) & holder(e_1)=Bob & theme(e)=z_c & content(z_c)=λw [∃e_2 e_2 is in w & <u>ben(e_2)=Mary</u> & promote(e_2) & theme(e_2)=PRO & <u>ben</u>(e_2)=<u>PRO</u>]]

Therefore PRO=Mary

Here the thematic roles inside the infinitival complement clause make a difference. There is no agent of the promoting event and (by hypothesis) no holder of the state of possibly intending that is expressed by the embedded clause. Therefore, there is nothing in the embedded clause to become equated with Bob, the one who might intend an action according to the matrix clause. Nothing induces object control in this case, because of the absence of a holder argument in the ModP complement. However, PRO in the embedded clause does bear a benefactive relation to promoting event, according to the embedded clause. At the same time, the matrix clause implies

that Mary is the benefactive of an event that Bob might intend, given the lexical semantics of *ask*. Therefore, thematic uniqueness applied to the benefactive role of the events that characterize the content of the possible intention implies that PRO=Mary. This licenses *Mary* as the OC controller of PRO. Control has shifted from the object to the subject, as desired. Like *ask* in easily allowing control shift are verbs with closely related means like *request, beg*, and *implore*. Panther & Köpcke (1993: 83) report that when used with a passive or unaccusative complement, *request* and *beg* shift to subject control in about 25% of their examples in English and a whopping 80% of their examples in German. (They did not test *ask*.) This is another instance of the Farkas (1988) and Jackendoff & Cullicover's (2003) point that the control properties of verbs are not arbitrary but determined by their lexical semantics.

This approach to control shift also captures another fact in this vicinity. It has been pointed out by Sag & Pollard (1991), among others, that although there is no syntactically expressed agent of the embedded verb in the control-shifted examples above, there is still an implication that the object of the matrix verb plays an important role in causing the event expressed by the embedded verb to happen. As a result, the following pairs are quite close in meaning:

(105) English (personal knowledge)

a. Little Susie$_i$ asked her mother$_k$ [PRO$_i$ to be allowed *(by her$_k$)* to stay up late on New Year's Eve].

a´. Little Susie$_i$ asked her mother$_k$ [PRO$_k$ to allow her$_i$ to stay up late on New Year's Eve].

b. Mary$_i$ asked Bob$_k$ [PRO$_i$ to be promoted to manager *(by him$_k$)* before the end of the year].

b´. Mary$_i$ asked Bob$_k$ [PRO$_k$ to promote her$_i$ to manager before the end of the year].

c. Little Johnnie$_i$ asked his father$_k$ [PRO$_i$ to get a pony *(from him$_k$)* for Christmas].

c´. Little Johnnie$_i$ asked his father$_k$ [PRO$_k$ to get him$_i$ a pony for Christmas].

This is captured for (105b) by the semantics in (104). The passive embedded verb does not license an explicit agent for the event it is a predicate of. But in this context, that event is identified with an event that is implied by the meaning of the matrix verb. This event specifies the content of a possible intention that is ascribed to Bob. We can

infer from this that Bob is the (prospective) agent of the event (or perhaps is responsible for it in some less direct way). The embedded verb thus does not express an agent for the promoting event, but the sentence as a whole does. With the active verb *promote*, the embedded verb does express an agent for the promoting event. The matrix verb also implies an agent (possible intender) for this event. Thematic uniqueness then implies that the two agents are the same. The final event description turns out to be essentially the same in these cases, even though what is contributed to it by the embedded clause is a bit different. This accounts for the near equivalence of the sentences in (105) without making use of powerful devices like "causative coercion" (Sag & Pollard 1991; Jackendoff & Cullicover 2003) which interpolate new lexical material into the representation of control shift examples to capture these details.[60]

Essentially the same analysis works for verbs like *persuade* and *convince*, which also allow control shift although they tend to need more contextual support for this; see (91b). For these verbs, Panther and Köpcke (1993: 83) report that 40% of their examples in which these verbs have passive or unaccusative complements were given subject control readings in English and 65% were in German. These verbs are semantically a little different from *ask* in that the resulting state of a persuading event is one in which the internal argument actually intends to do an action, rather than just considering the possibility of intending to do the action. Therefore, the resulting state is having an intention, not a possible intention. Now I add that there is also some degree of presumption that if X tries to persuade Y to Z, X will benefit from Z. This can be encoded into the meaning by saying that *persuade-res* can be a predicate of eventualities of someone intending to do something for someone else. Then the derivation of subject control goes through just as with *ask*. Perhaps the impression that shift to subject control is more marked and fragile with *persuade* than it is with *ask* is simply that our sense that the action done by the

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60 I find it a bit odd but not dreadful to have subject control in an example like *Mary$_i$ asked Bill$_k$ [PRO$_i$ to be promoted for the manager's sake]*, where the infinitival complement has an overt benefactive phrase distinct from the promotee subject. One might think this should not be possible, because the overt benefactive phrase would imply that PRO is not the benefactee of the promoting. Then thematic uniqueness over the benefactive role would not induce OC. This may mean that there are different kind of benefactive relations that can be present in the same clause, as in *I bought (for) Johnnie an ice cream for his mother's sake*.

undergoer of the event will benefit the agent of the event is stronger with *ask* than it is with *persuade* and *convince*.[61] (One can say *John persuaded Mary to take a day off for her own well-being*, after all.)

4.4.2. Resistance to control shift

Now compare this with object control verbs that strongly resist control shift, like *advise* and *recommend*. *Advise* is very similar to *ask* in its thematic roles: it too selects an agent and a goal as well as a CP (cf. the nominal version: *My advice **to** Mary was…).* It also like *ask* in that an advising event results in the goal argument considering whether to do an action, which enters their space of entertained possibilities. As such, a resulting state with a modal like 'might intend' is appropriate for *advise* too. Despite these similarities, *advise* does not allow control shift, even when the subject of its infinitival complement is not an agent. For example, (106a) is possible with object control, and (106b) also allows only object control, despite the different thematic roles in the complement. In Panther and Köpcke's (1993) study, English speakers allowed control shift with *recommend* only 4% of the time with goal-subject verbs or *to be allowed* and 11% of the time with passive complements.[62]

(106) English (personal knowledge)
  a. John_i advised Mary_k $\text{PRO}_{k,*i}$ to promote him before the year's end.
  b. John_i advised Mary_k $\text{PRO}_{k,*i}$ to be promoted before the year's end.

Panther & Köpcke (1993) and Jackendoff & Cullicover (2003) recognize that the minimal difference between *advise* and *ask* that this

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[61] More quantitative research into this would be called for, though. Panther & Köpcke's study actually reports slightly *more* control shift with *persuade* and *convince* than with *request* and *implore* in English, so any perceived and anecdotal differences may not be systematic. (However, Panther & Köpcke did not test *ask*, probably the most frequent "directive" verbs in English, and the one that might allow control shift the most freely.)

[62] German was a bit different. It dislikes object control with nonagentive complements like (107b), but shift to subject control was not loved either. Rather, Panther & Köpcke got a higher percentage of judgments that examples were unacceptable with either object control or subject control in this case.

hinges on is that in the case of *advise* it is the goal argument of the event that is assumed to benefit from the suggested action rather than the agent argument. If X advises Y to do Z, then the expectation is that Y would do Z for Y's own benefit, in pursuit of Y's goals. As usual, this meaning can be sensed even with uses of *advise* that do not involve infinitival complements or control, as shown in (107).

(107)a. John advised Peter of this course of action.
(Peter will benefit from this course of action (John claims).)
b. Sue advised Sharon that she should come early.
(Sharon will benefit from coming early.)

Based on this, I give (108) as the meaning of *advise-res*, the lowest head in the decomposition of *advise*. This is very similar to the meaning for *ask-res* in (95), except that the benefactive argument of the event that constitutes the content of the possible intention is an instance of the same variable as the holder of the state of having the possible intention, not a different variable.

(108) [[*Advise-res*]]= $\lambda x\ \lambda e\ \exists z_c$ might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=$\lambda w\ \exists e_1$ [e_1 is in w & ben(e_1)=**x**]

The infinitival clause has the same semantic value that is does with *ask*, containing the covert modal(s) MIGHT-INTEND. Here I consider the version in which the subject of ModP is not the holder of the state of might-intending, that being is the one that allows subject control with *ask*.

(109) [[ModP]]= $\lambda e\ \exists z_c$ might-intend(e) & theme(e)=z_c & content(z_c) =λw [$\exists e_1$ e_1 in w & promote(e_1) & theme(e_1)=PRO & ben(e_1)=PRO]]

Event identification combines (108) and (109) to get (110), once we simplify by applying the fact that the theme argument of the modal eventuality is unique and has unique content.

(110) [[ResP]]= $\lambda x\ \lambda e\ \exists z_c$ might-intend(e) & holder(e)=x & theme(e)=z_c & content(z_c)=$\lambda w\ \exists e_1$ [e_1 is in w & $\underline{\text{ben}(e_1)=x}$ & promote(e_1) & theme(e_1) = PRO & $\underline{\text{ben}(e_1)=\text{PRO}}$]]

We can already see the roots of object control—not subject control—in this formula. The possibly intended event has a single beneficiary, which is a lambda-bound variable according to *advise-res* and PRO according to the infinitival ModP. Therefore, the two will be equated, by thematic uniqueness. This results in object control once ResP combines with *advise-proc* (whose meaning is like that of *ask-proc*) and its argument. (111) is the final formula.

(111) [[VoiceP]]= λe agent(e)=John & advise(e) & goal(e)=Mary & $\exists e_1\ \exists z_c$ [e→ e_1 & might-intend(e_1) & holder(e_1)=Mary & theme(e_1)=z_c & content(z_c)=$\lambda w\ \exists e_2$ [e_2 is in w & $\underline{\text{ben}(e_2)=\text{Mary}}$ & promote(e_2) & theme(e_2)=PRO & $\underline{\text{ben}(e_2)=\text{PRO}}$]]

Thus, a small difference in the lexical semantic analysis of *advise* as opposed to *ask* is just where it needs to be to affect control in the observed way. It turns out that it does not matter whether PRO in the ModP complement has an agent role or a beneficiary role in this case; it ends up being identified with the object of *advise* either way. That is why *advise* is immune to control shift. And so are verbs with similar meaning like *recommend*, *encourage*, and *exhort*, as expected.[63]

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[63] There is also no control shift with *order*: one cannot have *Mary$_i$ ordered John$_k$ PRO$_{k,*i}$ to be promoted soon* with the meaning 'Mary$_i$ ordered John to promote her$_i$ soon.' Intuitively, *order* is compatible with the meaning of "X ordered Y to do Z and Z will benefit X." Still, one might claim that this benefactive relationship is not encoded in the lexical meaning of *order* the way it is (optionally) with *ask* and *persuade*. That would prevent control shift with *order*. Alternatively, I could claim that *order* selects a slightly different kind of modal head in its complement. It requires a ModP headed by a modal that must have a holder argument—like *obligated*, rather than like *must* (cf. *Chris is obligated to come* but not **It is obligated for Chris to come*). Whenever the ModP has a holder this forces identification with the holder of the resulting state in the matrix clause, which results in object control, as in the examples in the text. Note that there is independent evidence that *order* puts more stringent selectional requirements on its CP complement than *ask* or *persuade* do, in that

4.4.3. Shift to object control

Now let us consider the converse type of control shift, the fact that *promise* can switch from subject control to object control, as seen in (91a). This shift away from subject control happens in the same kinds of circumstances in which a verb like *persuade* switches to subject control—when the embedded clause has a nonagentive subject, and especially when its subject is the benefactive of the embedded eventuality. This shift does not depend on the complement clause containing the locution *to be allowed to*, or even a covert sense of permission, although these are the most familiar examples. Panther & Köpcke (1993) report that acceptance rates for object control with examples that have passive infinitival complements like (112c) (72% English, 88% German) are even higher than with examples that have *to be allowed* ((112a), 60% English, 64% German), and complements with a verb like *get* sometimes allow control shift too ((112d), more readily in German (61%) than in English (22%), but attested in both). See also Landau (2013: 137-139), who provides an example of 'promise' with a passive complement in Hebrew.

(112) English (personal knowledge)

a. Mary promised her son Johnnie$_i$ PRO$_i$ to be allowed to stay up late on New Year's Eve.
b. ?Mary promised her son Johnnie$_i$ PRO$_i$ to stay up late on New Year's Eve.
c. The manager promised Linda$_i$ PRO$_i$ to be promoted by the end of the year. (see Panther & Köpcke 1993: 58)
d. ?Mary promised her son Johnnie$_i$ PRO$_i$ to get a pony for Christmas.

Here too we can use the benefactive thematic role to account for the shift, following Panther & Köpke (1993) and Jackendoff & Cullicover

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order is not usually used with a finite CP complement.

This type of reasoning could extend not only to synonyms of *order* like *command* and *assign*, but to any verb that selects a ModP with a modal that always assigns a thematic role to its subject. For example, a verb like *enable* could select a ModP complement with a modal element more like *is able to* than like *can (*It is able for Mary to lift this box*). This could be used to explain why there is no control shift in an example like *John$_k$ enabled Mary$_i$ PRO$_{i,*k}$ to be promoted by the end of the year* (it cannot have a meaning like *John enabled Mary to promote him by the end of the year*).

(2003: 547). It is generally to someone's benefit to receive a promise, so the benefactee is the goal in this case (similar to *advise*).[64] What is special about these embedded clauses, then, is that they have no agent to naturally become the holder of the modal state, and thus to be equated with the agent of *promise*. However, the subject of the infinitival complement does have a strong benefactive sense. Therefore, we can have control of PRO by the object induced by thematic uniqueness applied to the benefactive role, rather than control of PRO by the subject induced by the holder role of the resulting state of obligation. This is exactly parallel to control shift with *ask* or *persuade*, where benefactees are equated in the absence of an explicit agent in the complement clause. The only difference is whether the natural benefactee is the agent of the matrix clause, as it is with *ask*, or the goal of the matrix clause, as it is with *promise*.

The details can be filled in as follows. I said above that the resulting state of a promising event is an obligation had by the agent of the promising. Now I add that the obligation can be more specifically to do something for the benefit of the recipient of the promise. This is stated in (113), with the new part underlined.

(113) [[*Promise-res*]]= $\lambda y\, \lambda x\, \lambda e\, \exists z_c$ promise-res(e) & holder(e)=x & theme(e)=z_c & content(z_c)=$\lambda w\, \exists e_1$ [e_1 is in w <u>& ben(e_1)=y</u>]

As usual, this benefactive element can be sensed even with uses of *promise* that do not involve control; for example, *John promised Mary a favor* implies that the favor is done for Mary's benefit. This added bit of meaning does no harm in an ordinary subject control example like *Mary$_k$ promised her son Johnnie$_i$ PRO$_k$ to make pancakes;* it

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[64] The exception is when *promise* shifts toward the meaning of *threaten*, as in (ia). This usage also allows control shift to some degree, as in (ib). This can be captured by saying that John is a malefactive of the resulting state of the threatening/promising event and PRO is the malefactive of the torturing event, resulting in the two being equated (see Panther & Köpcke 1993: 69).

(i) English (personal knowledge)
a. The gangsters$_i$ threatened/promised John PRO$_i$ to torture him if he didn't cooperate.
b. The gangsters threatened/promised John$_i$ PRO$_i$ to be tortured if he didn't cooperate.

merely adds the implication that the pancake-making will benefit Johnnie. As for the control shift examples in (112), I assume that the ModP complements have a covert obligation modal, as in other cases of *promise*, so that the eventuality of there being an obligation is easily identified with the eventuality that results from the promising event (*promise-res*). However, these examples take the option of there being no holder of the obligation syntactically expressed in the passive complement clause, as in (70d) (rather than (70c)). The embedded clause of (112c) thus has the value in (114).

(114) [[ModP]]= $\lambda e\ \exists z_c$ obligated(e) & theme(e)=z_c & content(z_c)=$\lambda w\ \exists e_1$ [e_1 is in w & promote(e_1) & theme(e_1)=PRO & ben(e_1)=PRO]

Then (113) and (114) combine via (extended) event identification to give (115) after simplifying based on the uniqueness of the contents of an eventuality.

(115) [[ResP]]= $\lambda y\ \lambda x\ \lambda e\ \exists z_c$ promise-res(e) & holder(e)=x & obligation(e) & theme(e)=z_c & content(z_c)=$\lambda w\ \exists e_1$ [e_1 is in w & ben(e_1)=y & promote(e_1) & theme(e_1)=PRO & ben(e_1)=PRO].

This combines with the same meaning for *promise-proc* as we used before, and then with the goal argument, the voice head, and the agent argument in the usual way. The final result is (116).

(116) [[VoiceP]]= λe agent(e)=the.manager & promise(e) & goal(e)=Linda & $\exists e_1\ \exists z_c$ [e$\rightarrow e_1$ & promise-res(e_1) & holder(e_1) = the.manager & obligation(e_1) & theme(e_1)=z_c & content(z_c)=$\lambda w\ \exists e_2$ [e_2 is in w & <u>ben(e_2)=Linda</u> & promote(e_2) & theme(e_2)=PRO & <u>ben(e_2)=PRO</u>]]
Therefore PRO=Linda

This formula implies that PRO=Linda by thematic uniqueness of the benefactive role, applied to the event that characterizes the content of the obligation that results from the promising event. In short, we end up with object control using the same ideas and techniques that gave us shift to subject control with *ask* and *persuade*, as desired.

In this case too, we get the implication that the manager is the agent of

the promoting event in (112c), or at least is responsible for it, even though no agent is explicitly represented in the complement clause. This is because the meaning of *promise-res* contributes that the higher DP argument of *promise-res* is the one who bears the resulting obligation, and this is consistent with the content of the ModP complement, even though that complement itself says nothing about this. In this way, my account can capture a contrast of Pollard & Sag's (1991) involving control shift shown in (117) (also discussed by Jackendoff & Cullicover (2003: 546) and Landau (2013: 140), among others). (117b) is infelicitous for essentially the same reason that (117d) obviously is: because a fortune cookie cannot have an obligation toward a football player. In contrast, (117a) is possible because a group of doctors can have such an obligation. (The comparison sentence in (117c) is possible because the result of a promising-that event is that someone knows something, not that someone has an obligation; compare *The weatherman promised everyone that it would not rain tomorrow*.)

(117) English (Pollard & Sag 1991)
- a. The doctors promised Joe Montana to be allowed to play in the Super Bowl next week.
- b. #The fortune cookie promised Joe Montana to be allowed to play in the Super Bowl next week.
- c. The fortune cookie promised Joe Montana that he would (be able to) play in the game next week.
- d. #The fortune cookie promised Joe Montana to allow him to play in the game next week.

Subject-to-object control shift with verbs like *promise* thus fits well under the same theory as object-to-subject control shift with verbs like *ask* and *persuade*.

4.4.4. Split control

As a culmination to this discussion of controller choice in complement clauses, I briefly consider the very special case of verbs like *propose* and *offer*. Landau (2013) calls attention to this class of verbs as a strong challenge for any theory of OC. For one thing, they shift easily between object control readings and subject control readings with no change in the structure of its infinitival complement. This can be seen in (118), where the pragmatics about who does and does not tend to make diplomatic visits helps bring out the two possibilities clearly.

(118) English (personal knowledge)

a. The Secretary of State$_i$ proposed to Congress$_k$ [PRO$_i$ to make a diplomatic visit to Myanmar].

b. Congress$_k$ proposed to the Secretary of State$_i$ [PRO$_i$ to make a diplomatic visit to Myanmar].

Landau (2013: 146) points this out as a critique of Panther & Köpcke's theory where control shift is driven by thematic matching of the benefactive role, which has been one of the sources of inspiration for the present account. There is no indication of the thematic roles being different in any relevant way between (118a) and (118b).[65] Similarly, Comrie (1984) gives (119) as an ambiguous example in German, showing that either subject control or object control is possible with no overt change in the infinitival complement.

(119) German (Comrie 1984)

Iche habe ihm angeboten [PRO mich zu erschießen].
I have him offered me/myself to shoot.
"I offered him to shoot myself" *or* "I offered him that he could shoot me."

Propose and *offer* also have an even more striking property: they allow the mysterious phenomenon of split control. In examples like (120), PRO in the complement clause is partly controlled by the subject argument and partly by the object argument. The anaphoric object inside the infinitival clause shows that PRO is plural in these examples, and its reference can include both John and Mary.

(120) English (Landau 2013: 172, personal knowledge)

a. Mary$_i$ proposed to John$_k$ [PRO$_{i+k}$ to meet each other$_{i+k}$ at 6:00].

b. John$_i$ proposed to Mary$_k$ [PRO$_{i+k}$ to treat themselves$_{i+k}$ to a trip to the Caribbean].

c. John$_i$ offered Mary$_i$ [PRO$_{i+k}$ to go to Barbados together over spring break].

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[65] Landau (2013) conjectures that the benefactive role of *offer/propose* is always associated with the internal argument of the verb, which would be problematic for applying the Panther-Köpcke account of control shift to (118).

Landau (2013: §5.3) argues with some care that this phenomenon is real and a distinct construction that does not reduce to nonobligatory control or partial control. For example, the goal argument of *propose* may be implicit, but it still shows the same kind of clause-level locality that is characteristic of OC. Split control also does not allow arbitrary readings, allows only sloppy and *de se* reading, and features like gender must be inherited in languages like Hebrew (Landau 2013: 174). A crucial difference between split control and partial control is that the PRO in a split control can be grammatically plural as well as semantically plural (as in (120a,b)) whereas PRO in partial control examples cannot be. Landau also makes the forceful point that spilt control as in (120) is an unsolved puzzle for practically every theory of the syntax of control. In particular, it is a challenge to theories that seek to derive OC by saying that PRO is an anaphor (Manzini 1983), by saying that PRO is controlled via Agree (Landau 2001, Landau 2004), or by saying that it reduces to movement (Hornstein 1999). None of these syntactic relations allows for one element to be related to two antecedents, as we have here.

I will not be so bold as to say that my new theory predicts the existence of split control, but it does allow for it more readily than these other theories. Let us imagine what would have to be true for split control like what is seen in (120) to follow from my theory, focusing on (120a) for concreteness. First, the ModP complement will denote some modal eventuality with a plural PRO as its holder argument. I assume that this is another case of MIGHT-INTEND, similar to the complement of *ask* or *advise*, because here too possible courses of action are being entertained by someone. So the ModP complement in (120a) has the meaning in (121).

(121) [[ModP]]= $\lambda e\ \exists z_c$ might-intend(e) & holder(e)=PRO_{PL} & theme(e_1)=z_c & content(z_c) = PRO_{PL} meet each other at 6:00

We get OC when some argument in the infinitival clause bears the same thematic role to the eventuality described by that clause as an argument of the Res head (part of the decomposition of the matrix verb) does to the eventuality described by that head. In other words, *propose-res* would need to be something of the form "$\lambda x\ \lambda y\ \lambda e$ might-intend(e) & holder(e) = SOMETHING." Then *propose-res* will combine with ModP in a consistent way, with SOMETHING being identified with PRO. Split control will result if SOMETHING in this formula is the mereological sum of the two arguments of *propose*. In

other words, *propose-res* could have the meaning in (122).

(122)[[*Propose-res*]]= λx λy λe might-intend(e) & holder(e)=$\underline{x \oplus y}$

This combines with (121) by event identification, and then with *propose-proc*, whose meaning is the rather ordinary one in (123a). Combining with *John*, Voice, and *Mary* finally results in (123b).

(123) a. $\lambda R\ \lambda x\ \lambda y\ \lambda e$ propose(e) & goal(e)=x & $\exists e_1$ [e$\rightarrow e_1$ & R(x, y, e_1)].

b. λe agent(e)=Mary & propose(e) & goal(e)=John & $\exists e_1\ \exists z_c$ [e$\rightarrow$ e_1 & might-intend(e_1) & $\underline{\text{holder}(e_1)=\text{John}\oplus\text{Mary}}$ & $\underline{\text{holder}(e_1)=\text{PRO}}$ & theme(e_1)=z_c & content(z_c)=PRO meet at 6:00]

This does imply that PRO=John⊕Mary by thematic uniqueness applied to the holder argument of the possible intention. This then is split control. For it to be a theory of split control rather than just wishful thinking, we need to convince ourselves of two things: (i) that (122) is a legitimate meaning for a Res head to have, and (ii) that this is part of the meaning that the English verb *propose* does in fact have. I hereby convince myself of these things. (i) amounts to the claim that mereological summation is a possible part of a lexical entry. Since I do not have any strong constraints on what lexical meanings can be (unfortunately), I have no reason to rule this out. As for (ii), my method has been to claim that the meaning of Res heads can be studied by considering what inferences can be drawn from sentences involving the verb in question, including sentences that do not involve control. For *propose*, we can consider examples like (124).

(124)English (personal knowledge)

a. Mary proposed to John a trip to the Caribbean.
Result: Mary and John consider (one or the other or) both of them taking a trip to the Caribbean.

b. Mary proposed to John that they take a trip to the Caribbean.
Result: Mary and John both consider the possibility of them taking a trip.

The question then is whether the proposing events can have as their result a state of John and Mary having a shared possible intention (or

option). The answer, I believe, is yes. Assuming that this holds up, it is possible to fit an analysis of split control into my framework.

This has very strong consequences. It implies that thematic uniqueness is not simply a syntax-semantics-interface filter on a familiar syntactic control relationship that operates relatively freely in the syntax, whether that relationship is understood in terms of Agree, movement, anaphor binding, or predication. None of these syntactic relationships would provide the interface with a split control candidate that it could license or filter. Rather, it seems that event identification and thematic uniqueness must be the very engine of OC itself. However, this still avoids the trap of reducing OC simply to pronoun binding. That is indeed the one other relationship we know of that allows split antecedence. However, OC is otherwise much more restricted than pronoun binding in the ways described by the OC signature. This should be explicated by a generalized control theory. My approach can, I claim, walk this narrow line. I pursue the implications of this further in §8.7.

It is desirable to take one further step in the analysis of *propose*. The meaning in of *propose-res* in (122) gives the split control possibility seen in (120), but it does not give the more ordinary subject and object control possibilities seen in (118) and (119). The ideal theory would capture the fact that only verbs that freely allow both subject control and object control also allow split control. This could be expressed by revising the meaning of *propose-res* to something like (125).

(125)[[*Propose-res*]]= λx λy λe might-intend(e) & holder(e)=(x)⊕(y)

The idea is to say that both the x variable and the y variable are optional parts of the holder argument of the possible intention. If only the first argument x is included, we get object control; if only the second argument y is included, we get subject control; if both are included we get split control. I want this range of possibilities to be detectable also in examples like (124) that have the same verb but do not have control. And so they are: for example, (124a) can result in John possibly intending to take a trip to the Caribbean, or in Mary possibly intending to take a trip to the Caribbean, or in both of them intending to take this trip together. There is more to ponder here about what exactly is the space of things that can and cannot be stipulated in a lexical meaning, to be sure. But this approach to OC gives a framework in which they can be pondered.

4.5. Control into nonmodal infinitives

The most challenging cases of controller choice, including control shift, happen with triadic verbs that select a clause that has a future-shifted reading, as recognized by Landau, Wurmbrand, and others. These are cases in which there is reason to say that there is a modal head in the complement clause which plays an important role in mediating the control relationship. However, there are also cases which do not show evidence of there being a modal in the infinitival clause. This raises questions about whether my new theory of control can apply to such cases. Should it generalize, or do nonmodal cases call for a different analysis, as in Landau's (2015) two-tiered theory of control?[66] I take up this issue with a case study the implicative verb *force*, which is the canonical verb with a nonmodal complement that has two DP arguments. I leave other such examples to future research.

There is no obvious modal meaning associated with the complement of *force*, and the event described by the embedded clause is not understood as future with respect to the one described by the matrix clause. As a result, the matrix and embedded clause cannot have incompatible time adverbs, as is possible with verbs like *order*, *ask*, *persuade*, *advise*, and *propose*.

(126) English (personal knowledge)
Yesterday Sue forced Eve to cook some rice (#tomorrow).

Verbs like *force* also support an implication pattern which many other control complements do not, arguably because of the presence of the modal. The occurrence of the forcing event entails the occurrence of the event described by the infinitival clause, as in (138). (This is why *force* is classified as an implicative verb.)

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[66] Landau (2015) claims that infinitival complements of nonattitude verbs are predicated of the structurally closest DP, with the result that PRO inside the infinitival complement is controlled by that DP. I could conceivably also adopt a two-tiered approach, using thematic uniqueness for some examples and predication for others. I aim for a more uniform analysis, however. Remember that I already offered an analysis of 'try/manage' within my theory in §8.4.1.

(127) English (personal knowledge)
Sue forced Eve to cook some rice.
Therefore: Eve cooked some rice.

I conclude that there is no modal eventuality to mediate control in this case.

The good news is that there doesn't need to be one. Given these temporal and logical patterns, the event described by the infinitival complement is itself a plausible result of the matrix event. If this is true, why do we not get thematic-role matching here, of the sort that we see in resultative SVCs and control with *try* and *manage* (also implicative verbs)? After all, Eve is the theme of the forcing event in (127), but she is the agent argument of the cooking event. My idea about this is again to pack a bit more into the meaning of the matrix verb. I claim that *force* itself implies that the theme of the forcing event is also the agent of another event, one that is caused by the forcing event. Continuing to follow Ramchand (2008) in decomposing Vs into Proc and Res heads, I propose (128a,b) as the two major subcomponents of the verb *force*:

(128) a. [[*force-res*]]= λx λe agent(e)=x.
b. [[*force-proc*]]= λR λx λe force(e) & theme(e)=x & $\exists e_1$ [e→ e_1 & R(x, e_1)]

Here *force-res* characterizes an event that has an agent, and *force-proc* says that there is another event which is a forcing event, which causes the first event, and the agent of the caused event is the theme of the forcing event. As usual, the task is to see if these elements of meaning are inherent in (some uses of) the verb *force*, even apart from the presence of the infinitive and the control relation. The examples in (129) suggest that they are.[67]

(129) English (personal knowledge)
a. John forced Jeff into this course of action.
Therefore (as a result), Jeff did this course of action.

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[67] Note that *force* cannot select a finite CP complement (**Sue forced Eve that she cook(s) some rice*), so that comparison is not available in this case.

b. Sarah forced a certain course of action on Julia.
Therefore (as a result), Julia did this course of action.

It is also worth noting that *force* (except when used as an ECM verb, which it can be[68]) contrasts with the simpler causative verbs *make* and *cause* in two ways. On the one hand, the apparent object of *force* bears a thematic role to the forcing event (see fn 68); on the other hand, the complement clause must express an event that is something that can be done volitionally.

(130) English (personal knowledge)
a. John made/caused Mary (to) grow tall.
b. ??John forced Mary to grow tall.
c. John made Mary believe that the sky is green.
d. #John forced Mary to believe that the sky is green.

I take the weirdness of (130b,d) to be a sign that the theme argument of the main event is also the agent argument of the caused event—not just some unspecified participant in it. The meanings in (128) express this observation.

Given the meanings for the components of *force* in (128), we can give the complement clause a simple event-denoting meaning. [PRO Inf [cook some rice]] corresponds to the formula in (131).

(131) [[InfP]]= λe cook(e) & agent(e)=PRO & theme(e)=rice

This combines with *force-res* ((128a)) by event identification to give (132a). The resulting ResP combines with *force-proc* ((128b)) by

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[68] So not impossible are examples like *The labor organizers forced there to be a riot*, *The agitators forced all hell to break loose at the meeting*, although they may feel a bit marked. The classic test that shows most clearly that *force* has an object control use is the fact that passive in the CP complement of *force* goes with a change of meaning. (ia) has a salient meaning in which John exerts pressure on the doctor get the examining event to happen, whereas (ib) has a salient meaning in which John exerts pressure on Mary to get the examining event to happen. (My analysis implies that in (ib) Mary is a kind of agent of the examining event as well as a theme—a flexibility that is special to English.)

(i) English (personal knowledge)
a. John forced the doctor to examine Mary for cancer.
b. John forced Mary to be examined by the doctor for cancer.

function application to give (132b). This Proc´combines with *Eve*, then with Voice, then with *Sue*, to arrive at (132c).

(132) a. [[ResP]]= λx λe agent(e)=x & cook(e) & agent(e)=PRO & theme(e)=rice
b. Proc´: λx λe force(e) & theme(e)=x & $\exists e_1$ [e→e_1 & agent(e_1)=x & cook(e_1) & agent(e_1)=PRO & theme(e_1)=rice]
c. VoiceP: λe agent(e)=Sue & force(e) & theme(e)=Eve & $\exists e_1$ [e→ e_1 & <u>agent(e_1)=Eve</u> & cook(e_1) & <u>agent(e_1)=PRO</u> & theme(e_1)=rice]
Therefore PRO=Eve

Then PRO=Eve by thematic uniqueness of the agent of the caused event. We thus derive object control for *force* using the same kinds of reasoning we used for verbs that select a ModP complement.

An important question that arises now is what happens when the subject of the infinitival complement of *force* does not have an agent thematic role. On my account, this could affect the control—in contrast to Landau's (2015) predication analysis of implicative verbs, in which the infinitival clause of this kind of verb is always predicated of the closest DP argument. The examples in (130) already show that PRO not being an agent in the embedded clause can lead to reduced acceptability. Moreover, control shift is not entirely out of bounds with the matrix verb *force* according to Panther and Köpcke (1993), especially in German. With a complement like 'be allowed to VP', 34% of English speakers and 43% of German speakers accepted subject controlled readings. In German, this acceptance rate also carried over to complements with recipient subjects or passive subjects (in English it dropped to 9%/15%). This is a higher rate of control shift across the board than with 'recommend', even though that is a verb that takes logophoric control in Landau's two tiered system. An example in English where subject control seems possible (for me) is (133).

(133) English (personal knowledge)
The union leadership$_i$ forced management$_k$ PRO$_i$ to be allowed to hold meetings with their membership during normal work hours.

Since PRO is not the agent of the predicate *be allowed to VP*, thematic

uniqueness does not induce PRO=the management in this case. Therefore, object control is not forced in this example. We can then invoke a benefactive thematic role, as in other cases of control shift. We can perfectly well say that the surface subject (underlying object) of *be allowed* has a benefactive role (like *be promoted*). A rough value of the complement clause of (133) would be (134).

(134) [[InfP]]= $\lambda e\ \exists z_c$ allow(e) & ben(e)=PRO & theme(e)=z_c & content(z_c)=PRO hold meetings with membership

It is also plausible to say that the subject of *force* can be associated with a benefactive role, as Panther & Köpke claim. This comes from the default human assumption that if X forced Y to do Z, then X probably wanted Y to do Z because Z would benefit X. We can then enrich the meaning of *force-res* by adding the (optional) benefactive role, similar to what we said for *promise-res* above.

(135)[[*force-res*]]= $\lambda x\ \lambda y\ \lambda e$ agent(e)=x & ben(e)=y

Then ResP for (133) will be (136a), Proc´ will be (136b), and the matrix VoiceP will be (136c).

(136) a. [[ResP]]= $\lambda x\ \lambda y\ \lambda e\ \exists z_c$ agent(e)=x & ben(e)=y & allow(e) & ben(e)=PRO & theme(e)=z_c & content(z_c)=PRO hold meetings with membership.

b. [[Proc´]]= $\lambda x\ \lambda y\ \lambda e$ force(e) & theme(e)=x & $\exists e_1\ \exists z_c$ [e→e_1 & agent(e_1)=x & ben(e_1)=y & allow(e_1) & ben(e_1)=PRO & theme(e_1)=z_c & content(e_1)=PRO hold meetings with membership]

c. [[VoiceP]]= λe agent(e)=union & force(e) & theme(e) = management & $\exists e_1\ \exists z_c$ [e→e_1 & agent(e_1)=management & <u>ben(e_1)=union</u> & allow(e_1) & <u>ben(e_1)=PRO</u> & theme(e_1)=z_c & content(z_c) = PRO hold meetings with membership].
Therefore PRO=the union

Here PRO=the union by the uniqueness of the benefactive role applied to the event that is the result of the forcing. This is an instance of subject control. Note also that the formula implies that it is management that allows the union to meet the membership, even though this is not expressed in the complement clause, but only as a description of the caused event is pieced together frin the meaning of

force (its *force-res* part) and the meaning of the complement clause. This is typical for control shifted examples. We see, then, that control shift is a possibility even when there is no modal element in the complement clause, and rightly so according to Panther and Köpcke (1993). One possible reason why control shift is rarer/more marked with 'force' than with 'ask' or 'persuade' could simply be that the subject of 'force' is more weakly associated with a benefactive role than is the subject of these other verbs.[69] (There is also the English-German difference, discussed by Panther & Köpcke (1993), where subject control is more marked for triadic verbs in English than in German across the board. I have no proposal to offer about that.)

There are of course many other control predicates to consider in English and other languages in order to have a full account of OC in all its guises. Other classes to consider include propositional control verbs like *claim* in English (*Mary claimed to have paid the fine*), interrogative constructions (like *Mary told/asked John when to leave*), factive predicates (like *Mary likes/hates to cook rice*), and evaluative predicates (like *John was rude to leave early*), among others. Each class of predicates should be studied as to the details of its lexical semantics and how the events it entails might be identified with those of its complement. I leave analysis of these to future research.

5. Preliminary notes on control into adjunct clauses

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[69] Another factor could be that the power dynamics are somewhat marked in an example like (133). Normally X can only allow Y to do something if X has more authority than Y does. But if X has the authority to grant or deny permission to Y, Y won't usually have the power to force X to do something. (133) is designed to get around this tension as much as possible by evoking circumstances in which there are different kinds of power at work, and power is explicitly being contested.

English (more than German, it seems) also allows cases in which the complement of *force* is a passive clause but PRO still undergoes object control, like the classic in (ib) of fn 68. I assume that this is possible when some agency is overlaid on the subject of the passive, in addition to its normal theme role. Note that the passives that are good in the complement of *force* are the very ones that are good as imperatives, like *Be examined by a doctor!* I do not discuss the mechanism of these overlaid thematic roles.

5.1. Infinitival clauses with PRO

Given boundless time, space, and energy, a next step would be to move from OC in the complements of verbs to OC in nonfinite adjunct clauses. This topic arises both for control of PRO in nonfinite adjunct clauses in languages like English and for control of ghostly DP operators in ‘so that’ adjuncts in languages like Magahi and Ibibio. However, this figures to be a large and challenging topic, which may bring up new issues. For example, Jackendoff & Cullicover (2003) state that their semantic principles hold only for complement clauses, suggesting that control into adjunct clauses may follow other principles, possibly more strictly syntactic ones. (See also the Relational Grammar literature of the 1970’s and 1980s, where control into adjunct clauses was often taken as a test for syntactic subjecthood at some level of representation.) Similarly, Idan Landau largely puts control into adjunct clauses aside in his earlier works, and then devotes a whole monograph to the topic (Landau 2021). It is also necessary (and far from easy) to distinguish carefully between OC and NOC in this domain. It is not realistic, then, to fit in anything like a full treatment of this topic at the end of this long work. However, I can include a few remarks about why there is reason to be optimistic that my theory of control will have something to contribute to the understanding of control into adjunct clauses in English. Then I say a bit more about how ‘so that’ clauses might fit into the picture of ghostly DP constructions, devoting a bit more space to that, since it relates closely to the overall topic of this work.

For infinitival adjunct clauses with a PRO subject, let us focus just on the kinds that can be paraphrased with finite ‘so that’ clauses. This includes at least what Landau (2021) calls subject purposive clauses, object purposive clauses, and rationale clauses. Many of these have subject control, as in (137).

(137) English (personal knowledge)
a. Allison$_i$ took the medicine [(in order) PRO$_i$ to not get sick].
=Allison took the medicine so that she would not get sick.
b. Sue$_i$ drove to town [PRO$_i$ to buy some coffee and sugar]
=Sue drove to town so that she could buy coffee and sugar.
c. Kevin$_i$ bought a book [PRO$_i$ to read to himself at bedtime]
=Kevin bought a book so that he could read it to himself at bedtime.

It might seem, then, that subject control is the normal case for adjunct

clauses, whereas object control is the normal case for complement clauses. This contributes to the impression that different principles might be at work in these two different subdomains.

However, Landau points out that there are similar adjunct clauses in which PRO is controlled by the object of the main clause rather than the subject, as in (138). (Landau classifies (138a,b) as subject purposive clauses and (138c) as an object purposive clause.)

(138) English (Landau 2013: 31n.20, personal knowledge)
a. $John_k$ paid $Mary_i$ $10 [PRO_i to stand on her head].
=John paid Mary $10 so that she would stand on her head.
b. $Mary_k$ paid $John_i$ $10 [PRO_i to show her his stamp collection].
=Mary paid John $10 so that he would show her his stamp collection.
c. $Peter_k$ bought $Julia_i$ a book [PRO_i to read to $herself_i$ at bedtime].
=Peter bought Julia a book so that she could read it to herself at bedtime.

So both subject control and object control are found into adjunct clauses, as indeed both are found into complement clauses. We can even observe a form of control shift in this domain. (138c) versus (137c) shows that the same adjunct can have subject control or object control depending on what thematic roles are assigned in the matrix clause. Conversely, (138a,b) versus (139) shows that the same matrix clause can induce subject control or object control depending on what is in the adjunct clause—e.g., whether the PRO subject of the adjunct clause is an agent, as in (138a,b), or a benefactive, as in (139).

(139) English (personal knowledge)
$Mary_k$ paid $John_i$ $10 [PRO_k to be allowed to see his_i stamp collection].

Control in this domain thus concerns how the thematic roles of the arguments of the main verb relate to the roles of the arguments of the verb in the adjunct clause. This is strikingly like control shift with ‘promise’ and ‘ask’/‘persuade’, strongly suggesting that there should be a unified account.

I believe that my new theory has good prospects for providing this

unified account. Sister nodes created by adjunction can be interpreted by event identification in the same way that sister nodes consisting of a head and its complement can be. Even if these are two distinct types of Merge, this rule of semantic composition need not be sensitive to the difference. Then it is plausible to say that an event of Mary paying John has a resulting state such that John is obligated to do something that benefits Mary in exchange for the money. If the adjunct clause contains a covert modal that expresses an obligation and its holder, then the two obligations can be identified and their holders will be equated by thematic uniqueness. This will give object/goal control of PRO by *John* in (138b). If the adjunct contains a covert modal that expresses an obligation and a benefactee of the obligation but not its holder, as in (139), then the two benefactees are equated, giving subject control of PRO by *Mary* in (139). Similarly, (138c) and (137c) can be unified by the idea that a buying event can have a separate benefactive argument, but when it does not, the presumption is that the event of buying benefits the agent (i.e., we buy things for ourselves, unless otherwise stated). Then (137c) and (138c) are both instances of benefactive control, even though the grammatical function of the controller seems to shift from subject to indirect object.

There are obviously plenty of nontrivial details to work out, but the leading idea is simple enough. There is then a way forward to explaining why control shift is possible in adjunct clauses in a way that is similar to complement clauses. The seeming productivity of agent/subject control in examples like (137a,b) could potentially be grounded in the same way, given the very general assumption that people's agentive actions normally are intended to benefit them, unless otherwise stated. (See also fn 75 for another possibility.)

5.2. Finite clauses with ghostly DPs

The theory of OC also needs to apply to ghostly DPs in adjunct clauses, at least those with a complementizer that can be translated as *so that*, which I have assumed are merged within the greater VP, rather than at TP or above. For example, (140) shows that SoK and lOp inside a 'so that' clause can be controlled by the agentive subject of the main clause in Ibibio, resulting in the possibility of C-agreement with the matrix subject and a logophoric pronoun referring to that subject. Similarly, (141) shows that Sp inside this kind of adjunct clause can be controlled by the matrix subject in Magahi, resulting in first person pronouns being coreferential with that subject.

(140)Ibibio (fieldwork, Willie Willie)

a. Okon á-ke á-dát íbọ́k ódó ***(a-bo)*** *m̀bàak (imo) i-dí-dọ́ñọ́.*
Okon 3SG-PST 3SG-take medicine the (3SG-C) so.that LOG 3.LOG-prohibit-be.sick
"Okon$_i$ took the medicine so that he$_i$ would not get sick."

b. Okon a-maa-dibe mbaak Emem a-di-kit ***imo****.*
Okon 3SG-PST-hide so.that Emem 3SG-FUT.NEG-see LOG
"Okon$_i$ hid so that Emem would not find him$_i$."

(141)Magahi (fieldwork, Deepak Alok)

Bantee-aa ghare rukl-ai taaki ham bimmar na ho jaa-i.
Bantee-FM home stay-3.NH.S so.that I sick not become go-1.S
"Bantee$_i$ stayed home so that he/I$_{i\ (sp*)}$ would not become sick."

I have assumed that this sort of adjunct clause adjoins to VoiceP, higher than complements inside VP (which I now decompose into ProcP and ResP) but lower than adjunct clauses adjoined to TP. In the absence of fine-grained syntactic evidence for these languages, this was based primarily on the semantic intuition that 'so that' clauses pertain to the agent argument of the main clause. Now I sketch a way of developing this that results in OC according to the present theory.

The leading idea of this theory is that OC is induced by thematic uniqueness implying that the arguments of two closely related eventualities are the same. In the case of 'so that' clauses, I propose that the eventualities in question are eventualities of intending/willing that pertain to the agent-subject of the sentence as a whole. Throughout this work, I have assumed the standard Kratzerian view that the agent is the argument of a Voice head that takes VP (ProcP) as its complement. I mentioned in passing that Ramchand (2008) proposes a variant of this view in which the agent is the argument of an Init head, where Init (unlike Voice) is a predicate of an event that is distinct from the one that is characterized by VP/ProcP but which causes ("leads to") that event. For a true agent (as opposed to a mere causer), this initiating event is an act of the will of a conscious intentional being. This act of the will includes the agent having an intention, of intending that the willed act take place. Moreover, this intention can be part of a larger plan; one can intend one's action to bring it about that some other event or state takes place. This is the kind of situation that 'so that' talks about: [[Init [VP]] [so.that CP]] means that the agent x intends (and also wills) for VP to happen, and

that x intends that CP become true as a consequence of VP happening. A rough-and-ready way of composing this could go as follows, concentrating on (140a) as an example. We can say that the heads glossed ‘so that’ (*mbaak* in Ibibio, *taaki* in Magahi, etc.) select a CP complement which can contain ghostly DP operators. They say that someone has an intention that the proposition denoted by CP be realized in the relevant world. This is stated in (142).

(142) [[so.that]]= $\lambda x\, \lambda e$ intend(e) & holder(e)=x (& $\exists z_c$ theme(e)= z_c & content(z_c)=P)

In other words, a decent paraphrase for ‘Okon took the medicine so that he would not get sick’ is ‘Okon took the medicine intending that he not get sick.’ I also assume as in §8.3 that a logophoric C is a trivial predicate of events, whose agent (initiator) is lOp and whose content is given by the clausal complement of C. The CP that this C heads combines with ‘so that’ to give (143).[70]

(143) [[so.thatP]]= $\lambda x\, \lambda e\, \exists z_c$ intend(e) & holder(e)=x & C(e) & initiator(e)=lOp & theme(e)=z_c & content(z_c)=pro will not get sick

Meanwhile, the matrix clause InitP is, according to Ramchand (2008), a particular kind of initiating event that causes the process of taking medicine to happen. Without going into details about how the ResP and ProcP are composed, Init´ (i.e. Voice´) comes out to be (144).

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[70] I am a bit unclear whether to combine CP with ‘so that’ by event identification or by function application. (143) does it by event identification, identifying the intention associated with ‘so that’ with the eventuality that C is a (trivial) predicate of. The TP complement of C then fills out the content of this intention. Also I am assuming in (143) that the order of heads is [so.that [Op C [TP]]]. However, in some cases, the order is probably [Op C [so.that [TP]]]. Note in particular that the agreeing C in (140a) is outside *mbaak* ‘so that’, rather than under it. This should not matter much given that ‘so that’ (or its projection) combines with C (or its projection) by event identification. That is a kind of conjunction, and conjunction is commutative.

(144) [[Init´]]= λx λe take-init(e) & initiator/agent(e)=x & ∃e_1 [e→ e_1 & taking-medicine(e_1)]

Next the 'so-that' phrase is merged with Init´and the meanings of the two combine by predicate modification to give (145a). This combined with the DP in Spec VoiceP gives (145b).

(145) a. [[Init´´]]= λx λe take-init(e) & <u>initiator/agent(e)=x</u> & ∃e_1 [e→e_1 & taking-medicine(e_1)] & intend(e) & <u>holder(e)=x</u> & ∃z_c [C(e) & <u>initiator(e)=lOp</u> & theme(e)=z_c & content(z_c) =pro will not get sick]
a. [[InitP]]= λx λe take-init(e) & <u>initiator/agent(e)=Okon</u> & ∃e_1 [e→e_1 & taking-medicine(e_1)] & intend(e) & <u>holder(e)=x</u> & ∃z_c [C(e) & <u>initiator(e)=lOp</u> & theme(e)=z_c & content(z_c) =pro will not get sick]

The question, then, is whether the same eventuality can be both an initiating event and an eventuality of intending, such that there are eventualities which the predicate in (145b) could be true of. I claim that the answer is yes, or close enough. A willing by an agent to do something is or includes an intending by the agent to do that thing.[71] So willings are a special kind of intending, and something can be both.[72] I also assume that the agent of a willing and the holder of an

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[71] An agent can of course do an action unintentionally, by accident. But this does disrupt the possibility of having a 'so that' clause used in the sentence. Hence *#Lynn accidentally took the medicine so that she would not get sick* is anomalous. To the extent that it is possible, it has a sense of some providential agent different from Lynn working behind the scenes, willing that Lynn take the medicine and that she does not get sick as a result.

[72] This seems like the simplest assumption, and I do not know that it will not work, so I stick with that. It is possible that a fuller treatment would say that the willing to take medicine and the intending not to get sick are not the same eventuality but are mereological parts of a larger eventuality: an intention to not get sick by taking medicine. In that case, I would have an axiom that the holder of a complex intention that a causal sequence of events take place is the same as the holder of simpler intentions that the individual events (e.g. the taking medicine and the not getting sick) take place. This should also license the identification of the one who wills the medicine-taking and the one who intends

intention are both types of initiator, the coarser-grained proto-agent role. Then thematic uniqueness applies to (145b) to imply that lOp=Okon.[73] This licenses OC—in this case a kind of subject control, as desired.[74]

I conclude that there are good prospects for extending the theory of OC based on event identification and thematic uniqueness from complement clauses to low adjunct clauses, both for the control of PRO in infinitival clauses and for the control of ghostly DP operators in finite 'so that' clauses.[75]

6. Interactions in the control of ghostly DP operators and PRO

As my second to last topic, I want to briefly consider whether my accounts of the OC of PRO and the OC of ghostly DP operators are compatible with each other, such that the two can cooccur in the same sentence. Cases in which the two interact seem to be relatively rare. PRO is normally the subject of a nonfinite clause, whereas the ghostly operators are typically licensed in the CP periphery of a finite clause (e.g., see Alok 2020 on Magahi). However, there is at least one relevant case: we have seen that lOp is possible in a control-infinite clause in Ibibio and Yoruba. Both kinds of control are thus at work

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that x not get sick, albeit by a less direct route.

[73] In contrast, I assume in the next subsection that the holders of other kinds of modal eventualities are possible undergoers but not possible initiators. It is possible that the intention involved in a so-that clause is a slightly different kind of thing from the ones described by the complement of a verb like *persuade*.

[74] The Magahi version of 'so that' has an Ad argument with an undergoer thematic role as well as a Sp argument with an initiator thematic role. However, the Init´ head has no corresponding argument to control the Ad argument. The current analysis thus underwrites the idea about why 'so that' adjuncts allow i-shift but not u-shift in Magahi that I mentioned in §4.5. See the discussion there.

[75] The idea that a clause can adjoin to VoiceP/InitP and hence be identified with an initiating/willing eventually different from the one denoted by ProcP might well open up further opportunities to explain subject control into rationale clauses like those in (137) from English. I leave this to future research.

side by side in (146a), with the schematic structure in (146b).

(146) Ibibio (fieldwork, Willie Willie)

a. Okon a-maa-temme Emem edi-kpóno ímọ̀.
Okon 3SG-PST-instruct Emem INF-respect LOG
"Okon$_i$ instructed Emem$_k$ to respect him$_i$."

b. Okon$_i$ instructed Emem$_k$ [lOp$_i$ C [PRO$_k$ to respect LOG$_i$.]]

Here there is subject control of lOp, the initiator argument of C, by *Okon* the agent of 'instruct'. At the same time, there is object control of PRO, the agent argument of 'greet', by *Emem*, the theme or goal argument of 'instruct'. Both these control relationships are what we expect independently of the other, but can my account combine them?

The answer is yes, but with a bit of effort and one new assumption. I analyze the matrix verb like *order*, with a state of being obligated belonging to the goal as its resulting state.[76] Its components are:

(147) a. [[*instruct-res*]]= λx λe obligated(e) & holder(e)=x
b. [[*instruct-proc*]]= λR λx λe instruct(e) & goal(e)=x & ∃e_1 [e→e_1 & R(x, e_1)]

The embedded infinitival clause has, we may assume, a matching covert necessity modal. But unlike the infinitival clauses discussed in §8.4, which were bare ModPs, we must assume that ModP here is embedded under a C-type head that licenses an lOp. Following the analysis in §8.3, this C is a trivial predicate of events, and it takes lOp as its initiator argument. The natural assumption, then, is that the ModP complement of C gives the content of (the theme argument of) the eventuality that C denotes. So the embedded CP in (146b) corresponds to a formula like (148).

(148) [[CP]]= λe ∃z_c C(e) & agent(e)=lOp & theme(e)=z_c & content(z_c)=λw ∃e_1 ∃z'_c [e_1 in w & obligated(e_1) &

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[76] The alternative would be to analyze 'instruct' in (146) like *teach/enable* in English, with an ability modal in its complement clause. The account would be parallel, and I'm not sure of the lexical semantic nuances of this verb in Ibibio.

holder(e_1)=PRO & theme(e_1)=z'_c & content(z'_c)= λw′ ∃e_2 [e_2 in w′ & greet(e_2) & agent(e_2)=PRO & theme(e_2)=pro[+log]]]

Now an important question is where exactly the infinitival CP attaches in (146b). I need to assume that, rather than being merged directly with the Res head, as I assumed throughout §8.4, the "complement" CP is merged higher, with a projection of the Proc head, as in (149).

(149) Okon voice [Emem [[instruct-proc [instruct-res]] CP]]

This assumption has an eye on the desired result: we want the event that C is a predicate of to be the same as the event that Okon is an agent/initiator of, so that Okon will end up being equated with lOp. In fact, Okon is the agent of the instructing event, but not an agent of the state that results from the instructing event.[77] (147a) and (147b) combine by function application to get (150a). The resulting Proc′ combines with the formula for CP in (148) by event identification to give (150b). Attaching the agent with Voice gives (150c).

(150) a. [[Proc′]]= λx λe instruct(e) & goal(e)=x & ∃e_1 [e→e_1 & obligated(e_1) & holder(e_1)=x]

b. [[Proc′′]]= λx λe instruct(e) & goal(e)=x & ∃e_1 [e→e_1 & obligated(e_1) & holder(e_1)=x] & ∃z_c [C(e) & agent(e)=lOp & theme(e)=z_c & content(z_c)=λw ∃e_2 ∃z'_c e_2 in w & obligated(e_2) & holder(e_2)=PRO & theme(e_1)=z'_c & content(z'_c)= λw ∃e_3 e_3 in w & greet(e_3) & agent(e_3)=PRO & theme(e_3)=pro[+log]].

b. [[VoiceP]]= λe **<u>agent(e)=Okon</u>** & instruct(e) & goal(e)=Emem & ∃e_1 [e→e_1 & obligated(e_1) & holder(e_1)=Emem] & ∃z_c [C(e) & **<u>agent(e)=lOp</u>** & theme(e)=z_c & content(z_c)=λw ∃e_2 ∃z'_c e_2 in w & obligated(e_2) & holder(e_2)=PRO & theme(e_1)=z'_c & content(z'_c)= λw ∃e_3 e_3 in w & greet(e_3) & agent(e_3)=PRO & theme(e_3)=pro[+log]].

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[77] It would also work to say that CP is merged with VoiceP. In fact, this is required if we follow Ramchand (2008) in saying that the agent is the argument of an initiating event different from the process event, as I did in §8.5.2.

Here thematic uniqueness applies to the agent (initiator) role of the instructing event to imply that lOp is equal to *Okon*, licensing OC of lOp by *Okon*, as desired. This is the same kind of analysis that I gave in §8.3, except that the matrix verb has been decomposed more, into Proc and Res heads, and I have been more explicit about the meaning of the TP/ModP complement of the logophoric C.

However, this formula does not give us control of PRO yet. There are two states of obligation described here: one is the resulting state caused by the instructing event and the other is the content of the event described by the CP complement. If we could identify these two events, we would be done. However, we need a new axiom in order to make the connection. I suggest (151) to close this gap.

(151) If event e_1 has a theme argument with content P and there is an event e such that e → e_1, then the content of the theme of e is the proposition characterized by e_1.

The intuition behind this is as follows. Moltmann (2024) argues that there are often (at least) two content-bearing modal or attitudinal objects associated with a given event. For example, an event of ordering does not just result in the goal of the event having an obligation, it also creates an abstract object, an order. On the one hand, X's order to Y is something distinct from Y's obligation; they are different particulars. On the other hand, the order and the obligation are systematically related to each other. In particular, their contents are related. A single event of ordering would not produce an order to come early and an obligation to scratch one's nose, for example. (151) attempts to specify how these two modal/attitudinal objects are related. It claims that the relationship is not identity (quite), but that the obligation gets incorporated as the content of the order, bringing its own content with it. In the case at hand, the resulting state is an obligation held by x, as throughout. Obligations have content, activating (151). The process event now also has its own theme (the order). Its content is not just "x greet y" (the content of the obligation) but rather: "x is obligated to greet y". This accords well with our intuitions about such cases, I assume.

Formally, then axiom in (151) allows us to infer from the causative relationship between the ProcP event and the ResP event in (150) to a content-based relationship between them. This results in two

descriptions of the content of the instructing event: one constructed from ResP, and the other expressed by the TP complement of C. Since content-bearing events have unique contents, we can equate the two. This produces control of the PRO in one content description by the corresponding variable in the other content description, analogous to many examples in §8.4. (152) adds to (150) the inference from (151) (italicized).

(152) [[VoiceP]]= λe $\exists z_{c2}$ **agent(e)=Okon** & instruct(e) & goal(e)=Emem & $\exists e_1$ [e→e_1 & obligated(e_1) & holder(e_1)=Emem] & *theme(e)=z_{c2} & content(z_{c2})= [λw ∃e_4 e_4 in w & obligated(e4) & holder(e4)=Edem]* & $\exists z_c$ [C(e) & **agent(e)=lOp** & theme(e)=z_c & content(z_c)=λw $\exists e_2$ $\exists z'_c$ e_2 in w & obligated(e_2) & holder(e_2)=PRO & theme(e_1)=z'_c & content(z'_c)= λw $\exists e_3$ e_3 in w & greet(e_3) & agent(e_3)=PRO & theme(e_3)=pro[+log]].

Then (153) is derived from (152) by thematic uniqueness applied to the theme argument of the instructing event (the instruction that the event produces) plus combining into one the two descriptions of the content of that theme argument.

(153) [[VoiceP]]= λe $\exists z_c$ **agent(e)=Okon** & instruct(e) & goal(e)=Emem & C(e) & **agent(e)=lOp** & $\exists e_1$ [e→e_1 & obligated(e_1) & holder(e_1)=Emem] & *theme(e)=z_c & content(z_c)= [λw ∃e_2 $\exists z'_c$ in w & obligated(e2) & holder(e2)=Edem & holder(e_2)=PRO & theme(e_2)=z'_c & content(z'_c)= λw ∃e_3 e_3 in w & greet(e_3) & agent(e_3)=PRO & theme(e_3)=pro[+log]]*.

Now (153) says that there is a state of being obligated that has Emem as its holder and that has PRO as its holder. Therefore PRO=Emem, by thematic uniqueness. The formula now sanctions both object control of PRO and subject control of lOp. The two analyses are compatible, with a bit of a cost—the cost of the assumption in (151).[78]

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[78] An alternative to consider would involve fancy syntactic derivations rather than the semantic assumption about the content associated with a complex event in (151). One could imagine merging the nonfinite ModP with the Res head, then

The fact that the agent of the matrix clause controls lOp and its kin in the complement clause follows in part from the assumption that CP merges with the Proc head, whose initiator argument is the agent of the event denoted by Proc. We should also consider the possibility of the finite CP merging directly with the Res head, as infinitival CPs do throughout §8.4. Could merging a finite CP in this lower lead to a structure in which the object of the matrix verb controls the lOp (or Sp, SoK, etc.) in the finite CP? The answer is no, as long as we assume that the holder of a state of being obligated is a kind of undergoer (proto-theme) argument, so not a candidate for being the initiator argument. If that is so, then the holder (undergoer) of the resulting state could not be equated with the agent (initiator) of the event denoted by C by thematic uniqueness, and OC is not licensed. The idea that the holder of a state of being obligated is a kind of theme/undergoer is justified by the kind of verbal paraphrases that necessity predicates naturally have. These include predicate adjectives (*is obligated to)* and passive verbs (*is required to*), both of which have theme subjects, not agents.[79] The same is true for most other modal eventualities, I assume, including possibilities (*is possible*), abilities (*is able to*), and permissions (*is allowed to, is permitted to*).[80] With this

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sideways merging it with the logophoric C, then remerging the resulting CP with the projection of the Proc head. Then the ModP would be interpreted as a sister of Res (so the event this denotes is equated with the resulting state) whereas the larger CP is interpreted as a sister of Proc (so the event it denotes is equated with the instructing event). I assume that the analysis in the text is simpler, where the clausal complement has only one merge position (the higher one) but one gets the effect of equating smaller constituents (the ResP inside ProcP and the TP inside CP) out of the assumption that if two events are the same then their contents are also the same. But if (151) fails, this is a possible alternative.

[79] If anything, the holder of the resulting state might control the Ad (AdOp, OoK) operator of a low CP. Indeed, these do undergo object control—as expected regardless of whether CP merges with ResP or ProcP.

[80] The exception to this could be intentions; I assumed in §8.5.2 that the holder of an intention is a kind of agent/initiator, in light of the close relationship between intentions and acts of the will (note that *intend* is not passive or adjectival).This means that there could be a gap in this explanation for verbs whose resulting state is an intention, such as *persuade* and *convince*. These could conceivably allow object control of Sp or lOp. I will not try to close this gap here. Perhaps it is necessary to distinguish different types of intentions, some with theme-like holders and others with agents (as hinted at in fn. 73).

in place, we can explain why the agent of a matrix verb like *instruct* can control a ghostly DP operator in the CP associated with its internal argument, but not a PRO bearing the agent role in its same argument, whereas the goal of *instruct* has the opposite behavior.

7. What then is obligatory control?

I close this chapter with some higher-level reflection on what my investigation implies about the fundamental nature of obligatory control as a grammatical phenomenon. My emphasis has been to provide an account of the GOCS that captures the similarities between ghostly operator constructions and control-infinitive constructions, and to provide a theory of controller choice that accounts for some apparent differences. But there is an opportunity here to consider what this means about the control relation itself.

The primary implication seems obvious: that OC is at its roots a semantic phenomenon of sorts. The fundamental principles that derive what can control what are the possibility of interpreting a structure in which two phrases are merged together as event identification, together with the principle of thematic uniqueness, which implies that two expressions that bear the same thematic role to the same event must be the same. Furthermore, in some cases the thematic roles that determine which argument of the matrix clause controls a pronominal within the embedded clause are not the ones that determine where in the syntactic structure the arguments are generated. For example, subject-like ghostly DPs like Sp and lOp can be controlled by DPs that are agents, causers, sources, or experiencers. DPs with any of these roles can be projected in the thematic subject position (Spec VoiceP), and this testifies to the fact that these thematic roles form a natural class—the class of possible initiators. However, DPs with these roles can control Sp and lOp even when they are not projected in the Spec VoiceP position. For example, we saw in Chapter 4 that in Magahi the experiencers of verbs like ‘seem’ and ‘remember’ bear dative case. According to the case theory I proposed for closely related Hindi (Baker 2024), this is evidence that those possessors are generated in Spec VP rather than Spec VoiceP. However, they can still control Sp, resulting in indexical shift. So can source expressions that are expressed as ‘from’ phrases in Ibibio and Magahi, and experiencer objects with causer or idiomatic subjects in Ibibio. As another example, we have seen in this chapter that benefactive roles can have

an important influence on controller choice for PRO in English and German, particularly in control shift examples when the PRO subject of the embedded clause is a benefactee but not an agent (Panther & Köpcke 1993, Jackendoff & Culicover 2003). However, in the crucial cases the benefactive role is not projected as a distinct DP in a Spec ApplP in the way that is familiar to syntacticians. Rather, it is overlaid on some other argument of the verb as a secondary thematic role: on the agent argument of 'ask' and 'persuade', but on the goal argument of 'promise' and 'advise'. It would not be easy, then, to translate the generalizations we have stated in terms of DPs having the same thematic role into generalizations stated in terms of DPs having the same (or similar, parallel) syntactic positions, as is feasible in some other domains. The conclusion, then, appears to be that OC is something that holds at the conceptual-intentional interface—indeed perhaps deep into the semantic component where syntax has done its job and has quietly faded away. It may not be impossible to state the OC generalizations over a syntactic representation, but it would take considerable effort and would involve positing "syntactic" representations of considerable abstractness, bearing a complex relationship to the normal, more directly observable syntax. I do not know of any good reasons for going this way.

However, in other stages of this investigation we have seen some reasons to doubt that OC is purely semantic, without any involvement of the syntax. The clearest is that OC relations can have an impact on agreement that is visible at PF. We saw this especially for complementizer agreement in Chapter 2, where I explained the T/Agree Constraint using the broader concept of dependent agreement. My account crucially assumed that OC control relationships are represented as pointers in the syntax, with the controlled item pointing to its controller. When T in the matrix clause triggers Agree-Copy, the phi-features of the pointed-to DP are copied onto all the functional heads that are linked to that DP by a sequence of pointers. This includes not only Agree pointers, but control pointers as well. Crucially, OC dependencies are visible for Agree-Copy, but ordinary pronoun binding dependencies do not. This is seen most sharply in Ibibio, where we observe the contrast in (154).

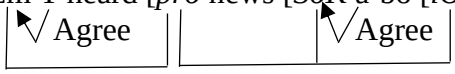
(154)Ibibio (fieldwork, Willie Willie)

a. Emem a-me-kop mbʌk (a-bo) ke ímọ̀ i-ma-i-due.
Emem 3SG-PRF-hear news (3SG-C) that LOG 3.LOG-PST-3.LOG-guilty
"Emem$_i$ heard the news that he$_i$ was guilty."

*b. Emem a-maa-kere ke mbʌk (*a-bo) ke imọ i-ke-due a-maa-kpa owo idem.*
Emem 3SG-PST-think that news (*3SG-C) that LOG 3.LOG-PST-guilty 3SG-PST-die person body
"Emem$_i$ thinks that the news that he$_i$ is guilty is surprising."

Both sentences allow *Emem* to be the antecedent of a logophoric pronoun inside the CP complement of 'news' at some syntactic distance. I interpreted this as showing that 'news' can have a null possessor DP which is the local controller of lOp in the periphery of the CP. This null possessor can then be anteceded by a DP like 'children' in a relatively unconstrained way. However, C-agreement shows a clear difference: it is possible in the CP complement of 'news' only in (154a), where 'news+CP is the direct object of a verb whose subject is the controller, not in (154b), where 'news+CP' is the subject of a verb in a lower clause. In (154a), not only can the null possessor control SoK and lOP, but the subject of 'hear' can be the OC controller of the null possessor, as represented in (155). This is in line with the GOCS, because the phrase with the controllable pronoun at its edge (NP/DP) is merged directly with the verb that the controller is an argument of.

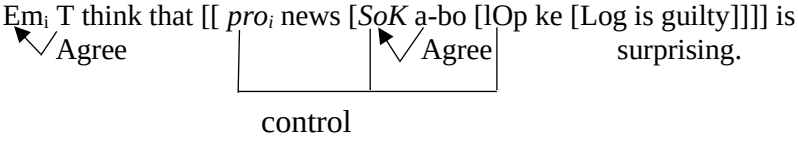
(155) Em T heard [*pro* news [*SoK* a-bo [*lOp* ke [Log is guilty]]]]



control control

This representation does allow the features of SoK to be copied onto C (*bo*): C is linked to the target of agreement from T by a series of pointers, including the Agree pointer from C to SoK and the two OC pointers from SoK to pro and from pro to *Emem*. In contrast, in (154b), the null possessor can control SoK and lOp, and *Emem* can be the antecedent of the null possessor, a kind of pro (indicated in (156) not by a pointer, but only by coindexing). This is enough for the logophoric pronoun to refer to Emem in this example. But it is not a strong enough connection for C to agree with *Emem*.

(156) Em$_i$ T think that [[*pro*$_i$ news [*SoK* a-bo [lOp ke [Log is guilty]]]] is surprising.



I conclude that OC relationships are represented in a way that Agree-Copy can see, influencing the realization of agreement at PF, whereas mere relationships of pronominal binding are not.[81] This is evidence that control takes place in the narrow syntax after all.[82]

Converging with this conclusion, there is also reason to say that OC is subject to the Phase Impenetrability Condition (PIC). This is a new consideration, which has only been in the background throughout this work. We have seen at every stage that OC happens when a null pronominal element appears at the edge of an embedded clause and is controlled by something within the VoiceP of the matrix clause: the subject, object, or indirect object of that clause. Stepping back, this looks very much like PIC-style locality, where one element can only establish a relationship with another if the first is at the edge of one phase and the second is contained within the next highest phase, Voice and C functioning as phase heads (among others). The fact that nothing higher than the superordinate subject can control into a CP complement may now follow from event identification: that is the highest DP that can bear a thematic role to the event of which both (parts of) the matrix verb and the CP complement are predicates. But even if the upper limit of the control relation is constrained in this way, there is still a locality effect to capture regarding the position of

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[81] This discussion assumes the analysis presented in §5.2.3. In §8.3.2, I mentioned that within the thematic-uniqueness theory of OC, control of lOp by the matrix subject may not need to be mediated by a null possessor in a structure like (155) after all. However, the point that I am making still goes through: this example has OC pointers that connect lOp to the subject *Okon* (directly or indirectly) whereas (156) does not, and this difference is visible to Agree-Copy at PF.

[82] The fact that OC PRO in the Balkan languages can trigger agreement on T in subjunctive clauses after it gets phi-features from its controller is possible further evidence of OC relationships being visible to agreement. However, this conclusion would be stronger if NOC PRO (if any) in these languages does not trigger agreement on the verb. This would require some careful research to establish. (I thank Maria Kouneli (p.c.) for discussion of this in Greek.)

the lower element, such as the controlled PRO. (157a) and (157b) constitute a now-familiar control shift pair.

(157) English (personal knowledge)
- a. Mary$_i$ promised John$_k$ [PRO$_i$ to [promote him$_k$ before the new year]].
- b. Mary$_i$ promised John$_k$ [PRO$_k$ to be [promoted (by her$_i$ assistant) before the new year]].
- c. *Mary$_i$ promised John$_k$ [for her$_i$ assistant to [promote PRO$_k$ before the end of the year]].
- d. Mary$_i$ promised John$_k$ [that her$_i$ assistant would [promote him$_k$ before the end of the year]].

In thematic terms, (157a) shows that the agent argument of the embedded verb can be controlled, as long as it is the agent argument of the matrix verb that is the controller. (157b) shows that the theme-benefactive argument of the embedded verb can be controlled, as long as it is the benefactive-goal argument of the matrix verb that is the controller. But (157c) shows that the theme-benefactive argument of the embedded verb can only be controlled if the embedded verb is passive; a thematically identical control relationship is bad if the embedded verb is active. The meaning that (157c) would have is a perfectly sensible one, as shown by the acceptability of (157d) with the coreference of a pronoun rather than the control of PRO. (157c) cannot be bad because of any problem with thematic role matching or thematic uniqueness, given the acceptability of (157b) and the usual assumption that the object of the active sentence has the same thematic role(s) as the subject of the corresponding passive sentence. Therefore, event identification and thematic uniqueness cannot account for the sharp difference between these two sentences. What we have here is the very familiar fact that PRO must be in the subject position of an infinitival clause in English and other languages, a core fact about control that I have had very little to say about until now. It has been common to stipulate this distributional fact by saying that PRO cannot be governed, that it cannot be case marked, or that it needs to receive a special “null” case from infinitival T. However, it is also familiar that these lines of analysis do not hold up well under scrutiny (see Landau 2004 for discussion). In the current context, a more fundamental reason why the (157c) fails is the PIC: PRO here is separated from its thematically eligible controller *John* by two phase heads: the active Voice associated with *promote*, and infinitival C

head *for* (or some other head in this C-space). In contrast, in the passive embedded clause in (157b) PRO has moved out of the embedded VoiceP, such that at most one phase head intervenes between it and its controller (and possibly none, if control complements in English do not have a C head (Wurmbrand 2014) or if PRO moves on to Spec CP (Landau 2015)). Therefore, the PIC draws nicely the needed distinction between (157b) and (157c).

The PIC can also capture the contrast between (157c), where control of a null pronoun used as the direct object is ruled out, and the SVC in (158), where control of a null pronoun used as the direct object is possible (on my analysis, following Collins 1997).

(158) Ewe (Collins 1997: 461)

a. Wo ɖa fufu ɖu.
they cook fufu eat
"They cooked fufu and ate it."

b. They T voice [$_{VP}$ cook fufu$_i$ [$_{VP}$ eat *pro*$_i$]]

The controlled empty category in (158) is in a governed, case marked position internal to a VP headed by an active verb and far from any special T that could license it. Yet it is licit, and OC can happen, in that pro must be coreferential with 'fufu' here. The crucial difference is that the complement of the main verb is much smaller in (158) than in (157c): it is a VP, rather than a CP. As such, the complement in (158) does not contain phase heads like Voice or C. Therefore, control in (158) is compatible with the PIC, like (157b) but unlike (157c).

I conclude from these comparisons that the OC relation is subject to the PIC. But that implies that it is a relation established in the narrow syntax, before the relevant material is shipped off to PF or LF. We do not expect there to be an analog of the PIC at the Conceptual-Intentional interface itself, and indeed semantic relationships like the binding of pronouns as variables are not subject to it.

We have then two reasons to say that OC relationships are established in the narrow syntax and represented in what is sent to PF, despite the fact that semantic relationships that are not represented in syntax play a key role in controller choice. If we stick to a version of the Y-model, it seems like we need to say that control happens somewhat freely in the syntax and then is filtered by the semantics, as do Manzini (1983), Landau (2015: 76), and others. Anticipating this, I have spoken of

thematic uniqueness as *licensing* OC, or as *inducing* OC, rather than as constituting OC. Apparently OC relationships can be established apart from the semantics, even if they have to pass muster with the semantics—not only in that the result must be semantically coherent in a very general sense, but in having to be interpreted in a particular way that involves event identification and thematic uniqueness.

Does this mean that the syntactic part of OC reduces to some more familiar aspect of syntax, leaving it to the semantics to take care of what is distinctive about OC? Can we say that, from the syntactic point of view, OC is simply the binding of an anaphor, or a certain kind of movement relationship, or a relationship of syntactic predication, or the result of Agree relationships? All of these views have been tried, and each of them can capture some significant percentage of the relevant facts. But Landau (2013: 174) points out that they all fail to account for the phenomenon of split control, in an example like (159).

(159) English (Landau 2013: 172 (324a))
Mary$_i$ proposed to John$_k$ [PRO$_{i+k}$ to meet each other at 6].

All of the syntactically reductive approaches to control stumble on this fact. If PRO is an anaphor, it should not be able to have split antecedents. If PRO is the trace of NP-movement, what was originally in the embedded subject position cannot have moved to two different places resulting in two different NPs (Hornstein 1999: 80). A syntactic predicate must have a unique local subject (Landau 2015: 78). Agreeing heads cannot usually sum up the features of two goals which they agree with (Landau 2013: 174). And so on. In contrast, my approach to controller choice using event identification and thematic uniqueness can (with a bit of effort) be generalized to this case, as discussed in §8.4.4.4, by building the tricky part into the meaning of a verb like *propose*—specifically in how the process of proposing relates to the resulting state of a proposing. There also seems to be some systematicity to split control, in that it is only verbs that readily allow both subject control and object control that also allow split control. So I lean into this opportunity afforded by my theory, and claim that OC is a primitive syntactic relationship, not reducible to other known syntactic relations.

The upshot of this discussion is that OC can be characterized roughly as follows:

(160) Obligatory control: A minimal pronoun may be linked by pointers to one or more DPs in the same domain. DPs that are linked in this way are interpreted as instances of the same variable, bearing the same thematic relation to some event.

The primary syntactic restriction on this relationship is the PIC, defining the domain that must contain both the controllee and the controller. Other restrictions follow from the condition on how the control relationship is interpreted, notably including the Generalized Obligatory Control Signature, which says that the constituent containing the minimal pronoun must merge directly with a projection of the head which the controller is an argument of. Not even c-command is stipulated in (160). In most cases, the controller does c-command the controllee, but this follows from the condition that both must bear a thematic relationship to the same event. One case in which a DP that is the argument of a verb can nonetheless be embedded in a phrase headed by something other than that verb is PP arguments. In exactly these cases, the controller may not c-command the controllee, as in examples of oblique control (e.g. *Kate imposed upon Nick$_i$ [PRO$_i$ to help her with her taxes]* (see §8.4.2.4).

(160), then, is my "final answer" as to what OC is, as a result of this sustained investigation that starts by foregrounding some noncanonical instances of OC from less-studied languages. My final answer for now, that is. The adventure continues.[83]

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[83] There may, in fact, be reason to question the classic Y-model in a more fundamental way. It is odd for (160) to stipulate ahead of time what particular semantic principles will be used to interpret the representations it creates. This is a kind of look ahead that arguably violates the spirit of the Y-model. A more radical alternative might be to try to build the possibility of OC into a view of Merge in which instances of Merge have to be locally motivated. In the simplest case, Merge of say V and DP is motivated by DP receiving a thematic role from V, arguably a form of feature checking. OC happens when (say) a verb is merged with an unsaturated expression which the syntax can easily recognize as not being qualified to get a thematic role. These instances of Merge can be motivated if the verb and the phrase it is merged with are both co-predicates of the same argument in a way that syntax can check locally in a preliminary fashion. However, there are challenges for this view too, and I do not try to develop it here.