Abstract

Both grammatical and non-grammatical constraints can play a role in determining (co)reference. It has been claimed that PRO in non-finite rationale clauses (RatCs: *Harry went into the forest [RatC in order PRO to find the killer]*) receives its referent through syntactic control (Roeper, 1987; Whelpton, 2002) because the syntactic position of the controller is important; the subject of the matrix clause, but not the object, can control PRO. This paper argues in favor of the alternative view, following A. Williams (2015), that control of PRO in a rationale clause is non-grammatical; its referent is resolved to the party responsible for the fact expressed by the matrix/target clause. Grammatical theories of control such as the movement theory (Hornstein, 1999) and the two-tiered theory (Landau, 2015b) are unable to account for many rationale clause phenomena without reference to non-grammatical constraints such as those presented here. This provides evidence that there can be strong discourse constraints on reference that are sensitive to grammatical structure.

1 Introduction

This paper examines PRO in Rationale Clauses, as illustrated in (1), and the constraints on its reference. These have been viewed as grammatical constraints (Whelpton, 1995, 2002) on coreference with a sentence-internal antecedent. This paper argues for the opposite view: that the constraints on the reference of PRO in RatCs are non-grammatical. This suggests that there can be strong constraints on reference that are conditioned by syntactic structure, but are not mediated by the grammar.

(1) Jon left the building [RatC in order PRO to get some fresh air].

Constraints on reference play an important role in our understanding of language. Some constraints are grammatical, in that reference is determined by structural properties of the sentence itself. For example, in (2), the anaphor *himself* must be understood as coreferential with *Jon’s father*; it cannot refer to any other entity, no matter what context the sentence is uttered in. The referent of the reflexive is determined based on the structure of the host sentence. Because reflexives require a local antecedent in a particular
syntactic configuration, Chomsky (1980, 1981) posits a syntactic dependency (binding) between reflexives such as *himself* and a locally c-commanding antecedent (*Jon's father*) that is interpreted as coreference. Therefore, according to what he calls Principle A of the Binding Theory (Chomsky, 1981), the referent of a reflexive is completely determined by the grammatical structure of the sentence it is found in.

(2) Bill_1 said [Jon_2's father]_3 likes himself_3/*1/*2/*4.

A similar grammatical constraint (Principle B) applies to pronouns, but instead of determining reference, the constraint rules out coreference with locally c-commanding antecedents.¹ For example, in (3), the pronoun *him* may not corefer with the locally c-commanding *Mike*. However, *him* may refer to any other salient male individual, including Jon’s father, in contrast to the reflexive in (2).² When *him* does corefer with *Jon's father* in (3), this does not seem to involve a syntactic link between the two, since structural position is not decisive. *Jon’s father* and *him* will be understood as coreferential only if pragmatic context permits this, by making it sufficiently clear that the speaker means to refer Jon’s father in using the pronoun. Given the proper context, however, *him* could just as easily refer to someone else. Although a grammatical constraint rules out one possible referent for the pronoun, non-grammatical, contextual constraints determine who *him* will ultimately refer to.

(3) Bill_1 told [Jon_2’s father]_3 that Mike_4 likes him_1/2/3/5/*4.

Other times, there are no grammatical constraints on reference, and the effect of non-grammatical constraints becomes more obvious. For example, in interpreting (4a-b), we are guided by whichever referent of *they* results in the most plausible discourse (Hobbs, 1979; Kehler, 2004; Kehler et al., 2008). In (4a) the pronoun is understood as referring to the city council, because it is more plausible that the denial of a permit would result from their fear of violence than from the demonstrators’ fears. The preference is reversed in (4b). Notice that the interpretation of the pronoun here is not being determined grammatically, since it is in the same structural position in each case. Instead, coherence is constraining reference.

(4) The city council denied the demonstrators a permit because...
   a. ...they feared violence.
   b. ...they advocated violence.

But coherence and plausibility are not the only non-grammatical constraints on reference, and there are

¹ Although see Heim and Kratzer (1998) and Reinhart (1983) for a discussion of examples such as (i) from Evans (1980), in which the grammatical constraint on the referent of the pronoun seems to be suspended.

² Note that by using coindexation in this and other examples, I am not necessarily making the claim that the relation is syntactic. Instead, coindexation will simply be used to demonstrate coreference possibilities.
some non-grammatical constraints for which structure matters, due to its effects on information structure. Kehler (2004) compares (4) to (5), which differs only in that the first clause is passive. Importantly, the subject of a passive is even more likely than the subject of an active to be mentioned in surrounding discourse, and in this sense is more ‘topical’. Because of this, the pronoun in both (5a) and (5b) is resolved to the demonstrators, even though in (5a), resolving they to the city council would make a more coherent discourse; we are left wondering why the demonstrators’ fear of violence would lead to them being denied a permit. As Kehler notes, in this case, coreference, determined by information structural factors, is constraining coherence, rather than the other way around.

(5) The demonstrators were denied a permit by the city council because...
   a. ...they feared violence.
   b. ...they advocated violence.

We see, then, that the referent of a reflexive is determined by grammatical constraints, while the referent of a pronoun is determined by other factors, even though syntactic structure can be relevant, even if its relevance is indirect, by way of information structure.

This paper discusses PRO, the silent subject of a non-finite clause. A similar distinction to the contrast between reflexives and pronouns has been applied to PRO, under the headings of Obligatory and non-Obligatory control (E. Williams 1980). In Obligatory Control, (OC), the referent of PRO is uniquely determined. Consider the examples in (6), for example. Using reflexives as a diagnostic, because they require a local antecedent, we can see that the referent of PRO is fixed by the expression. In (6a), PRO can only refer to Bill. It cannot be used to mean that Bill promised that someone else would wash. Similarly, (6b) cannot be used to express that Bill’s mother promised that he would wash; PRO must refer to Bill’s mother. In (6c), PRO again must refer to Bill; the sentence cannot be used to report Sara hearing that Bill promised that she would wash herself. The interpretation of PRO in (6) differs from that of overt pronouns in similar constructions. In (7a), he can refer to any salient male as determined by context. In (7b-c), a pronoun can refer to any salient individual, modulo gender agreement. This difference is unsurprising if PRO in OC enters a grammatical dependency with its antecedent and overt pronouns do not.

(6) a. Bill\textsubscript{1} promised PRO\textsubscript{1} to wash himself/*oneself.
    b. *Bill’s mother promised PRO to wash himself.
    c. *Sara heard that Bill promised PRO to wash herself.

(7) a. Bill\textsubscript{1} promised that he\textsubscript{1/2} would wash himself\textsubscript{1/2}
    b. [Bill\textsubscript{1}'s mother]\textsubscript{2} promised that he\textsubscript{1/3}/she\textsubscript{2/3} would wash himself\textsubscript{1/3}/herself\textsubscript{2/3}.
Because of the interpretive restrictions on PRO in examples such as (6), OC is usually classified as a grammatical constraint on reference. PRO is either said to enter a syntactic dependency with a locally c-commanding antecedent (Chomsky, 1981; Manzini, 1983; Hornstein, 1999; Landau, 2000) or a semantic dependency mediated by the embedding verb, whose meaning requires that PRO in its complement be coreferent with another one of its arguments (Farkas, 1988; Chierchia, 1989; Sag and Pollard, 1991). In either case, the dependency drives the interpretation of PRO. In other words, the referent of PRO is said to be determined by the sentence itself, just as was the case with reflexive pronouns.\(^3\)

In Non-Obligatory Control (NOC), on the other hand, the referent of PRO is determined by the speaker or hearer, based (at least) on the context of the utterance; the sentence itself is not sufficient to determine the referent of PRO. In (8), for example, PRO can be coreferential with either Mary or Bill, or it can receive a generic/arbitrary interpretation, referring to no individual specifically. Because the referent of PRO is not strictly determined by the sentence itself, it is believed that it is not entering a syntactic or semantic dependency with its understood controller. Instead, its interpretation is similar to an overt pronoun (Chomsky, 1981; Manzini, 1983; Hornstein, 2001; Landau, 2015b).

(8) Mary realized it would help Bill PRO to behave (herself/oneself/himself) in public.

As with overt pronouns, there may be non-grammatical constraints on the interpretation of PRO in NOC, though this is less often recognized. And again, some of these constraints are indirectly responsive to grammatical structure. Alexander Williams (p.c.) notes that in examples such as (9), PRO is unacceptable without an overt controller; if there is no (overt) direct object in the matrix clause to control PRO, the sentence is degraded. This makes the dependency between PRO and its controller in (9) look grammatical. However, the antecedent to PRO is not determined structurally. As shown in (10), the antecedent to PRO may either be the subject or the object, depending not only on the situation described in the matrix clause, but also on how it is described. This suggests that the dependency is not syntactic.

(9) Matt barked *(at his wife) for PRO being too loud.

(10) a. Sue married Abe for PRO writing nice poems.
    b. Abe got to marry Sue for PRO writing nice poems.
    c. #Abe married Sue for PRO writing nice poems.

Furthermore, the same restrictions on reference apply to overt pronouns in this position (11). If the restriction

\(^3\)For the majority of this paper, when discussing OC, I will focus on the syntactic theories. I will briefly address semantic theories of OC in \(\S\)6.3.
on PRO’s interpretation in (10) were due to a grammatical dependency between it and its antecedent, then it would be surprising that the same restrictions would hold for overt pronouns, whose referent is determined through discourse constraints. Instead, it seems to be the case that the reference constraints in (10) and (11) are due to a strong conceptual effect. These examples show that PRO (and overt pronouns) can be conditioned by structural factors in requiring an overt local antecedent and in responding between some difference between subjects and objects, even without a syntactic dependency.

(11) a. Abe\textsubscript{1} got to marry Sue for his\textsubscript{1} writing nice poems.

    b. Sue married Abe\textsubscript{1} for his\textsubscript{1} writing nice poems.

    c. #Abe\textsubscript{1} married Sue for his\textsubscript{1} writing nice poems.

Control, then, can either result from syntactic binding on the one hand or discourse resolution of a free pronoun on the other. OC occurs when PRO must be bound by a local antecedent in the proper syntactic configuration (c-command); NOC occurs when PRO’s interpretation is not locally bound. More generally, two noun phrases in a sentence or discourse can be construed as coreferential through either binding (by which I mean any syntactic/semantic dependency between the two noun- phrases that determines coreference, not just the dependency so labeled in Chomsky (1981)), or not by binding. In binding, coreference is enforced by the grammar. It is required by syntactic or semantic properties of the sentence that contains the phrases. Without binding, this is not so. Coreference is decided not by the syntactic properties of the sentence, but only by its speaker or hearer, based on contextual and other extra-grammatical constraints. This leads to the question of what kind of non-grammatical constraints there may be on the interpretation of PRO.

This paper investigates one set of constraints on coreference that are sensitive to grammatical relations, but which I will argue are not mediated by the grammar: those determining the interpretation of PRO in a Rationale Clause (RatC), alternatively called an In-Order Clause or a Reason Clause (Faraci 1974; Jones 1985; Whelpton 2002; A. Williams 2015), as illustrated in (12). In this example, PRO is understood as coreferential with Rita; it cannot be coreferential with the matrix object Harry, and it cannot receive an arbitrary interpretation. Some authors have claimed that this is due to syntactic binding between the two (Roeper, 1987; Whelpton, 2002). However, this paper rejects grammatical accounts of control in RatCs. As an alternative, I will defend and elaborate on the discourse-based approach known as Responsibility Theory sketched in A. Williams (2015) and based on ideas in Farkas (1988). I argue that PRO in a RatC is subject to a non-grammatical constraint on reference such that it will refer to the party responsible for the fact expressed by the clause for which the RatC provides the rationale, which in most cases is the clause to which it adjoins. The apparent structural constraints will result simply from the fact that subjects are likely to be portrayed as responsible, while referring to someone in object position portrays them as non-responsible.
Rita interviewed Harry [in order PRO₁/*₂/*₃ to feel better about herself/*himself/*oneself].

My first argument against control through binding will be that the same coreference constraints seen in RatCs such as (12) (what I will call local control) hold in cases where there can be no syntactic relation, as in (13), in what I will refer to as remote control, following Dowty (1988), Sag and Pollard (1991), and A. Williams (2015).

Rita interviewed Harry. The reason was [PRO₁/*₂ to feel better about herself/*himself/*oneself]. Syntactic relations cannot cross sentence boundaries. Therefore, remote control cannot be syntactic binding, unless its remoteness is an illusion. Perhaps it is the case that in (13), PRO has a local controller that is silent and coreferential with the remote antecedent, as in (14). However, I will demonstrate that even if such elided material were in the structure, it still would not be able to explain all of the remote control facts without recourse to non-grammatical reference constraints such as those in Responsibility Theory. Therefore, remote control of RatCs must be discourse-mediated.

The reason [Rita interviewed Harry] was [PRO₁/*₂ to feel better about herself].

Second, I will argue that even local control in RatCs cannot be reduced to grammatical binding. To demonstrate this, I outline two modern approaches to control as prototypes of grammatical theories: the movement theory (Hornstein, 1999, 2001; Boeckx et al., 2010) and the two-tiered theory Landau (2015a,b). I will show that neither can adequately explain the range of possible controllers in RatCs. Instead, PRO in any RatC must be NOC, and its referent must be determined through Responsibility Theory. This means that there can be strong constraints on reference sensitive to structure that are not mediated by the grammar, and that there are cross-discourse constraints that are not information-structural, but conceptual.

The structure of the paper is as follows. First, I introduce the basic properties of local RatCs such as (12). I then present remote control of RatCs in §3, demonstrating that it cannot be reduced to a grammatical relation. In §4, I argue that even local control of RatCs cannot be grammatical, again concluding that only a non-grammatical account such as Responsibility Theory can capture all the data. Following, in §5, I detail the proposed version of Responsibility Theory and illustrate how it accounts for control of RatCs. Finally, §6 discusses some additional questions and implications, including a sketch of the semantics of Responsibility Theory, Responsibility Theory’s implications for the nature of the passive, and how Responsibility Theory fits into broader theories of control. §7 concludes.
2 Rationale clauses

RatCs provide a teleological explanation for the fact or proposition expressed by their target clause. In (15), for example, the RatC $\beta$ gives the reason or goal behind the target, i.e. the fact expressed by the target clause $\alpha$.

(15) [Harry$_1$ went into the forest]$_\alpha$ [in order PRO$_1$ to confront Voldemort]$_\beta$.

This section will discuss the range of possible referents PRO may have in a RatC. Although my examples will be of Local RatCs, the same interpretive restrictions apply in Remote RatCs, as will be discussed in §3. This section will largely be expository, with analysis of the data coming in later sections. I will demonstrate that PRO in a RatC can be controlled by the explicit subject of the target clause, but not by the object. It can also be controlled by unexpressed entities who can be seen as responsible for the fact expressed by the target clause, or by the target fact itself. Note that I am using “control” in a somewhat nontraditional way simply to refer to understood coreference between PRO and an antecedent, often labeled the “controller,” regardless of whether there is any grammatical dependency between the two.

In (15), PRO is controlled by the subject of the target clause Harry, meaning that Harry and PRO are coreferential; we understand that Harry is both the person who went into the forest, and also the one who is to confront Voldemort. PRO in a RatC can be controlled, then, by the explicit subject of the matrix/target clause. Control by the matrix object, on the other hand, is impossible. Given a context where sharks cover themselves with parasites, only (16a) can be used to mean that the sharks are having their gills kept clean. (16b) can only mean that the parasites themselves have gills that they intend to be kept clean (A. Williams 2015). The same effect is seen in (17), where the intended escaper must be understood as Dobby, and that protecting Harry would make it possible for Dobby to escape. (17) cannot be used to mean that Dobby protected Harry in order for Harry to escape. This is in contrast to when there is an overt pronoun as the subject of the complement clause. When PRO in (17) is replaced with him in (18), it is much more likely to refer to the object Harry than to Dobby.

(16) a. These sharks$_1$ cover themselves with parasites$_2$ [PRO$_{1/2}$ to have their gills kept clean].
    
    b. Parasites$_2$ cover these sharks$_1$ [PRO$_{1/2}$ to have their gills kept clean].

(17) Dobby$_1$ protected Harry$_2$ [in order PRO$_{1/2}$ to escape from the Malfoys].

(18) Dobby$_1$ protected Harry$_2$ [in order for him$_{2/1}$ to escape from the Malfoys].

In at least some cases, when the object is promoted to subject position, as in a passive, it can control PRO. In other words, surface subjects can control PRO, even if that subject was underlyingly an object.
In the passive (19a), one possible reading is that Sam got himself arrested so that he (Sam) could get off the streets. This reading, with Sam controlling PRO, is only possible when Sam is seen as intending to be arrested and to be somehow responsible for the arrest. In the words of Zubizarreta (1982), he must be viewed as the “secondary agent” of the arrest. Note, though, that the secondary agent reading is only available for the subject of a passive. It is impossible for the object Sam to be understood as a secondary agent in the active version in (19b).

(19) a. Sam₂ was arrested (by the cops₁) [just PRO₁/₂ to get him/himself off the streets].
    b. The cops₁ arrested Sam₂ [just PRO₁/*₂ to get him/*himself off the streets].

PRO in (19a) can refer to Sam, but it can also refer to the agents of the arrest, i.e. the cops. As A. Williams (2015) puts it, PRO can be controlled by a subject of the target clause, whether the surface subject, or what he calls the deep subject, i.e. the entity that would have been the surface subject had the sentence been active. Control by a surface object is impossible.⁴

In addition to control by the explicit subject of the target clause, PRO in a RatC allows implicit control. In (18a), it is not necessary to include by the cops in order to get the reading that whoever arrested Sam was doing it so that they might get him off the streets. Similarly in (20), PRO is controlled by the entity corresponding to the deep-subject role of the predicate sank the boat, i.e. the sinker. This control relation is implicit because PRO is bound by no audible dependent (whether the controller is still syntactically present is a matter of much debate and will be discussed in §6.2). Thus, even when the deep subject role is unrealized on the surface, it is available as a controller for PRO in a RatC.

(20) The boat was sunk [PRO to collect the insurance]. (Roepere, 1987)

Furthermore, RatCs allow what I will call super-implicit control, where PRO is understood as referring to an entity not named by any arguments of the target predicate, whether explicit or implicit. In these cases, the controller is not syntactically related to the target predicate at any point. For example, the passive in (21) can be used to describe a situation where a certain political group had a young girl cut a ribbon so that that group could gain support. PRO can refer to the organizers of the event even when they can in no way have been represented syntactically as part of the sentence (A. Williams 2015). This is also true for the active form if stress is placed on a young girl (22).

(21) The ribbon was cut by a young girl [just PRO to acquire the support of female voters].

⁴Compare to the seemingly similar purpose clause, which allows object control (Faraci, 1974; Jones, 1991; Whelpton, 2002):
(i) **Object-oriented purpose clause:**
    We brought John₁ along [PRO₁ to talk to Mary].
A young girl cut the ribbon [just PRO to acquire the support of female voters].

However, although superimplicit control is possible in some instances, it is not always. Suppose that Jon hired a crook to burn his house down so that he (Jon) could later collect on the insurance policy. In such a situation, even when Jon is understood as the organizer/responsible party behind the crook’s actions, it is difficult or impossible to understand a speaker, in using (23), as meaning that the intended collector of the insurance is Jon, and not the crook he hired.

(23) A hired crook\textsubscript{1} burned down the house (for Jon\textsubscript{2}) [in order PRO\textsubscript{1}/\textsubscript{2} to collect the insurance].

Finally, PRO in a RatC can also refer to the target fact itself. For example, in the famous example from E. Williams (1974) given in (24) (and also discussed in E. Williams (1985) and Lasnik (1988), a.o.), it is not the grass that is promoting photosynthesis. Instead, the promoter of photosynthesis is the fact itself that grass is green.

(24) [Grass is green\textsubscript{1}] [PRO\textsubscript{1} to promote photosynthesis].

In sum, PRO in a (local) RatC can be controlled by (i) the surface subject of the target clause, but not the object, (ii) the understood demoted subject of a passive, (iii) other agents who can be understood as responsible for the fact expressed by the target clause, or (iv) the fact expressed by the target clause. As will be discussed in detail in §5, Responsibility Theory attempts to explain these possibilities by proposing that PRO in a RatC can only refer either to the party responsible for the target fact, or to the target fact itself.

## 3 Remote control

The previous section outlined the possible referents for PRO in Local RatCs. This section will discuss Remote control of RatCs. Remote control (Dowty 1989; Sag and Pollard 1991; A. Williams 2015) is a dependency between PRO and its understood antecedent when the antecedent is outside the syntactic domain of PRO. This can occur in a variety of contexts (25) when a non-finite clause such as a RatC (25d) appears as the complement to the copula in a specificational sentence (Higgins, 1973), with the subject of the sentence being closely related to a relevant prior sentence or one of its arguments. For the Remote RatC in (25d), the subject of the specificational sentence refers to the reason for the target fact expressed by the preceding sentence.

(25) a. Jon\textsubscript{1} made a promise. It was PRO\textsubscript{1} to shave himself. (Dowty, 1989)
b. Sandy wanted something. It was PRO to leave the party.

c. Jon commanded Sara to do something. It was PRO to go home.

d. Jon sank the boat. The reason was PRO to collect the insurance.

In the Remote RatC in (25d), PRO is understood as coreferential with Jon, just as it would be in a Local RatC. Indeed, all the same restrictions on reference seen for PRO in Local RatCs also apply to the referent of PRO in Remote RatCs. Just like in Local RatCs, PRO in a Remote RatC can be controlled by the subject of the target clause, but not the object (26a-b). Remote RatCs also allow control by the implicit demoted subject of a passive (26c) and superimplicit control (26d). When superimplicit control is blocked in Local RatCs, it also is in Remote RatCs (26e). Finally, control by the target fact is still available (26f).

After a brief discussion of some other properties of Remote RatCs, I will argue that grammatical theories of control are unable to account for Remote Control of RatCs, and that a non-grammatical theory such as Responsibility Theory is required.

(26)  

a. Dobby protected Harry. The goal was [PRO /* to escape from the Malfoys].

b. Sam was arrested by the police. The reason was [just PRO to get himself off the streets].

c. The ship was sunk. The reason was [PRO to collect the insurance].

d. The ribbon was cut by a young girl. The goal was [PRO to acquire the support of female voters].

e. A hired crook burned down the house. The reason was [PRO /* to collect the insurance].

f. [Grass is green.] The reason is [PRO to promote photosynthesis].

3.1 Some additional properties

Although the referential constraints on PRO in a Remote RatC seem to parallel those in Local RatCs, in several other ways, Remote RatCs do not behave as if they were local. Elements embedded within the target clause cannot scope over Remote RatCs like they do in Local RatCs. As demonstrated for Local RatCs in (27), negation in the target clause can license an NPI in the RatC (27a), and both negative and positive quantifiers in object position of the target clause can bind a variable in the RatC (27b-c).

(27)  

a. The coach did not approach the team in order to give them any advice.

b. The coach approached [no member of the team] in order to give him advice.

c. The coach approached [every member of the team] in order to give him advice.

This is only possible for readings where negation scopes over the RatC. In a situation where one is asking why the coach did not approach the team, it is infelicitous to answer with (27a), which can only be used to answer the question “What didn’t the coach do?” or as a contradiction to a claim that the coach did
approach the team to give them some advice. Similarly, (27b) cannot be used to answer a question about why the coach approached no member of the team, in which case variable binding into the RatC is impossible (28).

(28) *The coach approached [no member of the team] in order not to intimidate him.

Remote RatCs do not demonstrate the same scope ambiguities. An NPI in a Remote RatC cannot be licensed by negation in the target clause under any context (29a), and negative quantifiers in object position in the target clause cannot bind variables in the RatC (29b). In other words, negation in the target fact can scope over Local RatCs, but not Remote RatCs. We do see apparent variable binding by every into Remote RatCs (29c), but this is also possible in local RatCs when the RatC scopes high ((27c) can be used felicitously even in answer to the question “Why did the coach approach every member of the team?”). It is therefore likely that the apparent variable binding by every member of the team in (27c) when the RatC scopes high and in (29c) is due to special properties of every, rather than something to due with RatCs.

(29) a. *The coach did not approach the team. The reason was to give them any advice.
   b. *The coach approached [no member of the team]. The reason was to give him advice.
   c. The coach approached [every member of the team]. The reason was to give him advice.

Geurts (2011) discusses examples with every such as (30a) from Karttunen (1976) to introduce what he calls “piggyback anaphora” (these effects have also been called “telescoping” of quantifiers (Roberts, 1987)). One reading of (30a) is that Harvey courts a different girl at every convention, and each of them went to a ball with him. She behaves like a variable bound by a girl within the scope of the universal quantifier. Piggyback anaphora in (29c) would also explain the lack of binding effects in Remote RatCs with negative quantifiers (29b). Negative quantifiers do not allow piggyback anaphora, as illustrated in (31).

(30) Harvey courts [a girl] at every convention. She always comes to the ball with him.

(31) a. *Harvey courts [no girl] at every convention. She always comes to the ball with him.
   b. *Harvey courts [a girl] at no convention. She always comes to the ball with him.

If (29c) is an instance of piggyback anaphora, then it is an exception to the otherwise correct generalization that there is no grammatical binding into Remote RatCs from elements within the target clause.
3.2 Grammatical theories of control and Remote RatCs

Because PRO in RatCs, even in Remote RatCs, can refer to the subject, but not the object of the target clause, a grammatical account of control seems particularly suited. A subject/object asymmetry is a prime candidate for syntactic explanation. However, note that in remote control, PRO and its understood antecedent are in separate sentences. This is a major problem for syntactic and other grammatical theories of control, since, by definition, syntactic dependencies must be within a single sentence. Because of this, A. Williams (2015) gives remote control of RatCs as evidence against the need for a grammatical dependency between PRO in a RatC and its understood antecedent. In order to maintain a grammatical account of control in Remote RatCs as an explanation of the subject/object asymmetry would require that the remoteness of remote control is an illusion, and PRO in a Remote RatC is bound by some sort of silent constituent, a possibility that Williams does not discuss. The underlying structure of a Remote RatC such as (32), for example, could be something like one of the options in (33), although this would still not allow the antecedent to c-command PRO, as is generally required for syntactic control (E. Williams 1980; Chomsky 1981; Landau 2004).

(32) Harry broke into the ministry. The reason was [PRO to save Sirius].

(33) a. [DP Harry [D′ The reason]] was PRO to save Sirius.
    b. The reason [Harry broke into the ministry] was PRO to save Sirius.

Unless there is some covert binder in the Remote RatC, as in (33a-b), a possibility I will examine in some detail and reject below, PRO is not in the same syntactic domain as its controller and there can be no syntactic or semantic dependency between the two. Since, as I will argue, there is no hidden binder in a Remote RatC, grammatical accounts of control of Remote RatCs must be rejected. Instead, this must be a case of non-grammatical control. PRO must be something like a free pronoun whose domain of reference is restricted by Responsibility Theory such that Harry is the only possible referent. In the following subsections, I discuss the ellipsis proposals in (33), concluding that neither can account the remote control facts. Responsibility Theory is therefore required to account for Remote RatCs.

3.2.1 Ellipsis of a specifier

One way to attempt a grammatical account of control of Remote RatCs is to posit elided material in the specifier of the subject of the specificalational sentence containing the Remote RatC as in (34).

(34) Jon sank the boat. [DP Jon [D′ The [NP reason]]] was PRO to collect the insurance.
This is similar to Roeper’s (1987) theory of PRO in the subject of NP, which he used to account for control out of nominals such as in (35). In a DP framework, PRO would be the specifier of D. PRO being in this position is consistent with Roeper’s judgment for (36); when the specifier of D is occupied by another element, control out of the nominal is impossible.\(^5\)

\[(35) \text{the PRO}_1 \text{destruction of the city [PRO}_1 \text{to prove a point].} \quad \text{(Roeper, 1987:280)}\]

\[(36) \ast \text{[DP [DP the city]'s [NP destruction [RatC PRO to prove a point]]]} \quad \text{((Roeper, 1987:280), adapted)}\]

The specifier ellipsis account would need to take this one step further, assuming that instead of PRO, DPs can have other silent specifiers, such as the elided DP in (34). The specifier-ellipsis account would put PRO in the same sentence as its antecedent, which is crucial for any binding account of control (although I will show that they are still not in the same syntactic domain). It also would potentially provide a unified account of other instances of remote control. In the examples in (25), the pronoun *it* could have an elided specifier as well. According to Elbourne (2013), *it* is a determiner with a silent NP. Also including an elided specifier would give the *it* of (25a), for example, the structure in (37).

\[(37) \text{[DP Jon [D} \text{It [NP promise]]]}\]

However, there are at least three reasons to reject the specifier-ellipsis account. The biggest problem is that it is unable to independently rule out control by the object. As demonstrated above in (26a), repeated in (38), Remote RatCs generally do not allow control by the object of the controlling clause.

\[(38) \text{Dobby}_1 \text{protected Harry}_2. \text{The goal was [PRO}_1/*2 \text{to escape from the Malfoys].}\]

But if all that is required for ellipsis of the specifier is identity with a DP antecedent, the account provides no reason why the example in (38) should not be able to have the structure in (39), with an elided specifier in identity with the object of the preceding clause.

\[(39) \ast \text{Dobby protected Harry}_1. \text{[DP [DP Harry]}_1 \text{The reason] was PRO}_1 \text{to escape from the Malfoys.}\]

In order to explain the restrictions on which DPs can serve as antecedents for ellipsis, this account would need to simply stipulate that the elided DP can only have as its antecedent the (deep) subject of the target clause or the party explanatorily responsible for the fact it expresses. Thus, while it would account for the referent of PRO syntactically, it is really only moving the problem to a higher null category (the elided specifier). Something like Responsibility Theory would still be necessary to restrict which DPs could appear

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\(^5\)I disagree with this judgment. It is especially improved when placed in a sentence such as (i).

\[(i) \text{[The city's destruction (just) to prove a point] was cruel.}\]

Whatever the status of (36) and (i), it does not directly effect whether there could be an *elided* specifier of D.
as antecedents, and it is not clear that specifier ellipsis would add anything significant.

A second problem for the specifier ellipsis account is one of c-command. Even though PRO and its antecedent are in the same sentence, the elided material in a structure such as (34), illustrated in (40), is embedded within a DP, and hence does not c-command PRO.

\[ (40) \]
\[
\begin{array}{c}
\text{XP} \\
\downarrow \text{DP} \\
\downarrow \text{D'} \\
\text{The reason was PRO to collect...}
\end{array}
\]

Indeed, it is not clear any syntactic binding relation can hold between a specifier in the relevant position and anything in the complement of the copula. In (41), the specifier Victor is unable to bind the reflexive himself. Even a reflexive in a picture-NP, which generally can be good even without a c-commanding antecedent (Postal, 1971) cannot take the specifier of the subject as an antecedent (42) (although see Pollard and Sag (1992) for arguments that picture-NPs do not require a syntactic dependency in the first place).

\[ (41) \] Victor’s heart attack was a benefit to him/??himself.

\[ (42) \] Lin’s_1 downfall was that image of him_1/??himself_1 on the wall. (A.W., p.c.)

Finally, the third problem is that ellipsis of a specifier is not obviously licensed. The literature has discussed two requirements for ellipsis: an identity requirement (Chomsky (1965); Sag (1976); a.o.), and a licensing head (Lobeck, 1995; Saito and Murasugi, 1990). Identity with an antecedent is easily met (although as discussed there must be additional restrictions on what can serve as the antecedent). In (34), for example, the specifier is identical with the subject of the preceding clause. The requirement for a licensing head runs into problems, though. According to Lobeck (1995), the ellipsis site “must be properly head-governed, and governed by an X-0 specified for strong agreement” (Lobeck, 1995:41), where ‘strong agreement’ is defined as agreement that is morphologically realized in a productive number of cases. Lobeck relies on Chomsky’s (1986) definitions for government and proper government given in (43).

\[ (43) \]

a. **Government**

a governs b iff a m-commands b and there is no y, y a barrier for b, such that y excludes a.

b. **Proper Government**

b is properly governed by a iff a theta-governs or antecedent governs b

i. **Theta-Government**
a theta-governs b if a is a zero-level category that theta-marks b, and a, b are sisters

(ii) Antecedent-Government

a antecedent-governs b iff a is coindexed with b and no barrier intervenes between a and b.

In order for the specifier to be elided under this approach, it would need to be properly head governed, i.e. it must be either theta-governed or antecedent-governed by a head specified for strong agreement. There is no syntactically accessible antecedent that could govern the specifier, and although D may be specified for strong agreement with N, it head-governs but does not theta-mark its specifier, and the two are not sisters. Therefore, the specifier is not properly head-governed, and Lobeck’s requirements for ellipsis are not met. Even removing government as part of the licensing definition does not help. Lobeck (1995) and Saito and Murasugi (1990) agree that the agreeing functional head can only license the ellipsis of its complement; proper head government is only one way to accomplish this. Since the proposed elided constituent is the specifier of D, the ellipsis is not licensed.

For these reasons, a specifier ellipsis account of remote control must be rejected.

3.2.2 Relative clause ellipsis

We have just seen that specifier ellipsis cannot account for remote control. Our next attempt at a syntactic account will be relative clause ellipsis, illustrated in (44). However, this attempt will also prove insufficient.

(44) Jon sank the boat. [DP The reason [RelC Jon sank the boat]] was PRO1 to collect the insurance.

In (44), ellipsis of the relative clause would be under identity with the target clause (although as will be discussed below, it is not clear that their surface identity is sufficient). Through ellipsis, the remoteness of remote control would be removed. This is true for both Remote RatCs and other cases of remote control. Again assuming an Elbourne account of it, but without the elided specifier discussed above, the remote clause in (25a) would have the structure in (45).

(45) [DP It [NP promise Jon1 made]] was PRO1 to shave himself.

On the surface, this account seems to suffer from the same c-command problem as specifier-ellipsis did. In (44), the elided antecedent is embedded in a relative clause that does not c-command PRO. This is a challenge for the relative clause ellipsis account, but it is one that is general to all specificational sentences (Higgins, 1973; Heycock and Kroch, 1999). Although in each of the examples in (46) the reflexive is not, on the surface, c-commanded by its antecedent, it still seems to be licensed, and a non-reflexive pronoun in the same position is ungrammatical. Therefore, whatever allows binding to occur in these examples may also
explain the c-command problem in (44).

(46)  a. What Jon has is proud of himself/*him.
     b. The way Lee disturbs people is with images of herself/*her.
     c. The thing Jon likes is that picture of himself/*him

There are several reasons to doubt a relative clause ellipsis account. The first is that there are cases of Remote RatCs where relative clause ellipsis will not help. For example, when the reason is replaced with the goal, the relevant relative clause cannot occur.

(47)  a. Jon sank the boat. The goal was PRO to collect the insurance.
     b. *The goal [(that) Jon sank the boat] was to collect the insurance.

It is possible that the underlying structure is something more like (48), but then the material to be elided is no longer identical to its antecedent, and it is not clear that its elision would be licensed, if identity with an antecedent is required. Even if we suppose that this relative clause is close enough to identical with the target clause to license ellipsis (cf. Ross (1969) for similar examples), binding out of this specifier position is impossible (49).

(48)  Jon sank the boat. The goal [of Jon’s sinking the boat] was PRO to collect the insurance.

(49)  a. What Paul’s sinking the boat did was make him/*himself happy.
     b. Paul’s sinking the boat made him/*himself happy.

In addition, a pronoun can take the place of the ellipsis site in examples such as (50).

(50)  Jon sank the boat. The reason/goal behind it was PRO to collect the insurance.

Again, even assuming that pronouns can have unpronounced subjects (and other content), binding out of the complement of a preposition in this position is impossible (51). Therefore, there seems to be no place to put elided content to get the proper configuration for syntactically controlling PRO.

(51)  The best evidence for Lin’s improvement is that image of him/*himself on the wall. (A.W., p.c.)

Furthermore, Remote RatCs, just like Local RatCs, do not require a syntactically expressed antecedent. In (26d), repeated in (52a), PRO may be understood as whoever organized the event. In this and other cases of superimplicit control, the relative clause ellipsis illustrated in (52b) will do nothing to allow the understood antecedent to syntactically bind PRO.

(52)  a. The ribbon was cut by a young girl. The goal was [PRO to acquire the support of female voters].
b. The goal [of the ribbon’s being cut by a young girl] was PRO to acquire the support of the female voters.

Finally, it is not clear that the relative clause ellipsis in (44) is licensed. Although the elided relative clause is, on the surface, identical with a preceding clause, they do differ structurally. Howard Lasnik (p.c.) notes that the structure of the relative clause is likely more complicated than what is shown in (44). Following a proposal by Larson (1987) dealing with temporal adjuncts, the relative clause would be headed by a null operator that binds an empty category in the structure where a RatC would be, as in (53).

\[(53) \quad \text{The reason } \left[ \text{RelC Op}_1 \left[ \text{Jon} \left[ \text{sank the boat} \right] \epsilon_1 \right] \right] \ldots \]

This is intended to capture the fact that (54) can either express the reason why Mary said something, as with the continuation in (a), or the reason behind the fact she is reporting, as in (b).

\[(54) \quad \text{The reason } \left[ \text{CP}_1 \text{Mary}_1 \text{ said } \left[ \text{CP}_2 \text{ Jon}_2 \text{ sank the boat} \right] \right] \text{ was}
\]

a. PRO$_1$ to get him arrested.

b. PRO$_2$ to collect the insurance.

When the variable bound by the null operator is in the higher clause, the former reading results, and when it is in the lower, it is the latter. Due to the presence of the null operator and the variable in its structure, the elided relative clause is not identical to its antecedent clause, and ellipsis may not be licensed. However, as there is some debate over how strict the identity requirement for ellipsis is (see, for example, Ross (1969); Wyngaerd and Zwart (1999); Merchant (2001)), the differences here may be insignificant enough to not interfere with ellipsis.

Even so, the requirement for a licensing functional head is also not clearly met. Ellipsis of a relative clause could possibly be licensed by N, which strongly agrees in $\phi$-features with (at least) the D head, and which may properly govern the relative clause if we assume that N $\theta$-marks it. However, this would be a strange assumption to make, and ellipsis is generally only licensed by agreeing functional heads, which N is not. Because of this, even though there are cases where relative clause ellipsis could potentially explain remote control, such ellipsis is not licensed, and therefore should be impossible.

The major objections outlined in this section against a relative clause ellipsis account have focused on the fact that there are instances of remote control of RatCs that it cannot explain, such as (47a) and (50). Therefore, an independent, non-grammatical account is already needed to explain at least these examples. Because this non-grammatical explanation is independently required, a simpler theory would be to rely on it for the interpretation of PRO in all Remote RatCs. Furthermore, even in instances where material in
a relative clause could in principle be syntactically connected to PRO, ellipsis of this relative clause does not appear to be licensed according to established requirements (Lobeck, 1995; Saito and Murasugi, 1990). Therefore, positing grammatical control of PRO in Remote RatCs is not only less elegant than a unified non-grammatical account such as Responsibility Theory, a grammatical account is also simply untenable.

3.3 Summary of remote control

Responsibility Theory can account for control of Remote RatCs in the same way that it accounts for Local RatCs, as will be shown below. No additional stipulations are required. In contrast, grammatical accounts would need to posit some sort of elided material in order to put the controller in the same syntactic domain as PRO. This is impossible. Even if such ellipsis were licensed, the elided material would not be in a position to bind PRO. Grammatical accounts, then, cannot explain remote control of RatCs, and a non-grammatical account such as Responsibility Theory is required. In the next section, I will demonstrate that grammatical theories of control also fail to explain Local RatCs.

4 Local control

As will be discussed in §5, Responsibility Theory is able to account for local and remote control of RatCs using the same assumptions. Because grammatical accounts of control cannot capture Remote RatCs, positing such an account for Local RatCs is less elegant than the unified account Responsibility Theory offers, and it requires treating Local and Remote RatCs as different phenomena, despite their similar characteristics. This section will argue that grammatical accounts of Local RatCs are not only less economical, but they also make incorrect predictions. To demonstrate this, I will outline two leading theories of control as prototypes of all grammatical theories: the movement theory (MTC) (Hornstein, 1999, 2001; Boeckx et al., 2010) and the two-tiered theory (TTC) (Landau, 2015a,b). Because RatCs are a case of adjunct control, I will make special note of how these theories handle it. After this brief review of the general mechanics of the theories, I attempt to apply them to Local RatCs and their interpretive restrictions as discussed in §2. I will conclude that neither the MTC nor the TTC is sufficient. This serves as additional evidence that control of RatCs is not the result of a grammatical dependency between PRO and its controller.

4.1 The movement theory of control

Hornstein (1999, 2001) and Boeckx et al. (2010) present a theory of control called Control as Movement, or the Movement Theory of Control (MTC). This theory is based in the Minimalist Program of Chomsky
(1995), and is prototypical of many syntactic theories of control in that it establishes a specific syntactic dependency (in this case movement) between PRO and a c-commanding antecedent.

The MTC allows a DP chain to receive more than one θ-role, in contrast to previous theories assuming a traditional θ-criterion (Chomsky, 1981) limiting DPs to a single role. OC is the result of movement from one θ-position to another. A DP-trace is called ‘PRO’ when it occurs in the lower θ-position, but the term ‘PRO’ has no other theoretical significance. This movement is constrained by general principles of economy. Only when it is blocked can NOC occur. (55) illustrates how this works. Here, Jon moves from the subject position of the embedded buy to the subject position of the matrix want, receiving the θ-feature of both verbs. In this way, Jon is understood as both the wanter and the buyer in the sentence.

(55) Jon\textsubscript{1} wants [Jon\textsubscript{1} to buy a car].\textsuperscript{6}

Adjunct control in the MTC is handled with the same mechanism, i.e. the controlled element and the controller are two links in an A-chain. The only difference is that adjunct control requires what has been called \textit{sideways movement} (Nunes, 1995), in which an element can move from one syntactic object to the root of another within a single derivation, as illustrated in (56).\textsuperscript{7}

(56) \textit{Derivation of adjunct control} (simplified from (Boeckx et al., 2010:88))

\begin{enumerate}
\item \textit{Applications of select, merge, and copy}:
  \begin{itemize}
  \item Num = John\textsubscript{0}, T\textsubscript{φ+1}, saw\textsubscript{0}, Mary\textsubscript{0}, after\textsubscript{0}, T\textsubscript{φ−0}, eating\textsubscript{0}, lunch\textsubscript{0}
  \item PP = [after John T\textsubscript{φ+} eating lunch]
  \item VP = [saw Mary]
  \item N = John
  \end{itemize}
\item \textit{Copying of ’John’}:
  \begin{itemize}
  \item PP = [after John T\textsubscript{φ+} eating lunch]
  \item VP = [saw Mary]
  \item N = John
  \end{itemize}
\item \textit{Merger of John and VP}:
  \begin{itemize}
  \item PP = [after John T\textsubscript{φ+} eating lunch]
  \item VP = [John saw Mary]
  \item N = John
  \end{itemize}
\item \textit{Applications of select, merge, and copy, and deletion in phonological component}:
  \begin{itemize}
  \item Num = John\textsubscript{0}, T\textsubscript{φ+}, saw\textsubscript{0}, Mary\textsubscript{0}, after\textsubscript{0}, T\textsubscript{φ−}, eating\textsubscript{0}, lunch\textsubscript{0}
  \item TP = [John [T\textsubscript{φ+} [VP John saw Mary][PP after John T\textsubscript{φ−} eating lunch]]]
  \end{itemize}
\end{enumerate}

This analysis provides a simple explanation of the fact that adjunct control has the same properties as

\textsuperscript{6}This derivation has been greatly simplified. Jon\textsubscript{1} would be merged as the specifier of a little \textit{v} in the embedded clause, receiving the external θ-role of \textit{buy}. It would then move to the embedded spec-TP for EPP reasons, then to the matrix \textit{v}, receiving the external θ-role of \textit{want}, and finally to spec-TP of the matrix clause, for Case and EPP.

\textsuperscript{7}These derivations use machinery of the Minimalist Program. ‘Num’ refers to the Numeration Chomsky (1995).
obligatory complement control, which are signature properties of A-movement/chains (57).

(57) **Signature properties of OC:**

    a. **OC PRO requires a local c-commanding antecedent:**

        (i) Complement control:
            Jon$_1$ said [that [Mary$_2$’s brother]$_3$ managed [PRO$_{3/1/2/4}$ to eat a bagel]]

        (ii) Adjunct control:
            John$_1$ said [that [Mary$_2$’s brother]$_3$ left [after PRO$_{3/1/2/4}$ eating a bagel]]

    b. **OC PRO only licenses sloppy readings under ellipsis:**

        (i) Complement control:
            John$_1$ wanted PRO$_1$ to leave, and Bill$_2$ did too.
            ‘and Bill$_2$ wanted PRO$_{2/1}$ to leave’

        (ii) Adjunct control:
            John$_1$ left before PRO$_1$ singing and Bill did too
            ‘and Bill$_1$ left before he$_1$/*John sang’

    c. **OC PRO can only have a bound interpretation when controlled by only-DPs:**

        (i) Complement control:
            Only Churchill remembers PRO giving the BST speech.
            ‘Only Churchill remembers himself/{that he} gave the speech.’

        (ii) Adjunct control:
            Only Churchill left after PRO giving the speech
            ‘[Nobody else]$_1$ left after he$_1$/*Churchill gave the speech’

The MTC has several benefits. Notably, it allows for a simplification of the taxonomy of empty categories by removing PRO as a separate entity. Instead it is a DP trace (for NOC, PRO is said to be the null pronoun pro, which is well-known in pro-drop languages). It also removes the need for a separate control module of the grammar. In regard to Local RatCs, I will demonstrate that the MTC is able to account for cases of subject control through movement. It also allows for some cases of superimplicit control through pronominalization (NOC) when subject control is unavailable, but must depend on pragmatic principles such as those in Responsibility Theory for the interpretation of pro in these cases. The MTC furthermore incorrectly rules out other cases of superimplicit control, and it wrongly rules-in certain cases of object control.
4.2 The Two-tiered theory of control

The second example of a grammatical binding theory of control I will discuss is the two-tiered theory of control (TTC) introduced in Landau (2015b) and further discussed in Landau (2015a). This theory is a hybrid of classic syntactic theories relying on binding of PRO by its antecedent and semantic theories relating the controlled clause to the antecedent via predication. Although it disagrees with the MTC in the specific implementation of control, both theories rely on some sort of syntactic dependency between what is traditionally known as PRO and its controller in order to establish OC.

Landau suggests that control comes in two flavors: what he calls predicative and logophoric control. Logophoric control occurs with attitude predicates, and predicative with non-attitude predicates. In either case, PRO is held to be a “minimal pronoun” with unvalued \( \phi \)-features that, depending on the derivation, can surface as controlled PRO, a reflexive, a bound lexical pronoun, a resumptive pronoun, or other types of pronouns. This minimal pronoun will inherit whatever \( \phi \)-features its binder is specified for, but carries no semantic content on its own. In both predicative and logophoric control, a non-finite TP containing this minimal pronoun is the complement of a predication head (\( Fin \)), as illustrated in (58). This \( Fin \) has an uninterpretable \([uD]\) feature, which attracts PRO to its specifier. Because movement automatically causes \( \lambda \)-abstraction (Heim and Kratzer, 1998), as PRO raises to spec-FinP, it creates a \( \lambda \)-predicate. But, due to its radical impoverishment and lack of semantic content, Landau states that upon movement, PRO does not saturate the \( \lambda \)-variable. The embedded FinP thus comes to denote a property; in (58), it is the predicate \( \lambda x. x \text{ stay healthy} \). As will be illustrated, this property is either attributed to the matrix controller (through the semantics of the matrix verb when the controller is the subject) in predicative control or directly to an intermediate null pronoun that is bound by the matrix controller in logophoric control.

\[
(58) \quad \text{a. PRO to stay healthy}
\]

\[
\begin{array}{l}
\text{b. FinP} = \lambda x. x \text{ stay healthy} \\
\text{TP} \\
\text{FinP[uD]} \\
\{D, \phi\} = \text{PRO2} \\
\text{PRO2} \\
\text{T'}
\end{array}
\]

In predicative subject control, illustrated for (59) in (60), the FinP merges directly with the matrix verb.
Landau states that the property denoted by the FinP is then “applied” directly to the subject, but what he must mean is that the matrix verb in (60) takes the controlling subject as its second argument, and the result entails that the subject’s referent is in the *manage* relation to the property denoted by the FinP.

(59) John managed to stay healthy.

\[
(60) \hspace{1cm} \textit{Derivation of predicative subject control} \quad \text{(Landau, 2015b:26)}
\]

Predicative object control is similar, with the FinP being “applied” as a small clause predicate to the matrix object, in Landau’s metaphorical sense of the term.

In logophoric control, which occurs with attitude verbs, the predicate denoted by the FinP applies—this time in the literal sense, with the predicate combining with its sister as a function applying to an argument—to an intermediate null pronoun that is bound by the matrix controller. This is illustrated for the sentence (61) in (62).

(61) John intends to visit Athens.

\[8\] The structure of *pro* in Landau’s derivation is in fact more complicated than this. The additional structure is intended to capture the *de se* properties of OC PRO in logophoric control. It also contains a projection of the context variables. Because a discussion of the *de re/de se/de te* properties of PRO is outside the scope of this paper, I have attempted to simplify the derivation slightly.
The pro in Spec-CP in (62) to which the property in FinP applies is required based on the properties of the complementizer. Following Schlenker (2003) and others, Landau (2015a,b) claims that attitude verbs act as quantifiers over sets of contexts, where a context is a tuple of coordinates $i = \langle x,y,\text{TIME}(i),\text{WORLD}(i) \rangle$. Because the attitude verb specifies the context with respect to which its complement is to be evaluated, these coordinates correspond to the attitude holder (the “author” of the attitude), the addressee of the attitude if one is present (e.g. the object Mary in (64)), and the time and world of evaluation of the complement. The coordinates of the context tuple $i$ are said to be “arguments” of the embedded complementizer, in an extension of the term’s usual sense. Finally, the complementizer is said to have an uninterpretable $[uD]$ feature that can be satisfied by the projection of either the $x$ or $y$ argument (the author or the addressee of the attitude) from the context tuple to spec-CP as a null pro. In (62), C has projected its author (attitude holder) variable (in this case, there is no addressee variable), which is then bound by the matrix subject, the
author of the attitude. In this indirect way, the sentence in (62) comes to entail that John has the property of visiting Athens in all worlds compatible with John’s intentions in the actual world.

It is important for Landau that the C is required to project either the author or the addressee variable to its specifier to check its \([uD]\) feature. Which variable is projected is not lexically specified. Therefore, for a predicate such as *ask* in (63), which contains both an author and an addressee, the property denoted by FinP should be able to apply to either. This allows for well-known cases of control shift. In (63a), *pro* is bound by the author, and in (63b), by the addressee.

(63) a. Jim asked Mary\(_y\) [CP *pro\(_y\)* [FinP PRO to leave]].
   b. Jim\(_x\) asked Mary [CP *pro\(_x\)* [FinP PRO to be allowed to leave]].

In sum, complement control consists of a FinP denoting a property being associated either with the matrix controller in predicative control, or with an intermediate pronoun which is bound by a matrix argument in logophoric control. Similarly, Landau (2015b) states that adjunct control also falls into these two categories. For predicative adjuncts such as those in (64), the property denoted by the finite clause is attributed to the subject, it being the next highest DP. Landau gives no further details on this, and it is not immediately clear how it would work, since temporal adjuncts such as *before* do not seem to denote relations between individuals and properties, but rather a relation between events.

(64) _Predicative adjuncts_ (Landau, 2015b:84)

a. This book\(_1\) was out of print [before PRO\(_1\) becoming a bestseller last summer].
   b. The crops\(_1\) are harvested [only PRO\(_1\) to rot in the barns].
   c. Around here, it\(_1\) always snows [before PRO\(_1\) raining].

In any case, there are reasons to believe that control of Local RatCs is not predicative. First, if it were predicative, and assuming that the RatC attaches above the object, following Jones (1985, 1991) and Whelpton (2002), the controller of PRO would always be the subject of the matrix clause because it will be the next available argument to which the predicate could be assigned. Other controllers would be impossible. For example, Landau (2015b:69) explicitly discusses that there can be no predicative control by the implicit arguments, citing the examples in (65), the type of which was discussed at least as early as E. Williams (1980), and later in Safir (1983) and Chierchia (1989).

(65) a. John ate *(the meat) raw.
   b. I am now hiring *(people) [for John to work with].
   c. The room was left *(angry at the guests).
But, as illustrated in §2, with examples repeated in (66), other controllers are possible, including the implicit denoted subject of a passive (66a). Even if some solution for this were found, predicative control is still completely unable to account for superimplicit control (66b), since the entity of whom the RatC is predicated is uncontroversially absent from the sentence.

(66) a. The ship was sunk [in order PRO to collect the insurance].
b. The ribbon was cut by a young girl [in order PRO to acquire the support of female voters].

The second problem for a predicative account of RatCs is that the in order head intervenes between the property denoted by the embedded clause and the subject. Because of this, the in order head in sentences such as (67a) would have to take a property as its first argument and the matrix subject as another in order to achieve a compositional semantics, with no ugly complications. But for RatCs with a lexical subject such as in (67b), in order would need to take a proposition as its first argument, and taking the matrix subject as a second argument would be unnecessary. Although it is not impossible, this ambiguity in the semantics of in order is inelegant and undesirable.

(67) a. Jon left in order [PRO to be alone](e,t).
b. Jon left in order [for Bill to be alone](t).

Furthermore, in order in (67a) does not just express a relation between the RatC and the matrix subject. It expresses a relation between the RatC and the entire target clause, and it certainly is not clear how in order could take both the target clause and its subject as arguments.

Although predicative control is not a viable option for RatCs, there are also logophoric adjuncts. In logophoric control, PRO is always bound by a second null pro within the embedded clause. In this case, in order would select something like a proposition in both examples in (67). Landau claims that logophoric control occurs in attitude contexts, and RatCs have attitudinal aspects inasmuch as they introduce the intended result of the responsible party, so it would make sense for control of RatCs to be logophoric in Landau’s sense. Crucially, though, it cannot be logophoric in the way the term has traditionally been used (by E. Williams (1992), for example). Whelpton (2002) gives several arguments that control of RatCs cannot be logophoric. One reason is that PRO in a RatC need not refer to the logophoric center of the discourse. In Icelandic, for example, sér is a long-distance reflexive that refers to the logophoric center (the source/self). In (68), sér does not refer to the most local subject, but to the logophoric source/self. However, when the embedded verb is modified with a RatC, its PRO must refer to the most local subject. The logophoric center is irrelevant. If control of RatCs was logophoric, then control by Jón in (68) should be possible.
(Whelpton, 2002:202)

But recall that Landau’s context is not that of the discourse, but a tuple of variables selected by the embedding predicate. Because of this, the logophoric center in the sense of Whelpton (2002) and E. Williams (1992) may be different from Landau’s, which is selected by the local embedding context, rather than the discourse context. Under Landau’s somewhat nontraditional use of the term, control of RatCs may be logophoric.

If control of RatCs is logophoric in Landau’s sense, then it must be NOC. Landau (2015b) claims that logophoric adjunct control is always NOC, because the referent of PRO is not uniquely determined. Since there is no embedding predicate that would select for any particular projected variable, the embedded complementizer should be free to project any. If logophoric control for RatCs is the only option in Landau’s theory, then it should always be NOC. In the next subsection, I will show that this creates problems for the TTC on its own. PRO in a RatC is not completely free in reference. Because of this, Responsibility Theory is still required to constrain the construal of PRO under the TTC.

4.3 Grammatical control and Local RatCs

Now that we have established the basics of the MTC and the TTC, I will attempt to apply each to specific examples of Local RatCs. Recall that PRO in a RatC can refer to (i) the surface subject of an active or passive target clause — but not the object (69a-b), (ii) what is understood as the demoted subject of a passive (69c), (iii) other agents who can be understood as responsible for the fact expressed by the matrix clause (69d) but only some of the time (69e), or (iv) the target fact itself (69f).

(69) a. Dobby\textsubscript{1} protected Harry\textsubscript{2} [in order PRO\textsubscript{1/2} to escape from the Malfoys].
   b. Sam\textsubscript{1} was arrested by the police [just PRO\textsubscript{1} to get himself off the streets].
   c. The ship was sunk [in order PRO to collect the insurance].
   d. The ribbon was cut by a young girl [in order PRO to acquire the support of female voters].
   e. A hired crook\textsubscript{1} burned down the house [in order PRO\textsubscript{1/2} to collect the insurance].
   f. [Grass is green]\textsubscript{1} [in order PRO\textsubscript{1} to promote photosynthesis].

Both the MTC and the TTC can easily handle cases of control by the subject of the matrix clause, and are able to rule out object control with some additional stipulations. Because control by the subject and not the
object is easily described in syntactic terms, a grammatical account seems particularly suited. However, as will be shown, superimplicit control cannot receive a grammatical account, and allowing a non-grammatical account of it creates problems for grammatical accounts, even in describing control by the subject versus the object. Because of this, neither the MTC nor the TTC is able to account for the full range of Local RatC possibilities. Both theories under- and over-generate, and both require something like Responsibility Theory to successfully restrict the domain of PRO’s referent.

4.3.1 Subject control

Under the MTC, a sentence such as (69a), repeated as (70), would have a similar derivation to the one given in (56) for control into a before-adjunct. Dobby would begin as the subject of the RatC. It would move sideways into the matrix clause and then raise to subject position. This is illustrated in (71).

(70) Dobby protected Harry [in order PRO to escape from the Malfoys].

(71) [Dobby [T [VP Dobby protected Harry][RatC in order [CP Dobby to escape from the Malfoys]]]]

Control by the object in (70) would also be ruled out under the MTC. If Harry had been merged as the subject of the RatC and then moved to object position in the matrix clause, this would need to occur while Dobby was still in the numeration, which would incur a Merge-over-Move violation (Chomsky, 1995). Because of this, object control in (70) cannot arise through movement. However, it should be available through pronominalization, as illustrated in (72). Here, the null subject of the RatC is pro, giving an NOC reading. In principle, this pro should be free to refer to Harry.

(72) *Dobby protected Harry [in order pro to escape from the Malfoys].

In order to resolve a similar issue, Boeckx and Hornstein (2007) and Boeckx et al. (2010) suggest that NOC through pronominalization is blocked whenever OC through movement is available. This is not due to a syntactic violation, but because of a processing constraint. I will not go into the details of this argument, but it is sufficient for present purposes to state that the interpretation in (72) is ruled out not for grammatical reasons, but because “parsers” would prefer to interpret it as a trace rather than a null pronoun. (70) is an instance of OC subject control not because it is the only possible interpretation, but because it is the strongly preferred interpretation, because it arises through movement.

The matrix subject control reading of (69b), repeated in (73) is explained in a similar manner. However, for (70), object control was ruled out using Merge-over-Move. It was impossible for the subject of the RatC to be internally merged as the object of the matrix clause when another DP was in the numeration. In (73) this problem can be avoided if we assume that the two adjuncts Sam to get himself off the streets and by the
police are each built separately before Sam is moved to the matrix clause. The derivation is given in (74).

(73) Sam₁ was arrested by the police [just PRO₁ to get himself off the streets].

(74) a. Applications of select and merge:

Num = \{Sam₀, T⁺₁, was₁, arrested₁, by₀, the₀, police₀, just₀, toφ₀, get₀, himself₀, off₀, the₀, streets₀\}

PP₁ = [by the police]

PP₂ = [just Sam to get himself off the streets]

b. Applications of copy, select, and merge:

Num = \{Sam₀, T⁺₁, was₁, arrested₀, by₀, the₀, police₀, just₀, toφ₀, get₀, himself₀, off₀, the₀, streets₀\}

PP₁ = [by the police]

PP₂ = [just Sam to get himself off the streets]

VP = [arrested Sam]

c. Applications of copy, select, merge, and PF deletion:

Num = \{Sam₀, T⁺₀, was₀, arrested₀, by₀, the₀, police₀, just₀, toφ₀, get₀, himself₀, off₀, the₀, streets₀\}

TP = [Sam \[T⁺ \[was [arrested Sam] [by the police]]\] [just Sam to get himself off the streets]]

Under the TTC, logophoric control allows for the variable projected by the embedded C₀ to be bound or free. For (70), the CP embedded in the RatC projects a variable similar to the author variable in attitude contexts. Instead of being the author of the context, though, it is the person responsible for it, the context being selected by the in order head. This is illustrated in (75).

(75) Dobbyᵥ protected Harryᵧ \[RatC in order \[CP prox \[FinP PRO λj [TP PRO₂ to escape...]]\]\]

On the surface, a logophoric account also seems to rule out object control into RatCs. If the RatC attaches above the VP, hence above the object, the object will not be in a position to bind the variable projected by the embedded CP. However, it is not clear why the embedded CP could not have as its specifier an unbound variable that is simply coreferential with the object. Since the embedded C is in principle free to project any of its variables, (70) should have an interpretation where Harry is the controller. Indeed, Landau (2015b) states that logophoric adjunct control is always NOC. This is similar to cases of control shift in complement control as in (76). The verb ask permits control by either the subject or the object because it is logophoric control and either the author or the addressee of the embedded context can be projected.
In order to rule out object control into RatCs, then, two assumptions seem necessary. First, the in order head would need to carry a presupposition that the variable projected is responsible for the event in the matrix clause. This assumption seems necessary in any case. The second assumption is more stipulative: the presupposition of responsibility cannot apply to the object. It is not clear why this would be so, but the assumption is required for any NOC account of RatCs. In essence, this would simply be turning control of RatCs over to Responsibility Theory.

There is another possible explanation, though, similar to the one given for the MTC. Under the MTC, object control through pronominalization was ruled out because subject control through movement was possible; it was presumed that parsers prefer to interpret PRO as a trace rather than a pronominal. Under the TTC, something similar could be said. Perhaps parsers prefer to interpret variables as bound rather than as free. Object control in RatCs would be ruled out because a bound-variable reading would be available through subject control. This is similar to a proposal from Reinhart (1983) and discussed in Heim and Kratzer (1998), in which it is stated that if the same meaning can be expressed by two minimally different LFs, one of which has a bound variable and the other a free pronoun ((77a-b), respectively), then the bound variable reading will be preferred by both speakers and hearers.9

4.3.2 Implicit control

There are two possible ways for the MTC and TTC to address implicit control by the understood demoted subject of the passive, depending on whether one assumes that this demoted subject is available as a syntactic controller. One theory of the passive is that the silent demoted subject is syntactically represented. Baker et al. (1989) instantiate this theory by claiming that the passive morpheme -en receives the agent θ-role and is able to bind the PRO of a RatC. A similar theory would place something like a null pro in the spec-v, as in (78).

9Although see footnote 1 in Lasnik (1991) for a discussion on problems with Reinhart’s proposal.
Assuming this structure, control of a RatC by the implicit demoted subject of a passive sentence would be quite similar to control by the subject of an active sentence. For the MTC, the only difference would be that the moving element would be a null pronoun instead of an overt DP, and there is no obvious reason why this should present any issues in the derivation. In fact, Boeckx et al. (2010) make the same proposal with control of an embedded clause by a null pro in the thematic domain of a matrix deverbal noun. To illustrate how this would apply to (78), its derivation is given in (79).

(79)  

a. *Applications of select and merge:*

\[
\text{Num} = \{\text{the}_0, \text{boat}_0, T^{\phi+1} \text{was}_0, \text{sunk}_0 \text{to}^{\phi}_0, \text{collect}_0, \text{insurance}_0, \text{pro}_0\}
\]

\[
\text{RatC} = [\text{pro}^{\phi} \text{collect the insurance}]
\]

\[
\text{vP} = \text{[was sunk the boat]}
\]

b. *Copying and remerger of pro to vP:*

\[
\text{RatC} = [\text{pro}^{\phi} \text{collect the insurance}]
\]

\[
\text{vP} = [\text{pro} \text{was sunk the boat}]
\]

c. *Merger of PP and vP:*

\[
\text{vP} = [[\text{pro}_1 \text{was sunk the boat} [\text{pro}_1 \text{collect the insurance}]]]
\]

d. *Applications of select, copy, merge, and PF deletion*

\[
\text{Num} = \{\text{the}_0, \text{boat}_0, T^{\phi+0} \text{was}_0, \text{sunk}_0 \text{to}^{\phi}_0, \text{collect}_0, \text{insurance}_0, \text{pro}_0\}
\]

\[
\text{TP} = [[\text{The boat} T^{\phi+} [[\text{pro}_1 \text{was sunk the boat} [\text{pro}_1 \text{collect the insurance}]]]]]
\]

In this derivation, the PRO of the RatC is the result of movement, which is licensed because it results in the checking of the agent \(\theta\)-role of the matrix \(v\). Pronominalization of the pro in the matrix clause is also licensed, because it could not receive that referent through movement. The MTC is thus able to capture control by an implicit demoted subject in a passive in the same way that it handled control by an overt subject in active sentences.

For the TTC, the variable projected by the embedded C would be bound by the null demoted subject. This is illustrated in (80). This is licensed because the embedded C is free to project any variable, which can be bound by a higher argument.

(80)  

The boat pro\(_x\) was sunk [RatC pro\(_x\) [FinP PRO \(\lambda j\) [TP PRO\(_z\) to collect the insurance]]]

One potential challenge for grammatical accounts of implicit control is that they do not have much to say about why it is not possible in more contexts. In (65), repeated in (81), it was seen that implicit predicative control is impossible. But if implicit control of RatCs is by a silent demoted subject in passives, then silent arguments (at least in the passive in (81c)) should be able to control PRO in other constructions.
Because of this and other issues, the presence of a null pronoun which receives the agent θ-role in passives is controversial. Lasnik (1988), E. Williams (1985), Landau (2000), and A. Williams (2015) give strong arguments that there is no such null argument in the syntax of passives, and that the apparent control seen in cases where a RatC is embedded in a passive is a result of pragmatic constraints (see §6.2 for more detailed discussion). If this view is correct, the derivation for the MTC would need to be revised, with the null pro remaining in the RatC, giving the structure in (82a). For the TTC, the projected variable would remain unbound, as in (82b).

(82) a. TP = [[The boat] T φ+ [was sunk the boat] [pro toφ collect the insurance]]
   b. The boat was sunk [RatC prox [FinP PRO λ] [TP PRO2 to collect the insurance]]

For either structure in (82), the interpretation of pro would depend on the pragmatic principles instantiated in Responsibility Theory. Thus, under this theory of the passive, syntactic theories of control again do not apply, and Responsibility Theory is required.

4.3.3 Superimplicit control and additional problems for object control

RatCs can also have a controller that is completely absent from the sentence, as was seen in (69d), repeated in (83).

(83) The ribbon was cut by a young girl [in order PRO to acquire the support of female voters].

Because there is no antecedent for PRO in this sentence, it must be NOC PRO (i.e. the null pronoun pro, represented in (84a)) under the MTC, or an unbound variable under the TTC (84b). Again, the referent of this NOC/unbound pro would be determined by pragmatic principles such as those in Responsibility Theory.

(84) a. The ribbon was cut by a young girl [RatC just pro to acquire the support of female voters].
   b. The ribbon was cut by a young girl [RatC just prox [FinP PRO (=λ)] [TP PRO2 to acquire the support of female voters]].

This is another case where both the MTC and the TTC require something like Responsibility Theory. Even so, for the MTC, it is not clear why a null pronoun is licensed in this position. Hornstein (2001) claims that NOC PRO should only be available when control through movement is not. If, as he suggests,
pronominalization is more costly than movement,\textsuperscript{10} a null pro should only be available in (84) if movement out of the RatC is impossible, but it is unclear what would prevent that movement if it is allowed out of other RatCs. Specifically, (84) should be ruled out because of the availability of (85).

(85) \# [The ribbon] was cut by a young girl [just [The ribbon] to acquire the support of the female voters]

Boeckx and Hornstein (2007) and Boeckx et al. (2010) acknowledge a similar challenge: (86a) should be blocked because of the availability of (86b), since the latter is available through movement and the former is not.

(86) a. John said that [pro\textsubscript{1} washing himself delighted Mary].
   b. John said that [PRO\textsubscript{1} washing herself delighted Mary\textsubscript{1}].

They clarify that “coupling an antecedent and a pronoun is licit just in case movement cannot establish the same relation” (Boeckx and Hornstein, 2007:252, emphasis in original). In other words, pronominalization is only ruled out if the same referential relationship could be established through movement. In (84a), the referent of pro is not in the sentence, and the relevant interpretation could not have arisen through movement. Therefore, use of a pronoun is licensed.

This is not to say that such pronominalization should be freely available. After all, in example (70), repeated in (87), we still want to constrain the construal of the empty category so that only Dobby can be its referent.

(87) Dobby\textsubscript{1} protected Harry\textsubscript{2} [in order PRO\textsubscript{1}/\textsubscript{2} to escape from the Malfoys].

If a null pro was allowed here, it could in principle be co-indexed with Harry, resulting in the unwanted interpretation that Harry is the intended escaper. It could also be free, having an interpretation where some other person was the intended escaper. Recall that object control through pronominalization in (72) was ruled out because of a processing preference. Interpreting a null category as a trace is preferable to positing a pronominal. This preference principle would rule out object control in (87) as well as other cases of superimplicit control as in (69e), repeated in (88).

(88) A hired crook\textsubscript{1} burned down the house [in order PRO\textsubscript{1}/\textsubscript{2} to collect the insurance].

Here, pronominalization should in principle be possible if it results in an interpretation that is unavailable

\textsuperscript{10} The preference for movement over pronominalization is a processing constraint that is reflected in the grammar that seems to be in contrast with Merge-over-Move. However, the latter applies to any given Numeration, while the former would be a preference between different Numerations. The two constraints would therefore not compete. However, as Howard Lasnik (p.c.) notes, an economy condition comparing different Numerations would be difficult to formalize, since it is unclear how the system would know which Numerations to compare.
through movement. If the intended collector is Jon, the person who hired the crook, pronominalization should be possible, since Jon is not in the sentence, and hence the relevant interpretation could not have resulted from movement. However, this pronominalization is blocked because parsers strongly prefer positing a trace over a null pronoun. Comprehenders should strongly prefer interpreting PRO as a trace/copy of the hired crook, ruling out superimplicit control.

Given the preference for positing a trace over a pronoun, it is still unclear why the possible interpretation in (85) does not rule out the intended interpretation of (84a). Because (85) arises through movement, why do parsers not greatly prefer it? One obvious possibility is that RatCs require a purposeful agent to be their controller. In (88), crooks are intentional agents and would make great insurance collectors. Therefore, the preference principle holds, and superimplicit control is blocked. However, since ribbons can neither intend to be cut nor acquire votes, comprehenders may not consider that interpretation. This would lead to the constraints in (89) for the MTC. Interpreting the null subject of a Local RatC as the trace of movement should be strongly preferred, and it is only when the argument that could have moved from that position does not meet the requirements of RatCs that other interpretations should be considered.

(89) Constraints on pronominalization in RatCs under the MTC

a. Pronominalization in a RatC is only available when the relevant meaning could not have arisen through movement and
b. when no other possible controller meets the requirements of reason control that could have successfully moved from the controlled position.

However, even this is probably not correct. After all, as was seen in the introduction, Kehler et al. (2008) demonstrated that people are much more likely to resolve the pronoun in (5), repeated in (90), to the subject of a passive, even when it would lead to a very improbable story. Given this strong preference to resolve pronouns to the subject of a passive in addition to the preference for traces over pronominalization, it seems that comprehenders should strongly prefer the interpretation in (85), where the ribbon controls PRO and is the one winning votes, even though this interpretation results in a very strange story.

(90) The demonstrators were denied a permit by the city council because...

a. ...they feared violence.

b. ...they advocated violence.

Even ignoring this problem, the preferences in (89) would still not capture all the facts. In cases where the subject of the sentence does not meet the requirements of reason control, pronominalization should be possible, resulting in NOC. This leads to the prediction that in a sentence where the subject makes a bad
controller, but the object a good one, object control should be possible. Specifically, (91) should have the unavailable interpretation where the intention is for Ethan to wash himself before school. Compare this to (92), which can have the intended interpretation.

(91) * An alarm woke Ethan\textsubscript{1} up early in order PRO\textsubscript{1} to wash himself before school.

(92) Ethan\textsubscript{1} was woken up early (by an alarm) in order PRO\textsubscript{1} to wash himself before school.

In addition, there are cases of superimplicit control that cannot be handled under the assumptions of the MTC presented here. Maria Polinsky (p.c.) notes that in (93), the guests would make a perfectly good controller that would arise through movement. Therefore, the MTC wrongly predicts that the overwhelmingly preferred interpretation will be that the guests intended to acquire support. Instead, (93) has an interpretation parallel to (84), where the intended support-acquirers are the organizers of the event.

(93) The guests were greeted by a young girl in order PRO to acquire the support of female voters.

These are major problems for the MTC that also extend to the TTC. Under the TTC, superimplicit control (83) is expected if control into Local RatCs is logophoric. Superimplicit control results from the variable projected by the embedded C\textsuperscript{0} being unbound, illustrated in (94). In this case, the referent of the free variable is determined by the same interpretive principles at work in cases of remote control and that must be at work to rule out object control (i.e. Responsibility Theory).

(94) The ribbon was cut by a young girl [RatC just in order [CP pro\textsubscript{x} [FinP PRO λj [TP PRO\textsubscript{2} to acquire the support of female voters.]]]]

As was the case with the MTC, the TTC would need to say something more in order to rule out other cases of superimplicit control. Recall that in (95) the only interpretation available is one in which the hired crook is the one collecting the insurance. In order to prevent a different reading, such as one in which the person who hired the crook is to collect the insurance, we must again rely on a kind of processing constraint that says that bound-variable readings are preferred to readings with free variables. Because hired crooks can be intentional agents and are able to collect insurance, other readings are blocked.

(95) A hired crook\textsubscript{x} burned down the house [RatC in order [CP pro\textsubscript{x,y} [FinP PRO(=λj) to collect the insurance.]]]

This would lead to the prediction, similar to the one made by the MTC, that superimplicit control will only be available when subject control (binding of the variable in the RatC by the matrix subject) is impossible, i.e., when the subject of the matrix clause does not meet the requirements of reason control.
However, if this were true, the TTC would also wrongly predict (91) to be grammatical, and it would predict (93) to only have a reading with the guests controlling PRO.

In sum, neither the MTC nor the TTC can directly account for superimplicit control. Because there is no antecedent for PRO within the sentence, its referent must be determined without any grammatical dependency. Because superimplicit control can only be a case of pragmatic discourse resolution, Responsibility Theory is necessary for these cases. Furthermore, if other Local RatCs were instances of grammatical control, then both the MTC and the TTC would run into problems explaining when and why superimplicit control is licensed.

4.3.4 Fact control

We will now turn to control by the fact expressed by the matrix clause. In (96), repeated from (69f) above, it is not the grass that promotes photosynthesis. It is the fact that grass is green. Thus, the fact expressed by the matrix proposition controls the PRO of the RatC.

(96)  [Grass is green]₁ [in order PRO₁ to promote photosynthesis].

Once again, the MTC gives two options for the origin of PRO generally. It can either be the result of movement, or, if this is not an option, it can be a null pronoun. A movement account would have the derivation in (97). It would begin with the formation of the RatC, starting with (97a). Because it will become relevant, the C head of the matrix clause is included, while other functional heads are still left out. At this point, the clause ‘grass is green’ is assembled as a TP, as in (97b). The TP and VP then merge, checking the external θ-feature of the verb ‘promote’ (97c). For simplicity, only the final position of the embedded TP is shown. Next, the this TP is copied and remerged with the C head (possibly checking a T feature of C) (97d). Finally, the RatC adjoins at the level of CP, and the embedded copy is deleted at PF.

(97)  a. Applications of select and merge:

   Num = {C₁, Grass₁, Tᵢφ₊₁, is₁, green₁, t₀φ₋₁, promote₀, photosynthesis₀}
   VP = [promote photosynthesis]

b. Applications of select, copy, and merge:

   Num = {C₁, Grass₀, Tᵢφ₊₀, is₀, green₀, t₀φ₋₁, promote₀, photosynthesis₀}
   VP = [promote photosynthesis]
   TP = [Grass Tᵢφ is green]

c. Applications of select, copy, and merge:

   Num = {C₁, Grass₀, Tᵢφ₊₀, is₀, green₀, t₀φ₋₀, promote₀, photosynthesis₀}
RatC = [[Grass T^φ + is green][to^φ [promote photosynthesis]]]

d. Application of copy, select, and merge:

Num = \{C_0, Grass_0, T^φ +, is_0, green_0, to^φ, promote_0, photosynthesis_0\}

RatC = [[Grass T^φ + is green][to^φ [promote photosynthesis]]]

CP = [C [TP Grass T^φ + is green]]

e. Application of copy, select, merge, and PF deletion:

CP = [[C [TP Grass T^φ + is green]][PP [CP Grass T^φ + is green] to^φ promote photosynthesis]]

There are at least two problems with this account. First, the moved TP does not c-command its trace. For reasons I will not discuss here, Boeckx et al. (2010) suggest that this might not actually be an issue for adjunct control. The second problem is more serious. I have assumed that the propositional subject of the RatC was a TP, but it is more likely to be a CP, in parallel with (98).

(98) [[CP That grass is green] promotes photosynthesis].

If instead of a TP, the propositional subject of the RatC were the full CP, the derivation would be as in (99) at the point of completion of the RatC.

(99) Num = \{C_0, Grass_0, T^φ +, is_0, green_0, to^φ, promote_0, photosynthesis_0\}

RatC = [[C Grass T^φ + is green][to^φ [promote photosynthesis]]]

At this point, the Numeration is exhausted. There is nothing with which the CP ‘Grass is green’ can re-merge. It is possible that the CP is copied and remerged with the RatC, the RatC forming an adjunct at the CP level, as illustrated in (100). However, this movement would not be licensed under enlightened self-interest (Lasnik, 1995); no features are checked as a result.

(100) [CP [C Grass T^φ + is green][PP [C Grass T^φ + is green] to^φ promote photosynthesis]]

In this case at least, it appears that movement is not an option for fact control of RatCs. If movement is not an option for a given interpretation under the MTC, pronominalization is licensed. Given this option, PRO would be a null pronoun, and the final structure of the sentence would be as in (101).

(101) [CP [C Grass T^φ + is green] [RatC pro to^φ promote photosynthesis]]

Because such an interpretation was not available through movement, this pro can be interpreted as coreferential with the matrix proposition ‘grass is green’. This structure would also be compatible with an interpretation where some external purposeful agent such as God who is responsible for the greenness of the
grass is promoting the photosynthesis.

Again, the MTC would need to explain why pronominalization is possible here. Because an interpretation where the grass itself is the controller (102) is possible through movement, it seems that parsers would disprefer interpretations that arise through pronominalization. As in the ribbon-cutting example in (85), the interpretation in (102) may be ruled out simply because the RatC requires an intentional subject, which grass is not.

(102) Grass_1 is green [grass to promote photosynthesis].

Fact control under the TTC would be similar to superimplicit control in that the variable projected by the embedded C would be unbound (103). In this case, since the variable is free, its referent would be resolved pragmatically to the fact itself. The only distinction, then, between superimplicit and fact control under the TTC is in the choice of the referent of the variable pro.

(103) Grass is green [RatC (in order) [CP pro \_ [\text{FinP} PRO(\lambda j) \text{TP} \text{PRO}_2 to promote photosynthesis.]]]

Under the MTC, fact control is NOC. Similarly, under the TTC, it results from an unbound variable. In either case, a grammatical theory of control of RatCs is unable to account for fact control.

4.4 Summary of Local RatCs

Neither the MTC nor the TTC are able to account for all Local RatCs. Although they can both account for control by the matrix subject, they also both require extra stipulations to rule out control by the object. For the MTC, it must be assumed that parsers prefer to interpret an empty category as a trace rather than as a pronominal. This preference can only be suspended when the controller that could have arisen through movement does not meet the demands of the RatC (i.e. animacy, responsibility, etc.). Under the TTC, something similar must be assumed, that parsers prefer to interpret a variable as bound rather than free, and only can do otherwise when a bound variable reading results in an interpretation that does not conform to RatC requirements. What those requirements are is instantiated in Responsibility Theory, so already it is required under both the MTC and the TTC. Furthermore, even with these extra stipulations, the MTC and the TTC both make incorrect predictions ((91) and (93)). Finally, even if a grammatical account were responsible for subject control, both the MTC and the TTC still require something like Responsibility Theory to determine the referent of PRO in cases of superimplicit control.

Ruling out control by the surface object appeared to be one of the biggest challenges to a fully pragmatic account of RatCs. The fact that control by the surface object is usually impossible is a structural constraint that seems perfectly suited to syntactic explanation. However, neither of the two main candidates for a
grammatical account, the MTC or the TTC, is able to rule it out without some kind of additional interpretive constraints, including something along the lines of Responsibility Theory. Because Responsibility Theory is required even under grammatical accounts, and because it is able to account for Local and Remote RatCs on its own, the simpler theory is that it alone is responsible for the interpretation of any RatC. Grammatical dependencies have no role.

5 Responsibility Theory

Grammatical theories of control can account for neither Remote RatCs nor Local ones. Instead, the referent of PRO in RatCs must be determined through pragmatic constraints. In this section I introduce a non-grammatical account that provides a unified explanation of local and remote control of RatCs. Here I defend A. Williams’s (2015) Responsibility Theory, which is in turn based on ideas from Farkas (1988). I will begin with a summary of Farkas’s and Williams’s theories. This will be followed by an elaboration of how Responsibility Theory explains the possible referents of PRO in RatCs.

5.1 Farkas (1988)

Farkas (1988) is one of several papers arguing against theories of control that rely on syntactic binding. Instead, Farkas proposes controller choice in OC constructions is based on a small number of what she calls “semantic relations”. The one that will be relevant here is the responsibility (RESP)-relation. Farkas takes as a premise the claim that certain situations in the world have what she terms initiators, where an initiator is defined as an entity who brings the situation about. More specifically, a situation may be the result of some act performed by an initiator with the intention of bringing that situation about. Farkas’s basic claim is that certain OC predicates have as part of their meaning a RESP-relation that relates one of the arguments of the predicate to the situation described by the embedded clause. That argument is then understood as the initiator of the situation (the referent of the initiator must be left to the pragmatics). Farkas labels these predicates as RESP-inducing. For example, the verb promise has as part of its meaning the fact that the promiser is in the RESP-relation to the thing being promised. In reporting Jon’s promise, (104a) states that Jon made himself responsible for a situation of leaving the room (i.e. he makes himself a potential initiator of such a situation). The verb persuade, on the other hand, carries as part of its meaning the fact that the persuadee is in the RESP-relation with the embedded situation. In reporting Jon’s persuasion of Bill, (104b) states that Bill has accepted responsibility for a situation of leaving the room.

See Searle (1965) on how to promise.
a. Jon promised Bill to leave the room.

b. Jon persuaded Bill to leave the room.

PRO in OC constructions is linked to the initiator by a stipulated constraint on reference which Farkas calls the Principle of Controller Choice (PCC). This states that for RESP-inducing V's, the controller of the infinitival complement is the argument linked to the initiator of the situation described by the complement. Because of the RESP-relation in (104a), Jon is understood as the initiator of the embedded situation, so PRO is understood as referring to him in (104a). In (104b), Bill is the initiator, and so PRO refers to him.

In some marked cases, the PCC does not apply. In well-known cases of control shift (Comrie, 1984) such as (105b), PRO does not refer to the initiator of the situation, which is understood to be Jon, as it does in (105a). Instead, PRO can be understood as Mary. Farkas claims that in (105b), a kind of coercion takes place; the controller can be an individual with whom the initiator is in the “A-relation,” where “A-relation” is defined by Farkas as existing between two entities $x$ and $y$, when $x$ brings about the actions of $y$. Thus, although in general PRO as the complement of a RESP-inducing predicate will be the initiator of the embedded situation, it may also be an individual over whose (relevant) actions the initiator has some control. Although Farkas does not explicitly state this, it seems to be the case that the A-relation can only hold between co-arguments of the RESP-inducing predicate. Were this not the case, (105b) could have a meaning where Jon promised Mary that some other person would be allowed to leave.

(105) a. Jon promised Mary PRO to leave early.

b. Jon promised Mary PRO to be allowed to leave early.

Finally, Farkas claims that if a situation has an intentional agent, that agent will be understood either as the initiator of the situation, or as someone with whom the initiator is in the A-relation. If a situation has no intentional agent, then it will only be viewed as an intentional situation if it can be understood that an individual brought the situation about intentionally. Because of this, and because the RESP-relation requires an initiator in the embedded situation, complements of RESP-inducing predicates such as promise and persuade must describe situations that one could intentionally bring about. Because people generally do not have much control over what they look like, (106) will ordinarily sound like it cannot possibly be true.

(106) #Jon promised persuaded Pete to resemble Bill.

Controller choice under this account is based on a constraint on PRO’s referent (the PCC) that states that PRO refers to the situation’s initiator. The initiator is in turn determined by the semantics of the

\footnote{Farkas does not elaborate on why these are marked.}
embedding predicate. Farkas intends this account to also apply to RatCs. However, it is not immediately clear how this is to be done. For complement control, the account states that the embedding predicate determines which of its arguments is in the RESP-relation with the embedded situation, i.e. which will be understood as the initiator. For RatCs such as in (107), *in order* would induce a RESP-relation that specifies that there is an initiator of the situation in the RatC, and the PCC would determine that PRO refers to it. However, because the arguments of the matrix clause are not arguments of *in order*, there would be no way for the initiator of the embedded situation to be determined semantically the way it is in complement control. Farkas does not go into details about how this would be accomplished, but it is clear that there would need to be some sort of pragmatic restriction on the the potential referent of the initiator. Farkas defines an initiator of a situation as someone that completed some action with the intention of bringing about the situation. In (107), for example, that action is given in the matrix clause. Because Dobby is the one who brought about that action, he is understood as the initiator of the intended resulting situation, given in the RatC.

(107)  Dobby1 protected Harry2 in order PRO1/2 to escape from the Malfoys.

This account runs into problems when the understood initiator of the situation described in the RatC is not the one who performed the action in the target clause, as is the case with the superimplicit control illustrated in (21), repeated in (108).

(108)  The ribbon was cut by a young girl [just PRO to acquire the support of female voters].

Here, PRO would be tied to the initiator of the embedded situation. Using similar reasoning as described for (107) above, the initiator should be whoever performed the action described in the target clause, i.e. the young girl. However, as was discussed earlier, PRO in (108) can be understood as whoever organized the ribbon-cutting event. In other words, the initiator of the situation in the RatC is some unnamed entity, and it is not clear how Farkas’s account would reach the correct interpretation.

5.2 A. Williams’s Responsibility Theory

Responsibility Theory, presented in A. Williams (2015), is a narrow adaptation of Farkas’s theory into a purely pragmatic account. Instead of attempting to account for complement control, Williams proposes a constraint on the referent of PRO similar to Farkas’s PCC, but that only applies to PRO in RatCs. According to Williams, PRO in a RatC will refer to the party responsible for the target fact that the RatC is meant to explain (or by the target fact itself). Williams does not require reference to the initiator of any situation; the domain of reference for PRO is limited to the responsible party. As we will see, this makes a correct
prediction in (108), where Farkas’s theory struggled.

5.3 Responsibility Theory and control of Local RatCs

Let us now turn to how Responsibility Theory captures the control possibilities discussed above. I will again focus my discussion on Local RatCs, but the same analysis will apply to Remote RatCs, since, as we will see, syntactic locality is irrelevant to Responsibility Theory. Recall again that PRO in a RatC can refer to (i) the surface subject of an active or passive target clause — but not the object (109a-b), except in certain cases (109c), (ii) what is understood as the demoted subject of a passive (109d), (iii) other agents who can be understood as responsible for the fact expressed by the matrix clause (109e) but only some of the time (109f), or (iv) the target fact itself (109g).

(109) a. Dobby₁ protected Harry₂ [in order PRO₁/*₂ to escape from the Malfoys].
    b. Sam₁ was arrested by the police [just PRO₁ to get himself off the streets].
    c. Julianne woke Ethan₁ early in order PRO₁ to wash himself before school.
    d. The ship was sunk [in order PRO to collect the insurance].
    e. The ribbon was cut by a young girl [in order PRO to acquire the support of female voters].
    f. A hired crook₁ burned down the house [in order PRO₁/*₂ to collect the insurance].
    g. [Grass is green]₁ [in order PRO₁ to promote photosynthesis].

In the remainder of this section, I will elaborate on how Responsibility Theory is able to explain this data, even where grammatical accounts struggled. I will sketch some possibilities for a more formal semantics of Responsibility Theory in §6.1.

5.3.1 Responsibility Theory and subject control

In (109a), Dobby controls PRO. On the Responsibility Theory account, this is because he is viewed as responsible for the target fact, namely that he protected Harry. Other surface subjects can also be seen as responsible for the fact expressed by the matrix clause. The patient of the arrest in (109b) is available as a controller just in case Sam can be seen as being arrested intentionally. Putting it the other way around, understanding Sam as the controller requires one to infer that he was responsible for his being arrested, and that he intended his arrest to result in his getting off the streets. If Sam did not aim to get off the streets by means of getting himself arrested, then this use of (109b) would be false. Of course one might instead view the police as primarily responsible for their arresting Sam. Accordingly, if the police intended by performing the arrest to get Sam off the streets, PRO can also refer to them, as in (110). For this reason Zubizarreta
(1982) would refer to Sam as a *secondary* agent.

(110) Sam was arrested by the police₂ [just PRO₂ to get him off the streets].

The ability to become a secondary agent is limited. Even if (109b) is true, and Sam intended to get off the streets by means of getting arrested, (111), where *Sam* is named by the surface object rather than the subject, cannot be used to describe this situation. If Sam’s ability to become a secondary agent is what allows PRO to refer to him in (109b), it must be the case that the grammatical position of a DP has an effect on how its referent is represented in relation to the situation described, beyond its thematic relation to the event. It must be the case that non-subjects are represented as not responsible (or at least not directly responsible; see §5.5 for discussion). Because Sam is named by the surface object in (111), he is represented as not responsible for what happened. When he is no longer referred to in object position, as in (109b), the sentence can have an interpretation where he is responsible. This is consistent with Zubizarreta’s observations about the use of subject-oriented adverbs like *intentionally*. Compare the passive (112a), in which *intentionally* can refer to either Mary’s or Joe’s intentions, to the active (112b), in which it can refer to Joe’s, but not Mary’s, who is in object position.

(111) * The police arrested Sam₁ [just PRO₁ to get himself off the streets].

(112) a. Mary was seduced intentionally (by Joe).
    b. Joe seduced Mary intentionally.  (Zubizarreta, 1982:43)

Because the referents of objects are viewed as not responsible, object control is also ruled out in (109a). Harry cannot be seen as responsible for the target fact when referred to in surface object position. Therefore, in order for PRO to refer to Harry, he would have to be represented in a way that allows him to be responsible for the fact expressed. As we have just seen, one way to do this is to move *Harry* out of object position in a passive, as in (113). Although a reading of the passive (113) with *Harry* as the controller is difficult, it is possible to the extent that Harry can be viewed as responsible for his being protected by Dobby.

(113) *Harry₂ was protected (by Dobby) [in order PRO₂ to escape from the Malfoys].

Harry and Sam in (109a) and (111), respectively, cannot be seen as responsible secondary agents because they are represented in surface object position and thereby seen as not responsible. Because of this, PRO cannot refer to them. However, if it is explicitly stated that the referent of the object is responsible, then control by the object may become possible. This is illustrated in the Remote RatC in (114).

(114) Dobby was protecting Harry₁, and this was an idea Harry had after he learned about elf-magic.
from Hermione. The goal was PRO₁ to escape from the Malfoys.

In sum, Responsibility Theory can easily account for subject control RatCs. PRO refers to the party responsible for the target clause, which in most cases will be named by the subject rather than the object in actives. In passives, subjects can be the controller because their referents can be viewed as secondary agents of the target fact.

5.3.2 Responsibility Theory and implicit control

The assumptions required for explicit control also allow for control by the demoted subject of a passive (109d), repeated in (115). Here, PRO is understood as whoever was responsible for the sinking of the ship. This account does not rely on the syntactic presence of the demoted subject, although it is compatible with such theories (cf. Baker et al. (1989) and §6.2 of this paper for discussion). Because the principles of Responsibility Theory will select as controller the party that is explanatorily responsible for the fact expressed in the matrix clause, it follows that the controller can be the agent of the matrix event, even if it is not present in the syntax of the matrix clause.

(115) The ship was sunk [in order PRO to collect the insurance].

There are cases where control by the demoted subject of a passive is impossible. For example, (116a) cannot mean that the ship was sunk so that the sinker would become a hero (compare to (116b), in which that interpretation is available). This example presents somewhat of a problem for Responsibility Theory; if the sinkers are understood to be responsible for the target fact, PRO should be able to refer to them. However, this is an even bigger problem for binding accounts, which would need to explain why a structural relation such as binding of PRO by the implicit demoted subject is possible in (115) but not (116a). A. Williams (2015) notes that for Responsibility Theory, it is sufficient to state that the unacceptability in (116a) is due to conditions on what sorts of predicates make good reason clauses (see Clark (1990)), or to matters of perspective (see Sundaresan (2016) on perspective and long-distance anaphora), rather than just the situation described. Note that slightly changing the predicate in the RatC improves it (117).

(116) a. #The ship was sunk in order to become a hero. (Lasnik, 1988:12)
    b. Jon₁ sank the ship in order PRO₁ to become a hero.

(117) The ship was sunk just to gain notoriety. (A. Williams 2015)

Furthermore, A. Williams (2015) contrasts (118a) with (118b), arguing that the latter is infelicitous because the killers are no longer responsible for the target fact. At the very least, properties of the sheep are
also in part responsible for the fact that they are *easily* killed. Under grammatical theories, this contrast is surprising. There is no reason why an adjunct like *easily* should block a syntactic relation between PRO and the demoted subject.

(118)  
   a. Several ewes were killed. And the reason was to survive the winter.  
   b. #Ewes are easily killed. And the reason is to survive the winter.  
   
   ‘So that the killers might survive the winter’  
   (A. Williams 2015:299)

5.3.3 Responsibility Theory and superimplicit control

Because non-grammatical accounts do not rely on the syntactic presence of the controller of PRO, super-implicit control requires no new assumptions. In (109e), repeated in (119), PRO can be understood as the organizer of the ribbon cutting because that person can be seen as responsible for the target fact. This is not limited to passives. In the active (120), a similar reading is more difficult, but still possible, especially with stress placed on *young girl*.

(119) The ribbon was cut by a young girl [in order PRO to acquire the support of female voters].

(120) A *young girl* cut the ribbon [in order PRO to acquire the support of female voters].

However, the availability of superimplicit readings needs to be constrained. In (109f), repeated in (121), PRO must be understood as the hired crook. It cannot refer to the people who hired the crook, even though they are, in a sense, responsible for the fact that the hired crook did what he did. The problem is further illustrated in (122), which cannot mean that whoever was responsible for the fire was to collect the insurance.

(121) A hired crook*1* burned down the house [in order PRO*1/*2 to collect the insurance].

(122) #A fire burned down the house [in order PRO to collect the insurance].

Interestingly, when (121) is passivized, superimplicit control becomes available. The passive in (123) can have a reading that the intended insurance collector is someone who hired the crook to burn down the house.

(123) The house was burned down (by a hired crook) in order PRO to collect the insurance.

Recall from the discussion on subject versus object control that surface objects are viewed as not responsible, while subjects are likely to be seen as such. In (121), perhaps superimplicit control is unavailable because its active form highlights the crook’s responsibility and downplays the responsibility of his employer. Because of this, he is the most likely controller for PRO in the RatC under Responsibility Theory. The passive in (123) deemphasizes his responsibility, and superimplicit control becomes available. In (119) and (120),
the little girl is more likely that the crook in (121) to be viewed as an instrument instead of the responsible party, and superimplicit control is possible. As for (122), superimplicit control is unavailable because the most natural reading is simply one in which the fire is responsible for the house burning down; no person is implicated.

5.3.4 Responsibility Theory and fact control

Finally, we have seen that PRO in a RatC can be controlled by the fact expressed by the target clause. In (124), repeated from (109g), one possible reading is that it is the fact that grass is green that promotes photosynthesis. This seems to be a problem for Responsibility Theory, since facts cannot be intentional, responsible parties. For this reason, A. Williams (2015) simply stipulates that in a RatC, PRO can be controlled either by the responsible party, or by the fact expressed by the target clause, with no explanation of the difference between the two. However stipulative it may be, this bifurcation seems to be necessary. According to (124a) for example, why is grass green? Because its greenness promotes photosynthesis. An alternative explanation for could be that (124b) is just another example of superimplicit control, where PRO refers to the entity responsible for grass being green, e.g. God, giving the paraphrase in (124b). This, though, would leave us wondering why God’s promotion of photosynthesis explains the fact that grass is green. One answer, of course, is that the greenness of grass promotes photosynthesis. However, Alexander Williams (p.c.) notes that (124a) does not leave that conclusion to our imagination. With (124a) we say that photosynthesis is promoted by the greenness of grass.

(124)  a. Grass is green in order PRO to promote photosynthesis.

b. → Grass is green so that God/the designer can promote photosynthesis.

Similarly, (125a) does not seem to have the meaning in (125b), even though the people who designed the car are responsible for the fact that its sides are sloped. Instead, it is the fact that the sides are sloped that reduces drag.

(125)  a. The sides of the car are sloped in order PRO to reduce drag.

b. → The sides are sloped so that the designers might reduce drag.

Furthermore, suppose that the sinkers of the ship in (126) are responsible for the target fact. Howard Lasnik (p.c.) notes that control by the responsible party in this case would lead to a Condition C violation. Admittedly Condition C violations can be weak (see (127), although this still seems worse than (126)). Still (126) does not seem to mean that the ship was sunk so that the sinkers might enrich themselves. Instead, it conveys the meaning that the ship was sunk so that the sinking might enrich the sinkers.
The ship was sunk in order PRO to enrich the sinkers.

The sinkers$_1$ just want PRO$_1$ to enrich the sinkers$_1$.

Inasmuch as fact control is possible, it requires an explanation. Notice that it is still the case that the RatC expresses the teleological explanation of the target fact. When there is a responsible party, as in (125a) and (126), it must have been the intention of the responsible party that the target fact lead to the situation described by the RatC. In this way, fact control is similar to control through the Farkas’s A-relation. Fact control is possible if the party responsible for that fact, if there is one, intended the result described in the RatC. However, this only holds when there is a responsible party. In uttering (124a), a speaker conveys a teleological explanation for the greenness of grass, but does not necessarily have to be committed to there being an intentional party responsible for that fact.

Although Responsibility Theory as described here requires some stipulation to account for fact control, grammatical theories of control are also unable to account for it without stipulation, as demonstrated above. Because of the benefits of Responsibility Theory, it should be favored, despite this necessary stipulation.

5.4 Responsibility Theory and Remote RatCs

Responsibility Theory as outlined for Local RatCs applies equally well to Remote RatCs. Because no structural dependency is required between PRO and its understood antecedent, it makes no difference whether the two are in the same sentence. Therefore, the same mechanism can be used to explain interpretive restrictions in Remote RatCs as in Local RatCs. Also, although Responsibility Theory does not make specific predictions about whether there will be other connectivity effects between elements of the target clause and the RatC, it is at least consistent with a lack thereof, since it does not require positing any syntactic link between the two clauses.

5.5 Summary of Responsibility Theory

This subsection has illustrated the proposed account of control of RatCs. This is built primarily on discussions in A. Williams (2015) and Farkas (1988). PRO’s reference is constrained according to (128).

PRO in a RatC will refer to

i. the entity responsible for the target fact, or

ii. the target fact.

Subject control is predicted, because subjects are likely to be seen as responsible for the fact described by their host clause. This seems especially true when the subject is an agent. The subject of a passive may
also control PRO in a RatC just in case it assumes a secondary agent role, in that they are understood to be responsible for the fact expressed. In a similar manner, implicit, superimplicit, and remote control are possible just in case the entity to whom PRO refers is understood to be (directly) responsible for the target fact and the target fact does not highlight the responsibility of some other argument.

Object control is ruled out only under the assumption that surface objects are viewed as not (directly) responsible for the fact that contains them. This is a surprising but necessary conclusion. Because, as I have argued, grammatical theories of control are unable to account for RatCs, some other constraint is required to rule out object control. In (129), for example, Responsibility Theory requires that Sam must be understood as not responsible for his arrest. What I mean here is not that Sam did not cause his arrest. Instead, I mean that Sam must be understood as not responsible for the arresting itself, although this difference is subtle.

(129) The police arrested Sam (in order to get him/*himself off the streets).

Although raising the object to subject position in a passive allows Sam to be understood as responsible for the arresting (130), this is only possible when Sam is the subject of a passive. In the active form in (129), Sam is understood as not (primarily) responsible for the arrest. But even if it is explicitly stated that Sam initiated the arrest and was responsible for it, as in (131), Responsibility Theory must state that Sam cannot be understood as a responsible party in the relevant sense.

(130) Sam was arrested by the police (in order to get him/himself off the streets).

(131) On Sam₁’s order, the police arrested Sam (*PRO₁ in order to get himself off the streets).

(Norbert Hornstein, p.c.)

There are at least two reasons why (131) should not allow control by the object under Responsibility Theory. First, perhaps lexical agency (in active clauses) is more important for RatCs looking for the responsible party. Because the police receives an agent θ-role in (131), the sentence is highlighting the police’s responsibility, and PRO therefore refers to them. But this same reasoning does not seem to apply in (130), where it could be argued that the police is still receiving an agent θ-role. However, recall the contrast between (121) and (123), repeated in (132a-b). In the latter, but not the former, superimplicit control is available. This was argued to be the case because the passive deemphasizes the crook’s responsibility, while the active highlights it. Similarly in (130), even though the police may receive an agent θ-role, the passive form of the sentence deemphasizes the police’s responsibility, and control by the secondary agent Sam becomes available.

(132) a. A hired crook₁ burned down the house [in order PRO₁/*₂ to collect the insurance].

b. The house was burned down (by a hired crook) in order PRO to collect the insurance.
Second, even without a preference to choose the grammatical agent as the responsible party, it is still not clear that Sam in (131) can be seen as directly responsible for the target fact, despite explicitly stating that he ordered the police to arrest him and is thereby indirectly responsible. A similar phenomenon has been observed for verbs of causation (see Pietroski (2005) and A. Williams (2015) for discussion). For example, (133) may be true, even if all Jon did was put the butter in the microwave and press start. Although Jon does not directly cause the butter to melt (it is the microwave that does), (133) is still considered true. However, if Jon forces some other person to put the butter in the microwave and push start, (133) becomes infelicitous. Because there is some other (human) agent who is more directly responsible for what caused the butter to melt, their role interferes with notions of Jon’s causation. Similarly in (131), it may be true that Sam caused the police to arrest him, but their responsibility to the arrest is more direct. Because of this, it is less surprising that PRO in the RatC would refer to the police rather than Sam under Responsibility Theory.

(133) Jon melted some butter.

6 Additional questions and implications

The previous sections have argued that control of RatCs, whether intrasentential (local) or intersentential (remote), cannot be the result of a grammatical constraint on reference. Instead, the referent of PRO is determined based on pragmatic principles that I have referred to as Responsibility Theory. This section addresses three additional questions. First, I will go into more detail about the semantics and pragmatics of Responsibility Theory. I will then discuss the implications Responsibility Theory has for theories of the passive, and finally, how Responsibility Theory fits into more general theories of control.

6.1 Interpretation of RatCs

This section sketches two different ways to implement Responsibility Theory in a compositional semantics. I address two aspects of the meaning of RatCs: how the teleological relation between the target clause and the RatC is determined, and how PRO in a non-finite RatC gets its referent. Although this section does not decide definitively on a single semantics, it outlines some challenges and potential solutions in formalizing Responsibility Theory.
6.1.1 Local RatCs

According to Jones (1985), RatCs have a full $S'$ structure, with *in order* (optionally null) as the specifier of $S'$, as shown in (134).

(134) \[ \text{RatC} \rightarrow \text{Spec } S' \]

Following Jones’s analysis, but using more modern technology, I will assume that *in order* instantiates a Rationale head that selects a either a finite or non-finite CP complement.

(135) a. Jon left [RatC in order [CP that Mary should survive]].

b. Jon left [RatC (in order) [CP for Mary to survive]].

c. Jon left [RatC (in order) [CP PRO to survive]].

The structure of the RatC in (135c) is further illustrated in (136).

(136)
```
RatC
   /\  in order/∅
  /   CP
 /     /
C     TP
   /\    /
PRO   T'
    /\  to survive
```

I will assume, following Whelpton (2002), that Local RatCs adjoin to the highest verbal projection (the $vP$ or possibly AspP), as in (137).

(137)
```
TP
 /\ Jon T'
 /   /
T   vP
  /\  /
v'   RatC
   /\  in order PRO to survive
  /   /
v  VP
   /
in order PRO to survive
```

My first proposal for a semantics of non-finite RatCs states that the teleological relation between the target and RatC is encoded in the meaning of the Rat head, given in (138). This account assumes that...
there is abstraction over the position of PRO to form a predicate. The Rat head takes this predicate as its first argument and the situation described by the target fact as its second. It returns the meaning that the party responsible for the target fact has the property described in the RatC, and that the RatC provides the reason for the target fact.

\[(\text{in order}) = \lambda P \lambda s. \text{REASON}(s,P(\text{ix[RESPONSIBLE}(x,s)]))\]

The RatC in (139a), for example, would have the semantics in (139b). This states that the teleological explanation for Harry attending Hogwarts is so that the party responsible for Harry attending Hogwarts might learn to use magic. The semantics does not specify who the responsible party is, just that that person has the property of learning to use magic. That PRO refers to the responsible party is encoded in the semantics, but it is in the pragmatics that the responsible party is identified with Harry.

\[(139)\]
\[
a. \text{Harry attended Hogwarts } [\text{RatC in order PRO to learn to use magic}].
\]
\[
b. [\text{RatC}] = \text{REASON}(\text{Harry’s attending Hogwarts, ix(RESPONSIBLE}(x,\text{Harry’s attending Hogwarts) learn to use magic}))
\]

Although the semantics in (138) is able to describe the meaning of RatCs where PRO refers to the responsible party, it is limited in that it cannot account for fact control or for RatCs with overt subjects. These would require the Rat head to have a different semantics. In (140), for example, the Rat head cannot take a property as its first argument; the embedded clause denotes (something like) a proposition. If the semantics in (138) is correct, then the Rat head in order must be ambiguous, having one meaning for when the subject of its complement is overt and another for when it is PRO.

\[(140)\]
\[
\text{Lilly sacrificed herself } [\text{RatC in order for Harry to live}].
\]

If we attempt a unified semantics, the Rat head must take two situations, and only encode the teleological explanation between the two, as in (141). This would also provide a unified semantics for fact control. The sentence in (140) would be assigned the meaning in (142).

\[(141)\]
\[
[\text{in order}] = \lambda s \lambda s’. \text{REASON}(s’, s)
\]

\[(142)\]
\[
[\text{RatC}] = \text{REASON(}\text{Lilly sacrificed herself, Harry to live})
\]

However, this makes it difficult to achieve the intended meaning for RatCs with PRO subjects. If the Rat head takes a situation as its first argument, then it cannot specify compositionally who/what PRO can refer to, because it is embedded in the situation. The semantics for (139a) would be that in (143), leaving the referent of PRO unvalued.
(143) \([\text{RatC}] = \text{REASON(Harry attended Hogwarts, x learn to use magic)}\)

In this case, the interpretive constraints of Responsibility Theory would be entirely housed in the pragmatics of RatCs. PRO’s reference would need to be determined through pragmatic constraints which place a high preference for interpreting it as the party responsible for the target fact. This preference interacts with the constraints on who can be seen as responsible as well as other constraints on pronoun interpretation to give the preference for coreference with the subject of the target clause. However, this is again only a pragmatic preference, albeit a strong one, and reference to the target fact is possible based on the context and content of the RatC.

6.1.2 Remote RatCs

In Remote RatCs, as in (144), I assume that the REASON relation is introduced by the meaning of the sentence. It differs slightly from Local RatCs in that the target situation is not selected by a Rat head. Instead, the domain of the reason is restricted pragmatically to be understood as the reason for the target fact. The same pragmatic constraints on the responsible party and the referent of PRO will apply to Remote RatCs as in Local RatCs, according to one of the options above.

(144) a. Harry attended Hogwarts. The reason was \([\text{RatC} \otimes \text{TP PRO to learn to use magic}]]\).

The RatC in (144), states (at least) that there is the situation of someone learning magic is the reason for some other situation, not specified in the semantics. Because it is the other salient situation, \textit{Harry attended Hogwarts} is understood as the target situation. And because Harry may be understood as responsible for that situation, he is understood as the referent of PRO, due to the strong preference for PRO to be interpreted as the responsible party.

Because the target situation is not selected by the Rat head in Remote RatCs, there should be some flexibility in choice of causal situations for Remote RatCs that isn’t seen with Local RatCs. This prediction seems to be borne out. It is possible to interpret (145) as meaning that the responsible party intended the trading of two outfielders to let him acquire a better pitcher, or that the lengthy negotiations would do so. This flexibility in interpretation is impossible in (146a), which can only have the former meaning, and in (146b), which can only have the latter.

(145) Two outfielders were traded away. Negotiations went on for days. The goal was to acquire a better pitcher. (Alexander Williams, p.c.)

(146) a. Negotiations (between the two teams) went on for days. Two outfielders were traded away in order to acquire a better pitcher.
b. Two outfielders were traded away. Negotiations went on for days in order to acquire a better pitcher.

6.1.3 PRO vs. overt pronouns

If PRO in a RatC is a null pronoun whose referent is determined based on pragmatic constraints, as is the case in Responsibility Theory, it seems that the interpretation of an (unstressed) overt pronoun in the same position should be similar. In some instances, that is the case. In (147), for example, PRO can only be understood as the party responsible for the target fact, which is Harry. Similarly, in (148), the overt pronoun *him* is able to be understood as referring to Harry, and it is marginal at best to use an unstressed pronoun to refer to a non-responsible party such as Hermione (if stress is placed on *her*, the intended interpretation is much more available).

(147) Harry$_1$ talked to Hermione$_2$ in order PRO$_1$/$_2$ to make Ron jealous.

(148) a. Harry talked to Hermione in order for him/??her to make Ron jealous.

b. Harry talked to Hermione. The goal was for him/??her to make Ron jealous.

In some cases, when an overt pronoun can refer to a non-responsible party (149), PRO may be able to as well (150).

(149) Sirius gave Harry$_1$ a permission slip in order for him$_1$ to be allowed to visit Hogsmeade.

(150) Sirius gave Harry$_1$ a permission slip in order PRO$_1$ to be allowed to visit Hogsmeade.

However, this is not always the case. In (151), an unstressed pronoun is able to refer to the non-responsible party Mary. In contrast, PRO in (152) can only refer to John, the responsible party, even though referring to Mary would make more sense.

(151) John complimented Mary before the job interview in order for her to feel more confident going in.

(Alexander Williams, p.c.)

(152) John$_1$ complimented Mary$_2$ before the job interview in order PRO$_1$/$_2$ to feel more confident going in.

Although a detailed discussion of this issue is outside the scope of this paper, it is sufficient to state here that because the constraints on different kinds of pronouns (stressed, unstressed, null, etc.) vary, we should not expect various types of pronouns (PRO included) to behave identically, even in RatCs. One reason for a difference, for example, is that there may be some kind of obviation effect that leads to overt and covert
pronouns being interpreted differently (Farkas, 1992).

6.2 Implications for the passive

RatCs have been closely tied to debates on the nature of the passive. The puzzle is illustrated in the following examples. Unlike the corresponding active sentence (154), the agent responsible for the sinking in (153) is left unsaid. However, (153) still entails that there was someone or something that did the sinking. In other words, an agent of the event is still entailed. This contrasts with the similar intransitive in (154) in which no agent is entailed.

(153) a. The boat was sunk.
   b. Someone sank the boat.

(154) The boat sank.

As briefly noted above, there are two competing camps regarding the nature of the demoted subject of a passive. Some, such as Baker et al. (1989), claim that it is syntactically represented as some sort of pronoun, realized either as silence, or as an audible passive affix. Others, such as E. Williams (1985), reject the syntactic presence of the demoted subject, and instead argue that the entailment of an agent results from an unexpressed θ-role that is not assigned to any syntactic object. In this section, I will summarize some of the previous arguments from both sides, especially as they relate to RatCs. I will demonstrate that the arguments favoring the syntactic presence of the demoted subject lose strength in light of the present discussion.

One piece of evidence for the syntactic presence of the covert agent in (153a) is that it is able to control the null subject of a RatC in apparently the same way an overt active subject does (Roeper, 1987). In (155), for example, Joe is understood as not only the boat sinker, but also the insurance collector. Similarly, the insurance collector in (156) is understood to be whoever sank the boat. In both cases, there is a dependency between the agents of the matrix and RatCs. For those who assume that this dependency is syntactic, (156) must have a silent controller in the syntax.

(155) Joe$_1$ sank the boat [PRO$_{1/\tau}$ to collect the insurance].

(156) The boat was (pro$_1$) sunk [PRO$_{1/\tau}$ to collect the insurance].

This contrasts crucially with intransitives. Proponents of the presence of a syntactic passive agent claim that the grammaticality of (156) in contrast to the ungrammaticality of (157) is due to the syntactic presence of a controlling agent in the former but not in the latter (Baker et al., 1989; Keyser and Roeper, 1984; Koenig
and Mauner, 1999). The same argument is made for middles (158b).

(157) *The ship sank in order to collect the insurance.

(158) a. This politician was (pro₁) bribed [PRO₁ to avoid the draft].
    b. #This politician bribes (easily) PRO to avoid the draft.

This account is not without objections (cf. E. Williams (1985); Landau (2000); a.o.). Lasnik (1988), for example, notes that passives do not always license RatCs, even when their active counterpart does (159).

(159) a. *The ship was sunk to become a hero.
    b. Jon₁ sank the ship PRO₁ to become a hero.

If there was a syntactic agent in the passive, and if control of PRO in RatCs were syntactic, then the silent agent should be able to control PRO in (159a) as well as in (158); there is no relevant syntactic difference between (156) and (159a) that would prevent control in the latter but allow it in the former. That control by the sinker fails in (159) is given as evidence by Lasnik against a syntactic agent in the passive.

A further objection is given by A. Williams (2015). As discussed above, the implicit control relation can hold cross-sententially, in cases of remote control. In (160), the only interpretation available is still one in which the collector of the insurance is the sinker of the ship. However, this cannot be due to syntactic control, since such relations are by definition bound within a single sentence, and as was demonstrated in §3, there is no hidden controller within the second sentence of (160).

(160) The boat was (pro₁) sunk. The reason was PRO₁/*₂ to collect the insurance.

What appeared to be syntactic control in (156) was used to argue for the presence of a null pronoun in the syntactic structure of passives. But the argument for a syntactic demoted agent in passives loses strength in light of the current discussion. The previous sections have demonstrated that control of not only Remote RatCs, but also of Local RatCs is the result of pragmatic constraints on reference. PRO in a RatC is not controlled syntactically, and this includes implicit control by the demoted subject of a passive. This removes a major argument for the syntactic presence of the passive agent.

As for the difference between passives and intransitives or middles, A. Williams (2015) states that Responsibility Theory also predicts a contrast. He argues that the difference between (161) and (162a), for example, is that in the latter, the killer of the ewes is not portrayed as entirely responsible for the target fact; the ewes themselves are largely responsible for the fact that they kill easily. The same is true when that fact is represented with a passive instead of a middle (162b) (when the RatC takes scope over easily).
For this reason, PRO in (161), but not in (162a-b), is able to refer to the killers of the ewes. The possible presence of a silent syntactic agent in (161) is irrelevant. Control in (161) is possible simply because the sentence portrays the understood killers as responsible for the fact that the ewes were killed.

(161) The ewes were killed PRO to survive the winter.

(162) a. #Ewes kill easily PRO to survive the winter.
    b. #Ewes are easily killed to survive the winter.

### 6.3 Responsibility Theory in broader theories of control

I have not argued that Responsibility Theory is intended for all cases of control. Instead, the theory as presented here is only intended to account for RatCs. This subsection addresses how Responsibility Theory fits into broader theories of control.

First, Responsibility Theory is of compatible with general semantic theories of control. Indeed, Responsibility Theory is built on the foundational work of Farkas (1988), whose RESP-relation along with a separate ABOUT-relation were intended to account for all instances of control. Sag and Pollard (1991) have a similar account, but divide control verbs into three distinct classes: influence-type (such as order and permit), commitment-type (such as promise and attempt), and orientation-type (such as want and expect).

If the verb is of the influence type, then the unexpressed subject of its complement will be the influenced participant of the relation expressed by the verb. If it is of the commitment type, it will be the committor. And if it is of the orientation type, it will be the experiencer. For example, in (163a), Jon influences Bill by giving him an order. Therefore, Bill is understood as the controller. In (163b), Mary commits by giving a promise, and is controller. And in (163c), Phil experiences the desire, and is therefore the controller.

(163) a. Jon ordered Bill to leave.
    b. Mary promised (Sue) to leave.
    c. Phil wanted to leave.

However, these theories are really theories of controller choice, based on the lexical meaning of the control predicate. Specifically, semantic generalizations were used to explain why a verb like promise, for example, relates the property denoted by its complement clause to its subject rather than its object. This account cannot apply directly to RatCs. Although a RatC may specify that the property denoted by its subject relates to a responsible party, it does not link that party to an argument of the matrix predicate. Still, Responsibility Theory does not provide any evidence against semantic theories of controller choice in other constructions.
The strength of these non-syntactic theories is in their purported ability to capture control in various syntactic configurations, which would provide a unified account of remote control. Their weakness, on the other hand, is in explaining cases where semantic role is unimportant to control, and it seems that syntactic position is all that matters in controller choice. This is the case for most cases of adjunct control, as in (164). No matter what the semantic role of the subject is, it alone can be the controller for PRO. This is in contrast to cases of complement control, as in (165), where the controller remains constant regardless of syntactic position.

(164)  a. Jon1 kissed Mary2 [before PRO1/*2 leaving town].
       b. Mary2 was kissed by Jon1 [before PRO2/*1 leaving town].

(165)  a. Jon1 persuaded Mary2 [PRO2/*1 to leave town].
       b. Mary2 was persuaded by Jon1 [PRO2/*1 to leave town].

It is not clear what semantic relation could hold between the subject position and PRO in (164) requiring that they be coreferent. There is nothing about the meaning of before that requires Jon to be both kisser and leaver in (164a) and for Mary to be so in (164b). Thus, cases of adjunct control cannot be explained in purely semantic terms; there must be some kind of syntactic constraint. The only way to rescue non-syntactic accounts in (164) would be if before induced the requisite relation, requiring that the RESP-relation (or whatever relation is used) must be satisfied by the matrix subject. However, this clearly simply is a resort to a kind of syntactic binding account.

On the other hand, although Responsibility Theory is itself non-syntactic, it is compatible with syntactic theories of control in other constructions. Suppose that the MTC is in general correct. If this were the case, then there would need to be some reason for why it does not apply to RatCs. One potential explanation would be if A-movement out of a RatC were not possible. If that is the case, then it would be unsurprising for RatCs to exhibit control that did not result from movement.

Responsibility Theory would also be compatible with the TTC. For the TTC, logophoric control is always predicted to be NOC in adjuncts. It therefore could be that the TTC in general is correct, and Responsibility Theory is simply one of the ways that the domain of reference for a null pronoun is restricted. This could be accomplished by having the Reason head select the context of the embedded clause and requiring of C that a variable corresponding to the responsible party be projected.
7 Conclusion

This paper has argued against grammatical accounts of control of RatCs. Grammatical accounts had good motivation, namely that one strong restriction on the domain of PRO’s reference in a RatC can be described in grammatical terms: the subject, but not the object, of the target clause can control PRO. However, these accounts fall apart when taking into account superimplicit and remote control. Although this paper specifically focused on two specific grammatical theories of control, the MTC and the TTC, the same failings arise for any theory relying on a grammatical dependency between PRO and its understood antecedent. The arguments made here demonstrate that control of neither Remote nor Local RatCs can rely on any grammatical dependency, and such accounts must therefore be rejected.

As an alternative, this paper maintains that pragmatic constraints on reference establish the dependency between PRO in a RatC and its understood antecedent. I have defended and elaborated on A. Williams’s (2015) Responsibility Theory, according to which PRO in a RatC is interpreted as the party responsible for the fact the RatC is meant to explain, if not to the fact itself. This theory easily explains the cases of subject control that grammatical accounts are able to handle in addition to cases of superimplicit and remote control, where grammatical accounts fail.

The challenge for Responsibility Theory is in ruling out object control, something grammatical accounts would be particularly suited for, were it not for their other failings. Because of this, one might attempt to conclude that control of RatCs is generally handled through some grammatical dependency, and that cases of superimplicit control are somehow an exception. Such a hybrid account would state that control of RatCs is grammatical when possible, resulting in OC, and extra-grammatical NOC only when necessary. There are at least two reasons why this cannot be the case. First, there is no place to clearly divide the the work between grammatical and non-grammatical control. Local and remote control behave the same, both in interpretation and in online processing (McCourt et al., 2015). Because Responsibility Theory can account for all the data without positing some artificial divide, it should be preferred.

The second reason why a hybrid theory of control of RatCs must be rejected is that there is no structural difference between cases of explicit and superimplicit control. Theories of control generally assume complementary distribution of OC and NOC. And crucially, this is based the construction containing PRO. For Manzini (1983) or for Landau (2000), for example, OC obtains when PRO is in an object clause, and NOC when it is in a subject or adjunct clause. According to grammatical theories of control, because RatCs always appear in the same configuration (as adjuncts), they should always be either OC or NOC. However, I have already shown that the MTC cannot apply to RatCs.

\footnote{An exception to this generalization is the MTC, which assumes that OC is defined as control resulting from movement and NOC from pronominalization. This can result in overlapping distribution of OC and NOC (Boeckx and Hornstein, 2007). However, I have already shown that the MTC cannot apply to RatCs.}
because they must be NOC for cases of superimplicit control, they must always be NOC, even in cases of subject control, and object control must be ruled out some other way.

Because grammatical theories of control must be rejected, we have a somewhat surprising two-part consequence of the effect of grammatical relation on conceptual notions of responsibility. First, subjects, even derived subjects, can be viewed as responsible for the fact expressed by the clause containing them. Second, surface objects are viewed as not directly responsible for the fact expressed by their host clause, and this effect is strong enough to exclude them from consideration when determining PRO’s reference. This second consequence may seem prima facie like an unattractive postulate, but it seems to be necessary.

This paper has additional consequences in the study on constraints on reference. Although it is not done through grammatical means, the referent of PRO in a RatC is restricted quite strongly. This provides evidence that there can be strong constraints on reference that are non-grammatical but that are nevertheless highly sensitive to grammatical structure. In prior literature, pragmatic constraints on reference in general have been described as sensitive to syntactic structure only inasmuch as it effects information structure. Examples from Kehler (2004), repeated in (166), for example, showed that the referent of a pronoun can be constrained by topichood. Because the subject of a passive is a strong topic, the pronouns in (166a-b) are much more likely to refer to the demonstrators than to the city council, even if resolution of the pronoun to the demonstrators results in a less coherent discourse. In (167), on the other hand, conceptual constraints play a much stronger role.

(166) The demonstrators were denied a permit by the city council because…
   a. …they feared violence.
   b. …they advocated violence.

(167) The city council denied the demonstrators a permit because…
   a. …they feared violence.
   b. …they advocated violence.

Although as I have argued here, PRO in a RatC is something like a free pronoun its interpretation is not constrained solely on the basis of coherence and information structure. This can be seen for examples such as (168) and (169). In (168), if coherence were the only issue, then it would be surprising that PRO could not refer to the object of the matrix clause, as this would result in a sensible discourse; boys are much more likely than alarms to wash themselves before school.

(168) An alarm woke the boy1 up early in order PRO1 to wash himself before school.
Similarly, if information-structural constraints were as important in RatCs as they are in examples such as (166), without the additional constraints of Responsibility Theory, then the strongly preferred interpretation of (169) should be one where PRO refers to the demonstrators. This does not seem to be the case. PRO in (169) seems much more likely to refer to the city council, despite the information-structurally strong position of the demonstrators.

(169) The demonstrators were denied a permit by the city council in order PRO to reduce violence.

PRO in a RatC, then, is subject to constraints on reference that go beyond coherence and are sensitive to structure for reasons other than information structure. The structural constraint relevant to Responsibility Theory affects who can be seen as responsible for a fact. This in turn affects the constraint on the reference of PRO. Responsibility Theory states that objects are unable to control PRO in a RatC because they are represented as non-responsible. Thus, control is determined through a conceptual notion that is independent of information structure but is nevertheless sensitive to syntactic structure.

Responsibility Theory, then, adds to the type of constraints that we see on reference. These constraints can be conceptual as in (167), or purely structural, as with reflexives. They can also be sensitive to structure, but still not grammatical. This can arise through the effect syntactic structure has on information structure, as in (166), or it can be due to how syntactic structure affects the way individuals and events are represented, as is seen in Responsibility Theory.

References


