

# Null Case and the Distribution of PRO

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Chomsky and Lasnik (1993) argue convincingly that PRO has null Case, checked by nonfinite T, and suggest that this may explain PRO's narrow distribution. However, their analysis falls short of reaching this goal. Here, I refine the theory of null Case so as to fully account for the distribution of empty and lexical subjects of nonfinite clauses, concluding that this minimalist analysis is more explanatory than earlier ones based on the theories of binding and government. In particular, I argue that whether or not nonfinite T can check null Case depends crucially on its temporal properties and present a number of empirical arguments supporting this conclusion.

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The empty category PRO in (1) has two well-known and intriguing properties.

- (1) a. Kerry attempted PRO to study physics.
- b. Kerry persuaded Sarah PRO to study physics.
- c. It is not easy PRO to study physics.

First, PRO can only be the subject of a nonfinite clause.<sup>1</sup>

- (2) a. \*Pam believes PRO solved the problem.
- b. \*Sarah saw PRO.
- c. \*Sarah saw pictures of PRO.

Second, the reference of PRO is limited: PRO refers to the matrix subject in (1a) and the matrix

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<sup>1</sup> PRO can also be the subject of a clausal gerund, as in (i) (Wasow and Roeper 1972, Reuland 1983).

- (i) Sarah remembers PRO singing the song.

Whether nominal gerunds like the one in (ii) have PRO subjects depends on a number of issues that go beyond the scope of this article.

- (ii) Sarah remembers the singing of the song.

For reasons of space, I will focus on infinitival clauses headed by *to* in English.

object in (1b), whereas in (1c) it is interpreted as universally bound (Epstein 1984). This article is solely concerned with the first of these two properties: PRO's distribution.<sup>2</sup>

## 1 PRO and the Binding Theory: The PRO Theorem

Chomsky (1981) argues that (3) describes the distribution of PRO.

(3) PRO is ungoverned.

Implicit in (3) is the assumption that the subject position of nonfinite clauses (and gerunds) is ungoverned.<sup>3</sup> Given this stipulation, and the further assumption that PRO is both a pronoun and an anaphor, Chomsky (1981) derives (3) from the axioms of the binding theory in (4)–(5).<sup>4</sup>

(4) a. An anaphor must be bound in its governing category.  
b. A pronoun must be free in its governing category.

(5) The governing category for Y is the minimal NP or IP containing Y, a governor of Y, and a SUBJECT accessible to Y.<sup>5</sup>

The logic of the deduction is straightforward: if PRO is an anaphor and a pronoun, it must simultaneously be bound and free in its governing category. The only way for PRO to meet these contradictory requirements is to not have a governing category. An auxiliary assumption ensures that the only way to not have a governing category is to be ungoverned—hence (3). This ‘‘PRO Theorem’’ is not unappealing, at least insofar as (3) both correctly describes the distribution of PRO and follows from the independently necessary binding theory.<sup>6</sup>

However, one might raise a question about the role of *government* in the binding theory, which seems to be solely to deduce (3). As Chomsky (1981:220–221) acknowledges, the only consequence of replacing (4)–(5) with the much simpler (6)–(7) is loss of the PRO Theorem.

<sup>2</sup> For discussion of the interpretation of PRO, see Chomsky 1981, Chomsky and Lasnik 1977, Manzini 1981, Postal 1970, and Williams 1980; see Martin 1996 and Hornstein 1999 for a minimalist perspective.

<sup>3</sup> If I governs the specifier of finite IP, the null hypothesis is that I governs the specifier of nonfinite IP as well. Also, as Watanabe (1993) notes, the same question arises with respect to government by C: if C governs the specifier of finite IP, it should govern the specifier of nonfinite IP.

<sup>4</sup> The discussion here is stated in terms of the binding theory in Chomsky 1981. The theory in Chomsky 1986b is carefully designed to maintain the binding-theoretic account of PRO and retains all of the conceptual problems I discuss below, even if the technical details differ.

<sup>5</sup> SUBJECT includes standard subjects and Agr. The definition of *accessible* is in (i). See Chomsky 1981 for further discussion.

- (i)  $\beta$  is accessible to  $\alpha$  if  
a.  $\beta$  c-commands  $\alpha$ , and  
b.  $\beta$  is not coindexed with any category containing  $\alpha$ .

An *LI* reviewer notes that the analysis depends on the stipulation that finite Agr is a SUBJECT whereas nonfinite Agr is not. On the other hand, if nonfinite clauses simply lack Agr altogether, no real stipulation seems necessary. Given that nonfinite clauses (at least those with the relevant binding properties) never exhibit visible agreement for person, number, or gender, the latter view is not implausible.

<sup>6</sup> Still, as an *LI* reviewer points out, there is little independent reason to stipulate that PRO is a pronoun and an anaphor.

- (6) a. An anaphor must be bound in its binding domain.  
 b. A pronoun must be free in its binding domain.
- (7) The binding domain for Y is the minimal NP or IP containing Y and a SUBJECT accessible to Y.

In fact, as can easily be verified, the purpose of *all* reference to government in the binding theory is to account for PRO (see Martin 1996).

## 2 A Case-Theoretic Approach to PRO

### 2.1 PRO and Visibility

It follows from the PRO Theorem that PRO must not be Case-marked.<sup>7</sup> To have Case, PRO would have to be governed by a Case-assigning head, thus having a governing category. This consequence leads to a serious conceptual problem for the theory of Case.

One proposal instantiating the idea that (some) NPs must have Case is the Case Filter in (8).

- (8) \*[NP], where NP is lexical and does not have Case.

However, Lasnik and Freidin (1981) argue that (8), which refers only to lexical NPs, cannot explain the facts in (9).

- (9) a. \*the man [who<sub>i</sub> [it seems [<sub>t<sub>i</sub></sub> to be here]]]  
       cf. *the man who it seems is here*  
 b. \*the man [ $\emptyset$ <sub>i</sub> [it seems [<sub>t<sub>i</sub></sub> to be here]]]  
       cf. *the man it seems is here*

Since the trace of a *wh*-operator is not lexically realized, according to (8), (9) would not be predicted to violate the Case Filter; and it is not easy to see how else to rule out sentences containing such noun phrases.

Chomsky (1981) makes an alternative proposal.

- (10) An A-chain is visible for  $\theta$ -marking if it contains a Case position.

A *wh*-trace, though not lexical, requires Case so that it is visible for  $\theta$ -marking at LF.

Although (10) directly accounts for (9), it raises new questions. For example, why must expletives appear in Case positions, as indicated by (11)?

- (11) a. It seems [there is a man in the room].  
 b. \*It seems [there<sub>i</sub> to be a man in the room].

<sup>7</sup> Bouchard (1983) proposes that PRO cannot tolerate Case, hence appears only in non-Case positions. I argue instead that there is substantial evidence that PRO must have Case. See Lasnik 1992b for other arguments against Bouchard's analysis.

However, Chomsky (1986b, 1993, 1995) suggests that it is not *there* but *a man* that needs Case in (11b), arguing that *there* must be ‘‘replaced’’ by the postverbal argument covertly.<sup>8</sup>

The more serious question concerns PRO. As we have seen, PRO cannot be Case-marked without inducing a violation of the binding theory. Yet it invariably receives a  $\theta$ -role (Safir 1985). Accordingly, a disjunction must be added to (10).

- (12) A chain is visible for  $\theta$ -marking if it contains a Case position *or* is headed by PRO.

However, insofar as the exemption for PRO remains unexplained, (12) is simply a statement of a problem.

## 2.2 PRO and Null Case

Chomsky and Lasnik (1993) (hereafter C&L) argue convincingly that PRO has Case, thus eliminating the anomaly in (12). They further propose that, contrary to standard assumptions, even non-finite T (and *-ing* clausal gerunds) checks Case. One problem for this assumption, however, is the impossibility of lexical subjects in many control infinitivals.

- (13) a. \*Kerry attempted Bill to study physics.  
 b. \*Kerry persuaded Sarah Bill to study physics.  
 c. \*It is not easy Bill to study physics.

Thus, C&L conclude that *to* and *-ing* check *null Case* and, crucially, that PRO is the only NP compatible with such Case.

The problem of PRO’s visibility disappears, but what about the distribution of PRO—the fact that PRO is limited to the subject of nonfinite clauses? C&L argue that this can be made to follow from a further assumption: PRO only has null Case.<sup>9</sup> The sentences in (2), repeated as (14), are ruled out since PRO cannot check nominative, accusative, dative, and so on.

- (14) a. \*Pam believes [PRO solved the problem].  
 b. \*Sarah saw PRO.  
 c. \*Sarah saw [pictures of PRO].

Unfortunately, however, C&L’s proposal is unable to fully account for PRO’s distribution. In particular, the assumption that nonfinite T checks null Case implies that PRO can be the subject of any infinitival. However, this prediction is not met, as the well-known contrasts in (15)–(16), which have long been at the center of any discussion of PRO’s distribution (Chomsky 1981, Kayne 1981), show.<sup>10</sup>

<sup>8</sup> Belletti (1986) and Lasnik (1992a, 1995a) argue that the postverbal NP is Case-marked by *be*; if this is true, the fact that expletives appear only in Case positions remains a challenge to (10).

<sup>9</sup> Lexical gaps of this sort would be totally unexpected if Case and other formal features are *assigned* in the derivation. Given a *checking* theory of Case, however, they are not so surprising. Also, C&L’s proposal is reminiscent of a similar claim that English reflexives cannot have nominative Case, which is occasionally made to account for (i).

(i) \*Mary thinks herself is clever.

<sup>10</sup> However, Kayne (1981) notes that (15b) and (16b) are grammatical in some languages—for example, in many Romance languages, where PRO can be the subject even of propositional infinitivals.

- (15) a. Naomi tried to solve the problem.  
 b. \*Naomi believes to have solved the problem.
- (16) a. It was difficult for Naomi to solve the problem.  
 b. \*It seems to Naomi to have solved the problem.

Watanabe (1993) suggests that the ungrammaticality of (15b) follows from PRO's inability to check accusative Case (the Case feature of *believe*, or more precisely *v*, thus remaining).<sup>11</sup> As Watanabe notes, such a solution does not exist for (16b) if, as is plausible, *seem* does not check Case.

Not only does C&L's theory predict (15b) and (16b) to be grammatical; it also predicts (17a–b) to be ungrammatical.

- (17) a. Naomi believes her to have solved the problem.  
 b. She seems to Kim to have solved the problem.

A well-known generalization is that movement cannot take place from a Case position (Chomsky 1993, 1995). In other words, A-movement obeys Last Resort. This is illustrated in (18).<sup>12</sup>

- (18) a. \*Naomi<sub>i</sub> seems to *t*<sub>i</sub> that Kim solved the problem.  
 b. \*Naomi<sub>i</sub> strikes *t*<sub>i</sub> that Kim solved the problem.

In fact, A-movement cannot take place from a Case position even in situations where checking would otherwise fail (Martin 1992a, 1999). Consider the ungrammatical (19a–b), where Case mismatch arises.

- (19) a. \*It seems to he that Kim solved the problem.  
 b. \*It strikes he that Kim solved the problem.

Even so, movement of the nominative pronoun to a position where nominative Case checking would succeed is not permitted.

<sup>11</sup> Two remarks are in order here.

First, I basically assume the theory of phrase structure, including the nature and arrangement of lexical and functional categories, outlined in Chomsky 1995 (where my assumptions depart from Chomsky's, as in my analysis of *for*-infinitivals, it will be made clear in the text).

- (i) a. [<sub>CP</sub> (Spec) C [<sub>TP</sub> (Spec) T [<sub>VP</sub> Subj *v* [<sub>VP</sub> V Obj]]]]  
 b. [<sub>CP</sub> (Spec) C [<sub>TP</sub> (Spec) T [<sub>VP</sub> V Obj]]]

I assume the difference between finite and nonfinite clauses is simply a matter of the feature content of T (presence or absence of Agr, semantic features of T, Case, etc.). One caveat is that I am setting aside entirely the issue of whether control infinitivals (or for that matter finite clauses) are invariably CPs, not to mention the categorial status of noncontrol infinitivals. For detailed discussion of these intricate questions, see Bošković 1995, 1996, Martin 1996, 1999, and especially Ormazabal 1995.

Second, Watanabe's (1993) suggestion assumes that Case checking is obligatory not only for N but also for the functional categories T and *v*. Chomsky (1995) argues that Case features of all categories are uninterpretable, hence must be eliminated prior to LF; see also Martin 1999.

<sup>12</sup> I am setting aside many important issues regarding Last Resort, such as whether it is Greed (Chomsky 1993) or Enlightened Self-Interest (Lasnik 1995a,b), which are not crucial here.

- (20) a. \*He<sub>i</sub> seems to *t*<sub>i</sub> that Kim solved the problem.  
 b. \*He<sub>i</sub> strikes *t*<sub>i</sub> that Kim solved the problem.

Hence, (17a–b) are also predicted to be ungrammatical, if the specifier of nonfinite T is invariably a Case position.<sup>13</sup>

Though its core aspects are very appealing, C&L's analysis—in particular, the assumption that nonfinite T invariably checks null Case—incorrectly predicts that PRO can be the subject of any infinitival and that raising out of infinitivals is never possible. The first problem could in principle be solved by maintaining some version of the PRO Theorem.<sup>14</sup> It is not easy to see how the second problem can be overcome, however, given the well-established notion of Last Resort.

Is there a way to maintain C&L's overall approach, while not losing an account of the descriptive generalizations in (21) (Chomsky 1981, Kayne 1981)?

- (21) a. The subject of control infinitivals is PRO or, in the case of *for*-infinitivals, lexical DP.  
 b. The subject of raising infinitivals is trace at LF.

I believe there is, and the solution I propose is fairly straightforward: T in control infinitivals checks null Case, whereas T in raising infinitivals does not check Case. In the sections that remain, I show that this distinction is not ad hoc but rather conceptually and empirically well motivated.

### 3 The Tense of Infinitives and Null Case

#### 3.1 *The Interpretation of Two Types of Nonfinite Tense*

Interestingly, the proposed Case distinction between control infinitivals and raising infinitivals correlates with an interpretive distinction noted by Stowell (1982).

Stowell observes that temporal properties of control infinitivals differ from those of raising infinitivals. The *event time* of control infinitivals is, in some sense, *unrealized* or future with respect to that of the matrix.

<sup>13</sup> (17b) involves overt A-movement. I assume, following Chomsky (1995), that covert A-movement takes place in (17a).

<sup>14</sup> Note that any independent motivation for the claim that *believe* governs the subject of its infinitival complement vanishes under current theory. Chomsky (1981) argues for a government relation based on the possibility of lexical NPs and the impossibility of PRO.

- (i) a. John believes [her to be clever].  
 b. \*John believes [PRO to be clever].

Chomsky (1995), on the other hand, argues that exceptional Case marking (ECM) in (ia) involves checking in the matrix clause; hence, government is irrelevant. Government across certain nonfinite clausal boundaries was also thought to be needed to account for the contrasts in (ii).

- (ii) a. She is believed [*t* to be clever].  
 b. \*She is illegal [*t* to park here].

However, as will be clear below, the complementary distribution of PRO and NP-trace follows from Last Resort under my theory.

- (22) a. Ginny remembered to bring the beer.  
 b. Sara convinced Bill to go to the party.  
 c. Bob wants to buy a new camera.

In (22a) remembering precedes beer-bringing; in (22b) Bill has been convinced to go to a future party; in (22c) the purchase of a new camera is as yet unrealized.<sup>15</sup>

As Stowell shows, the interpretation of raising infinitivals is different. In (23) the event time of the infinitival is *identical* to or *simultaneous* with that of the matrix.

- (23) a. Zagallo believed Ronaldo to be the best.  
 b. The doctor showed Bill to be sick.  
 c. The defendant seemed to the DA to be guilty.

For example, (23a) is true if and only if at some past time/interval *t*, Zagallo believed that Ronaldo was the best at/during *t*; it cannot mean that at some past time/interval *t*, Zagallo believed that Ronaldo would be (become) the best at some future time/interval *t'*.<sup>16</sup>

Stowell characterizes this interpretive difference in terms of the feature [ $\pm$ tense]: control infinitivals are [+tense] whereas raising infinitivals are [-tense].<sup>17</sup> This provides a natural characterization for the proposed Case distinction between control and raising as well: [+tense] checks Case. More precisely, [+tense, +finite] checks nominative Case, [+tense, -finite] checks null Case, and [-tense, -finite] does not check Case at all.

Following Stowell (1982) and Bresnan (1972), I assume that [+tense] in control infinitivals is in some sense future-oriented. However, tensed infinitival clauses differ in many ways from finite sentences with *will*. I argue that tense in control infinitivals is invariably a modal element, but that it corresponds most closely to *would* or, in certain contexts, *should* (see Martin 1996).

Consider (24). In (24a), for example, not only must beer-bringing follow remembering; it must also occur after speech time (Stowell 1993, Uribe-Etxebarria 1994).

<sup>15</sup> An *LI* reviewer suggests that the following examples do not fall under Stowell's generalization (see also section 3.2):

- (i) a. John tried to sneeze.  
 b. Mary wants to be happy.

Although I agree these data are more subtle, I am not convinced that they constitute counterexamples. Unlike in the reviewer's dialect, in my dialect *John tried to sneeze* implies that John failed in his attempt to sneeze. Even if there are speakers for whom this implication does not hold, I assume that there would still be a *temporal ordering* between whatever it is that John tries (in effect, what causes the sneeze: say, thinking about his wife, sniffing some pepper, or whatever) and the sneezing event itself, and not simultaneity. Also, it seems to me that for (ib) to be uttered felicitously, the speaker must believe that Mary is currently not happy; namely, the state denoted by the complement is unrealized.

<sup>16</sup> I assume that the semantic interpretation of a sentence like *John discovered Mary to be pregnant* is simply that Mary is pregnant at the time of John's discovery. The fact that we assume the period of Mary's pregnancy to include times prior to and after the matrix event time is most likely due to pragmatic factors, in particular our knowledge/beliefs about human pregnancy and its duration.

<sup>17</sup> A possibility consistent with these facts is that raising infinitivals are invariably present tense. I provide an argument against this possibility in the next section.

- (24) a. Ginny remembered that she will bring the beer.  
 b. Sarah convinced Bill that he will go to the party.

By contrast, there is no such restriction in (22); the embedded event time, although future with respect to the matrix event time, may be prior to speech time. Note that *would* behaves like nonfinite tense in this respect.

- (25) a. Ginny remembered that she would bring the beer.  
 b. Sarah convinced Bill that he would go to the party.

The future orientation of nonfinite tense might also explain its general incompatibility with perfective aspect.

- (26) a. ??Ginny remembered to have bought the beer.  
 b. ??Sarah convinced Bill to have gone to the party.

Although no such restriction exists with *will*, as in (27), a similar tension is manifest with *would*, as in (28).

- (27) a. Ginny remembered that she will have bought the beer (by the time she goes to bed this evening).  
 b. Sarah convinced Bill that he will have gone to the party (by the time he goes to bed this evening).  
 (28) a. ??Ginny remembered that she would have bought the beer (by the time she goes to bed this evening).  
 b. ??Sarah convinced Bill that he would have gone to the party (by the time he goes to bed this evening).

The interpretation of control infinitivals corresponds most closely to that of finite sentences containing modals, notably *would*. Section 3.2 provides further evidence for this conclusion.

### 3.2 Implicative and Factive Complements

Although the infinitival complements of many control predicates are future-oriented, Karttunen (1977) observes that implicative complements behave differently.<sup>18</sup>

- (29) a. Romário happened to score in every game.  
 b. Brazil turned out to win the World Cup.

The sentences in (29) entail the corresponding ones in (30).

- (30) a. Romário scored in every game.  
 b. Brazil won the World Cup.

<sup>18</sup> I assume that the examples in (29) involve control because eventive predicates are possible in the infinitival complement (see section 3.3). In other words, predicates such as *happen* and *turn out*, which also allow expletive subjects, are ambiguous between raising and control. See section 6 and especially footnote 42 for further discussion of the ambiguity of raising-to-subject predicates.

For this reason, Karttunen assumes that the complements in (29) are *past*, on a par with those in (30).

Factive complements like those in (31) pose a similar problem.

- (31) a. Kerry was surprised to solve the problem.  
b. It pleased Bill to win the election.

The sentences in (31) have readings on which the truth of the corresponding sentences in (32) is presupposed.

- (32) a. Kerry solved the problem.  
b. Bill won the election.

Hence, Karttunen argues that these complements are also *past*.

(29) and (31) show that nonfinite tense is not invariably future. However, if the semantics of nonfinite tense is parallel to that of certain types of modals, a uniform analysis may in fact be possible.

Modals are typically future-oriented, yet they differ from pure tenses in that they can have a variety of interpretations, depending on factors such as the presence of other operators, presuppositions, and the prevalence of other context variables. This point is emphasized by Enç (1996), who argues that *will* is a modal rather than a pure tense since it need not always denote future. According to Enç, nonfuture uses of *will* cover a range of modalities, such as “epistemic necessity” in (33) and “dispositional necessity” in (34).

- (33) Pat will be sleeping right now.  
(34) Sarah will play music loud to annoy her mother.

Note that the finite complements of the implicative predicates with *would* in (35) and factive predicates with epistemic *should* in (36) are understood as denoting *past*.

- (35) a. It happened that Romário would score in every game.  
b. It turned out that Brazil would win the World Cup.  
(36) a. It surprised Kerry that she should solve the problem.  
b. Bill was happy that he should win the election.

Consider also nonfinite indirect questions, as in (37).

- (37) Mary wasn't sure whether to do that.

The best finite paraphrase of (37) is (38a), not (38b).

- (38) a. Mary wasn't sure whether she should do that.  
b. Mary wasn't sure whether she would do that.

Thus, *to* in (37) is interpreted as nonepistemic *should*.

The discussion here suggests that a uniform analysis of the interpretation of nonfinite tense may indeed be possible—at least as uniform as saying that it can be one of a restricted number of modals, where the choice of modal seems to depend on the embedding predicate. Here it should

be kept in mind that all that is crucial to my proposal is that control infinitivals contain some sort of tenselike element; whether it is a modal or a pure tense is irrelevant.<sup>19</sup> Also, as I argue below, there is another test for [+tense] in infinitivals that abstracts away from the issue of future orientation entirely: the possibility of eventive predicates.

### 3.3 Tense and Eventive Predicates

Eventive predicates are possible in control infinitivals but not in raising infinitivals. Whereas the infinitives in (22) are eventive, those in (23) are stative. (39) shows that eventive predicates are impossible in raising infinitivals.<sup>20</sup>

- (39) a. \*Geno believed Rebecca to win the game.  
 b. \*The doctor showed Bill to take the wrong medicine.  
 c. \*The defendant seems to the DA to steal the car.

Enç (1990) argues that eventive predicates contain variables that must be bound by tense or a modal/temporal operator. Stative predicates, on the other hand, do not have variables that need to be bound.<sup>21</sup> If so, the ungrammaticality of (39a–c) follows from the hypothesis that raising

<sup>19</sup> Gerunds, which I assume are [+tense], also fail to always denote future. Stowell (1982) takes gerunds to be [–tense]. Stowell claims that the complement in (ia) has an independent tense interpretation (unrealized future) whereas the complement in (ib) is interpreted pragmatically.

- (i) a. Jenny remembered to bring the wine.  
 b. Jenny remembered bringing the wine.

However, I have argued that the absence of tense in the complement entails the simultaneous reading, in which case the fact that the event denoted by the gerund in (ib) can be interpreted as completely prior to ‘‘remembering’’ is not predicted if gerunds are [–tense]. A possible explanation of the difference between (ia) and (ib) is that, whereas T in *to*-infinitivals is invariably a modal, T in clausal gerunds is a pure tense, which can be past or present depending on compatibility with the embedding predicate.

<sup>20</sup> Of course, the following examples are grammatical:

- (i) a. Geno believed Rebecca to have won the game.  
 b. The doctor showed Bill to have taken the wrong medicine.  
 c. The defendant seems to the DA to have stolen the car.

Unlike the predicates in (39), however, the predicates in (i) are *perfective* and can thus be considered stative (see, e.g., Enç 1990). I am grateful to an *LI* reviewer for reminding me to mention this fact.

<sup>21</sup> The notion of *event variable* used here must be distinguished from Davidsonian *event arguments* since the latter occur with both stative and nonstative predicates (Higginbotham 1985). Also, as Enç points out, the stative/eventive distinction is not the same as the stage-level/individual-level distinction (Kratzer 1989, Diesing 1992). All individual-level predicates are stative, but not all stage-level predicates are eventive; stage-level predicates such as *available* would not be eventive according to Enç’s test. In order not to lose Kratzer’s and Diesing’s results, Enç assumes that all stage-level predicates have event variables and argues that the event variable of an eventive stage-level predicate *must* be bound whereas the event variable of a stative stage-level predicate *may* be bound. On the other hand, it is not at all clear that the stage-level/individual-level distinction is related to event variables; see Raposo and Uriagereka 1995 for an alternative analysis.

infinitivals are [ $-$ tense].<sup>22</sup> In contrast, control infinitivals allow eventive predicates since they are tensed.<sup>23</sup>

As Enç notes, present tense eventive predicates in English cannot denote an individuated (punctual) event.

- (40) a. John sang (yesterday at 12:00 p.m.).  
 b. John sings (\*right now).

Crucially, (40b) lacks a reading where John's singing occurs punctually at speech time.<sup>24</sup> Present tense stative predicates, on the other hand, allow such readings.

- (41) a. John was sick (yesterday at 12:00 p.m.).  
 b. John is sick (right now).

Just as I have argued that the absence of tense in raising infinitivals leads to the absence of individuated eventive predicates, so Enç (1990) concludes, from (40), that English lacks finite present tense. This analysis of (40a–b) is not without problems. One is to account for inflectional paradigms of nonpast verbs in English, which would somehow have to be explained solely in terms of person/number (see Johnson 1990). Another is to account for nominative on subjects of finite clauses, given my arguments that the ability to check Case is a property of [ $+$ tense].<sup>25</sup>

There are further reasons to doubt Enç's proposal that English lacks present tense. Consider the following sentences:

- (42) a. John proved Mary to be sick.  
 b. John proved that Mary is sick.

<sup>22</sup> It must be the case that the tense in the matrix clause cannot bind the event variable in the embedded infinitive. This should plausibly follow from some sort of minimality condition on the binding relation. Note also that the same must be said to account for the following example, which cannot mean that John (rarely) thinks that Mary rarely sings (see footnote 24):

- (i) John rarely thinks that Mary sings.

<sup>23</sup> Gerunds behave as if they are [ $+$ tense] in this respect as well.

- (i) I remember PRO drinking the wine.

<sup>24</sup> *John sings* is not ungrammatical. It can mean, for example, that John sings habitually. Enç argues that the event variable of a present tense eventive predicate must be in the scope of a temporal operator, one possibility being an empty habitual operator. Other possibilities are illustrated in (i).

- (i) a. If/When John sings, everyone will leave the room.  
 b. John often/rarely sings.  
 c. Firemen put out fires.

A present tense eventive predicate appears in the scope of a conditional operator in (ia), an adverb of frequency in (ib), and a generic operator in (ic).

It is of course predicted that the sentences in (ii) are acceptable on nonindividuated readings.

- (ii) a. I believe John to sing.  
 b. Firemen are believed to put out fires.

Although an *LI* reviewer suggests that this prediction is not borne out, every native speaker of English I have consulted finds (iia–b) perfectly acceptable on the intended readings.

<sup>25</sup> This point was brought to my attention by an *LI* reviewer.

For (42a), the correct interpretation results whether it is assumed that the embedded infinitival has present tense or no tense whatsoever. Either way, the time/interval of Mary's being sick will be simultaneous with that of the matrix event time. However, this is not the interpretation of (42b), in which the time/interval of Mary's sickness "contains" both the matrix event time and speech time—the so-called *double-access* reading. Though the double-access reading is possible in (42a), crucially, it is *obligatory* in (42b).

A number of proposals have been made regarding how to derive double-access readings (see Enç 1987, Stowell 1993). All of them share one property: double-access readings correlate with *present* tense in English. This implies that present tense must be distinguished from *no tense at all*.<sup>26</sup>

I have argued, following Stowell (1982), that there are two types of infinitivals. T in infinitivals selected by control predicates is [+tense] and checks Case, whereas T in infinitivals selected by raising predicates is [-tense] and does not check Case.<sup>27</sup> In the next section I discuss syntactic evidence that supports this proposed distinction.

## 4 Syntactic Evidence for [+Tense] in Control Infinitivals

### 4.1 Verb Raising in Icelandic

Verb raising in Icelandic supports the hypothesis that control infinitivals differ from raising infinitivals, supporting the idea that the former are in many ways more like finite clauses. Icelandic finite main verbs and auxiliaries raise to T overtly (Thráinsson 1984, Holmberg 1986), as seen in (43).<sup>28</sup>

- (43) a. ... að María las ekki bókina.  
           COMP María read not the-book  
       b. \*... að María ekki las bókina.  
       c. ... að María hefur ekki lesið bókina.  
           COMP María has not read the-book  
       d. \*... að María ekki hefur lesið bókina.

<sup>26</sup> Of course, an alternative to Enç's explanation for the impossibility of present tense eventive predicates in English becomes necessary. One speculation is that present tense in English, in some sense, *denotes* speech time (see Enç 1987) and that its quasi-referential nature (i.e., it behaves more like the definite description *the time of utterance* than like an operator such as *at some past/future time*) is related to its inability to license eventive predicates.

<sup>27</sup> As noted above, PRO can be the subject of a propositional infinitival in Romance. Watanabe (1993) points this out as a potential problem for my theory. However, Bošković (1995) argues that Romance propositional infinitivals exhibit many properties associated with [+tense]. For example, he shows that eventive predicates are possible in propositional infinitivals with PRO subjects in French.

<sup>28</sup> The order V+Neg is assumed to indicate that overt raising has taken place (Emonds 1978, Pollock 1989).

As Thráinsson (1984) observes, nonfinite verbs in Icelandic can also undergo verb raising.

- (44) a. Maria lofaði [að lesa ekki bókina].  
 Maria promised COMP read not the-book  
 ‘Maria promised not to read the book.’  
 b. \*Maria lofaði [að ekki lesa bókina].  
 Maria promised COMP not read the-book

However, not all infinitives can raise to T in Icelandic, as the following examples from Holmberg 1986 show:

- (45) a. Ég taldi [Mariu ekki lesa bókina].  
 I believed Maria not read the-book  
 ‘I believed Maria not to have read the book.’  
 b. \*Ég taldi [Mariu lesa ekki bókina].  
 I believed Maria read not the-book
- (46) a. Maria virtist [t ekki lesa bókina].  
 Maria seemed not read the-book  
 ‘Maria seemed not to read the book.’  
 b. \*Maria virtist [t lesa ekki bókina].  
 Maria seemed read not the-book

Given my analysis, verb raising in Icelandic correlates with the presence of [+tense], providing a uniform analysis of (43) and (44). The impossibility of verb raising in the raising infinitivals in (45)–(46) follows immediately from Last Resort, as there is no driving force for the movement.

#### 4.2 Agreeing Functional Categories and VP-Ellipsis

Lobeck (1991) and Saito and Murasugi (1990) argue that only *agreeing functional categories*, as proposed by Fukui and Speas (1986), permit ellipsis of their complement. Fukui and Speas assume the following taxonomy of functional categories:

(47)	<i>Agreeing</i>	<i>Nonagreeing</i>
T	[+tense]	to
D	's	a(n), the, that, this
C	[+wh]	that, if, for

Saito and Murasugi (1990) show that only the complement of an agreeing determiner can undergo ellipsis.

- (48) a. [<sub>DP</sub> Lasnik [<sub>D</sub> 's] [<sub>NP</sub> class]] was canceled but [<sub>DP</sub> Saito [<sub>D</sub> 's] [<sub>NP</sub> e]] will be offered.  
 b. \*[[<sub>DP</sub>[<sub>D</sub> A] [<sub>NP</sub> student]] may not select a major until [<sub>DP</sub>[<sub>D</sub> the] [<sub>NP</sub> e]] finishes all the general education courses.

Similarly, IP-ellipsis (sluicing) is possible only if C agrees with a *wh*-phrase in its specifier (Ross 1969, Takahashi 1994).

- (49) Someone saw the defendant at the scene of the crime . . .  
 a. the DA found out [<sub>CP</sub> who [<sub>C</sub> + *wh*] [<sub>IP</sub> *e*]].  
 b. \*the DA found out [<sub>CP</sub>[<sub>C</sub> that] [<sub>IP</sub> *e*]].

VP-ellipsis is possible in (50), as expected if T agrees with the subject of a finite clause.

- (50) a. Pam [<sub>VP</sub> likes soccer] and Rebecca [<sub>T</sub> does] [<sub>VP</sub> *e*] too.  
 b. Bill believes Sarah is [<sub>AP</sub> honest], and he believes Kim is [<sub>AP</sub> *e*] as well.

On the other hand, VP-ellipsis is not possible in (51), presumably since nonfinite T does not enter an agreement relation with its specifier.<sup>29</sup>

- (51) a. \*I consider Pam to [<sub>VP</sub> like soccer], and I believe [Rebecca [<sub>T</sub> to] [<sub>VP</sub> *e*]] as well.  
 b. \*Bill believes Sarah to be [<sub>AP</sub> honest], and he believes [Kim [<sub>T</sub> to] [<sub>VP</sub> *e*]] as well.

However, Saito and Murasugi (1990) observe (also Takahashi 1994) that VP-ellipsis is possible in control infinitivals.<sup>30</sup>

- (52) a. Kim isn't sure she can [<sub>VP</sub> solve the problem], but she will try [PRO [<sub>T</sub> to] [<sub>VP</sub> *e*]].  
 b. Rebecca wanted Jill to [<sub>VP</sub> join the team], so Pam persuaded her [PRO [<sub>T</sub> to] [<sub>VP</sub> *e*]].

Furthermore, Rizzi (1990) points out a similar contrast with VP-preposing, possible out of control infinitivals but not raising (ECM) infinitivals.<sup>31</sup>

- (53) a. [<sub>VP</sub> Fix the car], John did [<sub>VP</sub> *e*].  
 b. [<sub>VP</sub> Fix the car], John tried PRO to [<sub>VP</sub> *e*].  
 c. \*[<sub>VP</sub> Know the answer], I believe Bill to [<sub>VP</sub> *e*].

These surprising asymmetries between control and raising infinitivals with respect to VP-ellipsis and VP-preposing have long resisted a satisfactory explanation. However, these facts follow immediately from my proposal that nonfinite T checks Case in control infinitivals but not in

<sup>29</sup> I assume the accusative subject moves overtly to the specifier of nonfinite T in (51) to check EPP (Chomsky 1995). Yet this does not count for the purposes of the condition on ellipsis. Presumably, a Case/ $\phi$  agreement relation must be established, and movement solely to check an EPP-feature does not suffice.

<sup>30</sup> One *LJ* reviewer claims not to get a contrast between VP-ellipsis in raising infinitivals and VP-ellipsis in control infinitivals, finding both to be acceptable. Although there does appear to be some variability among speakers of English, the majority of people I have consulted report judgments along the lines of those in the text. Most others at least find a significant contrast between raising and control in the predicted direction. I have so far encountered only two English speakers who find little or no contrast (including the reviewer cited above).

<sup>31</sup> This suggests that VP-ellipsis and VP-preposing should be given parallel analyses. However, a detailed discussion of empty VP complement phenomena is beyond the scope of this article.

raising infinitivals, given the generalization that only functional categories that undergo specifier-head agreement can license an empty complement.<sup>32</sup>

## 5 *Want-Infinitivals*

In this section I address questions raised by infinitival complements of *want*-type verbs, or *want*-infinitivals.<sup>33</sup>

- (54) a. John wants [PRO to win].  
 b. John wants [for his team to win].  
 c. John wants [his team to win].

The most striking property of *want*-infinitivals is that the subject can be either PRO or lexical DP, which are otherwise in complementary distribution. The possibility of PRO in (54a) shows that null Case is checked by nonfinite T in *want*-infinitivals. It is generally assumed that Case on the lexical subject in (54b) is assigned under government by *for*. (54c) is more controversial: some analyses claim that Case in (54c) is assigned by a null *for* whereas others claim that the matrix verb is responsible (i.e., via ECM). I will argue instead that the embedded subject has null Case, checked by nonfinite T, in all of the examples in (54).

Given the results of the previous section, it is not surprising that VP-ellipsis is possible in examples like (54a).

- (55) John wants to win but Jill doesn't want to [<sub>VP</sub> *e*].

Interestingly, VP-ellipsis is possible even when the subject is lexical, as shown in (56).

- (56) a. John wants for his team to win whereas Jill wants for her team to [<sub>VP</sub> *e*].  
 b. John wants his team to win whereas Jill wants her team to [<sub>VP</sub> *e*].

As argued above, the possibility of VP-ellipsis implies that T enters a Case-checking relation with its specifier. Hence, (56) provides evidence that nonfinite T *can* enter a Case agreement relation with the subject in (54b) and (54c) as well as (54a).

<sup>32</sup> An *LI* reviewer suggests that the following examples may be problematic for the generalization on ellipsis assumed here:

- (i) Who do you believe to have been working on his thesis all night?  
 a. I believe Javi to have [<sub>VP</sub> *e*].  
 b. I believe Javi to have been [<sub>VP</sub> *e*].

However, the fact that the complement of *have* and *be* can undergo ellipsis, even in ECM infinitivals, does not contradict Lobeck's and Saito and Murasugi's generalization, which is about *functional* categories. Consider Lobeck's theory: Empty VPs must be governed. Lexical categories, such as *have* and *be*, are governors by definition. The agreeing/nonagreeing distinction is relevant only to determining the set of functional categories that are governors. Needless to say, there is a serious question here: how to derive all of this in a framework that denies government. Yet answering this inevitably requires further study.

<sup>33</sup> I assume that the relevant class consists of all infinitivals capable of appearing with *for* + lexical subject, including most adjunct and subject infinitivals.

Other well-known facts suggest that raising-to-object (or ECM) is not an option with *want*-infinitivals. Passivization of the subject of a *want*-infinitival is impossible, as shown in (57a), even though passive is allowed in principle, at least with some *want*-type verbs, as shown by (57b).

- (57) a. \*They were hoped [*t* to win].  
 b. It was hoped that they would win.

If the subject position of a *want*-infinitival is invariably a Case position, the ungrammaticality of (57a) follows from Last Resort. But Last Resort would also exclude raising-to-object.

I assume, following Chomsky (1995), that so-called ECM is movement of the subject of the infinitive to a specifier position in the higher clause. Lasnik and Saito (1991) provide numerous arguments, many of them based on insights of Postal (1974), supporting this analysis. They demonstrate that the subject of an ECM infinitival is able to c-command into adjuncts in the immediately higher clause. For example, the subject of the infinitive can bind an anaphor or negative polarity item contained in a matrix adjunct.

- (58) a. The DA proved [the defendants to be guilty] during each other's trials.  
 b. The CEO believed [none of the applicants to be qualified] during any of the interviews.

Binding into the higher clause is not possible when the binder is the subject of an embedded finite clause.

- (59) a. \*The DA proved [that the defendants were guilty] during each other's trials.  
 b. \*The CEO believed [that none of the applicants should be hired] during any of the interviews.

According to Lasnik and Saito (see Bach 1977 for similar conclusions), lexical subjects of *want*-infinitivals behave like subjects of finite complements in these respects, regardless of whether or not *for* is overtly present.

- (60) a. \*The DA wanted [the defendants to be convicted] during each other's trials.  
 b. \*The DA wanted [for the defendants to be convicted] during each other's trials.  
 (61) a. \*The CEO wanted [none of the applicants to be hired] during any of the interviews.  
 b. \*The CEO wanted [for none of the applicants to be hired] during any of the interviews.

The ungrammaticality of (60a) and (61a) suggests that Case of the lexical subject in (54c) cannot be checked by *want* but rather is checked by *to* or null *for*.

The possibility of VP-ellipsis indicates that Case can be checked in the specifier of nonfinite T in all of the examples in (54). Let us make the natural assumption, then, that the subject invariably has null Case. This raises important questions. First, why can lexical subjects have null Case in *want*-infinitivals but not in other control infinitivals? Second, what is the role of *for* in (54b)?

I argue that lexical DP is impossible in standard (i.e., *try*-type) control infinitivals because nonfinite T lacks  $\phi$ -features.<sup>34</sup> Suppose PRO differs from lexical DP in that it does not have (formal)  $\phi$ -features. Since PRO need not enter a  $\phi$ -feature-checking relation, it suffices to check null Case with [+tense, –finite] T. I also assume that *for* has  $\phi$ -features but does not check Case.<sup>35</sup> The derivation I propose for (54b) is illustrated in (62).

- (62) a. John wants [<sub>FP</sub> for [<sub>TP</sub> his team to [<sub>VP</sub> *t* win]]]  
 b. John wants [<sub>FP</sub> his team for [<sub>TP</sub> *t* to [<sub>VP</sub> *t* win]]]

The embedded subject checks null Case in the specifier of T overtly, as in (62a), then raises covertly to the specifier of FP to check  $\phi$ -features, as in (62b).

Support for this derivation is provided by the fact that the overt word order in Belfast English is as in (62b) whereas the word order in (62a) is impossible (Henry 1992). This suggests that  $\phi$ -features of F are strong in Belfast English and weak in so-called Standard English. The two will be identical at LF under my analysis.

Since the lexical subject in (54c) must check  $\phi$ -features, I assume, following Chomsky (1981), that null *for* is present.

- (63) John wants [<sub>FP</sub>  $\emptyset_{for}$  [<sub>TP</sub> his team to [<sub>VP</sub> *t* win]]].

A potential problem for the analysis in (63) is raised by the fact that the distribution of  $\emptyset_{for}$  is more limited than that of its overt counterpart *for* (Lasnik and Freidin 1981). Consider, for example, (64b), which is not so easily ruled out if it is assumed that Case is checked by  $\emptyset_{for}$  rather than *want*.

- (64) a. John wants very much [for his team to win].  
 b. \*John wants very much [ $\emptyset_{for}$  his team to win].

However, the contrast in (64) is arguably unrelated to Case. Note the strikingly similar contrast in (65), which also presumably has no explanation in terms of Case.

- (65) a. John believes without a doubt that his team will win.  
 b. \*John believes without a doubt  $\emptyset_{Comp}$  his team will win.

To account for (65), Stowell (1981) postulates a government requirement on empty complementizers. Pesetsky (1992) and Ormazabal (1995) give analyses of empty complementizer effects that do not rely on government. They argue quite convincingly that empty complementizers are zero affixes. In (65b)  $\emptyset_{Comp}$  must adjoin to *believe* in order to satisfy its affixal property. However, assuming the extraposed clause in (65b) is adjoined to VP, the trace of affixation violates Fiengo's

<sup>34</sup> This suggestion, first made in Martin 1992b, implies that some  $\phi$ -features of DPs must be checked. Chomsky (1995), on the other hand, argues that the  $\phi$ -features of DP, unlike those of T/v, are interpretable, hence do not need to be checked.

<sup>35</sup> Elsewhere (Martin 1996) I argue that *for* is of the category F, proposed by Uriagereka (1988, 1995) to syntactically encode information-theoretic notions such as focus and point of view. Uriagereka also argues that Agr in Portuguese inflected infinitivals is located in F. That is, *for*-infinitivals can be thought of as English inflected infinitivals.

(1977) Proper Binding Condition (PBC).<sup>36</sup> (64b) can easily be explained in the same way, assuming  $\emptyset_{\text{for}}$  is an affix.

$\emptyset_{\text{for}}$  is also impossible in infinitival complements of adjectives or nominals, as illustrated in (66)–(67).

- (66) a. It is illegal [for one to criticize the government].  
 b. \*It is illegal [ $\emptyset_{\text{for}}$  one to criticize the government].
- (67) a. my desire [for my friend to win]  
 b. \*my desire [ $\emptyset_{\text{for}}$  my friend to win]

As (68)–(69) indicate, the distribution of  $\emptyset_{\text{for}}$  is again parallel to that of  $\emptyset_{\text{Comp}}$ .<sup>37</sup>

- (68) a. It is not likely that the earth is flat.  
 b. \*It is not likely  $\emptyset_{\text{Comp}}$  the earth is flat.
- (69) a. My belief that Kim is clever (is sincere).  
 b. \*My belief  $\emptyset_{\text{Comp}}$  Kim is clever (is sincere).

Pesetsky's and Ormazabal's theory of empty complementizers easily accounts for the ungrammaticality of (67b) and (69b). Allen (1978) and Myers (1984) show that zero-derived words (with a few notable exceptions) cannot undergo further affixation, a constraint often referred to as Myers's Generalization. Assuming that deverbal nouns are zero-derived, affixation of  $\emptyset_{\text{Comp}}$ / $\emptyset_{\text{for}}$  is blocked by whatever principle derives Myers's Generalization (see, in particular, Ormazabal 1995).

The analysis of (66b) and (68b) is not as obvious. If the embedded clauses are underlying subjects, which have undergone extraposition, affixation of  $\emptyset_{\text{Comp}}$ / $\emptyset_{\text{for}}$  plausibly violates the PBC. If, on the other hand, the embedded clauses are objects in complement position, some other account is necessary. One possibility would be to assume that  $\emptyset_{\text{for}}$ / $\emptyset_{\text{Comp}}$  can only affix to [ $-N$ ] categories. Assuming  $\emptyset_{\text{for}}$  and  $\emptyset_{\text{Comp}}$  are themselves [ $-N$ ] categories, as seems reasonable, such a constraint may reduce to "feature clash" at the word ( $X^0$ ) level.<sup>38</sup> I leave the exact analysis of (66b) and (68b) tentative, simply noting that whatever accounts for (68b) should also account for (66b).

<sup>36</sup> There have been several recent attempts to deduce the PBC within a minimalist framework (Collins 1994, Takano 1993). It is not clear that the examples discussed in the text fall under these deductions of the PBC. Even so, these examples may in fact violate an adjacency condition on affixation rather than the PBC; see Bošković 1995 and Martin 1996 for discussion.

<sup>37</sup> An *LI* reviewer points out that (68b) does not sound as bad as (66b). Similarly, (69b) seems to me somewhat better than (67b), as does (65b) as compared with (64b). That is, in general, failure of a zero-complementizer to undergo affixation results in a stronger degree of ungrammaticality in the case of infinitivals than in the case of finite clauses. Suggestive is the fact that there are two options for finite clauses: use of a zero-complementizer or lexical *that*. Suppose deletion of *that* is possible at PF, but results in a weak violation as compared with a true stray affix, which results in a strong violation.

<sup>38</sup> It should be noted that this solution rules out (67b) and (69b) as well—redundantly, assuming Myers's Generalization prevents affixation in noun-complement constructions. However, as Ormazabal (1995) shows, it is difficult to account for nominal + infinitival constructions solely in terms of Myers's Generalization. If these cases can all be accounted for in terms of feature clash, then Myers's Generalization is redundant.

Next, compare (70a–c) with (64b), (66b), and (67b).

- (70) a. John wants very much [PRO to win].  
 b. It is illegal [PRO to criticize the government].  
 c. Kim's desire [PRO to score a goal]

The grammaticality of (70a–c) suggests that  $\emptyset_{\text{for}}$  need not be present when the subject of a *want*-infinitival is PRO. Also, as (71) shows, *for* never cooccurs with PRO subjects.

- (71) \*John wants [for PRO to win].

Recall that PRO does not have  $\phi$ -features. One consequence of this, noted above, is that PRO *need not* enter a  $\phi$ -feature-checking relation with some  $X^0$ . However, also implied is that PRO *cannot* check the  $\phi$ -features of some  $X^0$ . Hence, the impossibility of *for*/ $\emptyset_{\text{for}}$  with PRO is deduced: the derivation will crash since the  $\phi$ -features of *for*/ $\emptyset_{\text{for}}$  remain unchecked.<sup>39</sup>

## 6 Raising-to-Subject Infinitivals

I have argued that control infinitivals differ systematically from raising infinitivals in numerous respects. To simplify the discussion, I have so far concentrated mostly on raising infinitivals of the ECM variety. A number of interesting questions arise when infinitival complements of predicates such as *seem*, *appear*, *likely*, and *certain* are considered in more detail. Traditionally, these predicates are classified together with *believe*-type verbs in that they uniformly select IP infinitival complements, hence allow raising or ECM. In current terms the question is whether the complements of these predicates are uniformly [–tense].

### 6.1 Raising Adjectives

In (72) the matrix subject is typically assumed to have raised from the infinitive to the matrix in order to check Case. (73) shows that *likely/certain* need not have external arguments; hence, raising can target the subject position.

- (72) Sarah is likely/certain to leave.  
 (73) It is likely/certain that Sarah will leave.

<sup>39</sup> The fact that (71) is grammatical in Belfast English, as well as other varieties of English spoken in Northern Ireland and the United States (Chomsky and Lasnik 1977, Henry 1992), suggests that the analysis in the text may be on the wrong track. It could be that languages that allow (71) optionally allow PRO to have  $\phi$ -features. A more interesting possibility would be to assume that *for*/ $\emptyset_{\text{for}}$  is invariably present in *want*-infinitivals and that the (im)possibility of (71) is due to an agreement parameter, along the lines of Rizzi's (1990) analysis of Comp-*t* effects. In languages that disallow (71), only  $\emptyset_{\text{for}}$  can agree with PRO, similar to the fact that only  $\emptyset_{\text{Comp}}$  can agree with a *wh*-trace in certain languages. Languages that allow (71), on the other hand, allow lexical *for* to agree with PRO, just as some languages allow lexical complementizers to agree with a *wh*-phrase (e.g., French *qui*). Pursuing this line of analysis further requires explaining the grammaticality of (70). One possibility is that *to* is able to host the affix  $\emptyset_{\text{for}}$  when the subject is null. Unfortunately, I do not see what principle would then prevent the same from happening when the subject is *wh*-trace. This might relate, however, to the well-known fact that *to* can phonologically contract with *want* when the subject is PRO but not when it is *wh*-trace.

Given the formal similarity between raising-to-subject and raising-to-object constructions, the expectation is that they behave alike with respect to the phenomena discussed here. However, the infinitivals in (72) exhibit several characteristics typical of tensed infinitivals: the event time of the embedded infinitive is apparently future with respect to the matrix event time; eventive predicates are possible; and, as (74) shows, the complement of *to* can undergo VP-ellipsis.

(74) Kim may not leave but Sarah is likely/certain to [<sub>VP</sub> *e*].

Given my arguments above, these properties indicate that the subject of infinitival complements of *likely/certain* can be PRO. Still, the possibility of expletive subjects shows that raising is possible as well.

- (75) a. There is likely to be a riot.  
 b. There is certain to be someone in the room.

That the subject of the infinitival complement of *likely/certain* is either PRO or NP-trace implies that these predicates select both [+tense] and [-tense] infinitivals.<sup>40</sup>

It is predicted, then, that any properties associated only with control infinitivals will not be witnessed in examples such as (75a–b), where raising must have taken place. This prediction is borne out for VP-ellipsis.

- (76) a. \*It was announced that there may be a riot, so everyone believes there is likely to [<sub>VP</sub> *e*].  
 b. \*There is likely to be someone in the room, but there is not certain to [<sub>VP</sub> *e*].

Notably, Lasnik and Saito (1992) make a very similar argument for the ambiguity of *likely*. Consider (77).

(77) How likely to win the race is John?

Lasnik and Saito (hereafter L&S) argue that (78a) must be a possible representation for (77) since (78b) violates the PBC.

- (78) a. How likely [PRO to win the race] is John?  
 b. How likely [<sub>t<sub>i</sub> to win the race] is John<sub>i</sub>?</sub>

Citing an observation of Tony Kroch's, L&S argue that their analysis is supported by the fact that (79), where only raising could have taken place, is much worse than (77).

(79) \*How likely [<sub>t<sub>i</sub> to be a riot] is there<sub>i</sub>?</sub>

A further argument for L&S's analysis can be constructed on the basis of Quantifier Lowering (QL) possibilities (May 1985). Consider (80a–c), which are discussed by Barss (1986).

<sup>40</sup> On one variant *likely/certain* have external arguments and select [+tense] infinitivals; on another they have no external arguments and select [-tense] infinitivals. I leave open the question of how the external argument of control *likely/certain* is thematically licensed, assuming some sort of predication to be at work.

- (80) a. Some senator is likely to lie to every member of the committee.  
 b. How likely is some senator to lie to every member of the committee?  
 c. How likely to lie to every member of the committee is some senator?

Barss notes that (80a) is ambiguous: *some senator* can have either wide or narrow scope with respect to *likely*. According to Barss, whereas (80b) exhibits the same ambiguity as (80a), (80c) is unambiguous: *some senator* has only wide scope.

The facts in (80) are easily explained by the proposal that *likely* can be either a control predicate or a raising predicate. (80a) and (80b) can have the representations in (81a) and (81b), respectively, since the trace of *some senator* is properly bound. (81c), however, is not a possible representation for (80c), since it contains an unbound trace. The only well-formed representation for (80c) is (81d).

- (81) a. Some<sub>i</sub> senator is likely [<sub>t<sub>i</sub></sub> to lie to every member of the committee].  
 b. How likely is some senator<sub>i</sub> [<sub>t<sub>i</sub></sub> to lie to every member of the committee]?  
 c. How likely [<sub>t<sub>i</sub></sub> to lie to every member of the committee] is some senator<sub>i</sub>?  
 d. How likely [PRO to lie to every member of the committee] is some senator?

The lack of ambiguity in (80c) thus follows immediately from the impossibility of QL in control constructions (May 1985), such as (82), where *some senator* unambiguously has wide scope.

- (82) Some senator tried [PRO to lie to every member of the committee].

The interaction of QL with VP-ellipsis further supports this analysis. I have argued that the possibility of VP-ellipsis in the infinitival complement of *likely* entails the control structure. And, as we have just seen, when only the control structure is available, there is no QL. Thus, an example like (83) is predicted to be unambiguous.

- (83) [Some senator will lie to every member of the committee] and [some representative is likely to [<sub>VP</sub> e]].

Although the judgment is somewhat subtle, it seems to me that this prediction is met: *some representative* must have scope over *every member of the committee* in the elided VP.

So far we have seen significant evidence that so-called raising adjectives are ambiguous between raising predicates and control predicates. If a particular structure unambiguously involves control, QL is impossible. If a particular structure unambiguously involves raising, VP-ellipsis is impossible. However, other properties associated with [+tense] apparently remain, even in examples that unambiguously involve raising. Consider (84).

- (84) a. There<sub>i</sub> is likely [<sub>t<sub>i</sub></sub> to be a riot].  
 b. There<sub>i</sub> is certain [<sub>t<sub>i</sub></sub> to be a riot].

The embedded clauses in these examples appear to be future-oriented with respect to the matrix event time. However, I argue that the effect witnessed in (84) is independent of the presence of tense in the infinitival. Note that the same effect can be witnessed even when the argument is a DP rather than a clause.

- (85) a. A riot is likely.  
 b. A riot is certain.

A plausible explanation for this fact is that *likely/certain* are themselves (future-oriented) modal operators (Jackendoff 1972, May 1985) that affect temporal interpretations.

Consider eventive predicates. (86) shows that some eventive unaccusatives can appear in *there*-constructions.

- (86) There will arrive a man tomorrow.

(86) can be embedded under *likely/certain* as an infinitival.

- (87) ?There is likely/certain to arrive a man tomorrow.

Insofar as (87) is more or less acceptable, and eventive predicates seem to be possible in [−tense] infinitival complements of *likely/certain*, it is reasonable to assume that the modal operators *likely/certain* are able to bind their variables.<sup>41</sup>

## 6.2 Raising Verbs

The other major class of raising predicates is the class of so-called raising-to-subject verbs. Since the subject of verbs like *seem* and *appear* can be an expletive, as shown in (88), it is typically assumed that the examples in (89) involve raising.

- (88) a. It seems that Kim is intelligent.  
 b. It appears that John likes Bill.

- (89) a. Kim seems to be intelligent.  
 b. John appears to like Bill.

As observed above, the nonfinite complements of this class of verbs exhibit temporal properties typical of [−tense] infinitivals; (89a) can express that it seems that Kim is intelligent at speech time, but not that she will become intelligent at some point in the future. VP-ellipsis is generally impossible in nonfinite complements of *seem/appear*.

- (90) a. ?\*John does not like math but Mary seems to [<sub>VP</sub> e].  
 b. ?\*Harry may not be as happy as he appears to [<sub>VP</sub> e].

Neither are eventive predicates allowed (on individuated readings), as shown in (91).<sup>42</sup>

<sup>41</sup> The same sort of analysis can be given for *expect*, which Bresnan (1972) argues is three-ways ambiguous, allowing raising, object control, and *for*-infinitivals. Even with raising, the complement of *expect* has a future orientation and allows eventive predicates, as in (ia). That this is due to properties of *expect*, not to any embedded tense, is suggested by (ib).

(i) a. There is expected to arrive a man (tomorrow).  
 b. A riot is expected (tomorrow).

<sup>42</sup> Stowell (1993) observes that eventive predicates are possible in the infinitival complement of past tense *seem/*

- (91) a. \*John seems to hit Bill (right now).  
 b. \*John appears to hit Bill (right now).

These properties are exactly as predicted if *seem/appear* select infinitivals that are [–tense].

## 7 Some Conclusions and Consequences

One of the goals of the Minimalist Program (Chomsky 1995) is to limit syntactic relations to those that are, in some sense, *natural*. Much recent work has concentrated on the attempt to eliminate arbitrary or complex relations such as government, which appears to be totally unwarranted in minimalist terms. Of course, to eliminate government, one must show that the phenomena it was used to describe can be accounted for in other, and empirically more adequate, ways. Particular success has been achieved with respect to Case, traditionally thought to be assigned under government but currently argued to involve checking in the highly local and primitive relations of a *bare* X-bar theory (Chomsky 1995).

Still, government has remained a crucial component of the binding theory for exactly one reason: to account for the distribution of PRO. I have argued that the distribution of PRO can be fully accounted for by the null Case hypothesis and that such an account is both conceptually well motivated and empirically more adequate. Thus, one major consequence of the current analysis is that government can be eliminated from the binding theory, and perhaps from the grammar altogether.

Another important consequence of my analysis is that the complementary distribution of PRO and NP-trace, witnessed in (92)–(93), follows immediately from Last Resort, as discussed in most detail by Bošković (1996).

- (92) a. John<sub>i</sub> seems  $t_i$  to have parked here.  
 b. John<sub>i</sub> is believed  $t_i$  to have parked here.

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*appear*.

- (i) a. \*John seems to hit Bill (right now).  
 b. John seemed to hit Bill (right then).

Thus, infinitival complements of raising-to-subject verbs differ from infinitival complements of ECM/raising-to-object verbs, such as *believe*, which never allow (individuated) eventive predicates.

- (ii) a. \*John believes Mary to hit Bill.  
 b. \*John believed Mary to hit Bill.

Elsewhere (Martin 1996) I argue in detail that raising-to-subject verbs (*seem/appear*) have control variants, in which an agent role is assigned. I argue there that since agentive (i.e., control) *seem/appear* are eventive predicates, they must appear in the past tense (or have nonindividuated readings). This explains the contrast in (i).

An *L1* reviewer raises the very interesting question of why there should be an apparent asymmetry here, with raising-to-subject verbs, which are ambiguous between raising and control, on one hand and raising-to-object verbs, which are unambiguous, on the other. I believe this question is ultimately one regarding the theory of  $\theta$ -roles. As often noted by Noam Chomsky (class lectures, personal communication), it seems that, in effect, an external  $\theta$ -role of some sort can always be assigned to the subject position, whereas this is not the case for internal positions/roles. Frankly, I have no idea whether this requires weakening  $\theta$ -theory, as the reviewer implies, or whether there is some principled reason (or set of reasons) for this state of affairs. Certainly, to take up the matter earnestly would require a separate monograph.

- (93) a. \*John<sub>i</sub> was tried [<sub>t<sub>i</sub></sub> to park here].  
 b. \*John<sub>i</sub> is illegal [<sub>t<sub>i</sub></sub> to park here].

That is, the impossibility of movement from the subject position of control infinitivals, as in (93), is simply an instance of illicit A-movement from a Case position. This result is highly desirable from a minimalist perspective since (93a–b) have long resisted an explanation in terms of Relativized Minimality (Rizzi 1990) or the Minimal Link Condition (Chomsky 1995), requiring that some notion of *barrier* for movement be maintained (Chomsky 1986a, Rizzi 1990). Thus, the Case-theoretic approach to PRO also opens the door for the elimination of barriers. Unfortunately, pursuing this goal further is beyond the scope of the present article; but see Takahashi 1992 for a very interesting analysis that attempts to do away with barriers entirely.

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