

Incorporating PRO: a Defective-Goal Analysis*

Inna Livitz

Abstract

In this paper I propose a novel account of the obligatory silence of PRO, based on the notion of defective goal in Roberts (2010). While languages differ with respect to the availability of null subject pronouns in matrix clauses, PRO is silent crosslinguistically. I propose that the obligatory silence of PRO follows from its featural makeup—PRO is a ϕ P with unvalued ϕ -features. PRO must enter into an Agree relation to have its ϕ -features valued, and in this Agree relation PRO is a defective goal. A defective goal contains no features that are not shared with its probe, which makes the goal equivalent to a copy in a chain. I propose that PRO is silent for the same reason that, generally, only one copy of an element is expressed overtly; in an Agree relation PRO is treated as the lower copy in a chain that contains its probe, and PRO is deleted in the same way that lower copies are deleted. The present proposal is able to account for the silence of infinitival subjects in both obligatory and non-obligatory control constructions. A significant advantage of the present proposal is that it correctly predicts the existence of overt PRO in configurations where PRO bears a feature, such as focus, which it does not share with its probe.

1 Introduction: Asymmetry between PRO and other subject pronouns

Languages exhibit significant variation in the overt expression of subject pronouns. Recently, Roberts and Holmberg (2010) and Holmberg (2010) have proposed at least seven parameters to account for the different ‘*pro*-drop’ patterns crosslinguistically. However, in striking contrast to other subject pronouns, PRO—the subject of infinitival control clauses—is silent crosslinguistically, even in strict non-null-subject languages like English. The table in (1) exemplifies this asymmetry between PRO and other subject pronouns for a (non-exhaustive) set of language-types.¹

(1) Asymmetry between PRO and other subject pronouns

| Pronoun/Language type | Null-Subject e.g., Italian | Partial Null-Subject e.g., Finnish | Non-Null-Subject e.g., English |
|--|-------------------------------|---------------------------------------|-----------------------------------|
| Matrix subject pronouns | Optionally silent | Obligatorily overt | Obligatorily overt |
| Contextually linked subjects of embedded finite clauses | Obligatorily silent | Optionally silent | Obligatorily overt |
| PRO | Obligatorily silent | Obligatorily silent | Obligatorily silent |

*Thanks to Stephanie Harves, Tricia Irwin, Richard Kayne, Neil Myler, Anna Szabolcsi, Jim Wood, participants of the NYU Spring 2010 semantics seminar, and two anonymous reviewers for helpful comments and feedback. Thanks additionally to Anna Szabolcsi for discussion of the Hungarian data and to Salvador Mascarenhas for help with the Portuguese examples.

¹The following abbreviations are used in this paper: ACC = accusative; DAT = dative; DFT = default; F = feminine; FUT = future; INF = infinitival; INS = instrumental; M = masculine; PL = plural; SBJV = subjunctive; SG = singular; 1 = first person; 3 = third person.

Under a Government-and-Binding (GB) approach the obligatory silence of PRO had received a principled explanation; it followed from PRO having the features [+anaphoric, +pronominal] (Chomsky 1981, 1986). This featural makeup meant that PRO had to be both bound and free in its governing category, which was only possible if PRO remained un-governed. Since case was assigned under government, PRO could never bear case. The Case Filter ensured that PRO could never be pronounced, since all overt NPs were required to have case. The distribution of PRO was thus limited to nonfinite environments, where subjects did not receive case. Under this approach, PRO was structurally unrelated to other subject pronouns, and its silence was unrelated to the silence of of matrix subject pronouns, like *pro*.

Recent research has demonstrated, however, that apart from its obligatory silence, PRO is not inherently different from other subject pronouns. In particular, the claims that PRO does not bear case and is restricted to nonfinite clauses have been questioned.

Languages like Icelandic, Russian, and Ancient Greek provide evidence that PRO is case-marked (Andrews 1971; Quicoli 1982; Sigurðsson 1991, 2008; Landau 2008). In Russian, PRO can be shown to bear dative case (Landau 2008). The evidence comes from case agreement with secondary predicates; in Russian certain secondary predicates, including *odin* ‘alone’ and *sam* ‘oneself’, obligatorily agree in case with the element they modify—when they modify the subject of a finite clause they bear nominative case (2-a).²

- (2) a. Taras prišel odin/*odnim/*odnomu.
 Taras.NOM came alone.SG.M.NOM/*INS/*DAT
 ‘Taras came alone.’
 b. Ja našel ego odnogo/*odnim/*odnomu.
 I.NOM found him.ACC alone.SG.M.ACC/*INS/*DAT
 ‘I found him alone.’(He was alone)³ (adapted from Landau 2008: 882)

In certain control constructions the secondary predicate bears dative case (the conditions under which this occurs are further specified in the discussion of C-Control and PRO-Control in Section 3.1).

- (3) On zabył kak govorit’ samomu/*sam s načal’nikom.
 he.NOM forgot how speak.INF himself.DAT/*NOM with boss
 ‘He forgot how to talk himself to the boss.’

(Landau 2008: 893)

Since (3) lacks an overt dative element that could trigger agreement on *sam*, the dative case on *sam* must either be a default or come from agreement with a silent dative element in the infinitival clause. The former, however, is incongruous with the fact that the default

²Most other secondary predicates in Russian bear instrumental case regardless of the the case of the modified noun.

³Unless otherwise noted, all non-English examples are from Russian. Unattributed Russian examples are my own.

case in Russian in otherwise nominative (Bobaljik and Landau 2009).

The presence of dative case on secondary predicates in infinitival clauses has led many to argue that *sam* is agreeing with a dative-marked PRO subject (Babby 1998; Fleisher 2006; Landau 2008). In bearing dative case, PRO is no different from Russian overt subjects in infinitival clauses (Franks 1995; Moore and Perlmutter 2000). Certain infinitival clauses in Russian, such as those headed by a *wh*-word, allow overt subjects, and these subjects must bear dative case. Note that if the same verb takes an indicative clause as its complement, the subject of the embedded clause bears nominative case.

- (4) a. Ya ne znaju čto mne emu podarit'.
 I not know what I.DAT him.DAT give.INF
 'I don't know what to give him.'
- b. Ya ne znaju čto ja emu podarju.
 I not know what I.NOM him.DAT give.FUT.1SG
 'I don't know what I will give him.'

Icelandic patterns similarly to Russian, except PRO is assigned nominative case within the infinitival clause, as opposed to dative (Sigurðsson 2008). Additionally, Icelandic is relatively unique in having inherently case-marked PRO. Case agreement on predicative adjectives serves as the diagnostic for case-marked PRO in Icelandic. Predicative adjectives must agree in case, number, and gender with a nominative subject, but they bear default agreement if the subject is inherently case-marked. In (5-a), the matrix subject is accusative, thus the source of the nominative case on the predicative adjective must be case-marked PRO. In (5-b) the adjective bears default agreement. This default agreement on the predicative adjective is accounted for if the embedded clause contains a PRO subject which is assigned inherent dative case by the predicate *be cold*.

- (5) a. Ólaf langar ekki til að PRO vera ríkur.
 Olaf.ACC.M.SG longs not for to PRO.NOM be rich.NOM.M.SG
 'Olaf doesn't want to be rich.'
- b. Hana langar ekki til að PRO vera kalt.
 her.ACC longs not for to PRO.DAT be cold.DFT
 'She doesn't want to be (feeling) cold.'

(Icelandic; Sigurðsson 2008: 407)

The discussion of control in Icelandic has shown that PRO can behave like other subject pronouns in that it bears both structural and inherent case.

Furthermore, the restriction of PRO to non-finite clauses has also been called into question (Terzi 1992, 1997; Landau 2004). Landau (2004) argues that PRO occurs in Hebrew finite clauses, as in (6) (although Landau also argues that these clauses are subjunctive and not infinitival).

- (6) Himlacti le-Gil še PRO yearšem la-xug
 I-recommended to-Gil that PRO will-register.3SG.M to-the-department
 le-balšanut
 to-linguistics
 ‘I recommended to Gil to register to the linguistics department.’
 (Hebrew; Landau 2004: 813)

Data from control in Greek and Romanian has similarly lead to claims that PRO can be found in subjunctive clauses (Terzi 1992, 1997; Landau 2004).

- (7) I Maria prospthise na diavasi.
 Maria tried.3SG SBJV read.3SG
 ‘Maria tried to read.’ (Greek; Terzi 1992: 28)
- (8) Maria încearcă să scrie.
 Maria try.3SG SBJV write.3SG
 ‘Maria tries to write.’ (Romanian; Terzi 1992: 33)

The proposal that PRO can occur outside infinitival clauses raises the question of how PRO is to be defined. What evidence can be brought to argue against an alternative hypothesis that the silent subject of the subjunctive clauses in (7) and (8) is *pro* and not PRO? Traditionally, such evidence has come from the availability of sloppy readings under ellipsis, and an obligatory *de se* interpretation for the embedded subject. These diagnostics will be discussed in more detail in Section 4, where I will argue for the existence of overt PRO. What is important for the present is that the silent subject pronouns in Hebrew, Romanian, and Greek subjunctives have been argued to have the interpretation of PRO and not *pro*.

In summary, despite the range of crosslinguistic variation in the overtness of subject pronouns, PRO is unique in being obligatorily null across different language types. The ‘silence problem’ of PRO is as old as the study of control, but it has resurfaced in recent years once the assumptions underlying the GB analysis were abandoned. The silence problem becomes more striking as PRO and other subject pronouns are shown to be more similar than previously assumed, including the ability of PRO to bear case and its compatibility with subjunctive clauses. A new account of PRO is necessary, one which captures both the similarity of PRO to other subject pronouns and simultaneously provides a principled explanation for PRO’s obligatorily silence.

In this paper I formulate a new proposal for the obligatory silence of PRO in control constructions, rooted in the typology of pronominal subjects in Holmberg (2010) and Holmberg and Sheehan (2010). I propose that PRO is silent because it is a defective goal in the sense of Roberts (2010); PRO has no features not shared with its probe and it is thus deleted in the same way that lower copies are. I demonstrate that when PRO is not a defective goal, it may be overt, which is possible in some languages in PRO-control configurations (in the sense of Landau (2008)) where PRO bears a focus feature. Section 2 introduces the notion of a defective goal and reviews the way it can be applied to account for different types of

null subjects. Section 3 extends the defective goal analysis to account for the obligatory silence of PRO. Section 4 explores a surprising prediction of the proposal, namely that PRO should be overt in circumstances where it is not a defective goal. Section 5 concludes the paper.

2 Null subject pronouns as structurally deficient

In this section I review the different types of null pronouns discussed by Holmberg (2010) and Holmberg and Sheehan (2010) and argue that the existence of a pronoun that behaves like PRO is predicted by the typology that emerges from these works.

2.1 Defective goal

Holmberg (2010) builds his account of *pro*-drop using the notion of defective goal developed in Roberts (2010). A defective goal is defined by Roberts as in (9).

- (9) **Defective Goal:** A Goal *G* is defective iff *G*'s formal features are a proper subset of those of *G*'s Probe.

Roberts argues that head-movement phenomena, like clitic incorporation, can be thought of as a consequence of Agree. When the formal features of the goal in an Agree relation are a proper subset of the features on the probe, the result of Agree is indistinguishable from Internal Merge. In the Agree relation in (10), the features of the clitic (the goal) are copied onto the probe. In this case, Agree produces two instances of the goal's feature content. This result is formally indistinguishable from the outcome of Copy/Internal Merge—two instances of the feature bundle associated with the goal are equivalent to two copies of that feature bundle which would result from Internal Merge.

- (10) *Trigger for Agree*
 $v^*[\text{Pers:}_-, \text{Num:}_-] \phi[\text{Pers:}a, \text{Num:}b]$
Outcome of Agree
 $v^*[\text{Pers:}a, \text{Num:}b] (\phi[\text{Pers:}a, \text{Num:}b])$ (Roberts 2010: 60)

Roberts proposes that when Agree takes place with a defective goal, the result is a chain, equivalent to the chain that is formed in Internal Merge. Roberts subsequently appeals to Nunes' account of chain reduction according to which all but one copy in a chain must be deleted before Spell Out (Nunes 2004). If more than one copy is present at Spell Out, the sequence is not linearizable—an element that intervenes between the two copies both precedes and follows the same material. As a result, the order of the intervening element with respect to the chain formed by the copies cannot be established. In (10), the feature bundle [Person: *a*, Num: *b*] is present twice, and one of the copies must be deleted. Generally it is the highest copy that is spelled out, which in (10) is the copy in v^* .⁴

⁴Roberts (2010) and Holmberg (2010) both broadly adopt Nunes' approach to chain reduction. However, neither work hinges on the precise theory. The aspect of chain reduction important for the present account is

2.2 *pro* as ϕ P

Holmberg (2010) appeals to the concept of a defective goal to account for *pro*-drop. Holmberg assumes that overt referential pronouns have the structure in (11), but that not all pronouns are DPs. Null pronouns, in particular are structurally, and referentially, deficient—referentiality represented as an index in D. These assumptions are in line with other work that relates the differences in the behavior of pronouns to their syntactic structure (Cardinaletti and Starke 1999; Déchaine and Wiltschko 2002).⁵

Pronominal Structure:

$$(11) \quad [_{DP} D [_{\phi P} \phi [_{NP} N]]]$$

Holmberg proposes that *pro* is a ϕ P, and its silence follows from its status as a defective goal when it agrees with T. A ϕ P consists of valued ϕ -features and an unvalued case feature; when T probes the ϕ P subject, the ϕ -features of *pro* are copied onto T, *pro*'s case feature is valued, and as a result two identical copies of the ϕ P content are produced. Because *pro* is a defective goal in the Agree relation with T, a chain is formed between *pro* and T, in which T is the highest copy. The lower copy must be deleted according to standard rules of chain reduction, as schematized in (12).

$$(12) \quad \begin{array}{l} 1[T, 3SG, NOM][_{vP}[_{CP}[_{TP}[u\phi, uCase]T...]]] \\ 2[T, 3SG, NOM][_{vP}[_{CP}[_{TP}[3SG, NOM]T...]]] \\ 3[T, 3SG, NOM][_{vP}[_{CP}[_{TP}[\cancel{3SG, NOM}]T...]]] \end{array}$$

The interpretation of *pro* is also determined by its structure. As mentioned above, Holmberg assumes that a D-feature (associated with the D-level in the pronominal structure) is necessary for a pronoun to be interpreted as definite. The only interpretation available to a pronoun without a D-feature is an arbitrary or generic one (as mentioned in footnote 5, this assumption is in line with Cardinaletti and Starke (1999)). Thus the derivation in (12) does not actually reflect null subjects in *pro*-drop languages like Italian. It does however, characterize silent subjects in partial null-subject languages, like the Finnish, which can only

that two instances of the same feature bundle cannot be linearized, and thus a defective goal is deleted before Spell Out. In all of the cases discussed in this paper, it is the lower copy (the defective goal) that is deleted; this is the standard case in chain reduction and follows partly from the presence of additional features on the probe.

⁵Holmberg's assumptions about pronominal structure are more specifically consistent with Cardinaletti and Starke's (1999) proposal that referentiality is encoded in the outer syntactic layer of the pronoun. Holmberg agrees with Cardinaletti and Starke that impersonal or generic pronouns are referentially deficient—they simply lack a referential index. Holmberg differs from Cardinaletti and Starke in proposing that *pro* is the equivalent of a clitic, not a weak pronoun. Although the specific layers of structure that Holmberg proposes for pronouns are identical to those in Dechaine and Wiltschko (2002), Holmberg does not deal with the properties of DPs and ϕ Ps in Dechaine and Wiltschko's paper. Unlike Holmberg, Dechaine and Wiltschko are concerned on the behavior of different pronoun types with respect to binding theory and their ability to occur in argument and predicate positions; Holmberg focuses on the referential properties of the pronoun. The idea, however, that Holmberg shares with both Cardinaletti and Starke and Dechaine and Wiltschko is that internal structure determines both interpretation and behavior of a pronoun.

receive an arbitrary or generic interpretation (13).

- (13) Tässä tuolissa istuu mikavasti.
this-IN chair-IN sits comfortably
'One can sit comfortably in this chair.' (Finnish; Holmberg 2010: 93)

In *pro*-drop languages, however, *pro* is interpreted as definite, which means that it must be associated with a valued D-feature (the equivalent of a referential index). Consistent with Rizzi's (1982) formulation of the Null Subject Parameter that Infl is specified with [+pronoun] in null-subject languages, Holmberg proposes that T in null-subject languages is endowed with an (unvalued) D feature. This feature is valued either by a full DP subject or by an Aboutness topic (A-topic) in the left periphery.

A-Topics are those which (re-)introduce a topic of discourse (Frascarelli 2007; Frascarelli and Hinterhölzl 2007). Frascarelli and Hinterhölzl use distributional evidence in Italian to identify that A-topics occupy the highest topic position in a left periphery with multiple topic positions (Rizzi 1997; Belletti 2001); the other Topic positions are designated for Contrastive topics and Familiar topics. Samek-Lodovici (1996) demonstrates that a subject cannot be null in a null-subject language like Italian, unless it is linked to an A-topic. For example in (14-a), the subject pronoun cannot be dropped, despite the fact that *Gianni* has been mentioned in the preceding sentence. In (14-b), by contrast, the subject pronoun can be silent, because *Gianni* is established as the A-topic in the preceding sentence (and is thus the silent A-topic of the second sentence).⁶

- (14) a. Questa mattina la mostra è stata visitata di Gianni. Più tardi * \emptyset /egli/lui
This morning the exhibition was visited by Gianni. Later, he/he
ha visitato l'università.
visited the university.
b. Questa mattina Gianni ha visitato la mostra. Più tardi \emptyset ha visitato
This morning Gianni visited the exhibition. Later \emptyset visited
l'università.
the university.

(Italian; original example from Samek-Lodovici (1996) cited in Holmberg (2010): 96)

Holmberg proposes that the A-topic values the D feature on T (assigns it an index) in null-subject languages. As a result, the ϕ P subject pronoun acquires a definite interpretation as part of the chain headed by T. The ϕ P is deleted as the lower copy in this chain. Thus *pro*-drop in null-subject languages is derived as in (15).

⁶An anonymous reviewer suggests that there may be other ways, such as pointing, to establish something as an A-topic. This is perfectly compatible with the claim in Holmberg (2010) that a silent definite subject must be linked to an A-topic in the left periphery of its clause, however that topic is originally introduced.

- (15) 1[T, D₂, u ϕ , NOM]_{[VP[3SG,uCase]v...]}→
 2[T, D₂, 3SG, NOM]_{[VP[3SG, NOM]v...]}→
 3[T, D₂, 3SG, NOM]_{[VP[~~3SG, NOM~~]v...]} (Holmberg 2010: 97)

Definite null subject pronouns are impossible in non-null-subject languages and partial-null-subject languages, because T lacks a D-feature in these language types. Without a D-feature in T, there is no way for the null pronoun to receive a referentiality index from a higher Topic. Instead, partial null-subject languages only allow a generic or arbitrary interpretation for a silent subject in a matrix clause.⁷

2.3 Null subject pronouns in finite embedded clauses are DPs with uD

Definite null subjects do occur in partial null-subject languages in certain contexts, which has led to a proposal for an additional type of null subject pronoun (Holmberg et al. 2009; Holmberg and Sheehan 2010). Specifically, partial null-subject languages optionally allow null subject pronouns in embedded clauses when they are c-commanded by an antecedent.

BRAZILIAN PORTUGUESE:

- (16) O João_i disse que (ele_i) tinha comprado uma casa.
 the João said that he have.PST.3SG bought a house
 ‘João said that he had bought a house.’

(Holmberg and Sheehan 2010: 131)

FINNISH:

- (17) Juhani_i kertoi että (hän_i) oli ostanut omakoititalon.
 Juhani said that he have.PST.3SG bought house
 ‘Juhani said that he had bought a house.’ (Holmberg and Sheehan 2010: 131)

⁷This generalization does not hold for Russian. The only possible interpretation for a null subject pronoun in Russian is that of a definite, contextually linked subject.

- (i) #Smotrit film s udovolstviem.
 watch.3SG movie with pleasure
 ‘He is watching a movie with pleasure’ (Felicitous as an answer to: where is he?)
 Cannot mean: ‘One watches the movie with pleasure.’

It is unclear how Russian could be accounted for by Holmberg’s proposal. One possibility that I explore for non-obligatory control is that the arbitrary or generic interpretation associated with these sentences does not arise by default, but because of the presence of an operator in the left periphery. If an additional mechanism is needed for an arbitrary reading of a subject, then it would not be automatically expected that all partial null-subject languages should allow a silent arbitrary subject in matrix clauses.

RUSSIAN:

- (18) Petja_i nam skazal, čto (on_i) kupil dom.
Peter us told that he buy.PST.M.SG house
'Peter told us that he bought a house.'

Since these pronouns are interpreted as definite, despite the absence of a D feature in T in partial null-subject languages, Holmberg and Sheehan propose that these pronouns are referentially deficient DPs—deficient only in that their D-feature is unvalued. The D-feature of the embedded subject pronoun must be valued in an Agree relation with a definite, c-commanding antecedent.

Holmberg and Sheehan (2010) propose that the silence of embedded subjects in partial null-subject languages is licensed by this Agree relation between the embedded subject and its antecedent; they liken this relationship to a type of control. As Holmberg and Sheehan describe, the finite control exhibited by (16)-(18) differs from control in non-finite contexts in a number of respects, which are not crucial for the present discussion, but which include the possibility of an intervening clause between the antecedent and the silent subject (impossible in obligatory control constructions), as well as the availability of a strict reading under ellipsis (unavailable in obligatory control) and the possibility of split antecedents (prohibited in obligatory control).

The system outlined in Holmberg (2010) is not explicit about how this (or any other) control relation licenses silence. One possibility for these cases of finite control is that a chain is formed during Agree between the embedded and matrix subject because the uD pronoun contains only a subset of the features of the antecedent. Thus despite the fact that the pronoun receives neither case nor its ϕ -features from its antecedent, a chain is formed simply because they enter into an Agree relation in which the embedded subject is a defective goal. Overt embedded subjects come with a valued D-feature, and thus do not enter into an Agree relation with an antecedent.

In this section I have outlined Holmberg's proposal that silent pronouns are null because they are structurally deficient and act as defective goals when they enter into an Agree relation. Below, I will extend the defective-goal approach to account for PRO's silence.

3 PRO is a defective goal

Holmberg (2010) and Holmberg and Sheehan (2010) discuss three distinct types of pronouns, as summarized in (19): full DPs, which correspond to overt referential pronouns; DPs with an unvalued D-feature, which correspond to null subjects of finite embedded clauses in partial null-subject languages; and pronouns that lack a D-feature altogether— ϕ Ps—which correspond to *pro* with a definite or arbitrary interpretation.

(19) **Typology of subject pronouns**

| | |
|---|-----------------------------|
| DP | ϕ P |
| Overt subject pronouns DP | <i>pro</i> ϕ P |
| Null subjects of finite embedded clauses DP with uD | ? ϕ P with u ϕ |

As depicted in (19), a fourth pronoun type is predicted by the pronominal typology that emerges from Holmberg (2010) and Holmberg and Sheehan (2010). Parallel to DPs with uD, there should be a ϕ P pronoun which has unvalued ϕ features. In this section I propose that the predicted pronoun does exist, and that this pronoun is PRO. First, in Section 3.1, I introduce my assumptions about control. Then, in Section 3.2 I present my proposal for how the featural makeup of PRO accounts for its silence. Finally, in Section 3.3 I address the issue of non-obligatory control.

3.1 Assumptions about control

In this paper I adopt the approach to obligatory control developed in Landau (2004, 2008). Following Landau, I assume that PRO has unvalued, but interpretable, ϕ -features which must be valued via Agree during the course of the derivation. I furthermore assume that PRO does not agree directly with the controller, but that the control relationship between PRO and its antecedent is mediated by a functional head.⁸

I furthermore, adopt Landau's proposal that there are two distinct types of obligatory control, which differ in the functional head that values PRO's ϕ -features. In what Landau calls PRO-Control, the head that agrees with PRO is in the matrix clause—T in subject control and ν in object control. In what Landau calls C-Control, the functional head that agrees with PRO is the embedded C. Following Landau, I assume that the complement of a control verb is a CP, and that the embedded CP does not constitute a phase.⁹

A standard derivation for PRO-control proceeds as follows.¹⁰ Matrix T first has its ϕ -features valued by the controller DP. Subsequently it enters into another Agree relation, with PRO, and values PRO's ϕ -features.

PRO-CONTROL

$$(20) \quad [T_{u\phi} \dots DP_{i\phi} [CP [TP \text{ PRO}_{u\phi} T]]]$$

⁸Note that agreement between PRO and a matrix functional head distinguishes Landau's proposal for obligatory control from the system of finite control proposed by Holmberg and Sheehan (2010), in which the embedded subject agrees directly with its antecedent.

⁹In fact, Landau's approach presupposes that matrix ν also cannot be a phase. Future research will aim to combine Landau's theory of control with standard assumptions about the phasehood of ν .

¹⁰I demonstrate the derivation for subject control; I will not be dealing with object control in this paper.

Embedded C can optionally enter the derivation with unvalued and uninterpretable ϕ -features, which results in C-Control. Under C-Control, C, and not matrix T, values the ϕ -features of PRO. Matrix T still agrees with the controller, but subsequently it enters into an Agree relation with the infinitival C and values C's ϕ -features. It is then the infinitival C that agrees directly with PRO.

C-CONTROL

$$(21) \quad [T_{u\phi} \dots DP_{i\phi} [_{CP} C_{u\phi} [_{TP} PRO_{u\phi} T]]]$$

Landau (2008) proposes that the control route (C-Control vs. PRO-Control) determines what case is assigned to PRO (assuming, as discussed in the Introduction, that PRO can be case-marked). Under PRO-Control, the matrix functional head assigns case to PRO when it values PRO's ϕ -features, which means that in subject-control constructions PRO bears nominative case, just like the matrix subject. Under C-Control, the infinitival C enters the derivation not only with ϕ -features, but also with a valued case feature. Thus in C-Control PRO gets case from C when C values its ϕ -features. The case associated with infinitival C can be distinct from the case associated with matrix T or v ; as discussed in the Introduction, in Russian infinitival C always assigns dative case, though in Icelandic the case associated with infinitival C is nominative (Sigurðsson 2008). The sentence in (22) is an example of PRO-Control; PRO can be assumed to have nominative case, since the secondary predicate *sam*, 'by oneself' bears nominative. By contrast in (23), the secondary predicate bears dative case, which reflects a C-Control structure.

PRO-CONTROL:

- (22) On želaet ženitsja na nej sam/*samomu v cerkvi.
 he.NOM wants marry.INF on her himself.NOM/*DAT in church
 'He wants to marry her himself in a church.' (Landau 2008: 887)

C-CONTROL:

- (23) On zabył kak govorit' samomu/*sam s načal'nikom.
 he.NOM forgot how speak.INF himself.DAT/*NOM with boss
 'He forgot how to talk himself to the boss.' (Landau 2008: 893)

For Landau, both control routes are in principle freely available crosslinguistically, but certain control constructions are possible exclusively via one route or the other. For a given construction, the case on the secondary predicate in Russian (and by extension on PRO) can be used to diagnose which control route was used. This diagnostic will be important for the discussion of non-obligatory control in Section 3.3 and partial control in Section 4.4.

3.2 PRO is a ϕ P with $u\phi$

I propose that PRO fills the gap in the pronominal typology in (19): it is a ϕ P with unvalued ϕ -features. It must enter into an Agree relation during the course of the derivation to have those features valued. However, since its entire feature content consists of an uninterpretable case feature and unvalued ϕ -features, PRO will be a defective goal whenever it enters into an Agree relation that values its case and ϕ -features. The derivation is schematized in (24) for PRO-control—since matrix T values both PRO’s case feature and its ϕ -features, PRO is a defective goal with respect to T. A PRO-T chain is formed as a result of Agree, and PRO is deleted as the lower copy in that chain.¹¹

- (24) 1[T, 3SG, NOM][_{VP}[_{CP}[_{TP}[$u\phi$, uCase]T...]]]→
 2[T, 3SG, NOM][_{VP}[_{CP}[_{TP}[3SG, NOM]T...]]]→
 3[T, 3SG, NOM][_{VP}[_{CP}[_{TP}[~~3SG, NOM~~]T...]]]

PRO’s silence follows from its status as a defective goal likewise under C-Control, where embedded C agrees with PRO. Agree results in a C-PRO chain. Since under C-Control embedded C values PRO’s ϕ -features and case feature, PRO is a defective goal with respect to C. In addition to uninterpretable ϕ -features, C must carry other features (e.g., [+wh], [-finite]), which are not shared with the matrix functional head. As a result, while PRO forms a chain with C, C does not form a chain with the matrix functional head that values its features. The derivation is spelled out in (25). Note that I use DAT for the case feature of infinitival C; however, as mentioned before, not all languages have a dative-assigning infinitival C. I use DAT as a shorthand for C’s case-feature to highlight that case associated with infinitival C is distinct from case associated with matrix T.

- (25) 1[T, 3SG, NOM][_{VP}[_{CP} [C, $u\phi$, DAT] [_{TP}[$u\phi$, uCase]T...]]]→
 2[T, 3SG, NOM][_{VP}[_{CP} [C, 3SG, DAT] [_{TP}[$u\phi$, uCase]T...]]]→
 3[T, 3SG, NOM][_{VP}[_{CP} [C, 3SG DAT] [_{TP}[3SG, DAT]T...]]]→
 4[T, 3SG, NOM][_{VP}[_{CP} [C, 3SG DAT] [_{TP}[~~3SG, DAT~~]T...]]]

The analysis proposed here places PRO into Holmberg’s (2010) typology of null subjects. The lack of crosslinguistic variation with respect to the silence of PRO is predicted from the proposed approach: PRO will be unpronounced whenever it enters into any Agree relation which values its ϕ -features. Since PRO must necessarily enter into an Agree relation because of its $u\phi$ feature, it will always be silent.

3.3 Non-Obligatory Control

It is not immediately obvious how the present proposal for the silence of PRO extends to non-obligatory control constructions, in which a PRO_{arb} subject is silent despite the absence

¹¹I follow Holmberg (2010) in assuming that case is a feature. However, the proposed system is also theoretically compatible with case being assigned postsyntactically. What is crucial for the present proposal is that PRO have its ϕ -features valued in the syntax via Agree.

of an antecedent (26).¹²

(26) PRO_{arb} to drive across the country would be a wonderful trip.

I have proposed that the silence of PRO is the result of its status as a defective goal in an Agree relation. Is there evidence, however, that PRO_{arb} enters into an Agree relation at all? Russian does, in fact, provide evidence that PRO_{arb} agrees with infinitival C. Recall that in Russian, case agreement on the secondary predicate *odin*, ‘alone’ reveals the case of PRO. Dative case is reflective of C-Control—or an Agree relation between PRO and the infinitival C,—while nominative case is reflective of PRO-Control—or an Agree relation between PRO and matrix T. The sentence in (27) demonstrates that PRO_{arb} must bear dative case, and thus it must have entered into an Agree relation with C.

(27) Xodit’ po kladbišču odnomu strašno.
walk.INF on cemetery alone.DAT scary
‘It is scary to walk alone on a cemetery.’

I propose that in the absence of an antecedent, infinitival C can value the ϕ -features on PRO. Although normally infinitival C is associated with unvalued and uninterpretable ϕ -features, in non-obligatory control constructions the infinitival C enters the derivation with valued (though still uninterpretable) ϕ -features. Note that the interpretation of PRO_{arb}, similar to other generic or arbitrary pronouns, is restricted to [+human]. This suggests (contra Holmberg (2010)) that a generic reading is more complex than a default interpretation in the absence of a definite antecedent. I follow Barrie (2007) in assuming a generic operator in the C-domain of non-obligatory control constructions.¹³ The presence of this operator is what endows C with valued (3rd person singular) ϕ -features. Thus PRO_{arb} is silent for the same reason that PRO is silent under C-Control—it is a defective goal in an Agree relation with C.¹⁴

(28) NON-OBLIGATORY CONTROL
1 [C, 3SG, DAT] [TP[u ϕ , uCase]T...]→
2 [C, 3SG, DAT] [TP[3SG, DAT]T...]→
3 [C, 3SG, DAT] [TP[~~3SG, DAT~~]T...]

¹²I focus here on non-obligatory control with infinitival clauses. In this paper I leave aside non-obligatory control with gerunds, as in *It was expected that running the mile should be fun*, which I assume have a different structure; for example, gerunds likely lack a CP projection altogether (Pires 2006).

¹³Barrie (2007) follows Hornstein (1999) and subsequent work on Control-as-Movement in assuming that non-obligatory control constructions contain *pro*, an element of a different category from the one found in obligatory control constructions. Under the present proposal, the subject of obligatory and non-obligatory control constructions is of the same category— ϕ P with u ϕ .

¹⁴One unresolved issue is arises from the possibility of a first-person interpretation for PRO_{arb}, as in *To die would be terrible*. In addition to allowing a generic operator, the infinitival C appears to have some access to speech context features, like speaker and participant. Further research is needed to account for the inability of matrix C to value the ϕ -features on PRO or PRO_{arb} in this way.

3.4 Interim Summary

I have proposed a novel account for the obligatory silence of PRO. PRO is silent crosslinguistically, because it is a defective goal whenever it enters into an Agree relation; and since PRO must always enter into an Agree relation to value its ϕ -features, it will always be silent. I have also proposed that as a ϕ P with unvalued ϕ -features, PRO fills a gap in the pronominal typology that emerges from Holmberg (2010) and Holmberg and Sheehan (2010). In Section 4, I explore the implications of the present proposal.

4 Overt PRO

Under the present proposal PRO is silent because its features are always a subset of the features of the probe that it agrees with. This proposal makes the prediction that PRO could in theory be overt, if only it had a feature that it did not share with its probe. In this section I demonstrate that this prediction is correct, and that a number of languages realize PRO overtly when it is focused.

4.1 Overt nominative subjects of infinitival clauses

Recently, a number of languages have been shown to possess overt nominative subject pronouns in infinitival control clauses (Cardinaletti 1999; Belletti 2005; Szabolcsi 2009; Barbosa 2009). I will argue that the overt infinitival subjects in (29)-(31) are, in fact, PRO.

- (29) Senki nem akart csak ő leülni.
nobody not wanted.3SG only he/she sit.INF
'Nobody wanted it to be the case that only he/she takes a seat.'
(Hungarian; Szabolcsi 2009: 1)
- (30) Gianni odierrebbe andare solo/anche lui a Milano.
Gianni would-hate.3SG go.INF only/also he to Milan
'Gianni would hate it if only/also he went to Milan.'
(Italian; Szabolcsi 2009: 2)
- (31) Decidiu ir ele ao mercado.
decided.3SG go.INF he to-the market
'He decided that he would be one to go to go to the market.'
(European Portuguese; Barbosa 2009: 104)

Before presenting the argument that these pronouns are overt PRO, I first review the evidence (presented in detail in Szabolcsi (2009)) that these overt nominative elements are in fact both located within the infinitival clause and actual subjects of the infinitival clause. Hungarian word order restrictions provide a strong argument that these pronouns are located within the infinitival clause. Hungarian has a dedicated preverbal focus position, to which a

focused element is required to move. The sentence in (32-a) is ungrammatical because the focused element *csak én*, ‘only I’ remains in post-verbal position.

- (32) a. *Olvastam csak én egy könyvet.
 read.PST.1SG only I.NOM a book.ACC
 ‘Only I read a book.’
 b. Csak én olvastam egy könyvet.
 only I.NOM read.PST.1SG a book.ACC
 ‘Only I read a book.’ (Hungarian; Szabolcsi 2009: 11)

However, in a biclausal construction like (33), the focused element can remain in post-verbal position, suggesting that it occupies the preverbal focus position in the infinitival clause. Note that the interpretation of (33) is restricted to the low reading of *only I*, i.e., the sentence cannot mean that I am the only individual who desires to be tall.

- (33) Szeretnék csak én lenni magas.
 would-like.1SG only I be.INF tall
 ‘I want it to be the case that I am the only one who is tall.’
 (Hungarian; Szabolcsi 2009: 11)

The evidence from Hungarian shows that these overt nominative elements are indeed within the infinitival clause. Similar arguments have also been made for Italian and European Portuguese (Belletti 2005; Barbosa 2009).

It has also been shown that these overt nominative infinitival pronouns are, in fact, subjects of the embedded clause, and not simply emphatic doubles of a silent PRO (Szabolcsi 2009). In Italian the nominative element in the infinitival clause could, in theory, be construed as a pronominal double, parallel to the postverbal emphatic pronoun in monoclausal constructions like (34).

- (34) Gianni ha lavorato solo lui.
 Gianni have.3SG worked only he
 ‘It is the case that ONLY GIANNI worked.’ (Italian; Szabolcsi 2009: 27)

Evidence that overt nominative elements in infinitival clauses are not emphatic doubles comes from nominal complements of pronouns, as in *we linguists*. Italian allows *noi linguisti*, ‘we linguists’ as the overt nominative element in an infinitival clause (35). However, Italian does not allow *noi linguisti* to function as a pronominal double in a monoclausal environment (36-a), even though the same environment allows a simple pronominal double (36-b).

- (35) Vorremmo andare a Milano solo noi linguisti.
 would-like.1PL go.INF to Milan only we linguists
 ‘We would like it to be the case that only we linguists go to Milan.’
 (Italian; Szabolcsi 2009: 27)

- (36) Context: We philosophers are the only people who work!
- a. *Guarda che noi, abbiamo lavorato anche noi linguisti!
look that we have.1PL worked also we linguists
'Look, we, we linguists have worked too!'
 - b. Guarda che noi, abbiamo lavorato anche noi!
look that we have.1PL worked also we
'Look, we, we have worked too!' (Italian; Szabolcsi 2009: 27)

Nominal complements are possible with infinitival nominative pronouns but not with pronominal doubles, which suggests that the former cannot be reduced to the latter, and overt nominative pronouns are, in fact, subjects of the infinitival clause.

4.2 Overt nominative infinitival subjects are PRO

The preceding discussion has established that overt nominative pronouns in infinitival clauses are, in fact, infinitival subjects. However, previous work on these overt infinitival subjects has not been concerned with their status as PRO or some other type of subject pronoun. I propose that these pronouns are, in fact, PRO. Such a proposal naturally raises the question of what it means to be PRO, or in other words, what I take to be the diagnostic features of PRO, such that it can be overt. Traditionally, the defining features of PRO have included an obligatory *de se* reading and a sloppy reading under ellipsis. Both of these tests demonstrate that the overt nominative infinitival subjects in question are indeed PRO.

First, bound pronouns embedded under propositional attitude verbs are ambiguous between a *de se* and a *de re* reading. A *de re* reading allows the attitude holder to misidentify himself, while a *de se* reading is incompatible with misidentification on the part of the attitude holder. In a classic example like (37), *he* will be interpreted *de re* if John is an amnesiac and believes about an individual that this individual will receive a medal, without realizing that the individual is himself. On a *de se* reading, John has to be aware that he is holding a belief about himself.

- (37) John_i believes that he_i will receive a medal for bravery.

In contrast to other pronouns, PRO is compatible only with a *de se* reading (Chierchia 1989). Thus in (38) John must realize that his expectation is about himself.

- (38) John_i expects PRO_i to receive a medal for bravery.

Hungarian makes a distinction in this respect between an overt infinitival subject and an overt subjunctive subject. While a subjunctive subject can be interpreted *de re* (39), overt infinitival subjects behave like PRO in that they receive an obligatory *de se* interpretation (40), according to Márta Abrusán's generalization in Szabolcsi (2009).

- (39) A(z amnéziás) hősz nem akarta, hogy csak ő kapjon érdemrendet.
 the amnesiac hero not wanted.3SG that only he get.SBJV.3SG medal.ACC
 'The (amnesiac) hero did not want that only he get a medal.'
 ⇒ *de re* or *de se* (Hungarian; Szabolcsi 2009: 23)
- (40) A(z amnéziás) hősz nem akart csak ő kapni érdemrendet.
 the amnesiac hero not wanted.3SG only he get.INF medal.ACC
 'The (amnesiac) hero did not want it to be the case that only he gets a medal.'
 ⇒ Only *de se* (Hungarian; Szabolcsi 2009: 23)

A second well-known characteristic of PRO is that it only allows a sloppy reading under ellipsis (Lebeaux 1985). In (41-a), a strict reading is also available, i.e., it is possible to construe the elided material as Peter thinking that I will receive a medal. By contrast, in (41-b) only a reading where Peter wants himself to receive a medal is available.

- (41) a. I think that I will receive a medal, and Peter does too.
 (OK Peter thinks that I will receive a medal)
- b. I want to receive a medal, and Peter does too.
 (≠ Peter wants for me to receive a medal)

In languages like Hungarian and Portuguese, which have overt nominative infinitival subjects, these subjects pattern with PRO in that they are only compatible with a sloppy reading under ellipsis.

- (42) Orsi nem akart csak ő leülni, és Péter se.
 Orsi not want.3SG only she sit.INF and Peter neither
 'Orsi don't want to be the only one to sit down, and neither does Peter.'
 (OK Peter doesn't want to be the only one to sit down.)
 (≠ Peter doesn't want for Orsi to be the only one to sit down.)
 (Hungarian; Anna Szabolcsi, p.c.)
- (43) O João não quer lavar só ele os pratos, e o Filipe também não.
 the John not wants.3SG wash.INF only he the dishes, and the Philip also not
 'John doesn't want to be the only one to wash dishes, and Philip doesn't either.'
 (OK Philip doesn't want to be the only one to wash dishes)
 (≠ Philip doesn't want for John to be the only one to wash dishes)
 (European Portuguese; Salvador Mascarenhas, p.c.)

The unavailability of a strict reading under ellipsis, as well as the obligatory *de se* interpretation, establishes overt nominative infinitival subjects as PRO.

4.3 The role of Focus

In this section I demonstrate how the overt expression of PRO in (44)-(46), repeated from (29)-(31), follows from the analysis of PRO as a defective goal in Section 3.2. In (44)-(46), PRO carries an additional feature which it does not share with its probe. In all instances of

overt PRO, the embedded subject bears a focus feature—either through association with a focus particle like *only* (44) and *also* (45), or through a contrastive interpretation (46).

- (44) Senki nem akart csak ő leülni.
 nobody not wanted.3SG only he/she sit.INF
 ‘Nobody wanted it to be the case that only he/she takes a seat.’
 (Hungarian; Szabolcsi 2009: 1)

- (45) Gianni odierrebbe andare anche lui a Milano.
 Gianni would-hate.3SG go.INF also he to Milan
 ‘Gianni would hate it if only/also he went to Milan.’ (Italian; Szabolcsi 2009: 2)

- (46) Decidiu ir ele ao mercado.
 decided.3SG go.INF he to-the market
 ‘He decided that he would be the one to go to the market.’
 (European Portuguese; Barbosa 2009: 104)

A similar observation has been made for Tamil by Sundaesan (2010). In Tamil, PRO can be replaced by an overt anaphor *taan*, ‘self’, but only if it is contrastively focused.

- (47) a. ramani PRO saadatt.ai saappi.d.a paa.tt.aan
 raman.NOM PRO rice.ACC eat.INF try.PST.3M.SG
 ‘Raman_i tried [CP PRO_i to eat the rice.]’
 b. ramani taan saadatt.ai saappi.d.a paa.tt.aan
 raman.NOM self.NOM rice.ACC eat.INF try.PST.3M.SG
 ‘Raman_i tried [CP for HIMSELF_i to eat the rice.]’
 (Tamil; Sundaesan 2010: 15)

Assuming that focus is a syntactic feature, the presence of this feature on PRO is responsible for the overt expression of PRO. When PRO bears a focus feature, it is no longer a defective goal with respect to matrix T, since focus is not a feature associated with T. Thus in (48), there is only a single instance of the feature bundle [Focus, 3SG, NOM]. Because focused PRO is not a defective goal when it agrees with T, no chain is formed between T and the embedded subject, and thus PRO is spelled out.¹⁵

- (48) 1[T, 3SG, NOM][_{vP}[CP[TP[Focus, u ϕ , uCase]T...]]]→
 2[T, 3SG, NOM][_{vP}[CP[TP[Focus, 3SG, NOM]T...]]]

¹⁵Note that as it stands, the present analysis predicts that overt PRO should be available in all languages. Future research must account for why languages like Russian and English disallow overt PRO. I suspect that additional factors affect the availability of focused PRO; the restrictions may stem from what constitutes a focusable element in a particular language.

4.4 Overt PRO is only possible with PRO-Control

In this section, I show that the proposed analysis also accounts for the peculiar generalization that overt PRO is only possible in PRO-Control configurations. Recall from Section 3.1 that under PRO-Control, PRO bears the case of its controller, while under C-Control, PRO bears the case associated with infinitival C. The fact that overt PRO is nominative in all of the examples discussed in Section 4.1 suggests that overt PRO agrees with matrix T (i.e., requires PRO-Control). It is possible that in the languages discussed, as in Icelandic, the case assigned by infinitival C is also nominative, in which case nominative overt PRO would not be an argument for PRO-Control. However, at least for Hungarian, there is reason to believe that the case independently associated with subjects of infinitival clauses is dative, like in Russian (Tóth 2000).

Stronger evidence for the restriction of overt PRO to PRO-Control comes from the impossibility of partial control with overt PRO. The notion of partial control was developed in (Landau 2004, 2008); it is a type of obligatory control, in which the infinitival subject is interpreted as semantically plural, despite a singular controller. Partial control is associated with predicates that require semantically plural subjects, like *gather*.

- (49) a. *The chair gathered at 6.
 b. The committee gathered at 6.

Obligatory control is possible with these predicates despite a singular controller in the matrix clause.

- (50) The chair preferred [PRO₁₊ to gather at 6].

Landau proposes that partial control is mediated by the embedded C, i.e., that it requires C-Control. According to Landau (2008), semantic plurality is marked with a privative [Mer] feature on the embedded C; thus when C and PRO agree, PRO becomes associated with [Mer], as in (51). However, matrix T cannot bear a [Mer] feature, and as a result, PRO and the controller can end up mismatched for [Mer]. Under the present proposal, PRO would be associated with a [Mer] interpretation because as a defective goal, PRO would be a copy in a chain that contained a [Mer] feature. (This proposal for [Mer] parallels the definite interpretation associated with *pro* in null-subject languages according to Holmberg (2010)).

- (51)
$$[T_{u\phi} \dots DP_{i\phi} [CP C_{u\phi, Mer} [TP PRO_{u\phi} T]]]$$

What is most important for the present discussion is that a partial control reading requires C-Control. However, as noted by Szabolcsi (2010), partial control is impossible with overt PRO. Hungarian generally allows partial control with silent PRO as in (52); however partial control is ungrammatical with overt PRO, regardless of the syntactic number of the embedded subject pronoun—(53) is equally unacceptable with *I* and *we*.

- (52) Nem akarok/akarunk a folyosón gyülekezni.
 not want.1SG/1PL the hallway-ON gather.INF
 'I/we don't want to gather in the hallway.' (Hungarian; Szabolcsi 2010: 2)
- (53) *Nem akarok csak mi/én gyülekezni a folyosón .
 not want.1SG only we/I gather.INF the hallway-ON
 'I don't want only for us to gather in the hallway.' (Hungarian; Szabolcsi 2010: 2)

Overt PRO appears to be incompatible with C-Control. This surprising restriction of overt PRO to PRO-Control environments finds a straightforward explanation in the present account, on the assumption that C bears a focus feature. When C bears a focus feature, a focused PRO is again a defective goal with respect to C, as illustrated in (54).

- (54) 1 [Focus, 3SG, DAT] [_{TP}[Focus, u ϕ , uCase]T...]] \rightarrow
 2 [Focus, 3SG, DAT] [_{TP}[Focus, 3SG, DAT]T...]] \rightarrow
 3 [Focus, 3SG, DAT] [_{TP}[~~Focus, 3SG, DAT~~]T...]]

One might question the assumption that the same C-head bears both the focus and ϕ -features, since focus is often associated with its own projection in an extended left periphery Rizzi (1997). However, since infinitival clauses are often assumed to have a truncated left periphery (Thráinsson 1993; Wurmbrand 2003; Haegeman 2004), it is plausible that ϕ -features and focus would be forced to occur on the same head, simply due to the collapsed nature of the C-domain in infinitival clauses. Moreover, Miyagawa (2007) has recently proposed specifically that focus and ϕ -features are associated with a single C-head, which allows him to account for the agreement-like role of focus in focus-prominent languages, such as Japanese. Miyagawa's proposal is consistent with the defective-goal status of focused PRO with respect to embedded C. As predicted by the present proposal, we do not see overt focused PRO in a C-Control configuration.

5 Conclusions and questions for further research

In this paper, I have proposed a principled account of PRO's obligatory silence crosslinguistically. Under the present proposal, PRO fills the gap in the pronominal typology based on Holmberg (2010) and Holmberg and Sheehan (2010). The silence of PRO is argued to follow largely from its structural deficiency: as a ϕ P pronoun with u ϕ , it must enter into an Agree relation to have its ϕ -features valued. Since any functional head that agrees with PRO will contain a superset of PRO's features, PRO will always be a defective goal, and thus silent. Moreover, an important advantage of the present analysis is that it correctly predicts that PRO can be overt if it carries features distinct from those of its probe. Specifically, it was shown that PRO can surface overtly when it bears a focus feature in addition to ϕ -features.

5.1 Comparison with Control as Movement

The present account of the obligatory silence of PRO shares its core idea with the proposal that control is really an example of A-movement (Hornstein 1999; Boeckx and Hornstein 2004, 2006; Boeckx et al. 2010). Boeckx and Hornstein have proposed that while the case feature on DPs must enter into an Agree relation with a ϕ -complete probe for the derivation to converge, the embedded clause contains a ϕ -incomplete T. This forces the infinitival subject to raise to the matrix clause (by way of an argument position of the matrix verb).

According to the Control-as-Movement theory, ‘PRO’ is silent for the same reason that NP traces are silent; it is not the highest copy in a chain. Thus Boeckx and Hornstein appeal to chain reduction to account for the silence of the infinitival subject, parallel to the present proposal that chain reduction accounts for the silence of PRO. The main difference between the analysis presented here and the Control-as-Movement approach is the nature of the chain that contains PRO. Under the present analysis, the chain is not formed by movement, but by Agree. The present analysis retains from traditional approaches to control the idea that the matrix and embedded subjects are distinct elements.

As a result, the present analysis avoids certain problems that arise for Control as Movement. According to the Control-as-Movement theory, the driving force behind the movement of the embedded subject to the matrix clause is that it has not entered into an Agree relation with a ϕ -complete probe, and therefore its uninterpretable case feature is still active. However, as has been shown extensively for Icelandic (Sigurðsson 2008; Bobaljik and Landau 2009), the embedded infinitival clause is capable of assigning structural nominative case to the subject, thereby removing the motivation for movement to the matrix clause. The same argument can be shown to also hold for Russian. The claim that subjects of infinitival clauses can receive structural case within the infinitival clause is problematic for the Control-as-Movement approach. Agreement with a ϕ -complete head would make the case feature of the embedded subject inactive, and thus not only eliminate any motivation for movement, but it would also make the subject invisible for further computations. The presence of structural case on PRO is not a problem for the present proposal; since PRO is an element distinct from the matrix subject, both the matrix and the infinitival subject can bear structural case. If PRO is assigned structural case by the embedded C, it forms a chain with C, and not with matrix T.

5.2 Silence versus distribution of PRO

In this paper, I have proposed an account for the obligatory silence of PRO. I have not, however, addressed factors that restrict the pronoun ϕ P with $u\phi$ to infinitival clauses. I have argued that (non-focused) PRO is expected to be silent wherever it occurs, but the issue of pronunciation is a separate one from PRO’s distribution. To some degree the issues overlap, and the present proposal does make the right predictions regarding the exclusion of PRO from matrix clauses. Under the present proposal, PRO has unvalued ϕ -features, which must be valued via Agree; if PRO were the subject of a matrix clause, matrix T would not be able to value PRO’s ϕ -features, since it would have unvalued ϕ -features itself—recall that in

control constructions matrix T has its ϕ -features valued by the controller. With both PRO's and T's ϕ -features unvalued, the derivation would crash. Although as mentioned in footnote 14, there is a further question of why a generic operator, an A-Topic, or a [speaker] feature in the left periphery of a matrix clause cannot value PRO's ϕ -features. Similarly, the present proposal does not provide an obvious account for the restriction of PRO to subject position. As it stands, the present proposal predicts that PRO would be silent in object position in the matrix clause. However, since *I like* cannot mean *I like myself*, future research needs to identify additional factors that prohibit PRO from object position. A future goal is to uncover a principled reason for the prohibition on ϕ P u ϕ in certain environments, or else to identify rules of Spell Out that would predict PRO being spelled out differently in subject and object position.

A related question of distribution is raised with respect to the ubiquity of PRO. While many languages do not allow *pro*, the availability of null subjects in infinitival clauses is overwhelmingly common. Future research will need to address why ϕ P with unvalued ϕ -features is more common than ϕ P with valued ϕ -features. One possibility is that the restriction on ϕ P is not in the lexicon—all languages have all pronouns types, but independent factors restrict their distribution. Holmberg (2010) pursues this approach in accounting for the impossibility of *pro* in English; he proposes that English has ϕ P, but it has an additional requirement that Spec,TP be overtly filled. As a result, a derivation containing ϕ P will always crash, because ϕ P cannot satisfy this requirement.

Similarly, as mentioned in footnote 15, a further explanation is needed for the limited availability of overt focused PRO crosslinguistically. One possibility is that there exists crosslinguistic variation with respect to elements that can bear a focus feature. If in some language PRO cannot be focused, one would not expect to see overt focused PRO in that language. Similarly, if matrix T can bear a focus feature in some language, focused PRO would again be a defective goal with respect to T, and would be predicted to be silent in that language.

In this paper, I have proposed a new principled explanation for the silence of PRO. The goal of future research will be to combine this proposal with accounts of PRO's distribution. Sigurðsson (2008) proposes that the distribution of PRO is also a result of its defective nature. In Sigurðsson's account, infinitival clauses have a defective Person head, which is incompatible with overt nouns, and which can only agree with a referentially defective element like PRO. Although Sigurðsson's proposal largely stipulates the silence of PRO, it does derive PRO's distribution from its deficient featural content. This type of approach seems compatible in outlook with the present proposal for the silence of PRO—combining the two approaches may be a promising start for creating a comprehensive account of the behavior of PRO.

References

Andrews, Avery. 1971. Case agreement of predicate modifiers in Ancient Greek. *Linguistic Inquiry* 2:127–151.

- Babby, Leonard H. 1998. Subject control as direct predication: Evidence from Russian. In *Formal approaches to Slavic linguistics: the Connecticut meeting*, 17–37.
- Barbosa, Pilar. 2009. A case for an Agree-based theory of control. *Lingbuzz*. <http://lingbuzz.auf.net>.
- Barrie, Michael. 2007. Control and *wh*-infininitivals. In *New Horizons in the Analysis of Control and Raising*, ed. Stanley Dubinsky and William Davies, 263–279. Dordrecht: Springer.
- Belletti, Adriana. 2001. Inversion as focalization. In *Subject Inversion in Romance and the Theory of Universal Grammar*, ed. Aafke Hulk and Jean-Yves Pollock, 69–90. New York: Oxford University Press.
- Belletti, Adriana. 2005. Extended doubling on the VP periphery. *Probus* 17:1–35.
- Bobaljik, Jonathan, and Idan Landau. 2009. Icelandic control is not A-movement: the case from case. *Linguistic Inquiry* 40:113–132.
- Boeckx, Cedric, and Norbert Hornstein. 2004. Movement under control. *Linguistic Inquiry* 35:431–452.
- Boeckx, Cedric, and Norbert Hornstein. 2006. Control in Icelandic and theories of control. *Linguistic Inquiry* 37:591.
- Boeckx, Cedric, Norbert Hornstein, and Jairo Nunes. 2010. Icelandic control really is A-movement: Reply to Bobaljik and Landau. *Linguistic Inquiry* 41:111–130.
- Cardinaletti, Anna. 1999. Italian ‘emphatic’ pronouns are post-verbal subjects. *University of Venice Working Papers in Linguistics* 9:59–92.
- Cardinaletti, Anna, and Michal Starke. 1999. The typology of structural deficiency. In *Clitics and other functional categories in the languages of Europe*, ed. Henk van Riemsdijk, 145–233. Berlin: Mouton de Gruyter.
- Chierchia, Gennaro. 1989. Anaphora and attitudes *de se*. In *Semantics and Contextual Expression*, ed. Renate Bartch, Johan van Benthem, and Peter van Emde Boas, 1–33. Dordrecht: Foris.
- Chomsky, Noam. 1981. *Lectures on the Theory of Government and Binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Knowledge of language*. New York: Praeger.
- Déchaine, Rose-Marie, and Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33:409–442.

- Fleisher, Nicholas. 2006. Russian dative subjects, case, and control. Unpublished Manuscript, University of California, Berkely.
- Franks, Steven. 1995. *Parameters of Slavic Morphosyntax*. Oxford University Press, USA.
- Frascarelli, M. 2007. Subjects, topics and the interpretation of referential *pro*. *Natural Language & Linguistic Theory* 25:691–734.
- Frascarelli, M., and R. Hinterhölzl. 2007. Types of topics in German and Italian. *On Information Structure, Meaning and Form* 87–116.
- Haegeman, Liliane. 2004. Topicalization, CLLD and the Left Periphery. In *ZAS Papers in Linguistics*, volume 35, 157–192.
- Holmberg, Anders. 2010. Null subject parameters. In *Parametric Variation: Null Subjects in Minimalist Theory*, ed. Theresa Biberauer, Anders Holmberg, Ian Roberts, and Michelle Sheehan, 88–124. Cambridge University Press.
- Holmberg, Anders, Aarti Nayudu, and Michelle Sheehan. 2009. Three partial null-subject languages: a comparison of Brazilian Portuguese, Finnish and Marathi. *Studia Linguistica* 63:59–97.
- Holmberg, Anders, and Michelle Sheehan. 2010. Control into finite clauses in partial null-subject languages. In *Parametric Variation: Null Subjects in Minimalist Theory*, ed. Theresa Biberauer, Anders Holmberg, Ian Roberts, and Michelle Sheehan, 125–152. Cambridge University Press.
- Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30:69–96.
- Landau, Idan. 2004. The scale of finiteness and the calculus of control. *Natural Language & Linguistic Theory* 22:811–877.
- Landau, Idan. 2008. Two routes of control: Evidence from case transmission in Russian. *Natural Language & Linguistic Theory* 26:877–924.
- Miyagawa, Shigeru. 2007. Unifying agreement and agreementless languages. In *MIT Working Papers in Linguistics 54: Proceedings of the Workshop on Altaic Formal Linguistics II*, ed. Meltem Kelepir and Balkiz Öztürk, 47–66.
- Moore, John, and David M. Perlmutter. 2000. What does it take to be a dative subject? *Natural Language & Linguistic Theory* 18:373–416.
- Nunes, Jairo. 2004. *Linearization of Chains and Sideward Movement*. MIT Press.
- Pires, Acrisio. 2006. *The Minimalist Syntax of Defective Domains*. John Benjamins Publishing Company.
- Quicoli, A.C. 1982. *The Structure of Complementation*. Humanities Press.

- Rizzi, Luigi. 1982. *Issues in Italian Syntax*. Dordrecht: Foris.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of Grammar: Handbook in Generative Syntax*, ed. L. Haegeman. Dordrecht: Kluwer.
- Roberts, Ian. 2010. *Agreement and Head Movement*. MIT Press.
- Roberts, Ian, and Anders Holmberg. 2010. Introduction: parameters in minimalist theory. In *Parametric Variation: Null Subjects in Minimalist Theory*, ed. Theresa Biberauer, Anders Holmberg, Ian Roberts, and Michelle Sheehan, 1–58. Cambridge University Press.
- Samek-Lodovici, Vieri. 1996. Constraints on subjects, an optimality theoretic analysis. Doctoral Dissertation, Rutgers University.
- Sigurðsson, Halldór Á. 1991. Icelandic Case-marked PRO and the licensing of lexical arguments. *Natural Language & Linguistic Theory* 9:327–363.
- Sigurðsson, Halldór Á. 2008. The case of PRO. *Natural Language & Linguistic Theory* 26:403–450.
- Sundaresan, Sandhya. 2010. A phase-based account of the PRO/anaphor distinction. In *Proceedings of ConSOLE XVIII*.
- Szabolcsi, Anna. 2009. Overt nominative subjects in infinitival complements cross-linguistically: Data, diagnostics, and preliminary analyses. In *NYU Working Papers in Linguistics*, volume 2.
- Szabolcsi, Anna. 2010. The double life of ‘want’-type verbs. Unpublished Manuscript, New York University.
- Terzi, Arhonto. 1992. PRO in Finite Clauses: A Study of the Inflectional Heads of the Balkan Languages. Doctoral Dissertation, City University of New York.
- Terzi, Arhonto. 1997. PRO and null case in finite clauses. *The Linguistic Review* 14:335–360.
- Thráinsson, Hoskuldur. 1993. On the structure of infinitival complements. In *Harvard Working Papers in Linguistics*, ed. Hoskuldur Thráinsson, Samuel D. Epstein, and Susumu Kuno, volume 3, 181–213.
- Tóth, Ildikó. 2000. Inflected infinitives in Hungarian. Doctoral Dissertation, Tilburg.
- Wurmbrand, Susanne. 2003. *Infinitives: Restructuring and Clause Structure..* Berlin: Mouton de Gruyter.