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ICELANDIC CASE-MARKED PRO AND THE LICENSING OF LEXICAL ARGUMENTS*

On the basis of evidence from Icelandic I argue that PRO can be both governed and case-marked, but crucially not properly governed. Lexical arguments must be both case-marked and properly head governed, and proper head government is a strictly local relation whereas case-marking is not. As the subject position of PRO clauses is not properly head governed, it must not be lexicalized, irrespective of whether it is case-marked or not.

0. INTRODUCTION

In this paper I provide evidence that Icelandic PRO is both case-marked and governed, a situation which calls for a revision of the PRO theorem. First, Icelandic PRO and lexical subjects have the same effects on various morphosyntactic phenomena that are crucially dependent on case-marking. Second, Verb Raising applies obligatorily in Icelandic PRO infinitives, moving the infinitive verb to a position where it arguably governs PRO. In spite of this, Icelandic PRO must never be replaced by a lexical NP.

The purpose of this paper is twofold: to present this Icelandic evidence and to develop a coherent explanation of the fact that even case-marked and governed subjects in PRO infinitives must not be lexicalized. My central theoretical claims are, first, that *pro* and all lexical arguments must be licensed by proper head government, and, second, that Infl/−Agr is not a proper governor, as opposed to Infl/+Agr. It follows that a lexical subject is not licensed in PRO infinitives: PRO, whether case-marked or not, is crucially not properly governed. In contrast, *pro* and lexical arguments are properly head governed, and traces are antecedent governed, hence properly governed. Accordingly, PRO is confined to A-positions that escape both types of proper government.

Sections 1. and 2. present evidence that Icelandic PRO is both case-marked and governed. Section 3. demonstrates that lexical arguments in Icelandic must be properly head governed, and section 4. contains concluding remarks.

1. ICELANDIC CASE MARKED PRO

In this section I demonstrate that Icelandic PRO is 'case active' in various
ways. First, verbs and predicates that take 'quirky' or non-nominative
subjects freely occur in PRO infinitives, i.e., Icelandic has quirky PROs
as well as quirky lexical subjects (section 1.1.). Second, PRO heads
morphological case chains, involving, for example, floating quantifiers
(section 1.2.). Third, PRO controls or triggers case dependent predicate
agreement in the same way as lexical subjects (section 1.3.). Fourth,
PRO in nominative constructions is arguably assigned nominative case by
Infl/−Agr (section 1.4.).[1]

1.1. *Quirky PROs*

As is well known, Icelandic has numerous verbs and predicates, passive
as well as active, that take oblique or quirky subjects. For ease of refer-
ence, all constructions that involve quirky subjects are here referred to as
Quirky Constructions (QCs). The sentences in (1) exemplify such construc-
tions; Icelandic has four morphological cases, nominative (N), accusative
(A), dative (D), and genitive (G):

(1)a.   Hana/*Hún vantaði vinnu.

   *her(A)/(*N) lacked job*

   She lacked a job.

  b.   Henni/*Hún leiddist.

   *her(D)/*she bored*

   She was bored.

  c.   Hennar/*Hún var getið.

   *her(G)/*she   was mentioned*

   She was mentioned (by someone).

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[1] In addition, oblique case can sometimes be transmitted into PRO infinitives, apparently
via PRO (cf. Andrews 1976, Friðjónsson 1977; 1989, p. 46 ff., Thráinsson 1979, p. 297 ff.).
Many of the basic facts discussed in this section were already used as an argument in favor
of a clausal analysis of PRO infinitives by Andrews (1976), and, in a very clear manner, by
Thráinsson (1979, p. 297 ff.). As far as can be judged, similar facts indicate that PRO was
case-marked in Ancient Greek (cf. Andrews 1971). To my knowledge, the explicit claim
that Icelandic falsifies the PRO theorem as formulated in Chomsky (1981) was first made in
Sigurðsson (1986); see also Sigurðsson (1989a, p. 183 ff.), Yip, Maling and Jackendoff
(1987), Ottósson (1989b) and Hornstein (1990).

In the extensive literature on Icelandic quirky subjects it has been estab-
lished beyond any reasonable doubt that they have the syntactic properties
of S-structure subjects, and not those of preposed objects, thus differing
from superficially similar NPs in, for example, German.[2] Arguably, how-
ever, they are D-structure objects, assigned both case and θ-role in the
object position, and promoted as D-structure is mapped onto S-structure
(Sigurðsson 1989a; see also, e.g., Platzack and Holmberg 1989). The fact
that dative and genitive subjects in passives, such as (1c), always corre-
spond to dative and genitive objects in the active voice is an obvious
argument in favor of this analysis.[3]

QCs are also found in various types of PRO infinitives, as illustrated in
(2)–(4); að 'to' is a complementizer (see section 2.):

(2)   Hún vonast til [að PRO vanta ekki vinnu].

        she   hopes for to (A)   lack   not job

        She hopes not to lack a job.

(3)   Hana   langar ekki til [að PRO leiðast].

        her(A) wants not for to (D)   bore

        She does not want to be bored.

(4)   Það væri gaman [að PRO verða getið].

        it   were nice   to (G) be   mentioned

        It would be nice to be mentioned.

Given the commonly accepted hypothesis (cf., e.g., Zaenen and Maling
1984, Chomsky 1986a, p. 193) that inherent case is associated with θ-
marking, we expect its suppression or elimination to involve some tamper-
ing with θ-marking, and hence to yield a violation of the Projection Prin-
ciple.[4] In conjunction with the Projection Principle, this hypothesis there-
fore makes a very specific prediction, namely, the following one:

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[2] See, for example, Andrews (1976, 1982), Thráinsson (1979), Bernódusson (1982),
Rögnvaldsson (1982), Zaenen and Maling (1984), Zaenen, Maling and Thráinsson (1985),
Platzack (1987), Sigurðsson (1989a), Maling (1990). See also many of the contributions in
Maling and Zaenen (1990).

[3] I assume that all quirky subjects are D-structure objects. Ottósson (1989b) and Maling
(1990) suggest that some such subjects are non-derived. What matters here is that quirky
subjects are subjects at S-structure.

[4] As far as I know, inherent case is never affected by NP-movement or other syntactic
processes. In contrast, assignment of inherent case is often 'bled' by lexical derivation, for
example the derivation of many so-called middle or mediopassive verbs in Icelandic (see
Zaenen and Maling 1984). It has been suggested that such 'bleeding' effects are due to
thematic restructuring in the lexicon (Sigurðsson 1989a, section 6.2.).

(5)   A PRO subject of a QC must head a chain that is assigned
        exactly the same inherent case as a lexical subject of such a
        construction in finite clauses

If lexical quirky subjects are D-structure objects, there is a chain relation
between the specifier position of IP and the object position of VP in
finite QCs. Reasonably, there is also an argument-trace-like chain relation
between PRO and the object position in 'quirky infinitives': [PRO$_i$,
. . . e$_i$].[5] The question then arises whether the quirky case is carried by
PRO itself or its bindee, the latter being in the D-structure case position.
Given Chomsky's (1986a, p. 193 ff.) approach to case realization, one
might wish to argue that case must not be realized in the subject position
of PRO infinitives, lexicalization of that position thus being prohibited.
However, this analysis only raises another question, namely, why the D-
structure case position of the PRO chain cannot be lexicalized either.[6]
Moreover, it presupposes that the case of a PRO chain can be dissociated
from the person, number and gender features of PRO.

    Reasonably, syntactic object-to-subject promotion promotes all D-struc-
ture features of the promoted argument, whether it is lexical or not.
Object-to-subject promotion involves subject chain formation, and NP-
movement, which is distinct from promotion as such (cf. Sigurðsson 1988,
1989a), moves all features of the promoted argument (for example its
phonological features, if it has any). Given these plausible assumptions
and the prediction in (5), PRO in QCs is case-marked. In the following
subsections we shall see evidence that (5) is indeed borne out.

1.2. Morphological Case Chains and PRO

The plainest evidence that Icelandic PRO is case-marked comes from
morphological case chains in infinitives. Let us look into this.
    Icelandic lexical NPs head morphological case chains, involving floating
quantifiers and secondary predicates. This is illustrated for a floating quan-
tifier in (6):

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[5] Chains that are headed by PRO are subject to the same island effects as lexical A-chains,
but it would take me too far to demonstrate this.

[6] Lexical arguments and *pro* must be licensed by proper head government (see section 3.).
Plausibly, all elements that head or 'initiate' lexical A-chains must also be properly head
governed, including, e.g., English *there* (as well as expletive *pro*) in expletive-argument
chains (i.e., CHAINS in the sense of Chomsky 1986a). If so, lexical A-chains are ill-formed
unless both their initiating or heading element and their lexical argument are properly head
governed. As the specifier of IP is not properly head governed in PRO infinitives (see
sections 2. and 3.), it follows that no members of the subject chain can be lexicalized.

(6)a.   Strákarnir   komust **allir**   í skóla.

        the boys(N) got   all(Npl.m.) to school

        The boys all managed to get to school.

    b.   Strákana   vantaði **alla**   í skólann.

        the boys(A) lacked all(Apl.m.) in the school

        The boys were all absent from school.

    c.   Strákunum leiddist **öllum**   í skóla.

        the boys(D) bored   all(Dpl.m.) in school

        The boys were all bored in school.

    d.   Strákanna var **allra**   getið   í ræðunni.

        the boys(G) was all(Gpl.m.) mentioned in the speech

        The boys were all mentioned in the speech.

Indefinite pronouns, such as **allir** 'all', have a full-fledged 'strong' adjectival inflection (4 cases × 3 genders × 2 numbers = 24). However, the forms in (6) are the only possible ones in each case. In particular, case agreement is mandatory, and obviously the case of the floating quantifier must be licensed by NP case. Given that nonagreeing default forms of adjectives, participles, etc. (homophonous with nominative and accusative neuter singular) do not involve case (cf. Sigurðsson 1989b, 1990b), there is in fact not a single exception in finite clauses to the generalization in (7):

(7)   Any morphological case on a non-NP must be licensed by an identical NP case

Now compare (6) to the infinitives in (8):

(8)a.   Strákarnir   vonast til [að PRO komast **allir**   í skóla].

        the boys(N) hope for to (N) get   all(N) to school

    b.   Strákarnir   vonast til [að PRO vanta ekki **alla**   í

        the boys(N) hope for to (A) lack not all(A) in

        skólann].

        the school

    c.   Strákarnir   vonast til [að PRO leiðast ekki **öllum** í skóla].

        the boys(N) hope for to (D) bore   not all(D) in school

(8)d.   Strákarnir   vonast til   [að PRO verða **allra**   getið   í
        the boys(N)   hope   for to (G)   be   all(G) mentioned in
        ræðunni].
        the speech

Many speakers are reluctant to embed floating quantifiers into control
infinitives, presumably for scope reasons, but insofar as speakers accept
sentences such as (8a–d), the quantifier must show up in exactly the same
form as in corresponding finite clauses. In other words, Icelandic PRO
heads morphological case chains in the same way as lexical subjects (cf.
Thráinsson 1979, p. 297 ff.). In the light of the generalization in (7), it
seems obvious that it does so by virtue of being case-marked.

1.3. *Predicate Agreement and PRO*

Further evidence that Icelandic PRO is case-marked comes from predicate
agreement.

Icelandic finite verbs agree in person (1, 2, 3) and number (sg., pl.),
and Icelandic adjectival predicates and passive participles agree in case,
number and gender (m., f., n.). I refer to both these agreement types as
sentential agreement, so as to distinguish them from other agreement types
in Icelandic (NP-internal agreement and agreement of floating quantifiers
and secondary predicates). The sentences in (9) and (10) illustrate senten-
tial agreement:[7]

(9)a.   Strákarnir   **höfðu**   verið **duglegir**.
        the boys(Npl.m.) had(3pl.) been energetic(Npl.m.)

   b.   Stelpurnar   **höfðu** verið **duglegar**.
        the girls(Npl.f.) had   been energetic(Npl.f.)

   c.   Börnin   **höfðu** verið **dugleg**.
        the children(Npl.n.) had   been energetic(Npl.n.)

(10)a. Strákurinn   **hafði**   verið **skammaður**.
        the boy(Nsg.m.) had(3sg.) been scolded(Nsg.m.)
        The boy had been scolded (by someone).

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[7] If the agreement controller is in the first or the second person, the sex of the controller
decides the gender of the predicate.

(10)b. Stelpan **hafði** verið **skömmuð**.

the girl(Nsg.f.) had been scolded(Nsg.f.)

c. Barnið **hafði** verið **skammað**.

the child(Nsg.n.) had been scolded(Nsf.n.)

Any other forms of the verb and the predicate, in each case, are sharply ungrammatical. In particular, agreeing (primary) predicates always show up in the nominative in finite clauses.[8] Moreover, the 'antecedent' or controller of both types of sentential agreement must always be in the nominative in finite clauses, i.e., the descriptive generalization in (11) holds without an exception (cf. Sigurðsson 1990b):

(11) Only nominative arguments can control sentential agreement in finite clauses.

This is an interesting generalization considering, first, that Icelandic has quirky subjects, and, second, that other Icelandic agreement types, for example agreement of floating quantifiers, are not subject to any case restrictions of this sort.

In the absence of a nominative argument, then, there is no sentential agreement, i.e., both the finite verb and the predicate show up in an invariable default form ('dflt' in glosses). In verbs the form in question is homophonous with the agreeing form for third person singular, and in predicates, whether adjectives or passive participles, the default form is homophonous with the agreeing form for nominative/accusative neuter singular.[9] Consider (12), where the subjects are assigned dative by the (ergative) adjective (Sigurðsson 1989a, section 6.2.2.):

(12)a. Strákunum **hafði** verið **kalt**.

the boys(D) had(dflt) been cold(dflt)

The boys had been freezing

b. Stelpunum **hafði** verið **kalt**.

the girls(D) had been cold

c. Okkur **hafði** verið **kalt**.

us(D) had been cold

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[8] In constrast, they show up in the accusative in ECM infinitives, ECM infinitives thus illustrating that predicative case is not simply default case (see also sections 1.4. and 3.2.1.).
[9] These forms are also used in impersonal constructions. In participles the default form also functions as the nonagreeing active participle, used after the perfect auxiliary *hafa* 'have' and the modal *geta* 'can, be able to'.

Again, any other verb or predicate forms are sharply ungrammatical. In particular, sentential agreement with quirky subjects is entirely out of the question. This is illustrated in (13), which should be compared to (12):

(13)a. *Strákunum **höfðu**   verið **köldum**.
       the boys(D) had(3pl.) been cold(Dpl.m./f./n.)

  b. *Stelpunum **höfðu** verið **köldum**.

  c. *Okkur **höfðum**   verið **köldum**.
      us(D) had(1pl.) been cold

In contrast, even nominative objects control agreement, as shown in (14) and (15):[10]

(14)   Okkur **höfðu**   leiðst strákarnir.
        us(D) had(3pl.) bored the boys(N)

        We had been bored by the boys.

(15)   Okkur **höfðu**   verið **sagðar**   sögurnar   áður.
        us(D) had(3pl.) been told(Npl.f.) the stories(Npl.f.) before

        We had been told the stories before.

In the absence of a nominative object, however, both the finite verb and the predicate show up in default forms, as we would expect. Compare (16) to (14) and (15):

(16)a.   Okkur **hafði**   leiðst.
         us(D) had(dflt) bored

         We had been bored.

  b.   Okkur **hafði**   verið **sagt**   frá   þessu áður.
         us(D) had(dflt) been told(dflt) about this(D) before

         We had been told about this before.

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[10] This is however confined to third person: for most speakers, nominative objects cannot be in first and second person at all, and speakers who accept first and second person nominative objects prefer default forms to agreement with the object. In Sigurðsson (1990b) it is suggested that third person is 'no person' and that nominative objects can control number agreement in both verbs and predicates and gender agreement in predicates but not 'true' person agreement. It is a well established fact that Icelandic has nominative objects as well as non-nominative subjects (cf., e.g.. Bernódusson 1982, Zaenen, Maling and Thráinsson 1985).

There are also numerous 'minimal pairs' of the following sort, where the subjects have different θ-roles: nominative themes vs. dative experiencers:

(17)a.   Strákarnir   voru   illir.
         the boys(N) were(3pl.) bad(Npl.m.)

         The boys were angry/evil.

   b.   Strákunum   var   illt.
         the boys(D) was(dflt) bad(dflt)

         The boys were nauseated.

Object controlled agreement shows that sentential agreement is inherently related to nominative case assignment in Icelandic finite clauses, and not to some specific grammatical function (see also Zaenen, Maling and Thráinsson 1985, Sigurðsson 1990b). However, since PRO is always a subject we need not take object controlled agreement into further account here, nor do we, of course, have to consider finite verb agreement. What matters, for our present purposes, is the following simple generalizations:

(18)a.   Agreement of predicative adjectives and participles in finite clauses must be licensed by a nominative NP
   b.   In the absence of a nominative NP in a finite clause a predicative adjective or participle shows up in a nonagreeing default form

In the light of these generalizations, it is interesting to observe that predicate agreement normally behaves exactly the same in control infinitives as it does in corresponding finite clauses. Compare the finite clauses in (19) and the infinitives in (20):

(19)a.   Strákarnir   voru aðstoðaðir/*aðstoðað.
         *the boys(N) were aided(Npl.m.)/(*dflt)*

   b.   Strákunum   var hjálpað/*hjálpaðir/*hljálpuðum.
         *the boys(D) was helped(dflt)/(*Npl.m.)/(*Dpl.m.)*

(20)a.   Strákarnir   vonast til [að PRO verða aðstoðaðir/*aðstoðað].
         *the boys(N) hope   for to (N) be   aided(Npl.m.)/(*dflt)*

         The boys hope to be aided (by somebody).

(20)b.   Strákarnir   vonast til   [að PRO verða
         the boys(N)   hope   for to   (D)   be
         hjálpað/*hjálpaðir/*hjálpuðum].
         *helped(dflt)/(*Npl.m.)/(*Dpl.m.)*

         The boys hope to be helped (by somebody).

Parallel facts in the feminine are given in (21):

(21)a.   Stelpurnar vonast til [að PRO verða **aðstoðaðar**].
         the girls(N) hope   to   (N)   be   aided(Npl.f.)

     b. Stelpurnar vonast til [að PRO verða **hjálpað**].
         the girls(N) hope   to   (D)   be   helped(dflt)

We have a straightforward account of these agreement facts if PRO is
case-marked in exactly the way indicated in (20) and (21). If it is not, we
have a problem: in particular, we then have to assume, first, that Icelandic
has developed a special predicate agreement system for PRO infinitives,
different from the agreement system of finite clauses in being independent
of case, and, second, that the predicate agreement system of PRO infini-
tives nonetheless imitates the case-based predicate agreement system of
finite clauses. This is highly implausible, both on general conceptual
grounds, and, in particular, from the point of view of language acquisition.
It seems natural to assume that the child spontaneously extends the predi-
cate agreement system of finite clauses to PRO infinitives. However, if
Icelandic PRO is not case-marked, this extension of predicate agreement
is entirely unfounded: as we have seen, the predicate agreement system
of finite clauses is crucially case-based.

1.4. *Nominative PRO and Nominative Case*

Many of the facts we have been considering indicate that quirky case must
be assigned in QCs in Icelandic PRO infinitives. It is perhaps not as clear
that non-quirky PROs in Icelandic are assigned structural nominative
case. In this section I discuss this issue, arguing, first, that Icelandic has
nominative PRO, and, second, that Icelandic nominative PRO is assigned
structural case by Infl/−Agr.
   Reconsider nominative agreement in examples such as (22) and (23):

(22) Strákarnir   vonuðust til [að PRO komast **allir**   í
      the boys(N) hoped   for to (N)   get   all(Npl.m.) to

      veisluna].
      the party

(23) Strákarnir   vonuðust til [að PRO verða **kosnir**   í
      the boys(N) hoped   for to (N)   be   elected(Npl.m.) to

      stjórnina].
      the board

In examples such as these, it might seem both possible and plausible that
the nominative agreement in the infinitives is licensed by the matrix clause
nominatives. There is however straightforward evidence against this analy-
sis, namely, examples such as (24) and (25), where there is no overt
nominative NP, and the quantifier and the passive participle nevertheless
show nominative agreement:

(24) Strákana   langaði   til [að komast **allir**   í
      the boys(A) wanted(dflt) for to   get   all(Npl.m.) to

      veisluna].
      the party

(25) Strákunum leiddist   [að verða **kosnir**   í
      the boys(D) bored(dflt) to   be   elected(Npl.m.) to

      stjórnina].
      the board

      The boys were annoyed by being elected to the board.

Notice also in this connection that predicates show up in default forms in
finite clauses that do not have a lexical subject. Compare (23) and (25) to
the impersonal passive in (26):

(26) Í gær   var **kosið**/*kosnir/*kosinn   í stjórnina.
      *yesterday was elected(dflt)/(*Npl.m.)/(*Nsg.m.) to the board*

      Yesterday, there was election to the board.

The agreeing nominatives in (22)–(25) cannot be replaced by default
forms, as illustrated in (27):

(27) *Strákunum leiddist   [að verða **kosið**   í stjórnina].
      the boys(D) bored(dflt) to   be   elected(dflt) to the board

In short, the agreeing nominatives in (22)–(25) are evidently licensed by nominative PRO.

Even though Icelandic has nominative PRO, it does not necessarily follow that PRO can be assigned structural case: one might perhaps want to analyze nominative as some sort of default case, either in Icelandic in general or in Icelandic PRO infinitives in particular (cf. Andrews 1990, Hornstein 1990). As argued in Sigurðsson (1989a), however, Icelandic nominative PRO seems to be assigned structural case by the infinitive, nonagreeing Infl. If so, Agr is not a prerequisite for nominative case assignment by Infl.

There is not a mutual one-to-one correlation between structural nominative case assignment and finite verb agreement in Icelandic: the former conditions the latter, but not vice versa. First, Infl, whether finite or not, is only a potential case assigner, assigning its case if and only if a NP in its domain is not already marked for D-structure quirky case, i.e., iff there is a case-requiring NP in its domain.[11] Second, Infl agrees only if it assigns case and contains Agr, that is, if it has Agr and a case assignee for Agr to agree with.[12]

This said, there seems little doubt that nominative is the default morphological case in Icelandic. As already pointed out by Thráinsson (1979, p. 299–300), it would nevertheless be a mistake to analyze Icelandic nominatives in general as simply default. In particular, nominative case is not 'no case'. While other cases may be conceived of as 'constituent cases', assigned by lexical heads of constituents, nominative is *normally* a 'clausal case', assigned by a clausal head.

The assumption that Icelandic nominative PRO bears default case rather than structural Infl-case is problematic: it is then entirely unclear why nominative PRO requires nominative predicate agreement, and not default nonagreeing predicate forms. Predicate agreement in finite clauses cannot be licensed by just any nominative NP. Thus, dislocated nominative NPs never control agreement. Consider the examples in (28); the dislocated NPs are morphologically nominative, presumably by default, but, as illustrated, the predicates must not agree with these nominatives:

(28)a.   Strákurinn, við hann var ekki **dansað**/*dansaður.

        *the boy(N) with him   was not   danced(dflt)/(*Nsg.m.)*

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[11] See Sigurðsson (1988, 1989a, 1989b, 1990b). Objects of transitive verbs are, of course, not in the domain of Infl and do thus not come into question in this connection. Structural accusative also remains non-assigned if it is not 'needed' by any NP, cf. section 3.2.4.

[12] And even so, Infl does not agree in 'true' person with nominative objects, as mentioned in fn. 10 above.

(28)b.   Strákurinn, honum voru **gefnar**/*gefinn

        the boy(N) him   were given(Npl.f.)/(*Nsg.m.)

        bækur.

        books(Npl.f.)

        The boy, he was given books.

Predicate agreement in finite clauses always coincides with finite verb agreement: if a (primary) predicate agrees with an NP, the finite verb must also agree with that same NP. That is, only those nominatives that are assigned structural nominative case by Infl (and thus control agreement of Agr) can control predicate agreement in finite clauses. Accordingly, we have a simple account of the identical predicate agreement with PRO in nominative constructions if it is assigned case by Infl/−Agr. In contrast, if nominative PRO is nominative by default, it is mysterious how the child acquiring Icelandic grammar establishes the fact that such PRO, and not, for example, dislocated default nominatives, *must* control predicate agreement in exactly the same way as lexical subjects that are assigned case by Infl/+Agr control it.

1.5. *Conclusion*

I conclude, first, that Icelandic PRO is always case-marked, and, second, that Icelandic nominative PRO is assigned case by Infl/−Agr.

Notice that all the evidence in favor of these conclusions involves phenomena that are absent in most other Western European languages, namely, contrasts between quirky and nominative subjects and different morphological (agreement) correlates with quirky and nominative case assignment. Thus, case-marking of PRO is perhaps a parametrically decided option (cf. Sigurðsson 1989a, Hornstein 1990). Alternatively, however, PRO might be universally amenable to case-marking, as suggested within a rather different theoretical framework by Yip, Maling and Jackendoff (1987). If so, case is a general property of (referential?) NPs, whether lexical or not, and some version of the visibility condition can be maintained (cf. Chomsky 1986a). I tentatively assume that this is the case.

In the next section I discuss the status of Icelandic PRO with respect to government.

2. Verb raising and government of PRO

Not only is there evidence that Icelandic PRO is case-marked but also that it is governed at S-structure. The evidence in question comes from the fact that Verb Raising applies in Icelandic PRO infinitives, moving the infinitive verb to a position where it arguably governs PRO. In this section I first present this evidence and then turn to the question of why even governed and case-marked subjects of PRO infinitives must not be lexicalized.

By standard assumptions, Verb Raising applies in Icelandic finite clauses, moving V to Infl across any VP-adjoined adverb.[13] This is illustrated in (29) and (30):

(29)a. María segir að þú **lesir** alltaf bókina.

   Mary says that you read always the book

   Mary says that you always read the book.

 b. *María segir að þú alltaf **lesir** bókina.

(30)a. María spyr hvort   þú **hafir** ekki lesið bókina.

   Mary asks whether you have not read the book

 b. *María spyr hvort þú ekki **hafir** lesið bókina.

In addition, Verb Raising is mandatory in all Icelandic PRO infinitives.[14] The examples in (31) and (32) illustrate the obligatoriness of raising the 'first' verb in PRO infinitives, whether a main verb or an auxiliary; 'inf' in the glosses denotes an infinitive verb form:

(31)a. María lofaði   að **lesa**   alltaf bókina.

   Mary promised to read(inf) always the book

   Mary promised always to read the book

 b. *María lofaði að alltaf **lesa** bókina.

---

[13] See, for example, the word order section in Maling and Zaenen (1990). Verb Raising is optional only in some adverbial and relative clauses (cf., e.g., Sigurðsson 1989a, p. 44–45.)
[14] This fact was first pointed out in Thráinsson (1984). See also Thráinsson (1986), Holmberg (1986), Sigurjónsdóttir (1988), Hornstein (1990), and, most thoroughly, Sigurðsson (1989a, chapter 3). In contrast, the mainland Scandinavian languages do not have Verb Raising to Infl, neither in finite nor infinitive clauses (see Holmberg 1986).

(32)a.   María vonaðist til að **hafa**   ekki lesið bókina.

       Mary   hoped   for to have(inf) not   read the book

       Mary hoped that she had not read the book.

  b.   *María vonaðist til að ekki **hafa** lesið bókina.

I assume that *að* is a complementizer in PRO infinitives as well as in subordinate declaratives. [15] We can then account for the parallels between, for example, the subordinate declarative in (29a) and the PRO infinitive in (31a) by assigning the structures in (33) and (34) to them, respectively. For expository purposes I distinguish verb traces (v) from other traces (t); I follow Ottósson (1989a) and Platzack and Holmberg (1989) in adapting a VP-internal analysis of subjects to Icelandic: [16]

(33) $[_{CP}$ að $[_{IP}$ þú$_i$ $[_{I'}$ **lesir**$_j$ $[_{VP}$ alltaf $[_{VP}$ t$_i$ $[_{V'}$ v$_j$ bókina]]]]]]

     that   you   read(2sg.)   always   the book

(34) $[_{CP}$ að $[_{IP}$ PRO$_i$ $[_{I'}$ **lesa**$_j$ $[_{VP}$ alltaf $[_{VP}$ e$_i$ $[_{V'}$ v$_j$ bókina]]]]]]

     to   read(inf)   always   the book

Elaborating on ideas of Jean-Yves Pollock (see Pollock 1989), Chomsky (1988) explains the fact that only *have* and *be* can raise to Infl in English as a reflection of the weakness of English Infl (or Agr): only 'strong' Infl can transmit θ-marking properties (through the chain of the verb it hosts) and hence attract θ-role assigning verbs. If this line of reasoning is to be maintained, we have to assume that Infl in Icelandic PRO infinitives is 'strong' in the relevant sense – which is then obviously different from the common understanding that an inflectionally rich Infl (or Agr) is 'strong'. [17] However, what matters here is simply that Infl in Icelandic PRO infinitives incorporates [+V] heads and should therefore be a governor, given the standard assumption that verbal heads are governors (cf., e.g., Chomsky 1981, Rizzi 1990, p. 25). If so, Icelandic PRO is governed at S-structure.

    The question arises why case-marked and governed subjects of PRO

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[15] The obvious alternative is to assume that infinitival *að* is in Infl (like English *to*), but then we have to analyze Icelandic infinitive Verb Raising as some sort of a 'short verb movement' in the sense of Pollock (1989). To my knowledge, there is no word order evidence that Icelandic infinitive Verb Raising is any different in nature from Icelandic finite Verb Raising. Besides, there are many independent reasons to analyze *að* as a complementizer in PRO infinitives (cf. Sigurjónsdóttir 1988, Sigurðsson 1989a, pp. 49–76).

[16] See section 3.2.2. For a slightly different VP-internal analysis of Icelandic subjects, see Rögnvaldsson and Thráinsson (1990).

[17] Chomsky (1988) collapses these two notions of 'strength', but Verb Raising in Icelandic infinitives shows that they must be kept apart (see Sigurðsson 1990c).

infinitives cannot be lexicalized. I will here argue that the reason is two-fold. First, lexical arguments must be properly governed. Second, Infl/−Agr, as opposed to Infl/+Agr, is not a proper governor, not even when it is 'strong' in the sense of Chomsky (1988). It follows that Infl/−Agr cannot license a lexical subject, whether the subject is case-marked or not.

This approach shares the basic assumption with the standard theory that Infl/+Agr is a more 'prominent' governor than Infl/−Agr, but it shifts the focus of attention from government vs. non-government to proper government vs. ('non-proper') government. In addition, I focus on the properties of lexical NPs, rather than on the properties of PRO. Crucially, lexical A-positions must be licensed by proper government. I present evidence that supports this hypothesis in the next section.

3. PROPER HEAD GOVERNMENT AND THE LICENSING OF LEXICAL ARGUMENTS

Following Chomsky (1986a, p. 93 ff.), I assume that every element in a well-formed structure must be licensed. Thus, lexical NPs must be licensed in one way or another, of course, and the standard assumption (in GB) is that they are licensed by case-marking under government. However, the fact that both case-marking and government may apply to PRO indicates that lexical NPs in argument positions must be licensed by a still stronger condition, not met by PRO.[18] Moreover, if there is such a condition, we expect it to apply to *pro* as well as to lexical argument positions, given that "*pro* is a pure pronominal like its overt counterpart" (Chomsky 1982, p. 82). I will here explore the obvious possibility that the condition in question is proper government by a zero-level category, that is, *proper head government*.[19] As we proceed, it becomes evident that case-marking and proper government are distinct relations. Obviously, the case assigner of an NP is often its proper governor too, but there is no general requirement to this effect. Rather, a lexical NP in an A-position must be both case-marked and properly governed, either by one and the same head or by two distinct heads. In contrast, Icelandic PRO is case-marked (and governed) but crucially not properly governed.

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[18] I am here following a similar line of reasoning as Falk (1989). Falk does not take PRO into account and the solutions proposed here are rather different from her suggestions. Nevertheless, the following discussion owes much to her insights.

[19] Much of the cross-linguistic variation with respect to *pro* depends on varying identification strategies (cf. Rizzi 1986, Cole 1987). However, there is also considerable variation with respect to proper head government.

Since Icelandic has quirky subjects, it is in fact rather obvious that case-marking under local government cannot be the crucial licensing condition on lexical NPs in A-positions in Icelandic. Quirky subjects, in both passive and non-passive clauses, are assigned case by some lexical head and most typically lexicalized in the clausal subject position, where they are locally governed by Infl, and not by their case assigner. Reasonably, case-marking and proper head government are also two distinct conditions in languages that have no quirky subjects, for example the mainland Scandinavian languages (cf., e.g., the facts discussed in Platzack and Holmberg 1989 and Vikner 1990).

In section 3.1. I define proper head government as local government by a proper head governor, the set of proper head governors, in turn, being subject to parametric variation. In section 3.2. I present evidence that lexical NPs in A-positions in Icelandic must not only be case-marked but also properly head governed. The evidence in question illustrates that VP-internal A-positions that are not properly head governed must not be lexicalized even though they are legitimate case positions. Thus, these positions show the same bahavior as the subject position of PRO infinitives.

3.1. *Proper Head Government*

By claiming that *pro* and lexical NPs in A-positions must be properly governed, I am not suggesting that the ECP should be dispensed with as a special condition on traces. Following Chomsky (1986b, p. 76 ff.; 1988), I assume that traces are properly governed only if they are antecedent governed. In contrast, *pro* and lexical NPs in A-positions must be properly governed by a head, i.e., a zero-level category. These licensing conditions are explicitly stated in (35) and (36); I refer to (36) as the *Proper Head Government Condition* (PHGC):

(35)   ECP: a trace must be antecedent governed
(36)   PHGC: *pro* and lexical NPs in A-positions must be properly head governed

PRO, in turn, differs from other A-chain elements in being neither properly head governed nor antecedent governed, i.e., it is crucially not properly governed. It follows that PRO can only occur in A-positions where it escapes both types of proper government, for example in IP subject positions that are both governed by Infl/−Agr and 'protected' (by CP) from external proper (head and antecedent) government. With re-

spect to the distribution of PRO, then, my approach makes the same predictions as the standard theory.

Proper head government is a proper subcase of head government. I define it as follows:

(37) α properly head governs β iff α locally governs β and belongs to the set S of proper head governors

As proper head government is strictly local, we need not consider barrierhood here, that is, it suffices for our purposes to conceive of head government simply as local command.

This said, it is necessary to make one slight revision in Chomsky's approach to government. Chomsky (1986b, p. 8) defines all government in terms of maximal command or m-command. However, lexical heads seem to have different governing properties than the clausal heads, Infl and Comp: while Infl and Comp are 'maximal governors' in the sense that they govern under m-command, lexical heads are 'minimal governors' in the sense that they can only govern under c-command. In other words, lexical heads can never govern their specifiers. I state this claim explicitly in (38):

(38)   Lexical heads can only govern under c-command and are therefore incapable of governing their specifiers

It follows that a specifier of a lexical head can only be head governed from outside of the head's maximal projection (cf. Chomsky's (1986b, p. 42 ff.) discussion of the Minimality Condition). Accordingly, verbs should never assign case or θ-role to [Spec, VP], a prediction that seems to be borne out.[20]

The scope of proper head government, as defined in (37), obviously depends on what members are contained in the *set S* of proper head governors. Moreover, S contains different members in different languages, as, for example, suggested by the contrast between the English examples in (39) and the Icelandic examples in (40):

(39)a.   *There has been killed **a man**.
    b.   There has been **a man** killed.

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[20] Recall that I assume that quirky subjects are D-structure objects, assigned both case and θ-role in the object position. Irrespective of verb (and adjective) type, quirky subjects are always blocked from showing up in the specifier position of their case assigner, but due to Verb Raising this effect is invisible unless the clause contains at least two auxiliaries (see (50) below). Arguably, the 'combinatory' external θ-role of transitive verbs is assigned to [Spec, VP] by its predicate, that is, by V′. If so, Chomsky's (1986b) Sisterhood Condition applies to external as well as internal θ-marking.

(40)a.   Það   hefur verið drepinn **maður**.
         there has   been killed   a man(N)

   b.   *Það hefur verið **maður** drepinn.

As opposed to its cognate in Icelandic (and, e.g., French), English *be* belongs to the set S, perhaps by virtue of being a case assigner (cf. Lasnik 1989).[21] Passive participles, in turn, do not license lexical arguments in English, in contrast with most other Western European languages, e.g., Icelandic and other Scandinavian languages, German, Italian and French (cf., e.g., Belletti 1988, Vikner 1990).

   The set S, then, is subject to parametric variation, UG containing the *Set S Parameter*, the settings of which are responsible for the different lexicalization possibilities of A-positions in different languages. Plausibly, languages select proper head governors from a universal set that consists of Infl/+Agr, Comp, and lexical heads that assign either case or θ-role.[22] Icelandic seems to make a rather broad selection, setting the Set S Parameter as follows:[23]

   (41) $S = \{Infl/+Agr, \alpha\}$, α a lexical head and an assigner of case or θ-role

I assume that heads need only be potential case assigners to function as proper governors, that is, they need not be the actual case assigners of their local governees (see sections 3.2.3. and 3.2.4.). Given this assumption and (37) and (41), Icelandic sets proper head government as follows:

   (42) α properly head governs β iff α locally governs β, $\alpha =$ Infl/+Agr or a lexical head capable of assigning case or θ-role

Notice that (42) is almost identical to the licensing conditions on *pro* suggested by Rizzi (1986).[24]

   This approach crucially predicts that the only argument positions in Icelandic that can be lexicalized are those that are locally governed by

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[21] In contrast with English *be*, the copula never assigns case in Icelandic. As in English, the copula seems to be a proper head governor in the mainland Scandinavian languages (cf., e.g., Platzack and Holmberg 1989, Vikner 1990).

[22] The different status of Infl/+Agr and Infl/−Agr with respect to the licensing of lexical arguments is particularly striking in European Portuguese as described by Raposo (1987). Comp seems to be a proper head governor in the mainland Scandinavian languages, in contrast with, for example, English and Icelandic.

[24] Rizzi (1986, p. 519 ff.) discusses two alternative licensing schemata for *pro*, involving proper head government (in our terms) and case-marking under proper head government, opting for the latter (1986, p. 524).

Infl/+Agr or a lexical head that is an assigner of θ-role or a potential assigner of case. In the remainder of this third section I illustrate that this prediction seems to be borne out.

3.2. *Additional Evidence from Icelandic*

The problem of case-marked PRO is not an isolated or a special problem. Some VP-internal specifier positions in Icelandic are legitimate case positions but must nevertheless be lexically empty. I demonstrate this in the following subsections and argue that the positions in question must be lexically empty because they are not properly head governed.

Section 3.2.1. illustrates that the whole clause is in the scope of Icelandic 'clausal case', namely nominative in finite clauses and accusative in ECM infinitives. Accordingly, NPs that are 'destined' for clausal case should not be excluded from any A-positions for case-theoretic reasons. In section 3.2.2. I clarify what positions come into question in this connection, arguing that every V′ takes a subject position, [Spec, VP]. Section 3.2.3. then demonstrates that some specifier positions that are legitimately case-marked or members of well-formed case chains in finite clauses must not be lexicalized, the reason arguably being that they are not properly head governed. In section 3.2.4. I extend this analysis to raising infinitives. As it turns out, raising infinitives show in a particularly clear manner that proper head government is independent of actual case-marking.

3.2.1. *Clausal Case*

As mentioned in section 1.4., nominative case is normally a 'clausal case' in the sense that it is assigned by a clausal head. In Icelandic and many other languages it is also clausal in another sense, namely in the sense that the whole clause is in its domain. Structural nominative case-marking must not cross CP boundaries, but otherwise it is not subject to any locality restrictions in Icelandic. This is illustrated in (43):

(43)a.   Það   höfðu   sennilega sokkið **einhverjir bátar**   í
          there had(3pl.) probably sunk   some   boats(Npl.m.) in

          firðinum.
          the bay

          Some boats had probably sunk in the bay.

(43)b. Það mundu   kannski hafa verið seldir   **einhverjir**
        there would(3pl.) perhaps have been sold(Npl.m.) some

        bátar   á uppboðinu.
        boats(Npl.m.) at the auction

        There would perhaps have been some boats sold at the
        auction.

I am not concerned here with the question of how Infl assigns structural
nominative case into VPs.[25] What matters here is the plain fact, illustrated
in (43), that the whole clause is in the case domain of Infl in Icelandic.

   This phenomenon is not restricted to nominative case. Since Icelandic
ECM infinitives do not have Infl (or at least not a lexicalized case assigning
Infl), structural accusative is clausal case in ECM infinitives. Moreover,
the ECM verb has the whole infinitive in its case domain, accusative thus
paralleling nominative in finite clauses (as also seen by the fact that
nominative predicate agreement is replaced by accusative predicate agree-
ment in ECM infinitives). I illustrate this in (44), which should be com-
pared to (43) (passive participles never assign accusative, as opposed to
dative and genitive, and, as seen in (43a), the verb in (44a) is unaccus-
ative):

(44)a. Hann taldi   [hafa sokkið **einhverja báta**   í
        he(N) believed have sunk   some   boats(Apl.m.) in

        firðinum].
        the bay

        He believed some boats to have sunk in the bay.

   b.   Hann taldi   [hafa verið selda   **einhverja**
        he(N) believed have been sold(Apl.m.) some

        báta   á uppboðinu].
        boats(Apl.m.) at the auction

        He believed some boats to have been sold at the auction.

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[25] Den Besten (1984, p. 42) accounts for VP-internal nominatives in German in terms of
government chains. In Sigurðsson (1990c), den Besten's proposal is developed and combined
with Chomsky's (1988) and Pollock's (1989) approach to Verb Raising, the key idea being
that a 'strong' Infl (roughly in the sense of Chomsky 1988) can both attract main verbs and
transmit nominative case (by chain-government) into passive and ergative VPs. An interest-
ing theoretical alternative is explored in Yip, Maling and Jackendoff (1987).

In the absence of intervening assigners of structural case, then, clausal case can be assigned indefinitely deep down into the clause.[26] Accordingly, we would not expect NPs that are 'destined' for clausal case to be excluded from any argument positions by case-theoretic principles.

In the next subsection I clarify what positions come into question in this connection, arguing that every VP has a specifier position. Then, in sections 3.2.3. and 3.2.4., I show that Icelandic VP-internal specifiers that are legitimately case-marked or members of well-formed case chains must nevertheless be lexically empty if they are not properly head governed. Thus, the central aim of the following discussion is to present evidence in favor of my claim that case-marking and proper head government are distinct relations.

3.2.2. *VP specifiers*

In this section I argue that both the Extended Projection Principle and the ECP require that every V' should take a subject position, [Spec, VP].

Icelandic offers much clearer evidence in favor of a [Spec, VP] analysis of D-structure subjects than for example English does (cf. Ottósson 1989a, Rögnvaldsson and Thráinsson 1990). Consider the sentence in (45):
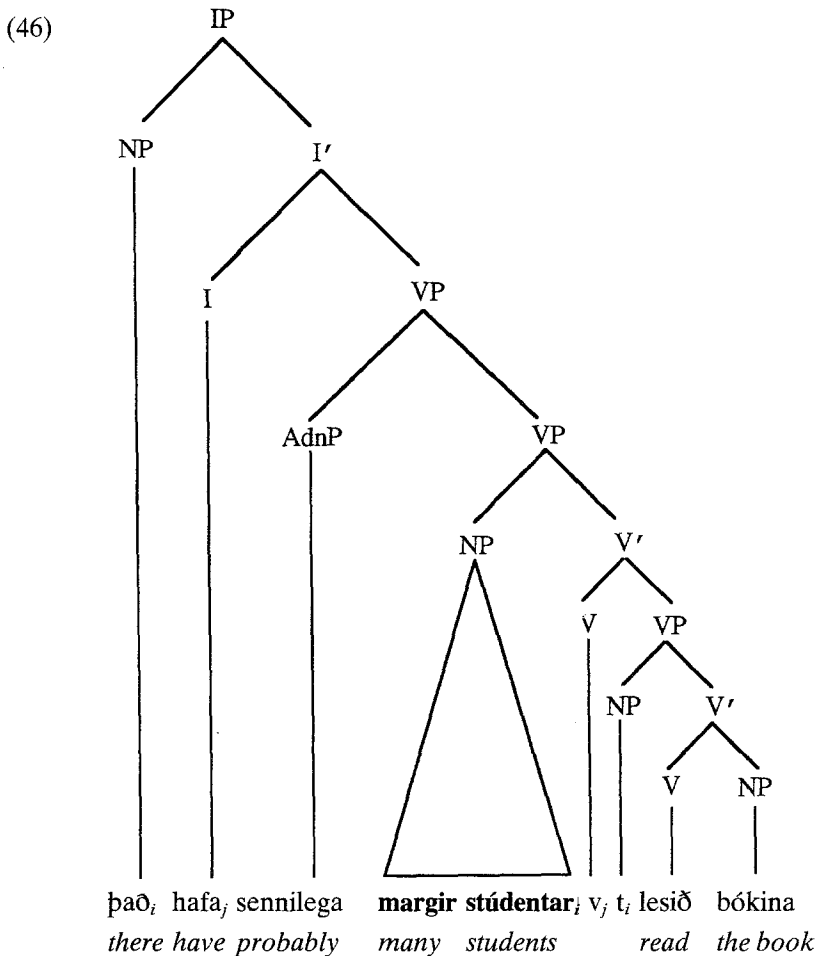
(45)   Það hafa   sennilega **margir stúdentar**   lesið bókina.
       there have(3pl.) probably many   students(N) read the book

       Many students have probably read the book.

The sentence adverb *sennilega* adjoins to the highest VP (cf., e.g., Platzack 1986, Holmberg 1986). The expletive *það* 'there, it' differs from English *there* in showing up in clause-initial position only, and has thus been analyzed as a 'nonthematic topic', rather than a structural subject.[27] However, its distribution in subordinate clauses, recently studied in great detail by Magnússon (1990), strongly suggests that it is a subject, i.e., heads or 'initiates' a subject CHAIN (in the sense of Chomsky 1986a, p. 132 ff.). If so, (45) has the structure in (46):[28]

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[26] In contrast, Infl assigns nominative into VPs that are headed by an assigner of inherent case in Dative-Nominative constructions (as in (14) and (15) above).

[27] This is a much discussed issue. See, for example, Maling and Zaenen (1978), Zaenen (1985), Platzack (1987), Sigurðsson (1989a), Rögnvaldsson and Thráinsson (1990), Kosmeijer (1990), and, in particular, Thráinsson (1979) and Magnússon (1990).

[28] Magnússon (1990) follows Rögnvaldsson and Thráinsson (1990) in assuming that [Spec, IP] is an A'-position in Icelandic, and so does Ottósson (1989a). However, assuming that

(46)

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                          IP
                        /    \
                      /        \
                    NP          I'
                    |         /    \
                    |       /        \
                    |      I           VP
                    |      |         /    \
                    |      |        /       \
                    |      |     AdnP         VP
                    |      |      |         /    \
                    |      |      |       NP      V'
                    |      |      |      /\      /  \
                    |      |      |     /  \    V    VP
                    |      |      |    /    \   |   /  \
                    |      |      |   /      \  |  NP    V'
                    |      |      |  /        \ |  |    /  \
                    |      |      | /          \|  |   V    NP
                    |      |      |/_____|  |   |    |
```

þaðᵢ	hafaⱼ	sennilega	**margir stúdentar**ᵢ	vⱼ	tᵢ	lesið	bókina
there	*have*	*probably*	*many students*			*read*	*the book*

I assume that the logical subject has moved from its base [Spec, VP] to a higher [Spec, VP], where it is locally governed by Infl. I return to this issue below.

Following Chomsky (1986a, pp. 93, 116–117), I assume that the Ex-

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tended Projection Principle (EPP) requires that every predicate should take a subject position (hosting a member of a subject chain or CHAIN). If so, I′ and all V′s should take a specifier, [Spec, IP] and [Spec, VP], respectively. Notice that this is the straightforward interpretation of Chomsky's X-bar system, given the VP specifier analysis of subjects (see also, e.g., Platzack and Holmberg 1989, Iatridou 1990). First, although specifiers are generally optional, those specifiers that are required by the EPP must be generated, of course (cf. Chomsky 1986a, p. 93; 1986b, p. 4). Second, VP is a barrier to movement if it intervenes between the source position and the target position, which it does unless it contains an escape hatch for the moved element. *Wh*-elements are free to move cyclically by adjoining to any intervening VP (Chomsky 1986b), but, as adjunct-VP is an A′-position, it must not be used as an escape hatch by NP-moved elements (cf., e.g., Chomsky 1981, p. 332). Thus, unless all VPs contain [Spec, VP], NP-movement out of VP should invariably lead to an ECP violation, a consequence that we obviously want to avoid.[29]

Given this approach, an A-position is crucially a position that is required by either the Projection Principle or the EPP, just as in Chomsky (1986a, p. 116 ff.). Moreover, as NP-movement cannot 'skip' A-positions without violating both principle A of the Binding Theory and the ECP, it follows that NP-movement should be cyclic. That it is indeed cyclic is strongly suggested by the facts in (47):

(47)a.   **Einhverjir bátar**   mundu   kannski hafa verið keyptir.
         some   boats(N) would(3pl.) perhaps have been bought

   b.   Það   mundu   kannski **einhverjir bátar**   hafa verið
        there would(3pl.) perhaps some   boats(N) have been
        keyptir.
        bought

   c.   Það mundu kannski hafa verið keyptir **einhverjir bátar**.
        Some boats would perhaps have been bought./There would perhaps have been some boats bought.

---

[29] Notice, however, that this analysis requires a slight modification of dominance in the sense of Chomsky (1986b, p. 7), such that VP does not dominate [Spec, VP] (cf. Sigurðsson 1990c). As Chomsky does not assume [Spec, VP], NP-movement is problematic in his approach, forcing him to invoke coindexing of verbs and NPs and to treat verbs on a par with arguments (such that verbs and verb traces are able to antecedent govern NP-traces in A-chains (cf. 1986b, p. 74 ff.). No such move is required in my analysis. On the other hand,

Notice that the lexicalized A-position in (47b) is presumably the specifier position of the raised auxiliary *mundu* 'would', rather than of *hafa* 'have' (the two positions however being indistinguishable in surface structure, see (46) and (48)). In either case, (47b) illustrates that auxiliaries can take [Spec, VP].

If all verbs take a specifier position, the structure of, for example, (47b) is as shown in (48) (where all the NP-traces are antecedent governed, hence properly governed, cf. Sigurðsson 1990c):

(48)   [$_{IP}$ það$_i$ mundu$_j$ [$_{VP}$ kannski [$_{VP}$ **einhverjir bátar**$_i$ v$_j$

   there would perhaps some boats

  [$_{VP}$ t$_i$ hafa [$_{VP}$ t$_i$ verið [$_{VP}$ t$_i$ keyptir t$_i$]]]]]]

   have been bought

Given this analysis, the clauses in (47) have five distinguishable A-positions: [Spec, IP], the highest [Spec, VP], lexicalized in (47b) and (48), two lower VP specifiers, locally governed by the auxiliaries *hafa* 'have' and *verið* 'been', respectively, and the object position, [NP, V′]. All these positions are clearly in the case domain of Infl, as seen in (47c). As I demonstrate in the next subsection, however, only those of these positions that are properly head governed by the definition in (42) can be lexicalized.

3.2.3. *Nonlexicalizable A-positions in Finite Clauses*

Reconsider the sentences in (47) above. The lexical NP is in [Spec, IP] in (47a) and in the highest [Spec, VP] in (47b) and is thus locally governed by Infl/+Agr in both cases, as seen by the structure in (48). In (47c) the NP is in the object position, where it is locally governed by its θ-role assigner, the main verb participle *keyptir* 'bought'. Thus, given the definition in (42) of proper head government in Icelandic, the NP is properly governed in all three sentences.

By the definition in (42) lexical heads that can assign neither case nor θ-role are not proper governors of NPs and should therefore be incapable of licensing a lexical NP by local government. The auxiliaries *hafa* 'have' and *verið* 'been' in (47) are such heads: Icelandic auxiliaries never assign any case, and auxiliaries in general are not θ-role assigners. Given the present approach, lexicalization of the lower VP specifiers in (47) and (48), locally governed by *hafa* ·and *verið*, respectively, should therefore

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Chomsky's Minimality Condition (1986b, p. 42) must be revised if the V′ level is projected (cf. Rizzi 1990, p. 9; Sigurðsson 1990c).

yield ill-formed structures. As illustrated in (49), this prediction is borne out by the facts (see also the facts described in Rögnvaldsson 1983 and Thráinsson 1986):

(49)a. *Það mundu kannski hafa **einhverjir bátar**   verið keyptir.
        there would perhaps have some   boats(N) been bought

   b. *Það mundu kannski hafa verið **einhverjir bátar** keyptir.

Notice, in particular, that the specifier position of the main verb must not be lexicalized (cf. (49b)), a fact that gives support to the claim in (38) that lexical heads can only govern under c-command.[30] This same fact is cross-linguistically observed for ergative verbs, even Icelandic ergatives that assign inherent case, as illustrated in (50b):

(50)a. **Einhverjum bátum** . hafði hvolft.
        some   boats(D) had   capsized

   b. *Það mundi kannski hafa **einhverjum bátum**   hvolft.
        there would perhaps have some   boats(D) capsized

As mentioned in section 3.1., English *be* seems to be a proper head governor, the word order in (49b) thus being grammatical in English. Its grammaticality in English indicates that its ungrammaticality in Icelandic should not be explained by saying, simply, that the lexicalized VP specifier position is nonexistent. In addition, it is required by both the EPP and the ECP, as already discussed.

It is generally true that only the highest VP specifier position can be lexicalized in Icelandic. That is, Icelandic finite clauses regularly pattern as shown in a schematized manner in (51); 'NP' denotes a lexical NP, the slots show specifier and complement positions and the lowest V is a main verb:

(51)a. $[_{IP} \text{ NP I } [_{VP} \_ \text{ V}_{aux} (\_ \text{ V}_{aux}) \_ \text{ V} \_]]$
   b. $[_{IP} \_ \text{ I } [_{VP} \text{ NP V}_{aux} (\_ \text{ V}_{aux}) \_ \text{ V} \_]]$
   c. $*[_{IP} \_ \text{ I } [_{VP} \_ \text{ V}_{aux} \text{ NP V}_{aux} \_ \text{ V} \_]]$
   d. $*[_{IP} \_ \text{ I } [_{VP} \_ \text{ V}_{aux} \_ \text{ V}_{aux} \text{ NP V} \_]]$
   e. $[_{IP} \_ \text{ I } [_{VP} \_ \text{ V}_{aux} (\_ \text{ V}_{aux}) \_ \text{ V NP}]]$

For simplicity, I only take monoargumental clauses into account, but the

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[30] However, local government of a lexical NP by *vera* 'be' is not as sharply ungrammatical as local government of a lexical NP by *hafa* 'have'; some speakers even find it only marginally unacceptable when it is accompanied by a special stress pattern.

same basic generalization applies to all finite clauses: [Spec, IP], the object position(s) and the highest [Spec, VP] can be lexicalized while lower [Spec, VP] positions, locally governed by auxiliaries, cannot.[31]

The pattern in (51) is independent of case-marking. As illustrated in (52), it applies to quirky subjects (both passive and ergative); in passing notice that Infl-case is not assigned in (52); thus both the finite verb *mundi* and the passive participle *bjargað* show up in nonagreeing default forms (cf. sections 1.3. and 1.4.):

(52)a. **Þrem bátum**   mundi sennilega hafa verið bjargað

      three boats(D) would probably have been rescued

(52)b. Það mundi sennilega **þrem bátum** hafa verið bjargað.

    c. *Það mundi sennilega hafa **þrem bátum** verið bjargað.

    d. *Það mundi sennilega hafa verið **þrem bátum** bjargað.

    e. Það mundi sennilega hafa verið bjargað **þrem bátum**.

      Three boats would probably have been rescued./There would probably have been three boats rescued.

Both the grammaticality of (52a, b) (and of (50a) above) and the ungrammaticality of (52c, d) (and of (50b) above) are interesting. Let us consider (52c, d) first.

Bjarga 'save, rescue' belongs to a large class of verbs that take a dative object in the active voice. The dative of all such verbs is obligatorily retained in passive clauses, irrespective of whether NP-movement applies (52a–d) or not (52e). Accordingly, it is not feasible to assume that sentences such as (52c) and (52d) are ruled out by some case-theoretic principles. Since inherent case, assigned to a D-structure object, can (and must) be retained under NP-movement to the highest [Spec, VP] and [Spec, IP], there are no plausible reasons to assume that it cannot also be retained under 'shorter' NP-movement to the lower [Spec, VP] positions. Indeed, as we have seen, the raised NP in (52a, b) must move cyclically, via these lower [Spec, VP] positions.

More generally, the fact that the word orders in (52c, d) are ungrammatical, irrespective of what case is assigned to the offending NP suggests that they are ruled out by some principle that is independent of principles

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[31] See also the observations in Vikner (1990). Of course, the acceptability of lexicalization of the highest [Spec, VP] and of the object position in monoargumental clauses is affected by definiteness and some other non-structural factors (cf. Maling 1988, Sigurðsson 1989a, p. 292 ff.). I am not concerned with such factors here.

that control case-marking. The Proper Head Government Condition in (36) seems to be the principle in question.

Now consider the grammaticality of the sentences in (52a, b). Their structures are sketched in (53):

(53)a. $[_{IP}$ **Þrem bátum**$_i$ mundi$_j$ $[_{VP}$ sennilega $[_{VP}$ t$_i$ v$_j$ t$_i$ . . .]]]
           three boats(D) would   probably

  b. $[_{IP}$ Það$_i$ mundi$_j$ $[_{VP}$ sennilega $[_{VP}$ **þrem bátum**$_i$ v$_j$ t$_i$ . . .]]]

The interesting fact here is that lexicalization of both [Spec, IP] and the highest [Spec, VP] is grammatical even though neither position is assigned case by Infl.[32] This fact suggests that Icelandic Infl/+Agr is a proper governor, thereby licensing the lexical datives in (53), irrespective of whether it assigns case or not. Conversely, Infl/−Agr does not even license lexicalization of the subject of PRO infinitives when it assigns nominative case to it. Thus, we are led to believe that proper head government and case-marking are distinct relations.

By the definition in (42), local government by a case-assigning lexical head does entail proper government in Icelandic. Crucially, however, I assume that lexical heads are potential proper governors by virtue of being capable of assigning *either* case *or* θ-role. This assumption is justified by relatively plain evidence. Reconsider the sentence in (47c), repeated here as (54) (see also the parallel sentences in (43)):

(54)   Það ˙ mundu   kannski hafa verið keyptir **einhverjir**
        there would(3pl.) perhaps have been bought some

        bátar.
        boats(N)

        There would perhaps have been some boats bought.

The main verb participle assigns θ-role to the boldface nominative NP and

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[32] Alternatively, one would perhaps want to argue that Infl/+Agr assigns invisible nominative case to quirky subjects (cf., e.g., Belletti 1988). However, it is then unclear why quirky subjects never control sentential agreement and why structural accusative must be suppressed in passive. As argued in Sigurðsson (1989a, 1989b), suppression of nominative case in Quirky Constructions and of accusative case in passive are plausibly explained by the standard assumption that chains can be assigned only one case (cf. Chomsky 1981). For further evidence against double case-marking of chains, see section 3.2.4.

locally governs it, thereby properly head governing it by the definition in (42). But, it obviously does not assign case to the NP.[33]

The reverse situation, proper government by a lexical head that assigns case but no θ-role is exemplified in ECM infinitives. I extend my analysis to these in the next subsection.

3.2.4. *Nonlexicalizable A-positions in Raising Infinitives*

The basic generalization illustrated by the pattern in (51) is that lexical heads that are inherent non-assigners of both case and θ-role cannot license a lexical NP by local government. This same generalization applies to ECM infinitives, as illustrated in (55) and (56):

(55)a. Hún taldi   [**einhverja báta**   hafa horfið].
        she believed some   boasts(A) have disappeared

   b. *Hún taldi [hafa **einhverja báta** horfið].

   c. Hún taldi [hafa horfið **einhverja báta**].
       She believed some boats to have disappeared.

(56)a. Hún taldi   [**einhverja báta**   hafa verið keypta].
        she believed some   boats(A) have been bought(A)

   b. *Hún taldi [hafa **einhverja báta** verið keypta].

   c. *Hún taldi [hafa verið **einhverja báta** keypta].

   d. Hún taldi [hafa verið keypta **einhverja báta**].
       She believed some boats to have been bought.

The infinitives in (55b, c) and (56b–d) are parallel to corresponding finite clauses, illustrating that auxiliaries cannot license lexical arguments, in contrast with ergatives and passive participles. The familiar (55a) and (56a) are more interesting for our momentary purposes. In both clauses the local governor of the infinitival subject, (the trace of the raised) *telja* 'believe', is a lexical head that assigns case but no θ-role to its local governee. Thus, while examples such as (54), (55c) and (56d) illustrate

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[33] Belletti (1988) suggests that nonraised logical subjects of passive and unaccusative or ergative verbs are universally assigned inherent partitive case by their main verb. Arguably, however, and in part evidently, at least Romance and Germanic languages, with the notable exception of English, transmit nominative case into ergative and passive VPs (under the condition of chain-government, cf. Sigurðsson 1990c). It follows that NP-movement is not enforced by the Case Filter (Sigurðsson 1988).

that a lexical head licenses lexicalization of an A-position by 'mere' θ-role assignment and local government, the examples in (55a) and (56a) illustrate, conversely, that local government and 'mere' case assignment also suffice to license lexical arguments.

The present analysis is strongly supported by the fact that the passive participle of *telja* 'believe', like its counterpart in English and other related languages, cannot license a lexical NP. The reason is plausibly that passive participles do not assign structural case. Compare (57) to (56); as seen by the agreement facts in the grammatical (57d), the matrix Infl-case penetrates the infinitive when the embedding verb assigns no case:[34]

(57)a. *Það   voru taldir   [**einhverjir bátar** hafa verið keyptir].
      there were believed some   boats have been bought

  b. *Það voru taldir [hafa **einhverjir bátar** verið keyptir].

  c. *Það voru taldir [hafa verið **einhverjir bátar** keyptir].

  d. Það voru   taldir   [hafa verið keyptir
     there were(3pl.) believed(Npl.m.) have been bought(Npl.m.)

     einhverjir bátar].
     some   boats(Npl.m.)

     There were believed to have been some boats bought.

Evidently, the infinitival subject in (57a) is in the case domain of the matrix Infl/+Agr, but since Infl/+Agr is not its local governor it does not license its lexicalization. In short, the local governor of the infinitival subject in (57a) does not qualify as a proper head governor, as predicted by (42).

Let us now turn to verbs such as *virðast* 'seem' that take Nominative with Infinitive (NcI, 'nominativus cum infinitivo') in the active voice. As we would expect, their infinitives also display the pattern in (57). This is illustrated in (58):

(58)a. *Það mundu   virðast [**margar bækur**   hafa verið
     there would(3pl.) seem   many   books(N) have been

     lesnar].
     read(N)

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[34] I use indefinite NPs in these and many of the following examples because, first, *það* 'there' normally requires an indefinite NP, and, second, there is an indefiniteness restriction

   b. *Það mundu virðast [hafa **margar bækur** verið lesnar].

   c. *Það mundu virðast [hafa verið **margar bækur** lesnar].

   d. Það mundu virðast [hafa verið lesnar **margar bækur**].

     There would seem to have been many books read.

Notably, *virðast* assigns no case in (58) and does not license lexicalization of the infinitival subject position, thus behaving like the passive participle of *telja*. Interestingly, however, *virðast* licenses lexicalization of the infinitival subject position in the so-called *Dative and Nominative with Infinitive Construction* (D/NcI).[35] Consider (59), where only the grammatical options are exemplified:

  (59)a. Mér   mundu   virðast [**margar bækur**   hafa verið
        me(D) *would(3pl.)* *seem*   *many* *books(N)* *have been*
        lesnar].
        read(N)

     b. Mér mundu virðast [hafa verið lesnar **margar bækur**].

     It would seem to me that many books had been read.

Indefiniteness plays no role in (59a), as demonstrated in (60):

  (60)   Mér   mundu   virðast [**bækurnar**   hafa verið lesnar].
       · *me(D)* *would(3pl.)* *seem*   *the books(N)* *have been* *read(N)*

     It would seem to me that the books had been read.

As opposed to the plain NcI verb *virðast*, D/NcI *virðast* does assign case, namely, dative to its quirky subject. Thus, it seems that case assignment to one argument turns *virðast* into a proper head governor of another argument. This is a truly striking state of affairs. However, it is perhaps related to another interesting fact. As pointed out by, for example, Andrews (1982) and Zaenen, Maling and Thráinsson (1985), it is possible to embed Quirky Constructions under ECM verbs, such as *telja* 'believe'. Consider (61) and (62):

(independent of *það*) on the object position of the infinitives (much as in corresponding finite clauses).

[35] D/NcI is quite common, especially with *virðast*, *sýnast* 'appear', *finnast* 'find, consider' and *þykja* 'find, consider'. Like *virðast*, *sýnast* and *þykja* are also NcI or subject-to-subject raising verbs. See Sigurðsson (1989a, p. 95 ff.).

(61)a. Hún taldi   [**einhverjum bátum**   hafa verið bjargað].
         she believed some   boats(D) have been rescued

   b.   Hún taldi [hafa verið bjargað **einhverjum bátum**].

(62)   Hún taldi   [**bátunum**   hafa verið bjargað].
         she believed the boats(D) have been rescued

Telja licenses lexicalization of the infinitival subject position even though
it assigns neither θ-role nor case to it. When passivized, however, *telja*
loses its licensing capacity also here, as illustrated in (63a) and (64a):

(63)a. *Það var talið   [**einhverjum bátum**   hafa verið bjargað].
         there was believed some   boats(D) have been rescued

   b.   Það var talið [hafa verið bjargað **einhverjum bátum**].

        There were believed to have been some boats rescued.

(64)a. *Var talið   [**bátunum**   hafa verið bjargað]?
         was believed the boats(D) have been rescued

   b.   Var **bátunum** talið [hafa verið bjargað]?

        Were the boats believed to have been rescued?

It thus seems to be the case that lexical heads can be proper governors
by virtue of being potential rather than actual case assigners, like
Infl/+Agr, that is, by virtue of having an inherent capacity of assigning
case. If so, it is perhaps not surprising that they can also be proper
governors of one argument by virtue of assigning case to another argu-
ment.

The double case-marking analysis of quirky subjects, suggested by, for
example, Belletti (1988), does not seem to be an alternative to the present
approach. In the double case-marking analysis the dative infinitival sub-
jects in (61a) and (62) would be licensed by virtue of being assigned
invisible structural accusative case by *telja*. However, since *virðast* 'seem'
never assigns structural case, this approach cannot be extended so as to
account for the grammaticality of (59a) and (60), nor would it shed any
light on the contrast between them and (58a). Moreover, D/NcI *virðast*
is like active voice *telja* in licensing a quirky infinitival subject, whereas
the plain NcI *virðast* is like the passive of *telja* in being incapable of doing
so. Thus, the contrast between (65) and (66a) is parallel to the contrast
between (61a)/(62) and (63a)/(64a):

(65)   Mundi þér   virðast [**bátunum**   hafa verið bjargað]?

would you(D) seem   the boats(D) have been rescued

Would it seem to you that the boats were rescued?

(66)a.   *Mundi virðast [**bátunum** hafa verið bjargað]?

   b.   Mundi **bátunum** virðast [hafa verið bjargað]?

Would the boats seem to have been rescued?

It thus seems clear that quirky subjects in Icelandic raising infinitives are not licensed by being assigned invisible structural case by the raising verb. Rather, lexicalization of the infinitival subject position is licensed iff the raising verb is either an actual or a potential case assigner of either the infinitival subject or some other argument, whether the subject is nominative (D/NcI), accusative (ECM) or quirky (D/NcI, ECM). It is remarkable that the actual case of the infinitival subject has no effect at all on whether or not the subject position can be lexicalized: the subject only has to be assigned some appropriate case in some legitimate case position, for example the infinitival object position. It seems only fair to say that one can hardly ask for stronger counterevidence against the common assumption that actual *local* case-marking is the crucial licensing condition on lexical arguments.[36]

In summary, we have here seen evidence that lexical heads in Icelandic license lexicalization of A-positions by virtue of entering into a specific structural relationship with such positions and by virtue of having specific inherent properties: they must locally govern their licensee and they must be either θ-role assigners or have inherent capacity to assign case. If these prerequisites are met, it does not matter whether the licensee is assigned case by its local governor or some other head.

It is striking that legitimately case-marked A-positions in both finite clauses and raising infinitives must not be lexicalized unless they are also locally governed by a proper head governor. Given the plausible hypothesis that Infl/−Agr is not such a governor, we have a straightforward account of the fact that even case-marked and (non-properly) governed PRO must not be lexicalized.

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[36] Recall, however, that the setting of the Set S Parameter, deciding which heads count as proper governors, is different in English and Icelandic. Given Lasnik's (1989) suggestion that *be* and a handful of ergatives like *arise* are case assigners, only Infl/+Agr and case assigning lexical heads belong to S in English, i.e., proper head government and local case-marking conflate in English (as opposed to most other Western European languages).

4. CONCLUSION

I have here argued that Icelandic PRO is both case-marked and governed, but must nevertheless remain nonlexical because it is not properly head governed.

The pervasiveness of the evidence that Icelandic PRO must be case-marked, presented in section 1., is such that the issue is hardly a matter of theoretical debate. Moreover, as discussed in section 2., Icelandic PRO is arguably governed by Infl, Verb Raising to Infl being obligatory in all Icelandic PRO infinitives. Thus, there are many reasons to believe that Icelandic falsifies the standard PRO theorem. Accordingly, an alternative explanation of the fact that the subject position of PRO infinitives must not be lexicalized is called for. In section 3. I developed such an explanation, elaborating on the standard assumption that PRO must not be as 'prominently' governed as lexical arguments. My central theoretical claim is that grammar contains the Proper Head Government Condition, which is independent of the Case Filter and requires that *pro* and lexical NPs in A-positions should be properly head governed. In addition, I claim that Infl/−Agr, as opposed to Infl/+Agr, does not belong to the limited set S of proper head governors. It follows that the subject position of PRO infinitives, being locally governed by Infl/−Agr, must not be lexicalized, whether it is case-marked or not.

In this approach case-marking and proper head government are distinct relations, and it is the latter, rather than the former, that is strictly local. Moreover, the Proper Head Government Condition is a specific licensing condition on a subset of *arguments*, whereas case is plausibly a general property of (referential?) *NPs*. Another interesting aspect of my analysis is that it treats the subject position of PRO infinitives on a par with all other A-positions: no A-position can be lexicalized if it is not locally governed by a proper head governor. In section 3. I presented various kinds of evidence from Icelandic in favor of this hypothesis.

Being strictly local, proper head government has much the same effects as are commonly attributed to case-marking. Thus, it is not surprising that the distribution of PRO is necessarily the same in my approach as in the standard theory. While traces are antecedent governed and lexical arguments properly head governed, PRO is crucially not properly governed, and is thus confined to A-positions where it escapes both types of proper government. Notably, however, the distribution of PRO cannot be derived from the binding principles, by stating them in terms of 'proper governing categories' instead of governing categories. Given my approach, such a reformulation of the binding principles is excluded. If movement is cyclic, and if passive participles and other non-assigners of case are not proper head governors in English, the first cycle of NP-movement and

Wh-movement in, for example, passive clauses in English contains no proper head governor, and hence no 'proper governing gategory' in which the anaphoric NP-trace is bound but the *wh*-trace free. The same is true of later cycles where the head governor is an auxiliary such as *have* and its cognates in related languages. Thus, while my analysis lends strong support to Chomsky's (1986b) suggestion that traces are not necessarily properly head governed but must be antecedent governed, it undermines the common assumption that the Binding Theory entails the PRO theorem.[37]

In conclusion, then, the distribution of PRO is not decided by a conspiracy of the Binding Principles. Rather, it follows from the ECP and the Proper Head Government Condition, that is, it is simply a 'negative reflection' of these crucial licensing conditions on other A-chain elements. Thus, the fact that the distribution of PRO and other A-chain elements is complementary is naturally accounted for.

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[37] However, it does not obviously follow that analyzing PRO as a pronominal anaphor is incorrect. Kayne (1990) suggests that instead of having no governing category, controlled PRO has two governing categories, one where the pronominal feature of PRO must be free and one where its anaphoric feature must be bound. Notice that this suggestion entails universal government of controlled PRO.

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