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Control without a subject

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Abstract

The aim of this paper is to develop a representation of control that does not require a PRO-subject. I first analyse obligatory control using a de-compositional analysis of θ-roles, according to which θ-roles are divided into two selectional requirements. The resulting theory makes the same predictions as one based on PRO, yet avoids dependence on this ill-defined empty category. I then concentrate on Icelandic, tackling agreement phenomena in infinitival clauses. Again no PRO is necessary to cater for the data, which receive a uniform account using the mechanism outlined in the first half of the paper.
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Keywords: Control; PRO; Icelandic case-agreement; Theta-role decomposition

1. Introduction

In this paper I introduce a syntactic representation of obligatory control (OC) that does not rely on PRO. This representation is based on a theory in which grammatical dependencies are regulated by a system of upward copying comparable to that in Neeleman and van de Koot (2002). We can think of a grammatically dependent element as one that needs an antecedent of some kind; this need that a dependent element exhibits might be represented by the dependent element's introduction of a selectional requirement. In this way the need is syntactically encoded by the dependent element itself. This selectional requirement introduced into the tree percolates until it finds an antecedent with the properties that it requires. Let us say that when it reaches a node where it immediately dominates such an antecedent, its requirements have been met and it percolates no further. Taking θ-role assignment as an example, the transitive verb in the tree below needs two syntactic arguments. These selectional requirements of the verb are represented by the verb's introduction of an internal and external θ-role. These percolate until reaching the

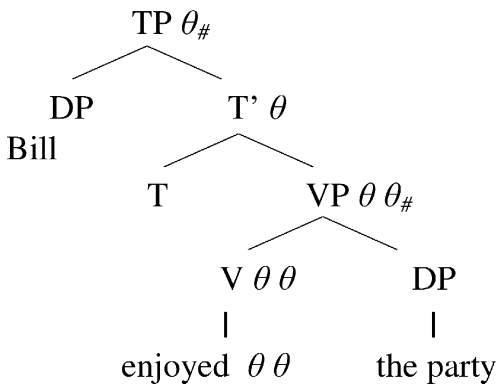
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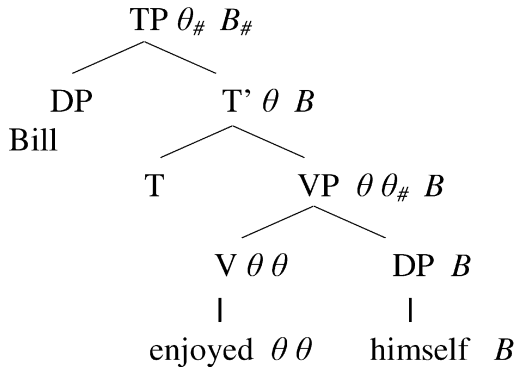
node on which they immediately dominate the object- and subject-DP, respectively, where upon they are satisfied. Satisfaction has the effect that the arguments of the verb are saturated (indicated by the #-symbol for expository purposes only), and once a selectional requirement has been fulfilled, it percolates no further[1]:

(1)



Anaphoric dependencies are regulated similarly. An anaphor lacks referential properties itself, requiring an antecedent (a quantifier or referential category) that allows it to be interpreted. The lexical encoding of the variable of the anaphor is represented by a selectional requirement *B*, which is the mechanism through which the anaphor links to its antecedent. *B* percolates from the anaphor that introduces it to the root node, where it immediately dominates an argument that provides the variable with a value:

(2)



The theory of OC to be presented here relies on this encoding of grammatical dependencies, which is based on Neeleman and van de Koot (2002) and belongs to a family of theories which use percolation, such as the HPSG framework of Pollard and Sag (1994) and also GPSG (see Gazdar, 1985).

A crucial assumption that I make is that θ-roles are complex objects, consisting of two components, *A* and *B*. These components, explored more fully below, have distinguishable

[1] Note that application of selectional requirements is not based on copying and does not therefore include any downward transmission of information onto a node. Application obtains when the selectional requirement is in a relation of immediate domination with the sought after node, from where it can ascertain whether this node has the property it seeks. Restricting such application to those instances in which the selectional requirement immediately dominates its antecedent imposes a very strict locality condition on each node; essentially it ensures that the properties of every node in a tree can be retraced to the properties of its daughters (for further detail see Neeleman and van de Koot, 2002).

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selectional requirements, which each contribute to the syntactic relation formed between the predicate from which their θ-role originates and the argument to which they are applied. Briefly, *A* is the component responsible for the formal licensing of arguments and *B* is a binding component, which regulates interpretation:

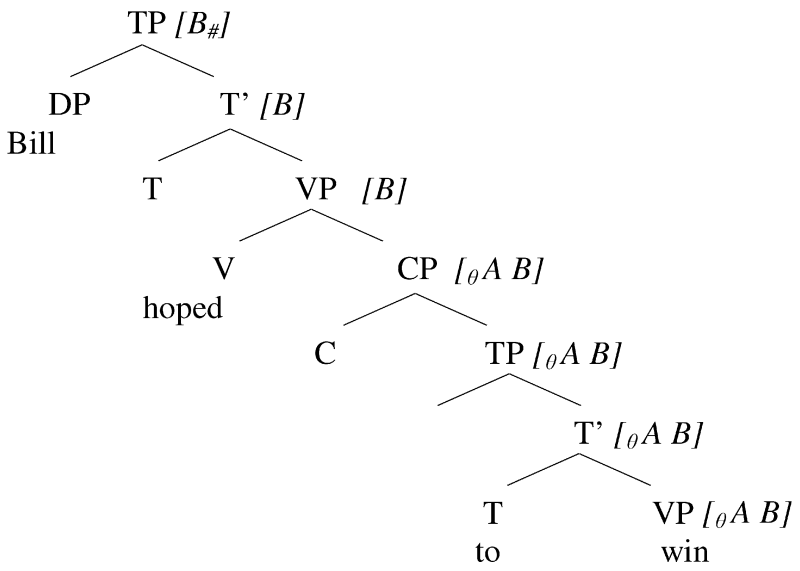
(3) *A*: Formal Licensing Component
B: Interpretative Component

Thus, the complete representation of a θ-role is as (4) below.

(4) Θ-role = $[_{\theta}\ A,\ B]$

In most circumstances, *A* and *B* are copied together, so their individual properties go unnoticed. But under restricted circumstances, *A* and *B* operate independently from each other. Specifically, when *B* detaches from *A* and is copied in isolation beyond the infinitival clause to an argument in the matrix, obligatory control is the result. This is sketched out in (5) below, where the infinitive verb '*win*' introduces a θ-role, $[_{\theta}\ A,\ B]$, which is copied up. At CP, *B* detaches from *A* and continues up to the node on which it immediately dominates the matrix DP. Application of *B* to the matrix DP results in this DP being the interpreted subject of the infinitival clause:

(5)



There are some precedents in the literature of theories of control that do not rely on PRO. The approach in LFG is a case in point (see Bresnan, 1978), as is Brame (1977) and Chierchia's (1984) seminal work on infinitives. Proposals of this type frequently treat control complements as VP, which renders the control relation one of predication, a conclusion the present account wishes to avoid for reasons outlined in Janke, 2003. For the account developed here it is crucial that they are CPs. Indeed their CP status follows from the theory developed below (see section 2.3). This does not mean that what follows is incompatible with Chierchia (1984), which in fact allows CP-based implementations. For reasons of space, I will not demonstrate this here, but see Williams (1987) for related discussion. The real precursor to this proposal is that of Evers (1988), in which PRO is also dispensed with and the control relation is secured by appealing to the external theta-role in the controlled clause.

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The chief aim of this paper is to map out a PRO-less approach to control. But in the second part, I turn to Icelandic, which on the surface suggests that ridding the grammar of PRO might be premature. Icelandic has a class of verbs, quirky verbs, which determine the case on their subjects, whilst manifesting themselves an obligatory default form. When such a verb appears in an infinitival clause, (i.e. the passive participle *help* below, which has a dative subject),[2] in combination with a regular (non-quirky) secondary predicate, that secondary predicate agrees in case with the would-be subject of the embedded quirky verb, not the matrix subject[3]:

(6) Ekki hafði ég vonast til að vera hjálpað drukkinni/??drukkin
Not had $I_{(N)}$ hoped for to be $helped_{(dflt)}$ $drunk_{(Dfsg)/??(Nfsg)}$
'I had definitely not hoped to be helped drunk'

Given the agreement on the secondary predicate, an immediate question is whether a quirky case-marked PRO is necessary to explain these agreement restrictions. With a case-marked PRO, the origins of the dative agreement on the secondary predicate can obviously be accounted for (see especially Sigurðsson, 1991, 2002). In an example like (7), the secondary predicate would simply agree with its null subject:

(7) Ekki hafði ég vonast til að PRO vera hjálpað drukkinni
Not had $I_{(N)}$ hoped for to $PRO_{(D)}$ be $helped_{(dflt)}$ $drunk_{(Dfsg)}$

The pattern of agreement in examples similar to (7) has been regarded as strong evidence for the existence of PRO, convincing even those who have denied its existence for many years (e.g. Hudson, 2003), that PRO must exist after all. But the Icelandic data receive a natural account under an approach based on θ-role decomposition. In fact, if adopted, some unwanted complications accompanying a PRO-based analysis are avoided.

The main proposal of a PRO-free representation of OC is set out in section 2. I first clarify what the distinguishable properties of the *A*- and *B*-components are, arguing that an individual representation for each of them is warranted. In OC-environments these percolating components separate; *A* remains in the infinitival clause, whilst *B* percolates on to the matrix clause, thereby linking the anaphoric infinitival clause with the matrix controller. For regulation of this mechanism, I depend on the Elsewhere Principle (Kiparsky, 1973), which will prevent the over-generation that would produce ungrammatical structures; separation of *B* from *A* will be restricted to the subject position of infinitival clauses, namely OC-environments. Section 3 looks at the evidence for PRO and reanalyses this data using the PRO-less mechanism. Section 4 moves on to Icelandic case and phi-agreement, marking an important distinction between extra-syntactic and syntactic agreement. The former refers to phi-feature agreement on adjectives. The latter includes argument licensing, which is achieved through case-assignment or subject-verb agreement, and long-distance case-agreement. With this distinction in place, the PRO-free mechanism is applied to the Icelandic data, illustrating that PRO is not necessary to accommodate them. A comparison with the PRO-based approach adopted in Sigurðsson (2002) suggests that it is not sufficient either.

[2] See Zaenen et al. (1985) for extensive evidence that the surface subjects of quirky verbs behave syntactically as subjects, as opposed to raised objects.

[3] Example constructed with the help of Gunnar Hrafn Hrafnbjargarson (personal communication).

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2. OC without PRO

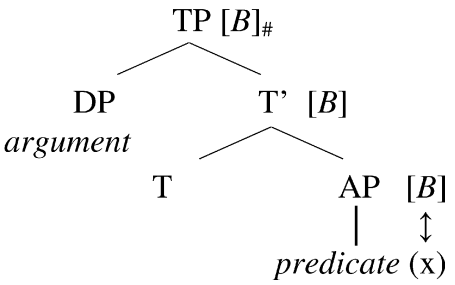
2.1. Θ-Role decomposition

A main innovation of this paper is that θ-roles are taken to be complex objects introduced by predicates and that the components comprising these complex objects have distinguishable properties.[4] But θ-roles as presupposed in the current work are purely syntactic constructs, in that syntax cannot distinguish between their differing interpretations. Thus there is no sense in which a semantic notion is having effect within the syntax.[5] The specific components are an argument-licensing component (*A*), which licenses argument positions, and a binding component (*B*), that regulates interpretation. I repeat these components below, before examining their properties:

(8) *A*: Formal Licensing Component
B: Interpretative Component

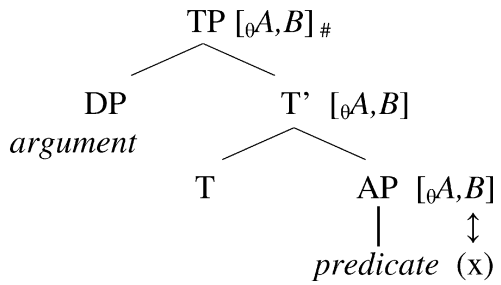
B is a syntactic representation of the predicate's argument variable. Through *B*'s application, the argument variable representing the predicate's semantics receives a value. In (9), *B* is linked to the argument variable x and applied to the DP, with the result that the DP is interpreted as the argument of the verb:

(9)



It is component *A* which ensures that the verb's adicity and the number of DP-arguments projected in the structure correspond. Its application to an argument morphologically marked as such licenses that argument position[6]:

(10)



[4] A non-atomic approach to θ-roles is independently motivated in Samek-Lodovici (2003), which looks at Italian di-transitive verbs, showing that thematic operations distinguish and target a θ-role's sub-components. Chiefly, what this work illustrates, is that the formal and semantic properties of a verb can originate from different heads, the implications of which for present purposes is that A and B must exist independently. For further information I refer the reader to the paper itself, but the present proposal has gained much from this idea.

[5] This approach to θ-roles, which gives them an explicit syntactic representation precludes a theory of argument structure along the lines of Hale and Keyser (1993), where rigid argument positions make θ-roles obsolete.

[6] To satisfy an A, a category must be morphologically marked as an argument; marking is either on the category itself (case) or via agreement on the verb, as will be explained later.

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A θ-role decomposition analysis such as is being introduced here makes it possible to distinguish two key components that contribute to argument-hood, namely interpretation and case. It is the interpretation of the infinitival subject that is relevant to the control relation, not its case, and as this paper unfolds, we will see how θ-role decomposition allows us to represent this. The Θ-Criterion fits within this de-compositional analysis of θ-roles in the following way. The first part of the Θ-Criterion, which ensures that all arguments have a θ-role, relates directly to *A*, since in licensing argument positions, *A* regulates the number of arguments relative to the predicate:

(11) (a) Every argument must satisfy one *A*

The second part of the Θ-Criterion, which demands that all θ-roles be discharged, relates to *B*. Obligatory application of this interpretive component ensures that all the argument variables of a predicate become specified:

(b) Every *B* must be satisfied by an argument

But note that (b) is no more than a restatement of Principle A of the Binding Theory, which in its broadest sense states that all anaphoric expressions must be bound locally. Given its duplicity, (b) need not be stated separately, leaving the reformulated Θ-Criterion as below:

(12) Every argument must satisfy one *A*

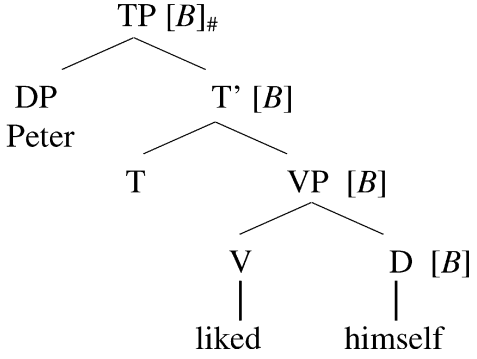
2.2. *Independence of A and B*

Granted *A* and *B*'s independence, can these objects exist independently, and if so, what lexical items introduce them? *B* is an interpretative component, so the type of element that would introduce it is one that depends on an antecedent in order to be interpreted. However, it plays no role in licensing this antecedent. As already shown in (2), a reflexive fits this description; it cannot be interpreted in the absence of an antecedent, yet it is not a predicate. There is no sense in which the DP from which a reflexive gains its reference is licensed by this reflexive:

(13) a) Peter_i liked himself_i
b) Peter liked Paul

The reflexive can only introduce *B*, since introduction of *A* and *B* together constitutes introduction of a θ-role, forcing a predicative usage. Repeating (2) then, binding between the reflexive and its antecedent is established when *B* is discharged from the DP's mother node:

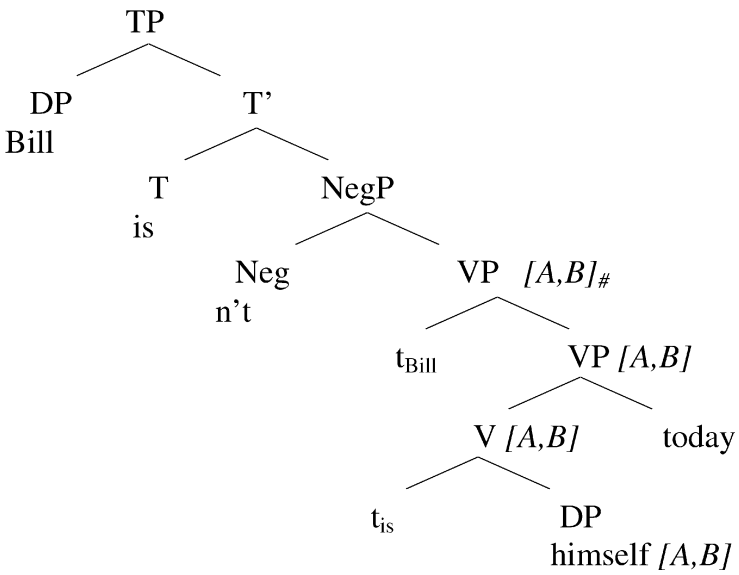
(14)



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Of course there are occasions when reflexives are used predicatively, such as in *Bill isn't himself today*, in which case it will introduce both *A* and *B*, i.e. a complete θ-role:

(15)



Note that when *A* and *B* do not separate, it is necessarily the case that the subject of the predicate is also its binder:

(16) *Bill$_i$ didn't consider Ben himself$_i$ today

This restriction makes sense under the present proposal, which links the binding requirement to the θ-role itself (see (8) above).

An example of where *A* might be introduced alone is the expletives of weather verbs, which behave differently from real expletives. In Chomsky (1986), these expletives are described as recipients of a pseudo θ-role, devoid of semantic import. But their being recipients of an *A*-component only, makes sense, since despite being formally licensed arguments, they bear no semantic relation to the verb; there is no sense in which 'it' can literally snow:

(17) It is snowing

To sum up briefly: θ-roles are composite elements, consisting of two selectional requirements, *A* and *B*. *A* licenses argument positions whereas *B* ensures interpretative correspondence between the verb and its argument. Their independence has been demonstrated using anaphoric binding, regulated by *B*, and the semi-argument status of weather-verb expletives, which receives some account if they only satisfy an *A*. The next sub-section introduces constraints operative on the percolation of θ-role components, with a view to drawing a distinction between predication on the one hand and binding and OC on the other. The locality constraint on predication will be shown to be tighter than that on binding and OC, a distinction reflected in this system by regulating predication via *A* and *B* in unison and the latter two relations by *B* alone.

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2.3. Predication versus OC and anaphoric binding

Predication cannot cross clause boundaries and I am assuming that CP is a barrier for θ-role assignment. Although this is a standard assumption, some evidence comes from an example like (18) below.

(18) **John* seemed that Bill met Mary *nude* yesterday

This locality constraint is captured by banning complete θ-roles from percolating beyond CP. Anaphoric relations, however, can be established across infinitival CPs:

(19) a. I arranged for myself to win
b. John arranged for himself to win

That these are anaphors, rather than logophors, is proven by the following examples, which distinguish anaphors from pronouns, the former requiring a local antecedent (a), the latter banning them (b):

(20) a. *John arranged for myself to win
b. *I arranged for me to win

Logophors pattern with pronouns in their distribution (see Pollard and Sag, 1994; Reinhart and Reuland, 1993) and can do without an antecedent altogether:

(21) a. Everyone enjoyed the talk except myself.
b. Everyone enjoyed the talk except me.

We saw earlier (see (14)), that a reflexive only introduces the binding requirement *B*. The cross-CP binding of the reflexive in (19) can be understood if *B* percolates freely beyond infinitival CP. This would narrow down the problem with the predication example in (18) to *A*. CP is a blocking category for percolation of *A*.

Similar to the reflexives in (19), the OC-relation also crosses a CP-boundary:

(22) a) John arranged [$_{CP}$ for himself to win]
b) John arranged [$_{CP}$ to win]

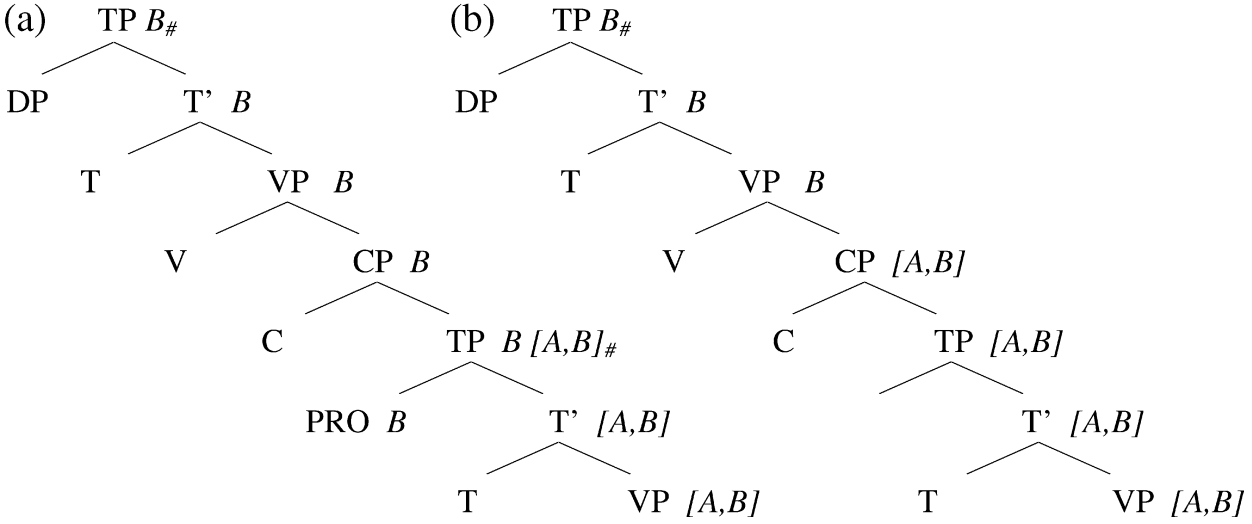
The binding of reflexives and the OC-relation share other important properties, as documented in Koster (1987) and Manzini (1983). And the present proposal follows these authors in grouping OC with anaphoric binding. So both ((22)a) and ((22)b) are examples of binding. In (a), the anaphoric link holds between the reflexive in the infinitival and the matrix argument, in (b), between one of the θ-roles of the embedded verb and the matrix argument. This difference is down to *B*'s origin. In (a) the reflexive introduces *B*, but in (b), the source of the *B*-component is the controlled verb's external θ-role. In both cases *B* percolates beyond the embedded clause to the matrix argument that specifies its reference.

Translating a standard PRO-based approach to OC into the current mechanism of feature percolation makes a direct comparison between these two approaches possible. Within this system of feature percolation, PRO would introduce a *B*-component in virtue of its anaphoric

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character and this *B*-component would percolate to its controller in the matrix clause (23). The PRO-free representation will make very similar predictions to that of a PRO-based one, since their thematic 'paths' within CP are the same. In both trees in (23), the path of the controlled verb's external θ-role is identical up to T-bar. In (a), the θ-role is satisfied by PRO, the subject of the embedded clause. PRO's *B*-component is copied to the matrix DP, thereby establishing the shared reference between these two elements. In this representation, PRO is the source of the anaphoric nature of the infinitival clause. But in (b) the θ-role of the embedded verb divides at CP, where *B* is copied in isolation to the matrix DP. *B*'s application to the matrix DP establishes the interpretive link between this DP and the infinitival clause and it is this subcomponent, rather than PRO, that provides the source for anaphoric nature of the infinitival clause:

(23)



In both trees, a thematic path is created between the infinitival verb and T-bar, and in both instances, the path between the infinitival clause and the matrix DP is one of binding, represented by *B*. The crucial difference between them is that in (b) the subject properties of the infinitival clause must be reinterpreted in terms of the activity of the verb's external θ-role, as opposed to an empty subject in that clause. And also in (b), the binding properties of OC are an outcome of the separation of *B* from *A*, which forges an interpretative link between *B* and the referential DP, the characteristic feature of anaphoric relations. The copying of this interpretative component of a θ-role must of course be restricted, as discussed in the next sub-section.

2.4. Regulating Θ-role decomposition

The percolation of isolated selectional requirements must be regulated, so as to restrict separation of *B* from *A* to limited environments. For this I rely on the well-established Elsewhere Principle (see Kiparsky, 1973), a principle which gives precedence to a more specific rule over a more general one. The context for predication is more restricted than that for anaphoric binding, since, as we have seen in (18) and (19) that the former relation cannot be established across CPs, whilst the latter can. Couched in terms of the current analysis of θ-roles, percolation of a complete θ-role is a more specific operation than percolation of *B* alone. A formulation of the

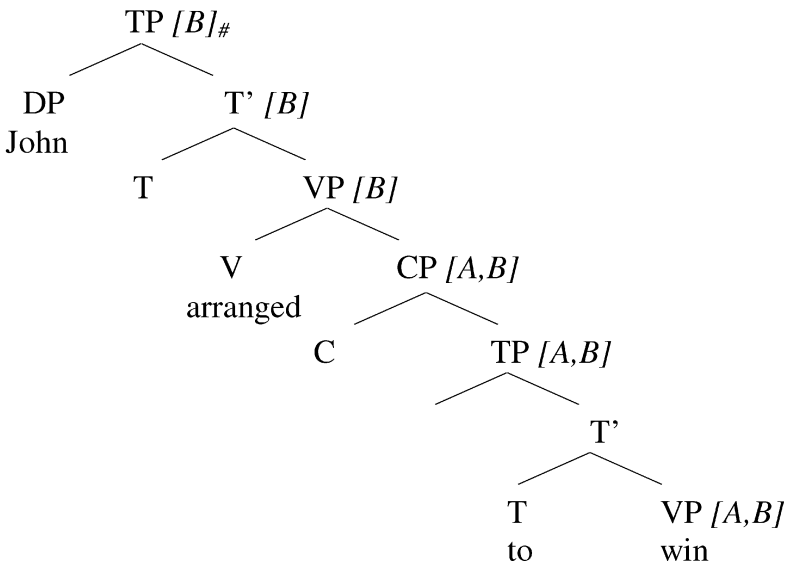
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Elsewhere Principle as below will ensure that priority is given to the narrower context, namely that of whole θ-role percolation:

(24) Given two competing rules, R1 and R2, which operate in two domains of application, D^1 and D^2, such that the D^1 forms a sub set of D^2, then R1 will block R2 from applying in D^1.

So copying of *B* in isolation (binding) will only occur when θ-role percolation is impossible, such as across infinitival CPs. Now to return to ((22)a), the infinitive verb's external θ-role percolates to CP. Here, by (24), it separates from *A* and percolates to its antecedent in the matrix clause[7]:

(25)



B's separation from *A* leaves *A* unsatisfied, a situation which without regulation could lead to the generation of unattested structures, such as controlled objects:

(26) *John said that $Mary_i$ likes PRO_i

The embedded verb would introduce two θ-roles. The external role percolates to VP, where it is satisfied by *Mary*. But what prevents the *B*-component of the internal role from identifying with the external role, with the result that *Mary* is interpreted as both subject and object? *Elsewhere* as formulated above, has a bias for keeping *A* and *B* together, since the process of copying *A* and *B* together is more specific, in that more information is copied, than one in which *B* is copied alone. But *like* is a transitive verb, which means that accusative case is available and it is this availability of case, which ensures that *Elsewhere* will not allow θ-role separation[8]:

[7] What is not a syntactic decision, is the choice between object- and subject-control with double-object verbs, such as *persuade* in the matrix clause. Examples with NPs (taken from Koster (1987), but attributed to Postal (1969)) show that a controller can either be inferred from an adjective (a), placed in a PP (b), or left implicit (c):
(a) the American attempt to attack Cuba at night
(b) the attempt by America to attack Cuba at night
(c) the attempt to attack Cuba at night (Koster's (19b), (20a) and (20b))
Attempts to derive the above from conditions on structure seem futile. Rather, a semantic restriction on the control verb/noun identifying the controller is necessary. See Rooryck (2000) for a fully worked out proposal.

[8] Evidence against such a case-centred explanation for PRO's infelicity in object positions is given in Lasnik (1992), but in Janke (2007) these counter-examples are accounted for.

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(27) a) *John said that Mary$_i$ likes PRO$_i$
b) John said that Mary likes herself

Note that the availability of case that prevents controlled objects is not available for controlled subjects, hence the impossible:

(28) *John$_i$ hoped he$_i$/him$_i$ to win the game

This lack of case then, will mean that θ-role decomposition will always be warranted for OC-structures.

This section has used *Elsewhere* (Kiparsky, 1973) as well as an appeal to case-availability to regulate percolation, making it unnecesary to introduce any new conditions specifically for this purpose. Deriving PROs distribution from case-availability has become unpopular (see especially Landau, 2006), chiefly because of data from morphologically rich languages such as Icelandic, which have provided evidence for a case-marked PRO (Sigurðsson, 1991). But Icelandic can be accounted for without PRO, as we will see in Sections 4 and 5, thereby removing it as an obstacle to a case-centred explanation.[9] The next section applies this PRO-less system of θ-role decomposition to data for which PRO was deemed necessary, namely those with reflexives, secondary predicates, and floating quantifiers in infinitival clauses.

3. Evidence for PRO

3.1. What PRO has been used for

Locality is a property of reflexives, secondary predicates and floating quantifiers (FQs) in tensed clauses, with all adhering strictly to Principle A, which demands they be bound locally,

[9] A reviewer points out that another reason for the unpopularity of deriving the distribution of PRO from case-availability is the existence of languages that allow overt subjects in infinitivals. Carnie and Harley (1997), for example, show that the licensing of overt subject in Irish in non-finite clauses depends on a clause-internal mechanism: they can stand alone, so are not limited to sub-categorial positions, are not dependent on an overt C, nor are they licensed via ECM. The authors argue that the distribution of PRO is governed by the EPP, thus making two predictions:

(i) Languages demonstrating no EPP effects will allow overt nominals in the subject position of infinitivals
(ii) PRO is case-marked

Prediction (i) is discredited by German and Dutch. German subject positions do not need to be obligatorily filled, showing no EPP effects:

(1) Gestern wurde getanzt
Yesterday was danced
'There was dancing yesterday'

German should, therefore, allow overt nominals in subject positions of infinitivals, contrary to fact. Prediction (ii) is supported by Carnie and Harley using Icelandic case-concord data. But the second part of the current paper is dedicated to answering for case-concord without PRO.

Szabolcsi (2005) introduces a possible overt subject in Hungarian infinitivals. The title of this paper, however, is rather telling: *Overt infinitival subjects (if that's what they are).*

(2) Nem szeretnék [én is elcsúszni]
Not would.like(1sg) [I(N) too slip(inf)
'I wouldn't like it to be the case that I, too, slip'. Szabolcsi's (5)

Szabolcsi herself suggests that these pronouns are not subjects, hence not arguments. Given that the structure of this example remains unclear, it is not a strong counterargument to the claim that overt subjects in obligatorily controlled infinitivals are not possible.

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within their domain. But their occurrence in infinitival clauses (29), means that without recourse to a null-subject to retain their locality property, Principle A must be complicated. For the matrix object to be the reflexive's antecedent the whole clause must constitute the binding domain of the reflexive, but this does not explain why it must be the matrix object, rather than the subject, which is the antecedent.

(29) a. **[**Bill persuaded Ben [to enjoy himself]**]**

With PRO's inclusion Principle A is upheld, since the binding domain is the infinitival clause, and the accessible subject that binds the reflexive is PRO. In this way, the semantic antecedent can be restricted to the matrix object, since whatever controls PRO is also interpretatively linked to the reflexive, it being bound by PRO:

b. [Bill persuaded Ben **[**PRO to enjoy himself]]

A similar argument provides a solution for secondary predicates in infinitivals. The depictive is predicated of whatever controls PRO, again in this case, the matrix object:

(30) Ben persuaded Bill [PRO to dance naked]

Lastly, use of PRO also avoids a revision of locality that might otherwise be needed to cover FQs in infinitivals. If they are bound by a controlled PRO within their clause, the obligatory requirement that *all* refer to *the pupils*, and not *the teachers* in (31) is gained for free, since again it is the matrix object which controls PRO:

(31) The teachers urged the pupils [PRO to all learn their lines]

But what we gain in keeping locality conditions constant, we lose in our reliance on this ill-defined element.[10]

3.2. Argument properties

Secondary predicates, reflexives and FQs are sensitive to the argument/adjunct distinction. DP-subjects can all act as antecedents for these elements, whereas adjuncts cannot. But the properties that characterise arguments are distributed between their position, which is one in which case is assigned, and the fact that they are associated with a θ-role. It will be claimed here, following arguments made in Higginbotham (1985), Williams (1994), Janke and Neeleman (2005), that it is the latter of these two argument properties, namely the θ-role, which these phenomena are sensitive to. More specifically, all of these phenomena are parasitic on another θ-role. All of these properties have to do with one type of relation, namely

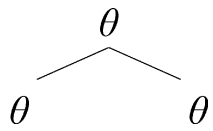
[10] PRO is of course a GB-construct and as an anonymous reviewer suggests, one might argue that the question of its existence is outdated, since the framework in which it was introduced has been superceded by minimalism. But interestingly one of the most recent theories of control, namely that of Landau (2000) retains PRO despite this theory being placed firmly in a minimalist setting. Sigurðsson (2002) also continues to posit PRO. So the answer to the question of whether or not we can explain the data above without recourse to PRO remains significant. And as I will now explain, the PRO-free θ-decompositional approach outlined in section 2 extends to all three of these examples, which given the ad hoc nature of PRO, seems a step in the right direction.

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identification; that is identification of some selectional requirement with a θ-role or a θ-role component. Let us look at identification in isolation first, before setting it into the context of secondary predication.

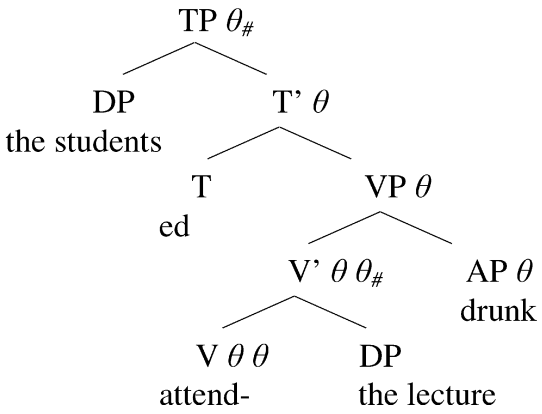
Θ-roles have been defined here as purely syntactic objects; this means that they are visible to and engage in syntactic operations, but the syntax makes no distinction between them. Two θ-roles that meet on a node through percolation, therefore, will be indistinguishable and as such will collapse, that is identify, effectively becoming one composed role:

(32)



Higginbotham (1985) introduces this view of theta-roles, which has been applied to secondary predication in Neeleman and van de Koot (2002). The θ-role of a secondary predicate is identified with a θ-role of a matrix verb, before assignment to an argument. So in a sentence such as, *the students attended the lecture drunk*, the result is such that both the main verb and the secondary predicate can be predicated of the same argument, without tampering with the Θ-Criterion:

(33)



The external θ-role of the verb and that of the depictive identify on VP, becoming one. This composed θ-role is then applied to the subject, enabling it to act as an argument for both the verb and the secondary predicate.

In Williams (1994), argument-hood is addressed in relation to binding. Again it is argued that the antecedent of a reflexive is the θ-role itself. Given that this θ-role is usually assigned to the antecedent, the distinction is a subtle one and masked in most environments. But there is evidence that this is a more accurate account. For one example, see (34) below, which shows that Condition B operates on unassigned θ-roles. The unassigned external θ-role of the noun *admiration* cannot corefer with the internal role assigned to the pronoun *him*:

(34) Admiration of him

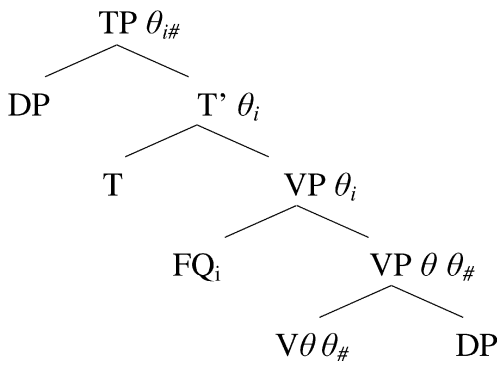
(admirer ≠ admiree) (Williams' (2):208)

FQs also have anaphoric properties (see Belletti, 1982) in that they, like reflexives, depend on a c-commanding argument for their reference. Janke and Neeleman (2005) categorise FQs as anaphoric adverbials that must left-attach to a verbal category and be bound by an unassigned θ-role in a local c-commanding node. So in the sentence *the boys both read the same book* the FQ *both* is bound by the verb's external θ-role as it percolates up to the T'-node, where it is applied to

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the subject. The FQ is interpretively associated with the DP satisfying the θ-role that binds it as in (35). For advantages of this approach see Janke and Neeleman (2005).

(35)

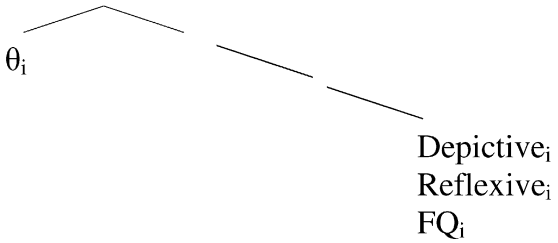


This analysis rules out the examples in (36). Despite being hierarchically identical to (35), ((36)a) is ungrammatical because *both* follows the category to which it is attached and ((36)b) is ruled out as interpretively, the FQ can only be bound by the verb's internal θ-role. But since this role is assigned before the FQ is merged, it does not percolate to a node that c-commands the FQ:

(36) a) *[$_{TP}$ The boys [$_{VP}$ [$_{VP}$ read the same book] both]].
b) *[$_{TP}$ I [$_{VP}$ both [$_{VP}$ met the boys]]].

All these analyses are similar in that it is the θ-role applied to the argument that is the antecedent of the respective element, whatever else their differences.

(37)

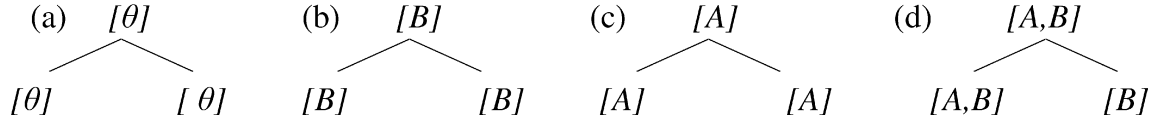


I now reanalyse the data in (29) to (31), incorporating the above works. In each instance it will be the θ-role assigned to the DP, as opposed to the case position that the DP occupies, which acts as the respective element's licenser.

3.3. Identification

The present proposal will extend Higginbotham's (1985) notion of θ-identification to θ-role components. The meeting on a node of isolated θ-roles (a), of their component parts (b and c), or of a complete θ-role with a sub-component (d), will result in identification of those elements, and their effectively collapsing into one:

(38)



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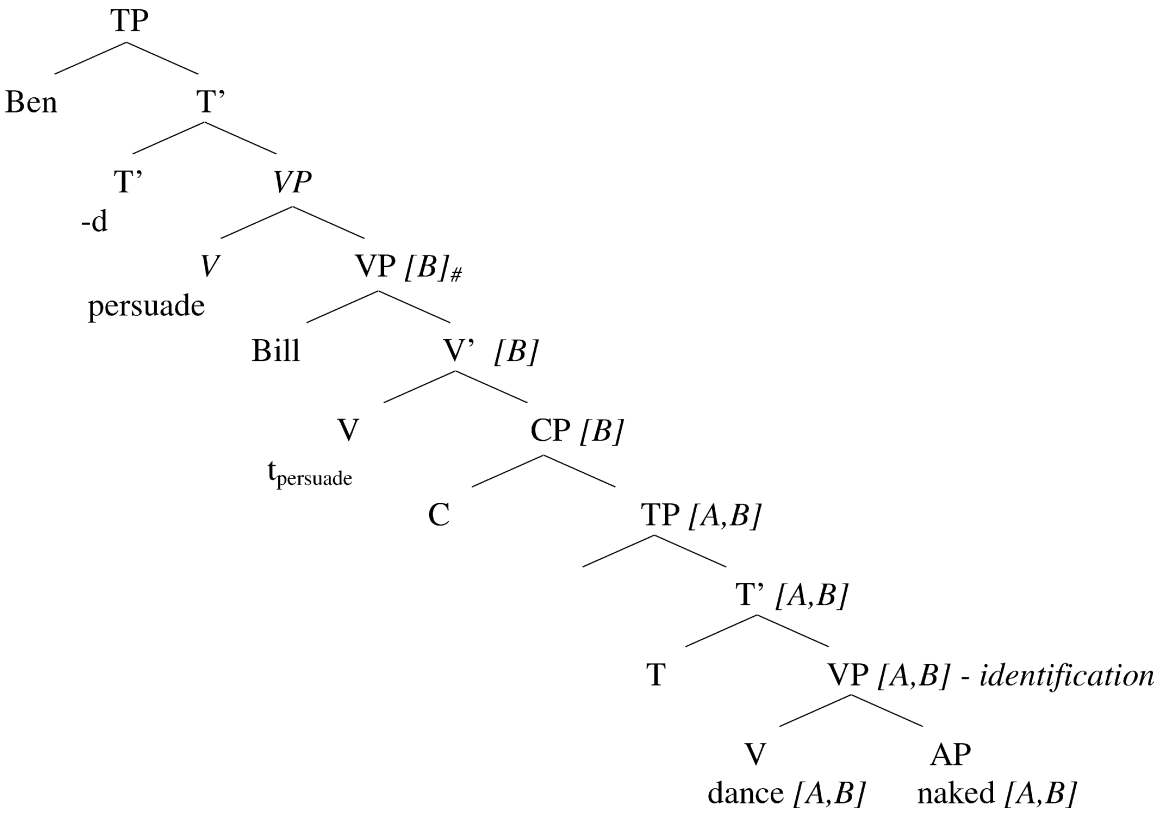
3.3.1. Secondary predicates and PRO

(39) has been hypothesised to contain a PRO-subject in order to reconcile it with the locality of predication.

(39) Ben persuaded Bill [PRO to dance PRO naked]

A PRO-free representation proceeds as follows. The embedded verb merges with the secondary predicate and their unassigned θ-roles are identified on VP, as permitted by (38). This composed θ-role continues till CP, where *A*'s restriction to CP, permits *B*, under regulation from *Elsewhere* (24), to continue in isolation. Note that despite not being represented in the tree, the actual representation is more complex: At V-bar *B* identifies with the *B*-component of the θ-role of the matrix control verb, *persuade* (see (38), which is applied to the matrix object, with the result that this object is predicated of both the embedded verb and the depictive:

(40)



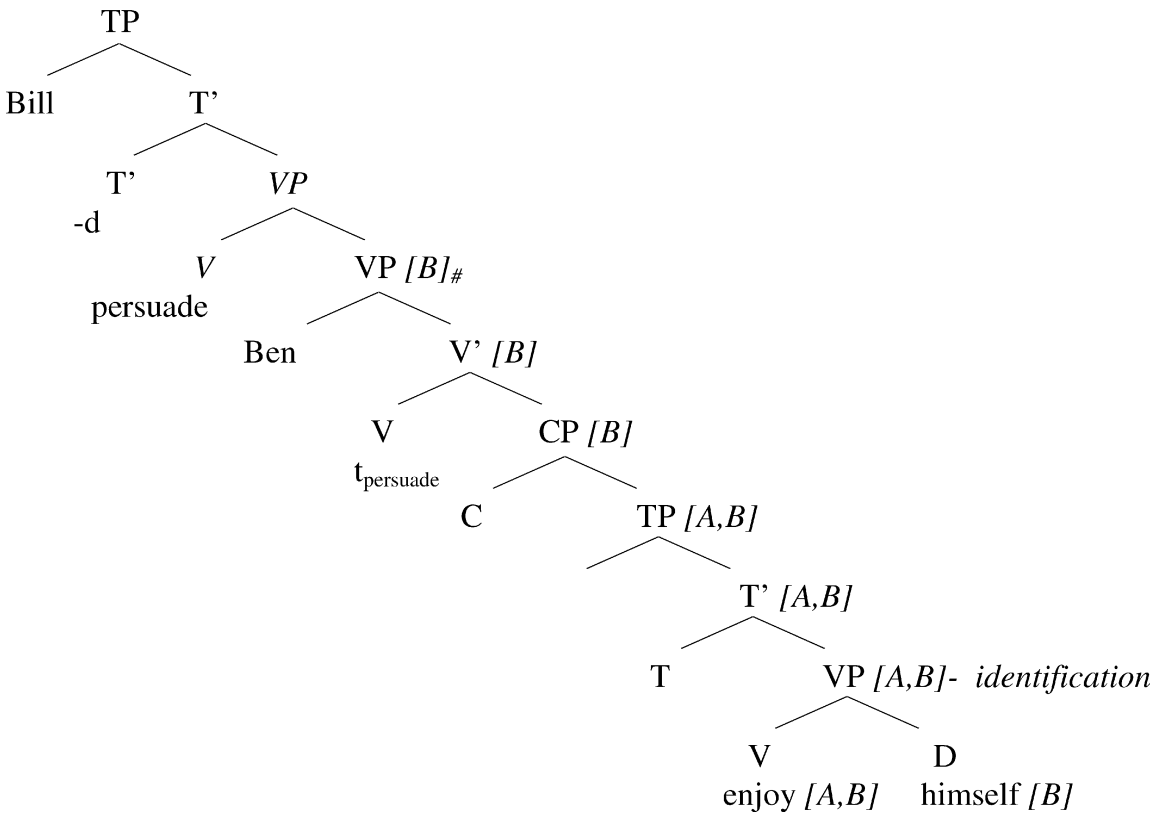
3.3.2. Reflexives and PRO

A representation of reflexives in infinitivals (41), can be similarly unhinged from PRO. As demonstrated in (14), the reflexives are interpretively linked to their antecedents via their introduction of *B*. In the tree below, the reflexive's *B*-component is bound by the external θ-role of the infinitive verb, *enjoy.* By (38) these two identify on VP, and this composed role percolates to CP. But at this boundary, the whole θ-role cannot continue and *Elsewhere* kicks in, licensing its separation. At V-bar *B* identifies with the internal θ-role of the matrix verb, *persuade*, (by (38)) and subsequent assignment of this θ-role to the object ensures that it is construed as the semantic subject of the infinitival clause as well as being interpretively linked

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to the reflexive. Again for ease of exposition, only the identification within the embedded clause is shown:

(41)



3.3.3. Floating quantifiers

Finally, I turn to the locality conditions of FQs in infinitivals:

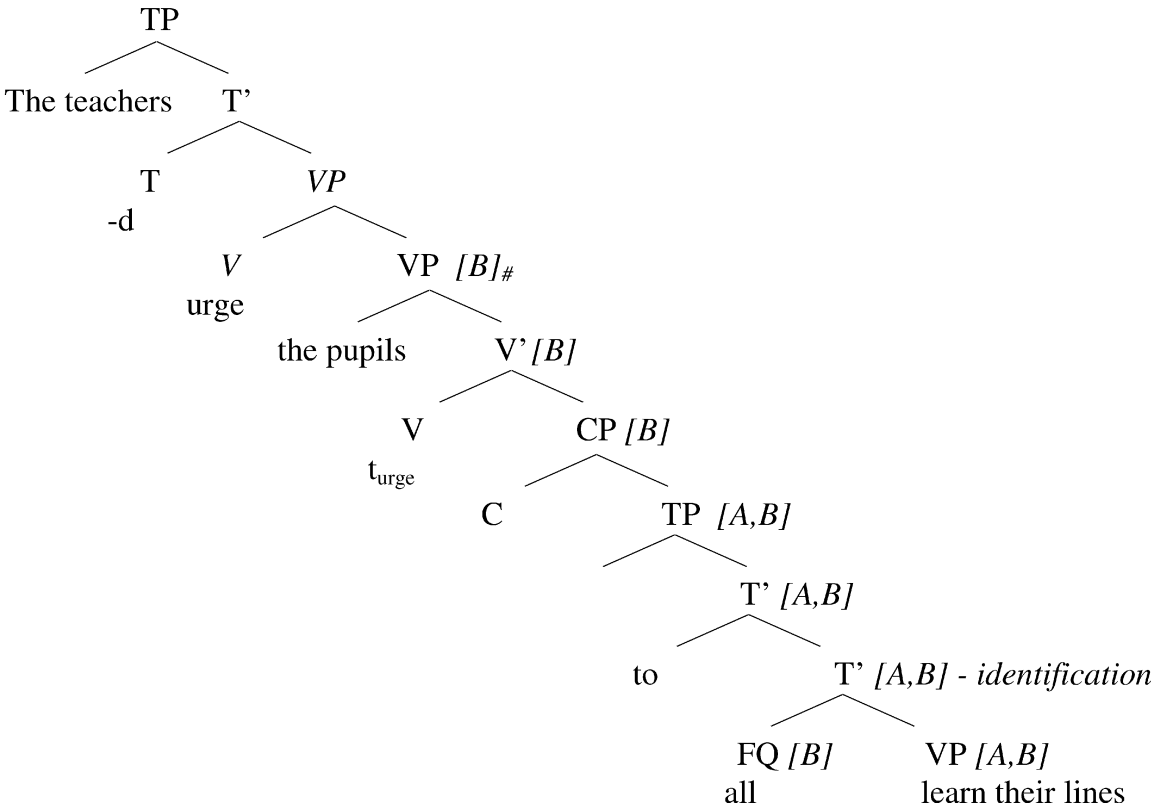
(42) The teachers urged the pupils$_i$ [PRO$_i$ to all$_i$ learn their lines]

As in Janke and Neeleman (2005), FQs are analysed as anaphoric adverbials that must left-attach to a verbal category.[11] Being anaphoric, the FQ introduces a *B*-component, which must be bound by an unassigned θ-role. More specifically, *B* will identify with the infinitive verb's external θ-role. At CP, whole θ-role percolation being barred across this boundary, *Elsewhere* permits *B* to percolate on to the unassigned internal θ-role of the matrix verb, with which it is identified. Assignment of this θ-role to the matrix object secures the interpretive linking of the FQ with the matrix object DP:

[11] For motivation that floating quantifiers must be left-attached in English, I refer the reader to the paper itself. In any theory adverbs must be specified as to whether they must left- or right-attach to the host category (although, the technical implementation may take a different form, for example in LCA-based frameworks). In English there exists no single context in which the adverbial use of 'both' can right-attach to its host category.

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(43)



3.4. Interim summary

This section has applied a system based on θ-percolation, with θ-roles understood as composites, to OC. It has been extended to the binding of secondary predicates, reflexives and FQs in infinitivals, removing the need for PRO to act as protection for the locality condition that governs them. In each case the mechanism used has been the interpretative component *B*, which is copied beyond the infinitival and unified with a θ-role introduced by the matrix verb. Having provided a representation of these constructions without a null-subject, we turn to Icelandic quirky-case phenomena, applying the same mechanism to this data.

4. Case in Icelandic

This section examines Icelandic and its morphological evidence that is widely accepted as a motivation for PRO. The case and agreement system in this language is such that in finite clauses, adjectives, participles, secondary and semi-predicates and FQs inflect for case and phi-features, showing agreement with their antecedent. There has been some dispute as to what provides the source for agreement on these elements when in infinitivals, there being no overt subject with which they can agree. Sigurðsson (1991) has argued for a case-marked PRO in infinitivals, capable of bearing any case that an overt DP bears. If correct, then the agreement on the elements in question loses its mysteriousness. But the fact that PRO does not block wanna contraction, patterning with non-case-marked elements such as NP-trace in this respect, rather than case-marked elements such as wh-trace (see Jaeggli, 1980; Berendsen, 1986; Hornstein, 1999, 2001) casts doubt on this analysis. Equally, it remains unexplained as to why this subject cannot be overt. Conversely, if there is no PRO in that position, contraction is

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expected to be unhindered, there being nothing to intervene, and a lack of case will account for the prohibition on overt DPs. But this brings us back to the agreement facts, the focus of this section.

A look at the case and agreement properties of Icelandic follows, which will force a divide between non-syntactic and syntactic agreement. The former refers to adjectival phi-feature agreement. Justification for a non-syntactic treatment of this data comes chiefly from their presence when there is no syntactic source. An extra-syntactic rule is proposed to cover this agreement pattern, which bars elements that identify a subject from clashing with that subject. This rule is overridden by the rule that regulates syntactic agreement. Syntactic agreement refers to the licensing of arguments and long-distance case-agreement. It will be argued (following an idea dating back to Jakobson, 1935/1966) that argument licensing is achieved in one of two ways: case on the subject or agreement on the main verb. Quirky case phenomena fall out from this assumption in that when a subject has quirky case, its main verb lacks agreement, taking a default form instead. A specific syntactic rule regulates quirky case, tying quirky case to θ-role assignment. Giving precedence to this more specific syntactic rule and using the mechanism mapped out in the previous section, makes possible an account of Icelandic agreement in infinitivals without any recourse to PRO.[12]

4.1. Non-syntactic agreement

4.1.1. Phi-features

In Icelandic a regular (non-quirky) adjective agrees with the argument it qualifies, in both case and phi-features. This is demonstrated in the examples below, where the adjective agrees with its neuter, feminine or masculine antecedent, in (a), (b) and (c), respectively:

(44) a. Ég tel börnin falleg
I consider the children(Anpl) beautiful(Anpl)
b. Ég tel stelpurnar fallegar
I consider the girls(Afpl) beautiful(Afpl)
c. Ég tel strákana fallega
I consider the boys(Ampl) beautiful(Ampl)

Phi-agreement is not clause bounded in the way that case-agreement sometimes is:

(45) [Mig vantaði bara [að vera hjálpað drukkinni/*drukkna af foreldrum mínum]]
$\text{Me}_{(\text{A1sg})}$ lacked only to be $\text{helped}_{(\text{dflt})}$ $\text{drunk}_{(\text{Dfsg/*Afsg})}$ by parents mine
'All that I needed was to be helped drunk by my parents'

In the example above, the secondary predicate *drunk* has dative, feminine and singular morphology. There cannot be one syntactic source for these features, given the rather different restrictions that regulate them, as we will see. The number feature on *drunk* matches that of the matrix subject, both being in the singular. But the feminine feature on *drunk* cannot derive from the matrix subject too, given that the first person pronoun bears no gender feature. This is also true of the predicate's case-agreement, given that accusative agreement, which would match the

[12] Long-distance case-agreement is dealt with in section 6.

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matrix quirky subject, is barred. On the basis of (45) alone then, it seems as though number has a syntactic source, albeit a non-local one, whereas gender is regulated outside of syntax. In fact, there is evidence that both number and gender features are regulated extra-syntactically, as these next examples of arbitrary control demonstrate:

(46) a) Að vera **fundinn drukkinn** er hræðilegt, að vera **fundinn nakinn** er ekki svo slæmt.
To be found$_{(N.m.sg)}$ drunk$_{(N.m.sg)}$ is horrible, to be found$_{(Nmsg)}$ naked$_{(Nmsg)}$ is not so bad.

b) Að vera **fundin drukkin** er hræðilegt, að vera **fundin nakin** er ekki svo slæmt.
To be found$_{(N.f.sg)}$ drunk$_{(N.f.sg)}$ is horrible, to be found$_{(Nfsg)}$ naked$_{(Nfsg)}$ is not so bad.

c) Að vera **fundnar drukknar** er hræðilegt, að vera **fundnar naktar** er ekki svo slæmt.
To be found$_{(N.f.pl)}$ drunk$_{(N.f.pl)}$ is horrible, to be found$_{(Nfpl)}$ naked$_{(Nfpl)}$ is not so bad.

Spoken by a male, the sentence in (46), would require the agreement in (a), but with a female it must be as in (b). Lastly, if a group of females recite the same sentence the agreement alters to (c). In each instance then, number and gender agreement on the participle and secondary predicate depend upon the understood semantic subject, namely a discourse, rather than a syntactic, antecedent. A non-syntactic rule, which says no more than that the features of an element which help to identify a subject cannot clash with those of the subject, is sufficient to regulate this agreement:

(47) Properties of the semantic subject of a terminal node X, cannot clash with features in X that index the subject

The referents of the semantic subjects of ((46)a–c) are identifiable from the morphological phi-agreement on the participles and secondary predicates. An interpretation at odds with the features present should not be possible according to the rule above, and this is indeed so. The number and gender of the speakers is unequivocal. In the next section I turn to syntactic agreement, distinguishing those arguments licensed by case from those licensed in virtue of their agreement with the main verb.

4.2. Syntactic agreement

4.2.1. Regular versus quirky predicate agreement

Recall that regular (non-quirky) predicates always agree with the argument they qualify:

(48) a. Ég tel börnin falleg
I consider the children(Anpl) beautiful(Anpl)

b. Ég tel stelpurnar fallegar
I consider the girls(Afpl) beautiful(Afpl)

c. Ég tel strákana fallega
I consider the boys(Ampl) beautiful(Ampl)

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The agreement pattern of regular predicates contrasts with that of quirky ones, recognised both by their non-nominative subjects and their lack of agreement with this subject. I deal with their subjects' case first. The case on these quirky predicates' surface subjects cannot be predicted from syntactic structure, but is an idiosyncratic phenomenon, peculiar to each predicate. Examples are given below.

(49) a. Henni var kalt
Her(D) was cold
'She was freezing'

b. Hana vantadi vinnu
Her(A) lacked job(A)
'She lacked/needed a job'

c. Hennar var saknad
Her(G) was missed
'She was missed'(by someone)
(Sigurðsson, 2002 his (2), (3), (4))

The rigidity they display, in terms of the case they require on their subjects, is explained if a quirky predicate, as often assumed (see Chomsky, 1981), is stored in the lexicon with its case-specification linked to the θ-role it assigns:

(50) kalt : $[\theta^{CASE}]$

Assignment of quirky case then, is a syntactic relation which is θ-dependent, in that its locus of case-assignment is tied to that of the θ-role. The rule regulating this relation can be stated quite simply:

(51) Quirky case assignment is Θ-bound

A quirky adjective cannot be combined with a subject whose case is at odds with the adjective's θ-linked case-specification. We see this in example (52), where the quirky adjective, *kalt*, which requires a dative subject, has a nominative one.

(52) a. Henni var kalt
Her(D) was cold(dflt)
'She was freezing'

b. *Hún var kalt
She(N) was cold(dflt)
'She was freezing'

Unlike quirky adjectives, a regular adjective is stored in the lexicon linked to a bare θ-role. Morphological endings also have their own lexical entries, which in Icelandic amount to four case possibilities: nominative, accusative, dative and genitive. A rule of combination joins the adjective with a morphological ending, which ensures that case affixes, as functors in the sense of Di Sciullo and Williams (1987), take an adjective with an external θ-role and deliver an adjective with an external θ-role linked to a specific case:

(53) Affix Input: Adjective θ
Output: Adjective θ_{CASE}

Combining a regular adjective with a morphological ending gives the representation in (54).

(54)



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The result is very similar to that of a quirky predicate. On the root node of the adjective the two predicates will look identical, but whereas the regular predicate's representation, (a), is derived, the quirky predicate, (b), has its case specified inherently:

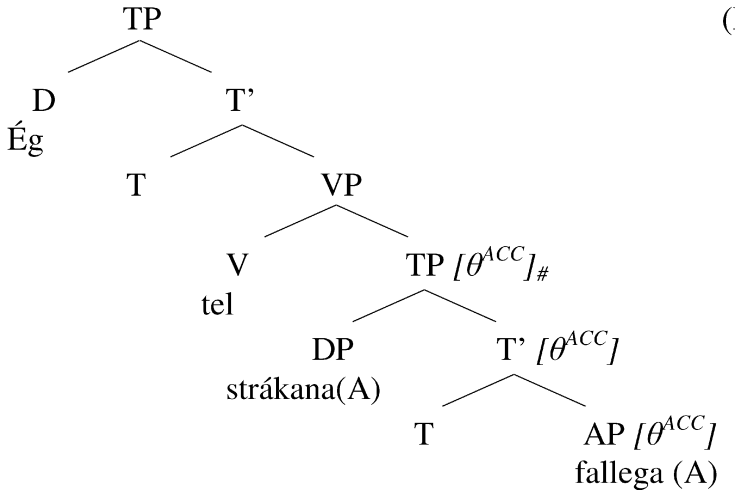
(55) (a)



(b) A θ^{CASE}

Put into practice, the mechanism used for morphological case-agreement works as follows. Taking (48) as an example, the θ-role introduced by 'fallega' (beautiful.Ampl) combines with the accusative morphological case affix, and this θ-role percolates to T-bar, where it is applied to the accusative DP:

(56) (I consider the boys beautiful)



Quirky adjectives also lack morphological agreement. They invariably bear a default form, namely nominative, neuter, singular:

(57) a. Honum er kalt
Him$_{(D3sg)}$ is freezing$_{(dflt)}$

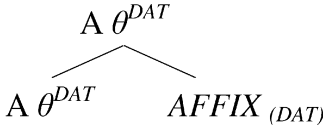
b. *Honum er kaldum
Him$_{(D3sg)}$ is freezing$_{(D)}$

Their default status follows if we accept Economy as given, which at its simplest, requires an output of a linguistic operation to differ from its input. Building a construction where a quirky adjective agrees in case with its subject would be at odds with this principle. The quirky adjective ((58)a), stored lexically with its case-specified θ-role, might combine with a separately stored morphological case ending, ((58)b):

(58) (a) kalt: θ^{DAT} (b) AFFIX *(DAT)*

Once combined, (59), where only the adjective's features have projected, the root node would consist of exactly the same information as was in its daughter, ruling such ineffectual projection out:

(59) *



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The agreement distinction between regular and quirky adjectives extends to main verb agreement. A regular adjective combined with a main verb requires subject-verb agreement, but use of quirky adjective results in that verb being default. I turn to these facts next.

4.3. Main verb agreement

4.3.1. Agreeing forms versus default forms

A copula verb connecting a regular adjective with its nominative subject, must agree in number and person with this subject:

(60) Börnin eru/*er falleg
Children.the(Nnpl) are/*is beautiful(Nnpl)

The opposite holds for copulas connecting quirky adjectives with their subjects, where a lack of agreement is imposed. We see this by taking a plural subject, and noting that the copula must be in the singular:

(61) a. Strákunum er kalt
Boys.the(Dpl) is(dflt[13]) cold(dflt)

b. *Strákunum eru kalt
Boys.the(Dpl) are(3pl) cold(dflt)

An account for this contrast comes from analyses that advocate a bi-modal approach to argument marking, initiated in Jakobson (1935/1966) and developed in Bittner and Hale (1996), Nichols (1986) and Neeleman and Weerman (1999). That is, that there are two ways of marking an argument as such: either through case assignment, or through subject-verb agreement, but crucially not both. In (61) then, the lack of subject-verb agreement comes about because the subject bears the inherent case bound up with the θ-role it has been assigned, ruling out the need, and so the possibility, of further identification from the verb. In contrast, the obligatory subject-verb agreement in (60) precludes structural case assignment to the subject. What then of the nominative that appears on 'Börnin'? The claim is that it is in fact no case at all. A more accurate representation of (60) then, is as (62) below.

(62) Börnin eru falleg
Children.the(npl) are beautiful(npl)

The empirical basis for this argument is not inconsistent with Sigurðsson (1993), where, building on work by Holmberg (1986) and Taraldsen (1994), it is noted that structural case correlates with the presence of agreement, and inherent case with its absence. All these approaches agree that there is a general tendency for languages to show a dissociation between inherently case-marked subjects and subject-verb agreement, even if this is not absolute (see Anderson, 1984 on Georgian). But the claim that nominative case is no case is controversial, and rejected in Sigurðsson (1991, 1996), so the next sub-section provides some support for it.

4.3.2. Bi-modal argument-marking

Neeleman and Weerman (1999) offer a number of arguments in support of nominative case being a misnomer; here I concentrate on two. Firstly, in an agglutinative language such as modern

[13] Default on main verbs in Icelandic is 3rd person singular.

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Turkish, nominative case contrasts with all other cases in having no affix. The second is that verbs do not select for nominative DPs, which makes sense on the reasonable assumption that heads do not select for the absence of a feature.

I turn first to Turkish, where, as shown in the paradigm below, plural affixes exist separately from case affixes. In the singular, the nominative of the noun is the bare stem, but in the plural the 'ler' affix adjoins. Unlike the nominative form of the noun, all the other cases have their own peculiar case affix stacked on to the plural affix:

(63) Modern Turkish paradigm for 'hand'

Singular:	*Nom*	el	Plural:	*Nom*	eller
	Gen	elin		*Gen*	ellerin
	Dat	ele		*Dat*	ellere
	Acc	eli		*Acc*	elleri
	Abl	elden		*Abl*	ellerden
	Loc	elde		*Loc*	ellerde

(Neeleman and Weerman's (19))

An agglutinative language such as Turkish is a better indicator of where case exists than a fusional language like Icelandic, where it is difficult to separate case from phi features, since they are all contained within the same suffix.

Secondly, on the assumption that heads to do not select for absent features, a prediction made by the 'nominative-is-no-case' camp is that it should not be possible for a verb to select a nominative DP. Lexical case selection is not regulated by any structural rules of a language. For example, in the German, *Ich vertraue ihm nicht* (I don't trust him) the verb lexically selects a dative object, a fact not predictable from the sentence's structure. But such lexical selection of nominative objects appears to be absent. (see De Wit, 1997 for Russian, Van Riemsdijk, 1983 for German). Despite superficial appearances, Icelandic is not a counter example to this generalisation, even though in particular circumstances it allows nominative objects which control verb agreement (example adapted from Hrafnbjargarson, 2001):

(64) Henni þóttu þau fyndin
Her(Dfsg) thought(3pl) they(Npl) amusing
'She found them amusing'

Since the nominative case on the object is not determined by the property of a particular verb, but by the structure in which the verb appears, this does not refute the prediction made.[14]

[14] Note that an example such as 'Her(A) like they(N)' (Icelandic), as suggested by an anonymous reviewer, is not a counter example, since presence of nominative on a selected category does not mean that the verb selects for nominative, just as presence of plural on a category does not mean that the verb selects for plural. To ascertain whether case is lexically selected, one needs to look at the case-assignment rules of a language. If an argument has a case at odds with that predicted by these rules, then one can argue that it is lexically selected case. Crucially the appearance of nominative on non-subject arguments and subjects in finite clauses is predictable from the case-assignment rules of the language: if the subject bears a case other than nominative, then the lower argument gets nominative. A counter example would be a double-object verb, whose arguments have the pattern nominative, dative, nominative.

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In Sigurðsson (1996), adjectives which have nominative agreement in finite clauses (65) are shown to have accusative in ECM clauses (65).

(65) a. Strákarnir voru gáfaðir
the boys(Nmpl) were(3pl) intelligent(Nmpl)
b. Ég taldi strákana (vera) gáfaða
I believed the boys(Ampl) be(inf) intelligent(Ampl)
(Sigurðsson, 1996, (27), (28))

But it is the main verb which perhaps tells us more. In (a) it agrees with its subject, whereas in (b), although optional, it is crucially without tense. If nominative and accusative do differ, in that only the latter is a genuine case, the data above is expected, since the argument licensed through case, (b), shows no agreement with its verb.

With the agreement facts in place, the next section will turn to secondary predicate agreement in subject-controlled infinitivals. It will show that the method of sub-θ-role percolation mapped out in the first part of the paper allows for case variations found with Icelandic, whilst precluding ungrammatical ones.

5. Agreement in OC infinitives

5.1. *Quirky infinitivals*

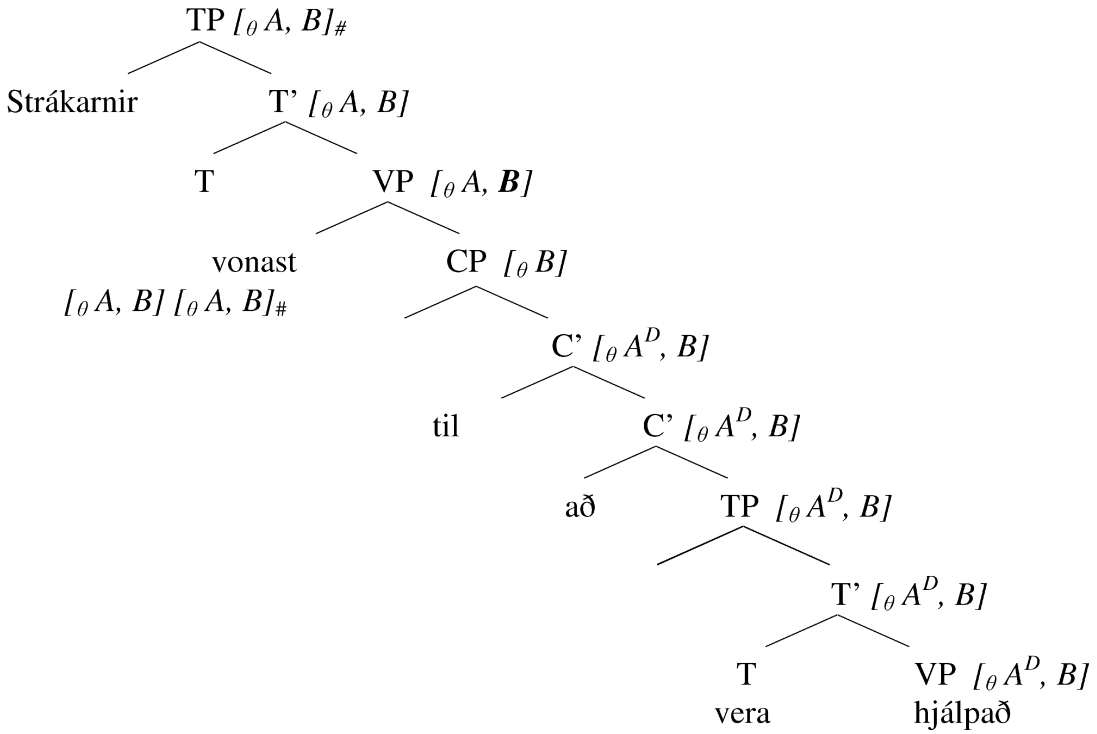
If the agreement of a quirky participle is regulated by its local subject in finite clauses, the same regulation should obtain in infinitival clauses, only that in this latter instance the subject is phonetically null. Such has been the reasoning in Sigurðsson (1991), where it is argued that PRO can bear structural or quirky case, thereby answering for the consistent agreement of quirky verbs across both finite and non-finite clauses. Just as the dative subject in (66) is responsible for the default form of the participle, so is the null (dative)-subject in the infinitival clause in (66):

(66) a. Strákunum var hjálpað/*hjálpaðir/*hjálpuðum.
The boys(D) was helped(dflt)/(*Npl.m)/(*Dpl.m)
b. Strákarnir vonast til [að PRO vera a hjálpað/*hjálpaðir/*hjálpuðum]
The boys(N) hope for to (D) be helped(dflt)/(*Npl.m)/(*Dpl.m)
(Sigurðsson, 1991, (19b) and (20b))

Problems with a PRO-based account are addressed in section 6, but for now I turn straight to the present alternative, based on θ-role decomposition. This would work as set out in the tree in (67). The θ-role introduced by the quirky participle consists of two components, by now familiar, *A* and *B*. But recall from (51), that a quirky θ-role is linked to its case inherently, raising the question of whether case is linked to *A* or *B*. But given that *B* is concerned with semantic reference, whereas the task of *A* is to locate a licensed DP, it must be *A* with which the dative case feature is linked: $[_{\theta}\ A^{D}, B]$.

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(67)



The composite θ-role introduced by *hjálpað* percolates till CP. At CP, where A^D can go no further, separation of *A* and *B* is licensed by *Elsewhere*, and *B* percolates until reaching the external θ-role of the matrix verb with which it collapses. Copying of this composed θ-role to the matrix subject establishes the link between it and *hjálpað*. With this straight forward case illustrated, we turn now to secondary predicates, first illustrating their agreement possibilities, then answering for this pattern in the same way.

5.2. *Secondary predicates in infinitives*

Secondary predicates in finite clauses exhibit agreement in case, number and gender with their antecedent:

(68) a. Strákarnir hittu *kennarann drukkinn*
boys.the$_{(Nm.pl)}$ met teacher.the$_{(Amsg)}$ drunk$_{(Amsg)}$
b. *Strákarnir* hittu kennarann *drukknir*
boys.the$_{(Nmpl)}$ met the teacher drunk$_{(Nmpl)}$ (Sigurðsson, 2002, (72) and (73))

In subject-control environments, the case-agreement on secondary predicates varies according to the type of verb used in the infinitival, not the verb used in the matrix. This becomes clear in the next set of examples which show the agreement possibilities for the regular secondary predicate, *drukkinn* (drunk), in infinitivals. The secondary predicate follows a regular and a quirky participle in the infinitivals in (69) and (70), respectively, but both of these examples have the same regular control verb in the matrix, namely *vona til* (to hope for), which takes a nominative subject. To control for possible interference from the matrix clause, examples (71) and (72) use a quirky matrix control verb, *vanta*, (to lack/need) which takes an accusative subject, and so will check whether case on the matrix subject can impact on the case-agreement of the secondary predicate in the infinitival. To sum up, two predicate

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types – regular and quirky – varying across the matrix and infinitive clauses give four possibilities, and collectively these examples show that there is no case copying across a clause.[15]

(69) Ekki hafði ég vonast til að vera sótt drukkin
Not had $I_{(N)}$ hoped for to be picked up$_{(Nfsg)}$ drunk$_{(Nfsg)}$
'I had definitely not hoped to be picked up drunk'

(70) Ekki hafði ég vonast til að vera hjálpað drukkinni/??drukkin
Not had $I_{(N)}$ hoped for to be helped$_{(dflt)}$ drunk$_{(Dfsg/??Nfsg)}$
'I had definitely not hoped to be helped drunk'

(71) Mig vantaði bara að vera hjálpað drukkinni/*drukkna af foreldrum mínum
Me$_{(ACC)}$ lacked only to be helped$_{(dflt)}$ drunk$_{(Dfsg/*Afsg)}$ by parents mine
'All that I needed was to be helped drunk by my parents'

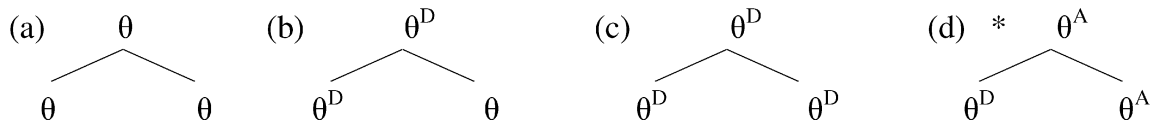
(72) Mig vantaði bara að vera sótt drukkin/*drukkna af foreldrum mínum
Me$_{(ACC)}$ lacked only to be picked up$_{(Nfsg)}$ drunk$_{(Nfsg/*Afsg)}$ by parents mine
'All that I needed was to be picked up drunk by my parents'

I turn to (69) first, pictured in (75), which is consistent (but no more) with the secondary predicate's case-agreement being locally determined by the participle in the infinitival, as opposed to the control verb in the matrix. Recall that nominative means absence of case, so the θ-role complexes of the participle and the secondary predicate lack case-specification altogether. By (38) then, these θ-roles identify on the node immediately dominating them, and the resulting composite percolates to CP. As a means of regulating θ-role identification, I incorporate the following rule to prevent conflicting cases:

(73) Θ-Identification Rule: θ-role-identification must respect linked cases.

The implementation of this rule will impact on θ-identification by allowing ((74)a–c) but ruling out ((74)d), where two θ-roles are linked to different cases:

(74)

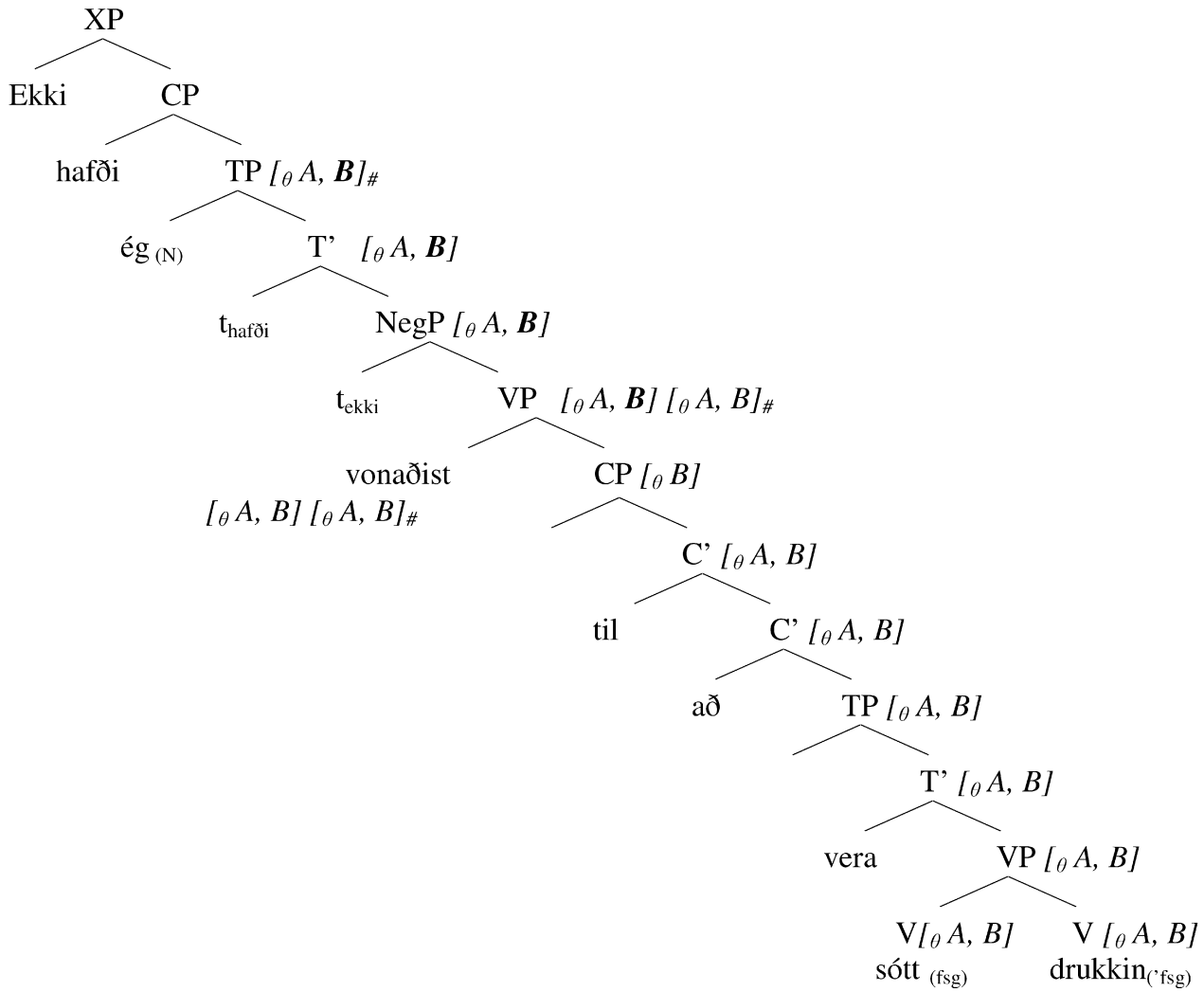


[15] These examples are not standard, in that they would be frowned upon by directive grammarians, but they are heard frequently in the following context: 'I had been through so many uncomfortable things this evening, all I had left to do was to be helped/picked up drunk: the ultimate embarrassment!' (Gunnar Hrafn Hrafnbjargarson, personal communication). But for even those informants who found some of the examples marginal (but definitely not ungrammatical), the agreement possibilities were unequivocal.

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Identification of the participle's and predicate's θ-roles in (75) satisfies the above rule vacuously, neither of them being specified for case ((74)a). At CP only *B* continues, and identifies with the *B*-component of the matrix verb's external θ-role, again permitted in virtue of ((74)a). Application of this composed θ-role to the matrix subject ensures that the matrix subject is interpretively linked with the matrix verb, as well as the participle and depictive in the infinitival clause:

(75)

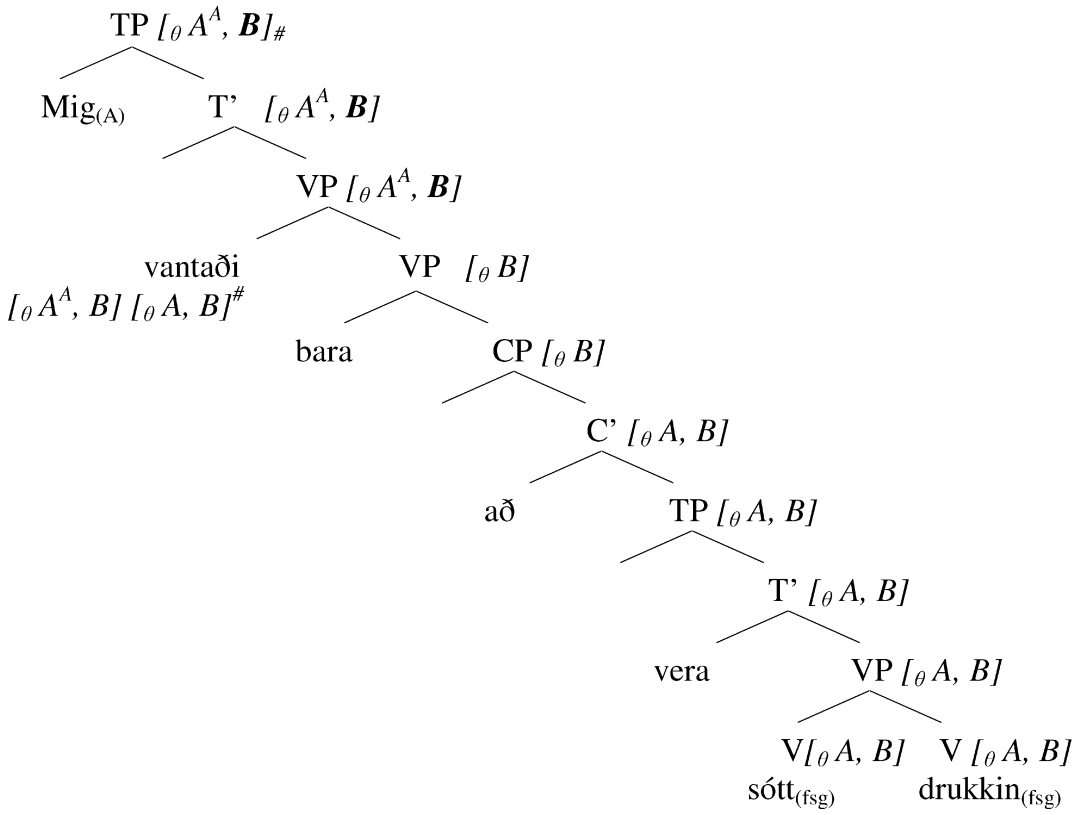


Support for there being no cross-clause case copying comes from (72), repeated here as (76), where the accusative subject in the matrix cannot be transferred to the secondary predicate:

(76) Mig vantaði bara að vera sótt drukkin/*drukkna af foreldrum mínum
Me(ACC) lacked only to be picked up(Nfsg) drunk(Nfsg/*Afsg) by parents(D) mine(D)
'All that I needed was to be picked up drunk by my parents

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(77)

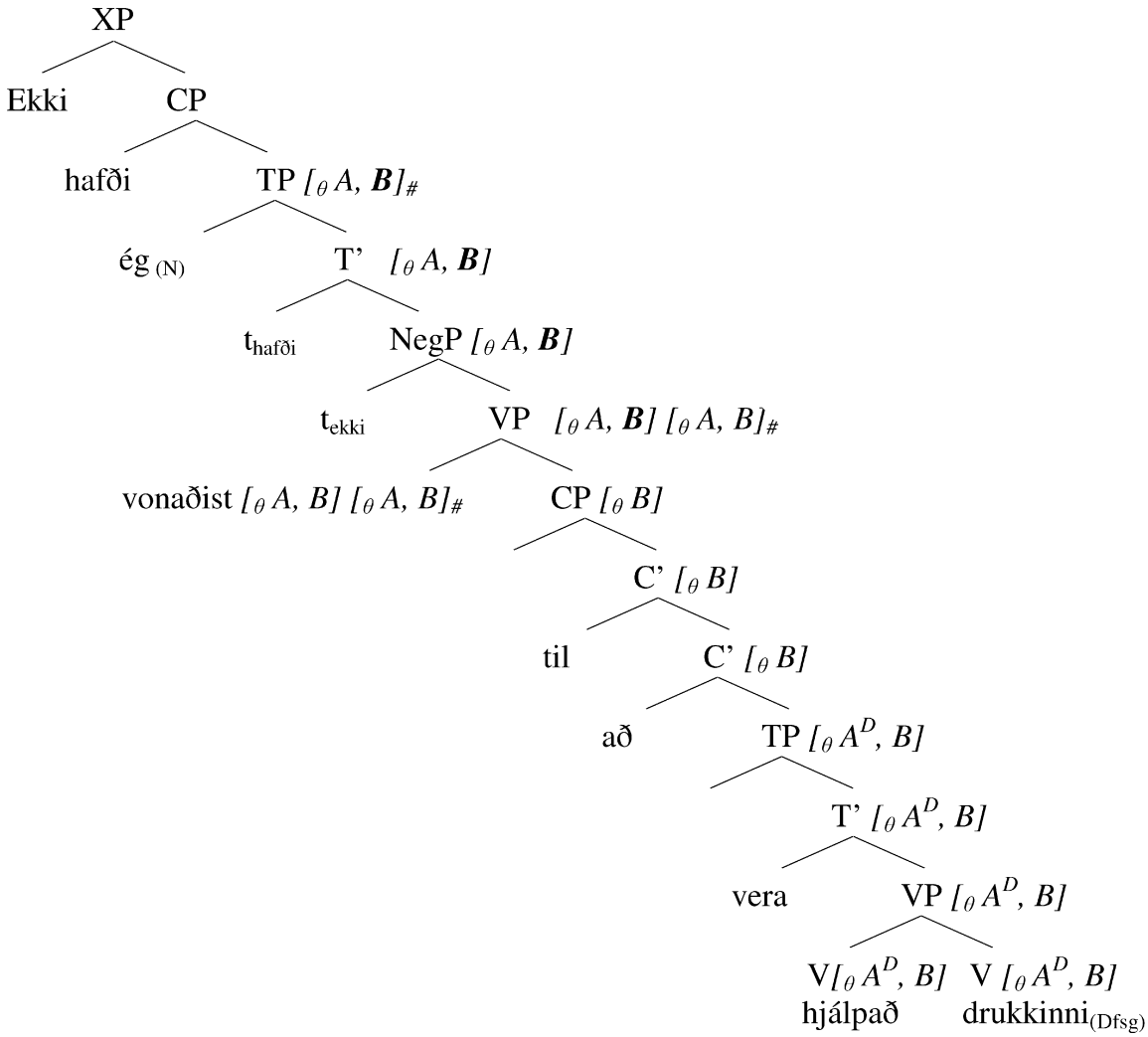


The two unspecified θ-roles of the regular participle and secondary predicate are identified on VP. At CP continues in isolation until it is identified with the *B*-component of the matrix verb's external θ-role (24) and ((38)d). The external θ-role's accusative linked *A*-component is applied to the matrix subject, which bears the accusative case that the quirky verb specifies. This component, having been introduced in the matrix clause, cannot effect the case-agreement possibilities in the infinitival, since there is never any connection between it and the *A*-components in the infinitival clause.

(70), laid out in (78), has a regular secondary predicate combined with a quirky participle in the infinitival clause. *Hjálpað* introduces a lexically determined dative θ-role, whilst *drukkinni* introduces a bare θ-role which has combined with a morphological dative affix. These two θ-roles, both having identical case specifications are free to identify on VP. *Hjálpað* exhibits the default ending, marking it out as quirky, and *drukkinni* shows morphological case-agreement consonant with the dative-linked θ-role it has identified with. The composed θ-role separates and only *B* continues to the matrix, and identifies with the *B*-component of the matrix verb's external θ-role, permitted by (74). This θ-role is then applied to the matrix subject:

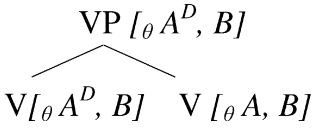
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(78)



The speakers that accept, albeit not completely, a 'nominative' ending on *drunk* in the example above, as indicated in (70) are accounted for, since one of the two identifying θ-roles is unspecified for case, a scenario covered by ((74)b):

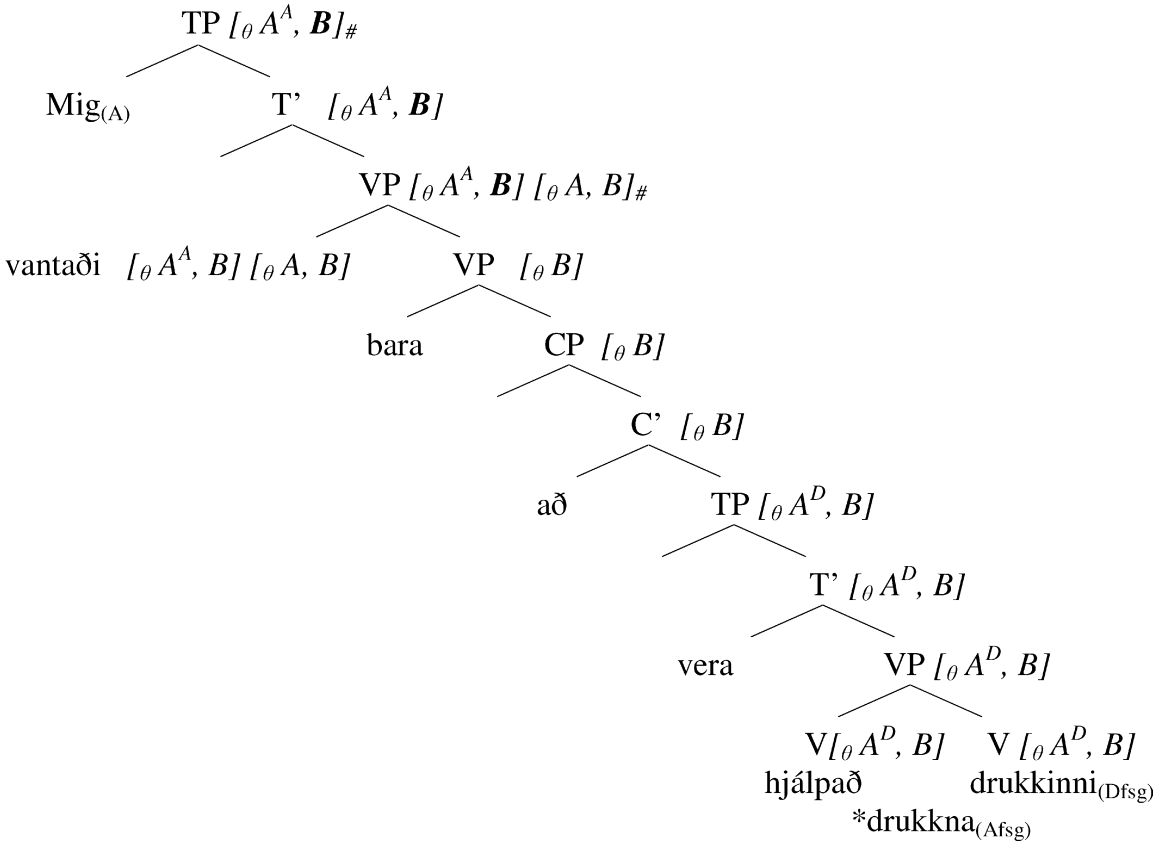
(79)



That the agreement of the secondary predicate in (78) is determined locally, as opposed to there being any transferal via the matrix subject, is corroborated by (71), represented in (80), where an accusative matrix subject cannot trigger accusative agreement on the secondary predicate in the embedded clause:

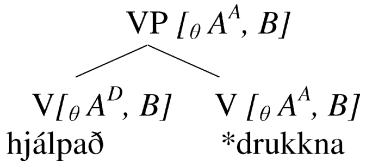
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(80)



Accusative agreement on the secondary predicate is ruled out by the Θ-Identification Rule. Despite *drunk* being a regular predicate, and so not lexically specified for case, by (53), it combines with a morphological case affix before entering the syntax. This makes its case feature visible to the syntactic operation of θ-role identification, and to conditions on that operation, in this instance the rule in (73): *Hjálpað* has a dative-marked θ-role and *drukkna* an accusative-marked one, prohibiting identification of their θ-roles:

(81) *



6. With or without PRO?

The present account has extended to all the examples, allowing the possible ones, whilst precluding their ungrammatical counterparts, removing Icelandic's stature as a language that can provide conclusive evidence for PRO's existence. In the next section, however, we encounter data that are problematic for both the present account and one that utilise PRO, namely long-distance case-agreement. But is an account based on PRO nevertheless preferable to one that isn't? A comparison of the assumptions necessary for this account with those necessary for a PRO-based account, such as in Sigurðsson, 2002, will demonstrate that there is little to distinguish them, both making very similar assumptions. What could tip the balance in favour of the present account is the last sub-section, which shows that PRO cannot actually do the task it needs to.

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6.1. Long-distance case-agreement

The previous section focussed on secondary predicates in controlled clauses, comparing the agreement options for predicates merged with quirky participles with those for predicates merged with regular participles. The resulting generalisation was that a secondary predicate merged with a quirky participle must agree in case with the would-be subject of that quirky participle, cross-clause case-agreement being entirely out. This is expected if quirky case is theta-linked and in this story regulated by Θ-identification (see the stricture in (73) above). This case-agreement then, is a local, syntactically regulated relation based on copying:

(82) Local case-agreement is regulated by Θ-identification

But a complication to this thus far neat picture is that in restricted circumstances, Icelandic exhibits long-distance case-agreement. Specifically, long-distance case-agreement is a universally accepted option on semi-,[16] primary and secondary predicates within object-controlled complements (see especially Þráinsson, 1979 and Sigurðsson, 1989, 1991). In each instance, cross-clause agreement with the accusative matrix controller is the more widely accepted option:

(83) a. Jón bað Bjarna að koma einan
Jon(N) asked Barni(A) to come alone(A)
b. %Jón bað Bjarna að koma einn
Jon(N) asked Barni(A) to come alone(N)

Of the six Icelandic informants on which this data was tested, all accepted ((83)a) as perfect, whereas there was a clear split for ((83)b), with half accepting it and half rejecting it. A similar pattern of judgements obtains for secondary predicates in object-controlled complements:

(84) a) Jón bað hana að dansa nakta
Jon(N) asked her(A) to dance naked(A)
b) %Jón bað hana að dansa nakin
Jon(N) asked her(A) to dance naked(N)

Five out of six informants accepted ((84)a) as perfect and one found it marginal. For ((84)b), acceptance was again split, with three finding (b) perfect and three rejecting it completely[17] Primary predicates follow suit: again the accusative agreement in ((85)a) was accepted by all, whereas three found the nominative in ((85)b) perfect and on the same par as (a), whilst three speakers rejected it completely.

(85) a. Maria bað hana að vera góða
Maria(N) asked her(A) to be good(A)
b. %Maria bað hana að vera góð
Maria(N) asked her(A) to be good(N)

[16] I use this admittedly vague term to refer to elements such as ‘alone’.
[17] The same three that had rejected the nominative agreement in example (55b).

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So the descriptive generalisation is that in all instances the element in question, be it a semi-, a secondary or a primary predicate, prefers to agree in case with its semantic subject, although nominative remains a possible, if less widely acceptable alternative.[18] The non-syntactic rule proposed for phi-agreement, repeated in (86) below, in a sense extends to both the cross-clause accusative and the nominative agreement:

(86) Properties of the semantic subject of a terminal node X, cannot clash with features in X that index the subject

In all of the examples in (83) to (85) the semantic subject is the accusative object in the matrix clause, and X is the semi-, secondary or primary predicate, respectively, and the possibility of the nominative is also not at odds with this rule, if nominative represents an absence of case, as argued above. The negative formulation of the rule above permits absence of case-agreement between X and X's semantic subject, a circumstance represented by instances labelled conventionally as nominative.

But it is nonetheless strange that phi-feature agreement is obligatory, whereas case-agreement is optional. And another reason for being suspicious about a semantic-centred explanation of this optional agreement surfaces when we note what purpose these features serve. Gender and number agreement on a predicate identify interpretative properties of their antecedent, unlike case. It does not make intuitive sense then, that those features which have no role in interpretation be regulated by a semantic rule.

The question remains as to why there is an object- and subject-asymmetry in case-agreement, in that availability of long-distance case-agreement is limited to when there is an object in the matrix clause. I will take an, at this point, stipulative measure in trying to address this question. The system operative for the subject-control cases in (69) to (72) extends to that of object-control in that if a quirky verb occurs in the infinitival clause, the long-distance case-agreement disappears. The telling example comes from an adaptation of (83), as in Boeckx and Hornstein (2003), where the quirky predicate *bored* replaces *come* in the complement (their 17, but with my own reported judgements) and long-distance agreement is not possible:

(87) a. ?Jón bað Bjarna að leiðist ekki einum
Jon(N) asked Barni(A) to be-bored not alone(D)
'Jon asked Barni not to be bored alone'

b. *Jón bað Bjarna að leiðist ekki einan
Jon(N) asked Barni(A) to be-bored not alone(A)
'Jon asked Barni not to be bored alone'

c. %?Jón bað Bjarna að leiðist ekki einn
Jon(N) asked Barni(A) to be-bored not alone(N)
'Jon asked Barni not to be bored alone'

Although not totally acceptable to all speakers, the agreement possibilities are quite clear. Four out of six judged the example with dative agreement on the semi-predicate as slightly marked (but definitely not ungrammatical), whereas the remaining two judged it as perfect. The accusative was rejected absolutely by all six informants, whereas the nominative again gave

[18] Of these six informants, there was a general trend for the younger informants (20–30 years) to reject the nominative. The three more 'mature' ones tended to rate them equally.

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a mixed bag of results: two found it slightly marked (but not worse than the dative), two judged it as bad (worse than the dative), and two rejected it absolutely.[19,20]

So an assumption made here is that the syntactic rule that regulates quirky case overrides long-distance case-regulation. Repeated from (51) in section 3.3, local case-agreement obtains when the verb with which the semi, secondary or primary predicate is combined is quirky:

(51) Quirky case assignment is Θ-bound

The less widely accepted nominative in ((87)c) is not problematic, since the Θ-Identification rule in (73) allows both possibilities. In both ((87)a) and ((87)c) the *B*-component introduced by 'alone' identifies with the *B*-component of the dative-linked theta-role. Dative agreement is preferred, but absence of agreement is not barred. On this account, a θ-role unlinked to a case specification escapes regulation from (73), thereby leaving a gap in the system. The examples in (83) to (85) fall within this gap. The verb local to the semi, secondary and primary predicates is not a quirky one, so the case-specification of the theta-role in the controlled complement is undetermined. The predicates in question will prefer to agree with their semantic subject (i.e. the matrix object), but lack of case-agreement is also available. So when nothing in the infinitival determines the case-agreement on the predicate in question, that agreement can be determined by the controller. But to limit this option to object-control, we must further state a locality restriction such that such case-agreement cannot cross VP:

(88) Locality Restriction on Long-Distance Case-Agreement:
When case-agreement is not θ-linked, then case on a predicate
may be determined by the controller iff the controller is within VP

The rule above at presence lacks explanatory force, but note that a PRO-based account needs to adopt a very similar ordering of rules to the one assumed above, in order to account for the possibility of long-distance agreement when the verb in the controlled clause is regular, as in ((89)a) against its absolute ban when that verb (participle) is quirky, as in (b).

(89) a. Jón bað Bjarna að koma einan
Jon(N) asked Barni(A) to PRO(A) come alone(A)
b. ?Jón bað Bjarna að leiðist ekki einum/*einan
Jon(N) asked Barni(A) to PRO(D) be-bored not alone(D/*A)

PRO must be barred from inheriting case when its predicate is quirky (b), yet allowed to inherit case when the verb is regular (a). So it could be claimed that cross-clause case-feature transferral is blocked when PRO's predicate is quirky, which is very similar to the assumptions made in the present account. But such an assumption is not sufficient, since there remains the question of why nominative case can be (optionally) assigned to PRO in quirky infinitivals. Recall that half the speakers used for the present study ($n = 6$) accepted nominative in ((87)c), repeated below:

[19] The judgements indicated above deviate from those reported in Boeckx and Hornstein (2003), who put a star against the nominative option.

[20] Again, it was the three older informants that accepted the nominative.

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(87) c. %?Jón bað Bjarna að PRO leiðist ekki einn
Jon(N) asked Barni(A) to PRO(case?) be-bored not alone(N)

In an account in which nominative is a proper case it is difficult to explain why it is nominative that shows this special behaviour.

The pattern of judgements within this sample, where older speakers treated nominative case-agreement (i.e. absence of case-agreement) and cross-clause case-agreement as equally acceptable and younger speakers rejected the nominative, could be explained if the age-difference observed in this small sample represents a particular stage of language change, along the lines of Kroch (1989). We can imagine that a person's grammar consists of one rule to start with, Rule X, which demands a lack of case-agreement, but at a later stage, a second rule, Rule Y enters that same person's grammar, which demands case-agreement. These two rules will compete with each other, until eventually, at the last stage, one rule overrides the other:

(90) a. Rule X: Lack of case-agreement
Rule Y: Case-agreement
b. Stage I Rule X
Stage II Rule X and Rule Y
Stage III Rule Y

Crucially, in an analysis such as Kroch (1989), the two grammars can be present within the same speaker. So to relate this back to the present sample, the older speakers, who allow presence or absence of case-agreement, would be at stage II in the above example, whereas the younger speakers, who reject the lack of agreement, would be at stage III. Naturally, the suggestion above is only tentative, as a larger sample is necessary to see if the age-difference noted in this study represents a trend of the population in general.

6.2. *Does Icelandic provide any arguments against the existence of PRO?*

Icelandic hasn't shown that we need PRO, but might it in fact offer an argument against PRO? I return briefly to how a PRO-account runs, using Sigurðsson, 2002 as an example, to illustrate the problem it creates. In this account the agreement properties of secondary predicates such as in (91) and the like are transferred via PRO.

(91) Henni leið illa drukkinni
Her$_{(Dfsg)}$ felt$_{(3sg)}$ badly drunk$_{(Dfsg)}$
'She felt badly when drunk' (Sigurðsson, 2002 (76))

On this view PRO inherits case, number and gender features from its antecedent, before transmitting these values to the secondary predicate:

(92) Her$_{(D3fsg)}$ felt badly [PRO$_{(D3fsg)}$ drunk$_{(D3fsg)}$]

Using PRO as the means of transferral localises the long-distance agreement relation, but not successfully. If an element inherits features subsequent to its introduction into the syntax, this is a problem for inclusiveness (Chomsky, 1995:225), which requires syntactic operations to have access to items in the numeration only. In the account above such inheritance is forced, since PRO

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is the source of the agreement on the secondary predicate, which, as we have seen in (46) varies according to the sex and number of the speaker(s). But this problem aside, syntactic transferral only works in the 3rd person. The predicate *drukkinni*, has dative, feminine, singular morphology. But from where does the feminine agreement originate?

(93) Mér leið illa drukkinni
Me$_{(D1sg)}$ felt$_{(3sg)}$ badly drunk$_{(Dfsg)}$
'I felt badly when drunk'

In order for *drukkinni* to inherit gender features from PRO, PRO must be in the 3rd person because 1st and 2nd person have no gender feature, yet if PRO is to be interpretively linked with the matrix controller, it must be in the 1st person:

(94) a) *Me$_{(D1sg)}$ felt badly [PRO$_{\mathbf{(D3fsg)}}$ drunk$_{(D3fsg)}$]
b) *Me$_{(D1sg)}$ felt badly [PRO$_{\mathbf{(D1fsg)}}$ drunk$_{(D3fsg)}$]

For PRO to work, one would need to attribute it with feature combinations that don't exist on any overt counterpart.

The empirical difference between the present account and that put forth in Sigurðsson (2002) is slight. In the former, a θ-role regulates the case on the predicate, in the latter PRO does. In fact, it is in the present account's favour that it makes very similar predictions to a PRO-based story, accounting for the data that PRO was initially introduced for. But the present account makes a distinction between those features that are regulated syntactically (quirky case) and those that fall outside of this boundary (phi-agreement). Examples of arbitrary control and control by an antecedent that lacks the features necessary for inheritance have shown this demarcation to be warranted. Whether or not it also preferable to a story that utilises PRO, depends not just on PRO's felicity as a transferral mechanism, but also on the extent to which we are willing to rely on an element whose very definition remains ad hoc.

7. Conclusion

This paper has offered a representation of OC without recourse to a null-subject to regulate the anaphoric dependency between the infinitival clause and the matrix antecedent. Drawing on the independently motivated de-compositional nature of θ-roles, it has dissociated two rather different functions, namely interpretation and case. Obligatory control can be explained using this pre-existing demarcation. It is the interpretation of the infinitival's subject that is relevant to the control relation, since this is what is shared with the matrix controller, not its case. This is captured in the present account by unifying the interpretative component from the thematic complex of the lower clause with that of the control verb. The subject properties of the infinitival are crucially not lost, but reinterpreted in terms of the path of the external θ-role complex, distinguishing it empirically from an approach based on NP-raising. That controlled clauses are CPs, as opposed to VPs, also falls out from this system; CPs block complete θ-role percolation and it is only then that OC is licensed. Its advantages are that it avoids the need to depend on an empty category with dubious properties, whilst at the same time largely making the same predictions as those theories which rely on PRO. In addition, by offering an account of the case-agreement properties of predicates in Icelandic infinitival clauses, it has not only shown that PRO is unnecessary but that it cannot actually fulfill the task for which it was proposed.

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