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*Control without a Subject**

VIKKI JANKE

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 answer for the data, which receive a uniform account using the mechanism outlined in the first half of the paper.

1 Introduction

In this paper a syntactic representation of obligatory control (OC) is offered that dispenses with PRO. There are a number of reasons for assuming PRO's existence, each of which will be shown to lack force. One is the binding of reflexives; in tensed clauses reflexives adhere strictly to Principle A, which demands that they be bound locally, within their domain. But their availability in infinitival clauses questions the validity of Principle A as it stands, in that without a null-subject in the infinitival in (1a), Principle A must be complicated. To enable the matrix object to be the reflexive's antecedent the whole clause must constitute the binding domain of the reflexive, but this doesn't answer for why it must be the matrix object, rather than the subject, which is the antecedent.

- (1) a. [Bill persuaded Ben [to enjoy himself]]

* For useful comments and discussions, I am indebted to Annabel Cormack, Gunnar Hrafn Hrafnbjargarson, Ad Neeleman and Neil Smith. For Icelandic judgements, I am grateful to Halldór Sigurðsson and Kristin Johansdóttir, but particularly Gunnar Hrafn Hrafnbjargarson for responding to countless emails and helping me to construct many of the examples I wanted. My thanks to all and blame to none.

With PRO's inclusion the locality condition as originally formulated can be held constant, by making the binding domain the infinitival clause. In this way also, the problem of restricting the antecedent to the matrix object is circumvented, since whatever controls PRO will also be the reflexive's antecedent, it being bound by PRO:

- (1) b. [Bill persuaded Ben [PRO to enjoy himself]]

PRO provides a similar leaning post for a theory of secondary predication. The depictive is predicated of whatever controls PRO, in this case the matrix object:

- (2) Ben persuaded Bill [PRO to dance naked]

Inclusion of an empty subject also sustains the locality conditions of floating quantifiers in infinitives. If they are also bound by a controlled PRO within their clause, the obligatory requirement that *all* refer to *the pupils*, and not *the teachers* in (3) is gained for free, since again it is the matrix object which controls PRO:

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

There is then an advantage in introducing this category, since it keeps existing theories about the behaviour of other syntactic phenomena intact, ridding us of the need to complicate the principles that govern them. But this comes at a cost. What is PRO? It isn't an A-bar trace, since unlike an A-bar trace, PRO exhibits anaphoric properties, cannot (arguably) receive case, nor does it reconstruct. Its anaphoric properties guard against PRO being analysed as small *pro*, which shows exclusively pronominal behaviour. But if it is an anaphor (see Manzini (1983) and Koster (1987)), it is a very unusual one, since unlike overt anaphors it is largely restricted to the subject position of infinitivals and gerunds. It does not behave as an NP-trace either, which forms a chain between a theta- and a case-position (4a) and (4b). Analysed as a trace of movement, PRO must receive a θ -role in its base position, and another at its landing site (Hornstein 2000), violating the condition on well formed chains, which holds that thematic relations hold between chain roots only (Brody 1995). If these two elements are one and the same, and we then analyse examples such as (4b) and (4b') as NP-movement, the reason for the contrast between (4a) and (4a') is forfeited. As Brody (1999) has pointed out in detail, we lose the explanation for why an example like (4a') is impossible (a' = Brody's no 16).¹

¹ Hornstein (2001) answers for the ungrammaticality of such examples by means of the transitive verb's unchecked Acc case feature. The derivation is saved by inserting an Acc-carrying morpheme *self*, which in turn necessitates insertion of an Acc-carrying pronoun *him*, to provide

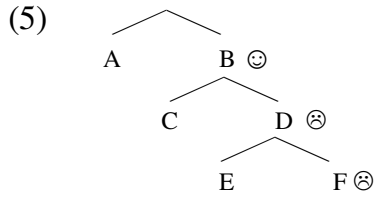
- (4) a. Bill_i was hit t_i b. Bill_i seems t_i to like Ben
 a’*Bill_i hit t_i b’*Bill tried t_i to like Ben

The newly categorised ‘PRO-trace’ would have non-trivial differences from NP-trace in terms of its thematic and case properties (see Brody 2001). In effect we are left with NP-trace 1, and NP-trace 2, setting us on a return path towards the two separate elements we began with. In short PRO, not falling clearly under any category, remains ad hoc. To remedy this, one could continue to develop a theory of PRO itself, trying to reconcile its ambiguous properties within the current typology of empty categories. But the alternative pursued here is to do without it altogether.

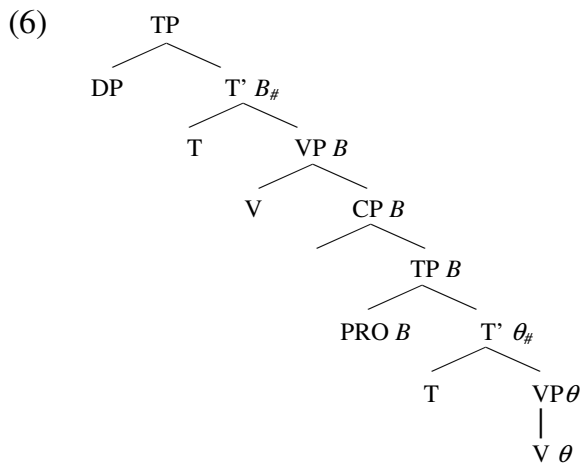
The issues raised above are often interpreted as constituting evidence for a subject in infinitivals, but the evidence only goes so far as to support the presence of an external θ -role. In all three of the examples above, one could argue that an external θ -role is active in the infinitival clause, where that θ -role percolates to its spec. But it isn’t clear that this θ -role is assigned to a null-subject in that infinitival. The phenomenon could be analysed in terms of θ -role decomposition, where under regulation, θ -role-components separate and establish dependencies at different points in the tree. By appealing to such a de-compositional analysis of θ -roles, as has been argued for independently for light-verb constructions (Samek-Lodovici 2003), a PRO-free approach to the binding of reflexives, secondary predicates and floating quantifiers in infinitival clauses, becomes possible.

The trees in (6), (7) and (8) illustrate and compare three analyses of control: a PRO-based approach, an approach based on NP-raising and a θ -de-compositional one. All three trees use a system of percolation, where the relation between a syntactically dependent element and its antecedent is established by the introduction of a selectional requirement by the dependent element, and percolation of that requirement to an antecedent with the properties it seeks. For example in the tree below, if F is dependent on A, it introduces a requirement, \ominus , which percolates to an antecedent with the properties to satisfy it. On arriving at the sister node of such an antecedent, it is satisfied, \odot . This system is essentially that of Neeleman and van de Koot (2002), with some minor modifications:

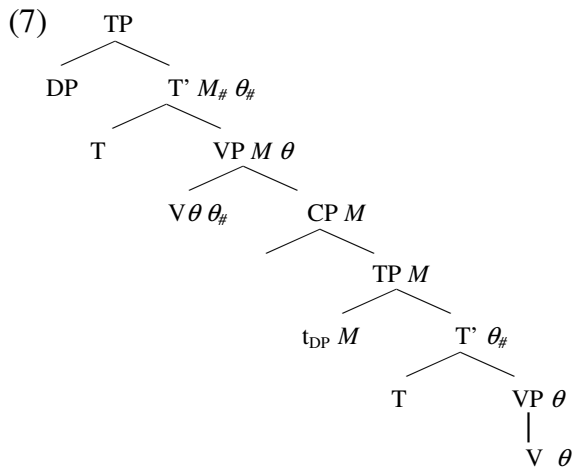
morphological support for the bound morpheme. But with neither *him* nor *self* forming part of the numeration, it is not clear how insertion of *self* and then *him*, is less expensive an option than sole insertion of *him*, resulting in the unwanted: *Bill_i hit him_i. His disposal of Binding Theory prevents any appeal to Principle B to rule this pronoun insertion out.



In (6), PRO sits in spec-TP, and is assigned the verb's external θ -role². The θ -role percolates, and is assigned under sisterhood with its target, in this instance PRO. The obligatory dependency between the matrix DP and PRO is represented by PRO introducing the selectional requirement, B - a binding requirement -, and B 's percolation to the sister node of the DP. On its application to the DP, the relation of control is established:



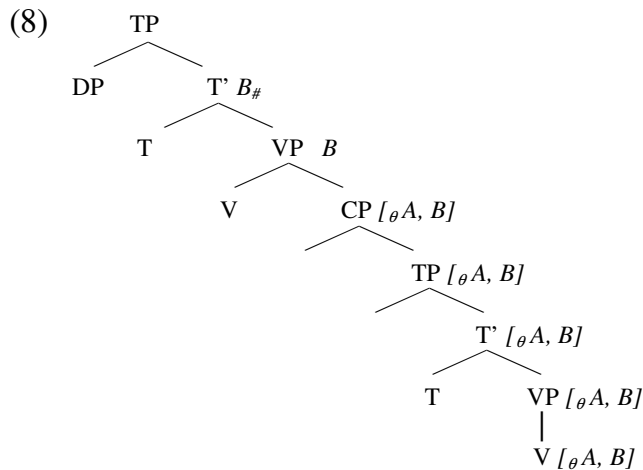
An analysis that treats OC as a sub-species of raising, such as Hornstein (1999, 2000), translates into the current system in the following way:



² θ -role assignment is indicated by the '#' symbol for expository purposes only.

The θ -role introduced by the infinitive verb percolates to T' , where it is assigned to the DP. To license its own movement, the DP introduces a selectional requirement, call it Move (M), and then raises to the matrix clause. The matrix verb introduces two θ -roles, one of which is applied immediately to its complement. But the verb's external θ -role percolates to the matrix DP, with the result that the raised DP has been assigned two θ -roles, one in its original position, the other at its landing site.

(8) illustrates the third option, based on θ -role decomposition. The infinitive verb introduces an external θ -role, but this θ -role is a complex of two independent selectional requirements, A and B . Since A and B are independently existing components, they can separate, and percolate in isolation from each other, which is what occurs in the tree below. The whole θ -role percolates to CP, but here B detaches from A , and continues in isolation to the matrix DP, where it is assigned:



To a large degree this analysis makes the same predictions as traditional theories of control, because the thematic path from the infinitive verb to the embedded T' mirrors that of a PRO-based analysis, whilst percolation of B mirrors the relation between PRO and its controller. The trees in (6) and (7) differ from (8) in that in both instances a θ -role is assigned in the infinitival; in (6), this is to PRO, in (7), assignment is to a DP, which then receives an additional θ -role on being raised. What (6) and (8) share is their use of the binding component, B , which in both instances is assigned to the matrix DP, but the examples crucially differ in terms of B 's source. In (6) PRO introduces B itself, representing its need to be referentially bound, making it the source of the anaphoric nature of the infinitival clause. But in (8) the subject properties of the infinitival have been reinterpreted as properties associated with an external θ -role, and it is from this external θ -role that B originates. Application of the B -component is regulated by binding theory. This explains why B 's application, which gives rise to OC, exhibits a number of

anaphoric properties (see Manzini 1983 and Koster 1987), but since no anaphor is involved, it will also differ from regular anaphoric binding.

In this paper I answer for OC by appealing to such a de-compositional analysis of θ -roles. It will be argued that θ -roles are argument complexes, whose sub-components can separate, and percolate in isolation. The OC relation is understood as a binding relation between these θ -roles, or their sub-components: when a θ -role of a matrix clause links to a sub-component of a θ -role in an infinitive, a mandatory binding relation, emulating OC, is the result. Under such an analysis the problems mentioned with regard to reflexives, secondary predication and floating quantifiers dissolve. This will demonstrate how a PRO-less approach works, solving the ‘case problem’ inherent to PRO-based analyses, whilst also resisting any modification to Θ -theory, which a reduction of control to raising cannot avoid.

For advantages of this system, I turn to Icelandic, where a de-compositional analysis of θ -roles comes into its own. This language has a small class of verbs, quirky verbs, which determine the case on their subjects, whilst manifesting themselves an obligatory default form. When such a verb is used in an infinitival clause, (i.e. *help* below) together with a regular secondary predicate, that secondary predicate generally agrees in case with the would-be subject of the quirky verb, not the matrix subject:³

- (9) 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 (see esp. Sigurðsson 1991, 2002), is whether we need a quirky null-subject to answer for the agreement pattern found. With such a subject, the origins of the dative agreement on the secondary predicate would be accounted for:

- (10) 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 (9) 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 uniform account under an approach based on θ -role decomposition. And if adopted, some unwanted complications accompanying a PRO-based analysis are avoided. For example, as will be demonstrated, if we follow the reasoning of the above works, we must either posit many PROs, which

³ Example constructed with the help of Gunnar Hrafn Hrafnbjargarson (pc).

runs counter to the aim of reducing the number of ad hoc empty categories, or one under-specified PRO, which has its features transferred from an antecedent in the matrix, a strategy which can only violate inclusiveness (Chomsky 1995). By avoiding these complications the present approach seems advantageous in this respect.

The next section sets out an analysis of OC based on argument decomposition. Independent motivation comes from Samek-Lodovici (2003), where θ -role decomposition elucidates Italian light-verb constructions. I show how a similar idea works for OC, before applying this mechanism to the examples with reflexives, secondary predicates and floating quantifiers given in (1), (2), and (3) above. Section 3 focuses on Icelandic, first disentangling the language's agreement facts. This will reveal an important distinction between finite verb agreement and phi-agreement on secondary predicates. Whereas the former show clear indications of constituting a syntactic phenomenon, the latter point to extra-syntactic regulation. With this distinction clear, the present proposal will be tested on Icelandic, with the result that the data fits in neatly. As a means of comparison, section 4 looks briefly at the implications of two alternatives, first Sigurðsson (2002), and then Boeckx and Hornstein (2003), after which I conclude.

2 OC without PRO

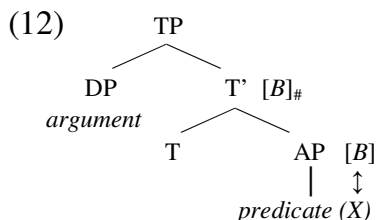
2.1 θ -role decomposition

I start from the hypothesis that θ -roles are complexes, whose components are distinguished on the basis of the individual contribution they make towards establishing a syntactic relation between their predicate and argument. Two chief selectional properties are identified: an argument-licensing component (*A*), which demands a case-marked argument⁴ for its predicate, and a binding component (*B*), regulating interpretation:

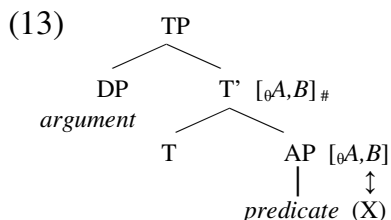
- (11) [$\theta A, B$]: *A*: argument-licensing component
 B: binding component

B is a syntactic means of ensuring that the semantics of the element introducing *B* is consistently transferred to its argument. In (12), *B* maps to the variable *X*, where *X* represents the predicate's semantics; application of *B* to its argument ensures that *X* obtains its semantic referent:

⁴ This is a slight simplification, and will be refined later.



But alone, *B* cannot license an argument. It characterises the anaphoric component of the predicate above, in the same way that it characterised the anaphoric properties of PRO in (6). Once bound, PRO's referentially deficient features are identified, but it in turn does not license the syntactic argument that values its features; this property PRO shares with overt anaphors, which also need valuation from, but do not license, their antecedents. It is the *A*-component which ensures that the predicate's adicity, and the number of arguments directly relating to that predicate in the structure, correspond. (13) repeats (12), incorporating *A*'s contribution. Again *B* maps to *X*, and its application to the argument results in *X*'s reference being filled. But the DP is licensed by *A*, requiring a case-marked argument as it does. Collective application of *A* and *B* amounts to θ -role assignment:



The fact that *A* controls argument number suggests that it is *A* which falls within the purview of the θ -criterion, whereas *B*, mediating interpretation, is a better candidate for regulation under Principle A of the binding theory (Manzini (1983) and Koster (1987)).

A non-atomic approach to θ -roles is independently motivated in Samek-Lodovici (2003), who develops a way of explicitly representing the correspondence between elements at Argument Structure (AS) and those at Lexical Conceptual Structure (LCS). Chiefly, what this work illustrates is that the formal and the 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, and that there is a heuristic value in making this existence explicit. Samek-Lodovici splits arguments are into two components, where one of these exists at both levels of representation. (14) shows his representation of transitive *freeze* (his (2)):

- (14) a. AS: freeze (x_j (y_k))
 b. LCS: CAUSE ($W_{j,}$ (BECOME (Z_k , ICE)))

At the AS-level (14a), the verb's two arguments are represented by the two variables, x and y , as well as their accompanying subscripts, j and k respectively. The variables express the predicate's adicity, whilst the subscripts determine that argument's interpretation. The same subscripts accompany the LCS variables in (14b), ensuring a constancy in thematic interpretation between LCS and AS. Translated into the present proposal, transitive *freeze* would be represented like this⁵:

- (15) a. AS: freeze $([\theta A, B] \quad ([\theta A, B]))$
 | |
 b. LCS: CAUSE (W, (BECOME (Z ICE)))

The θ -roles at AS-level (a) comprise A and B . The A s correspond to (14)'s x and y variables, and the B s to the subscripts j and k . Thus the A s regulate argument number, whilst the B s govern interpretation. Direct linking of the B s to the semantic variables (W and Z) at the LCS-level, ensures constancy in interpretation between the two levels.

Support for thematic operations singling out one of the sub-components comes from Italian light-verb constructions. Samek-Lodovici traces their make-up to different sources: whereas argument number is determined by the verb from which the light-verb is derived, its interpretation comes from the verb-nominal with which the verb is combined. An example will clarify. These constructions comprise a verb and a verb-nominal, where the verb loses its original interpretation to that of the verb-nominal. So in the light-verb construction below, the di-transitive verb *give* combines with the verb-nominal, *a washing*, which taken together mean 'to wash'. That the di-transitive has lost its original meaning is evident from the impossibility of *a washing* being literally interpreted as the direct object of *give*:

- (16) Dare una lavata alle camicie
 to.give a washing to.the shirts
 'To wash the shirts' (Samek-Lodovici's 3)

To derive the light-verb's meaning, I invoke some thematic operations based largely on Samek-Lodovici (2002), but slightly reduced and applied directly to the A - and B - components. The first, *erasure*, targets the B s, erasing them all, but leaving the A s in tact, so the verb's original number of arguments is not altered:

- (17) dare $(A, B (A, B (A, B))) \rightarrow \text{dare}_{\text{light}} (A(A(A)))$

⁵ This rendition does not represent the linking from LCS to AS in a more economical way than Samek Lodovici, a task not tackled here.

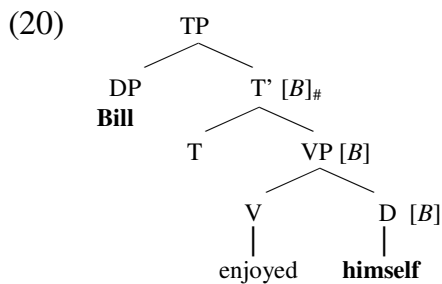
The same operation now targets the formal components of the verb-nominal (i.e. the *As*), this time bypassing the *Bs*, and so not interfering with its meaning:

$$(18) \quad \text{lavata } (A, B(A, B)) \rightarrow \text{lavata } (B(B))$$

Now the operation *combine* joins the verb's *As* with the verb-nominal's *Bs*, resulting in the light-verb, which inherits the verb-nominal's meaning. The light-verb's number of arguments is exactly one less than that of the original verb. This is because the final *A* is applied to the nominal, its complement:⁶

$$(19) \quad \text{dare}_{\text{light}} (A(A(A))) + \text{lavata } (B(B)) \rightarrow \text{dare una lavata } (A, B(A, B))$$

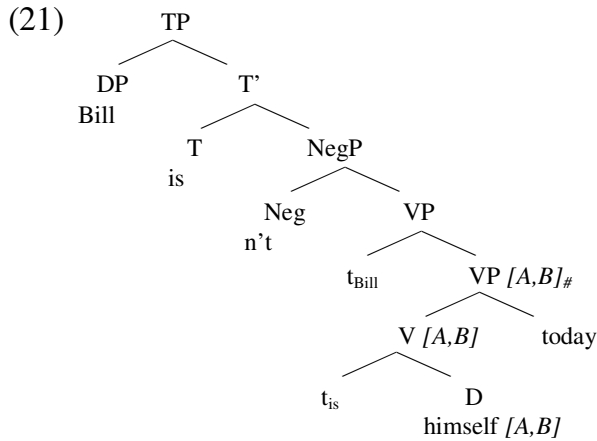
It is not only for thematic operations that θ -role-components require explicit representation, since they are also accessible to syntactic operations. Like an OC clause, a reflexive is referentially defective, being dependent for interpretation on a fully referential antecedent. The introduction of *B* by the reflexive represents this need for an interpretive link. In the tree below, the binding relation is established when *B* is discharged from the DP's sister node:⁷



But when used predicatively, such as in *Bill isn't himself today*, a reflexive introduces both *A* and *B*, i.e. a complete θ -role:

⁶ For details and further corroboration of the original analysis see Samek-Lodovici (2003); the above examples serve only to motivate independently a non-atomic approach to theta-roles.

⁷ This is a simplification; a minor revision will be introduced in section 2.4.2.



Although (20) has shown that *B* can be introduced in isolation, it seems as though this cannot be true of *A*, since whatever *A* is applied to must be given some kind of interpretation, which in the absence of *B* is impossible. But an example of where only *A* exists, might be the quasi-arguments of weather verbs (22). These are different from θ -less expletives (23), which show up when a finite sentence needs a subject, but not otherwise:

- (22) a. Gestern regnete *(es) Yesterday rained it
'It rained yesterday'
- b. Gestern hat *(es) geregnet (German)
Yesterday had it rained
'It had rained yesterday'

- (23) a. *(Es) wurde getanzt There was danced
'There was dancing'
- b. Gestern wurde (*es) getanzt
Yesterday was (*there) danced
'There was dancing yesterday'

The semi-argument status of these weather expletives might be explained if their predicates introduce an *A*-component only. This would answer for the contrast between (22b) and (23b) where 'weather it' remains present obligatorily regardless of EPP requirements, whereas the real expletive in the latter example is banned once EPP requirements have been met.⁸

So far I have put forward an argument that θ -roles be represented as composite, rather than atomic elements, accessible to both lexical and syntactic operations. They consist of two selectional requirements, *A* and *B*. *A* demands a case-marked

⁸ It has been suggested that these quasi-arguments can control:

1) It_i sometimes rains after PRO_i snowing (Chomsky 1981, p324)

That this is control is not crystal clear, but if it is, and 'snow' and 'rain' both introduce an *A*, the identification (see section 2.5.1) of these components, and subsequent assignment to the expletive would not cause a problem semantically, since there is no sense in which 'it' can literally snow or rain.

DP, which, on saturating *A*, manifests itself as the verb's syntactic argument. *B* is an interpretational requirement, ensuring interpretative correspondence between the verb and its argument. Their independent syntactic effects have been seen for anaphoric binding, regulated by *B*, whilst the semi-argument status of weather-verb expletives receives some account if they only introduce *A*. The next sub-section introduces restraints operative on the percolation of θ -role components, with a view to reflecting the distinction between predication on the one hand and anaphoric binding and OC on the other. Predication is subject to a still tighter locality constraint than both anaphoric binding and OC, and on this basis a case will be made for representing predication using both *A* and *B* in unison, whilst the latter two relations will only require *B*.

2.2 Predication vs. OC and anaphoric binding

Predication cannot cross clause boundaries, whether finite or not:

(24) *I said today that John met Mary nude yesterday

(25) *I persuaded John to meet Mary nude in Trafalgar square⁹

This locality restraint can be formulated as a ban on a complete θ -role percolating beyond CP. Unlike predication, anaphoric relations can be established across infinitival CPs:

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

That these are anaphors, not to be subsumed under logophoricity, is suggested by the following examples, which illustrate a clear demarcation between anaphors and pronouns, the former requiring a local antecedent (a), the latter banning them (b):

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

These properties separate them clearly from logophors, which can do without an antecedent altogether, and share the distribution of pronouns:

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

⁹ Where it is John and Mary who are meeting in Trafalgar square. All but one of the speakers I asked agreed with this judgement. Presumably this particular person is able to extrapose PPs.

We saw earlier (see (20)), that a reflexive only introduces the binding requirement *B*. The cross-CP binding of the reflexive in (27) can be understood if *B* percolates freely beyond *infinitival* CP. This would mean that the problem with the predication examples in (24) and (25), i.e. the reason that the θ -role could not percolate further, lies with *A*.

2.3 Regulating A and B

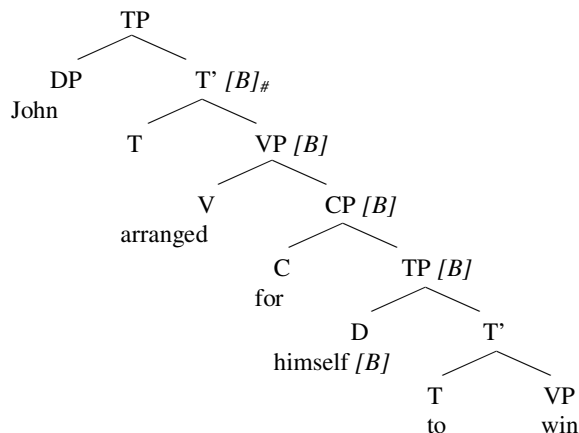
A system that depends on the percolation of isolated selectional requirements needs some kind of mechanism of regulation, for which I turn to the Elsewhere Principle (see Kiparsky 1973), which gives precedence to a more specific rule over a more general one. The context for predication is more restricted than the context for anaphoric binding, since, as we have just seen, the former relation cannot be established across any CPs, whilst the latter can. Couched in terms of the current analysis of θ -roles, whole θ -role percolation (predication) is a sub-set of that for percolation of its sub-components (binding). A formulation of the Elsewhere Principle as below will ensure that priority is given to the narrower context, namely that of whole θ -percolation:

- (29) Assume 2 competing rules, A and B, operating in 2 domains of application, D^A and D^B respectively. Rule A blocks Rule B from applying in D^A whenever D^A forms a sub-set within D^B .

So when whole θ -role percolation (in this case predication) can apply, it will. Copying of *B* in isolation (binding) will only occur when the former is impossible, such as across *infinitival* CPs.

For the present example in (26), the reflexive only introduces *B*. By (29) it percolates beyond the CP boundary to its antecedent in the matrix clause:

- (30) John arranged for himself to win



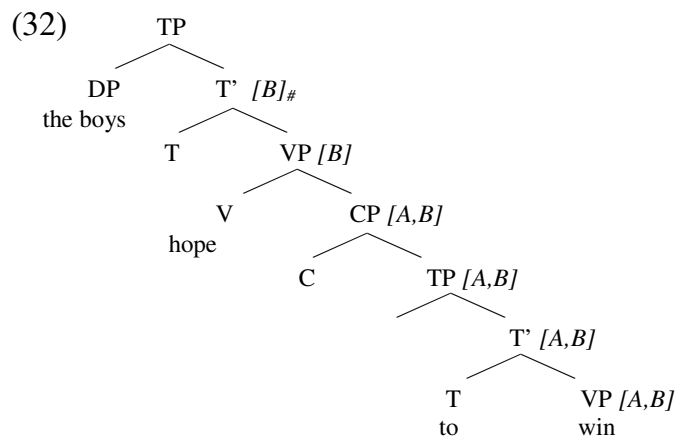
Anaphoric binding and OC share some important similarities, as discussed in Manzini (1983) and Koster (1987). In each case an anaphoric relation is established; with the former the relation holds between the reflexive and its antecedent, whereas with the latter it holds between the infinitive's θ -role and a matrix antecedent. Further, just as reflexives can be bound across CPs, so too are the infinitival complements of control verbs. And in the same way that a reflexive need not agree in case with its antecedent, neither does the infinitival complement make any case demands. The fact that they pattern together, in not being concerned with case, lends weight to an analysis that answers for their respective binding relations with the same mechanism, namely the sub-component of a θ -role that deals with constancy of semantic reference, rather than argument number.

2.4 Controlled infinitivals

In the following OC example, the matrix DP is the understood subject of the matrix control verb and the infinitive:

(31) [The boys hope [to win]]

Under the present approach the infinitive verb's external θ -role consists of A and B : [$\Theta A, B$]. (32) shows how the whole θ -role percolates to CP. In OC environments there is no case that could satisfy the A -component of the external θ -role, and at the same time, the A -component cannot be copied beyond CP. This forces a separation of the A and B components, with only B percolating into the matrix clause, licensed by (29). Assignment of B to the matrix subject secures the anaphoric dependency between the infinitival clause and the matrix subject:¹⁰



¹⁰ A modification to θ -role assignment along the lines of Williams (1994) is introduced below.

The next section applies this system to the examples we started out with, namely the binding of reflexives, secondary predication, and floating quantifiers in infinitives, (1), (2) and (3) respectively.

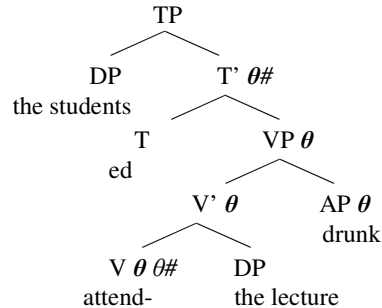
2.5 Re-evaluation of evidence for PRO

2.5.1 *Secondary Predicates*. Example (2), repeated here as (33), adheres to locality by putting PRO in the infinitival clause.

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

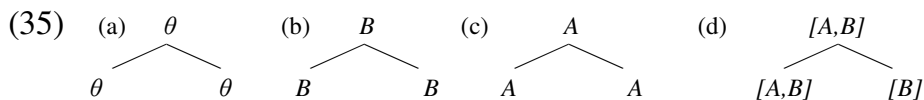
To be a credible alternative, the θ -compositional approach must answer for the data at least as well. Analysing secondary predication as a by-product of θ -role identification, as in Higginbotham (1985), aids us in this respect. In this system an unassigned θ -role of a secondary predicate identifies with an unassigned θ -role of a matrix verb, with the result that the same argument can be predicated of both the verb and the secondary predicate, without tampering with the Θ -Criterion:

(34) The students attended the lecture drunk

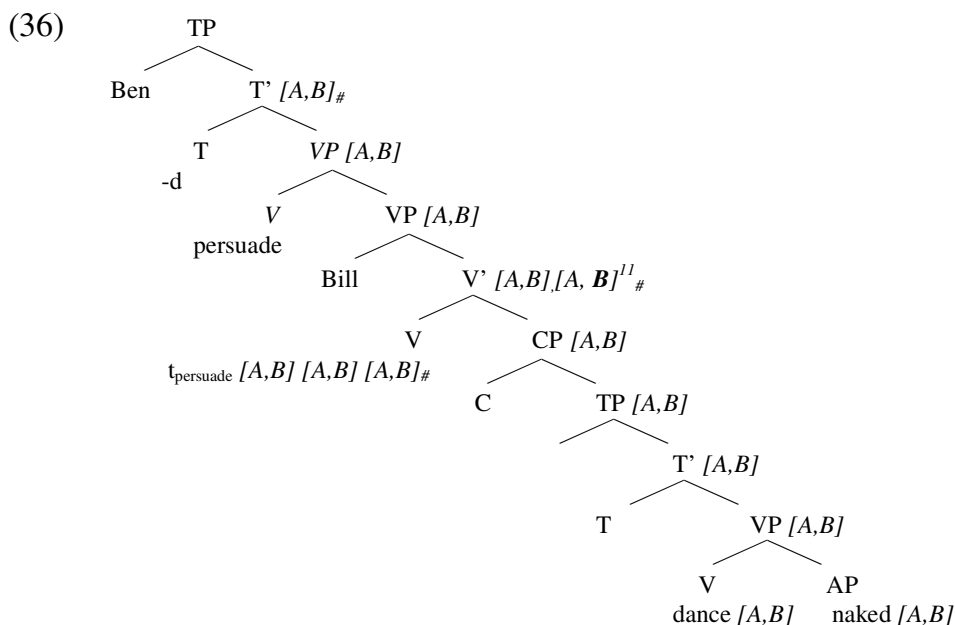


The external θ -role of the verb percolates to VP, as does that of the secondary predicate. Here, the two identify, becoming one. This composed θ -role is then applied to the subject, enabling it to act as antecedent to both verb and secondary predicate.

The present proposal takes this notion of θ -identification, and like Neeleman and van de Koot (2002) generalises it beyond secondary predication. That is, it will be assumed that whenever two isolated θ -roles (a), or their component parts (b and c), meet on a node, they will identify, effectively collapsing into one. Identification is now extended to the scenario in (d): when a complete θ -role, $[\theta A, B]$ meets a sub-component, B , then B identifies with the B -component of the complete θ -role.



With these in place we can represent the relation between a secondary predicate in an infinitival clause and a matrix antecedent. Merging the infinitive verb with the secondary predicate first, results in their unassigned θ -role's identifying on VP, (35a). This composed θ -role continues till CP, where A 's limitation to CP, permits B , under regulation of (29), to continue in isolation. B searches for $[_\theta A, B]$, or another $[B]$. At V-bar B identifies with the B -component of matrix control verb's θ -role of the matrix control verb, *persuade* (see (35d)). This θ -role percolates to VP, where it is applied to the matrix object:

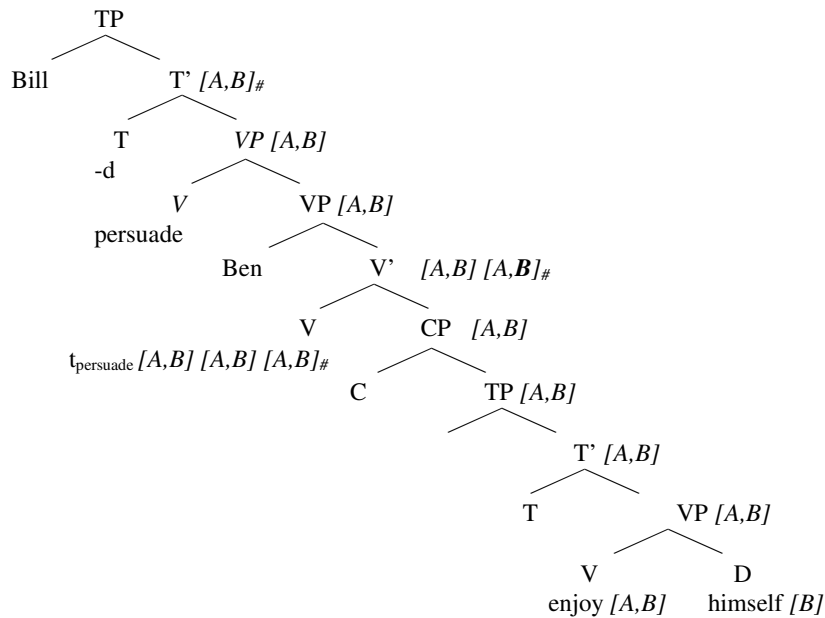


2.5.2 *Reflexives*. A representation of the binding of reflexives in infinitivals, (1), does not depend on PRO either. As demonstrated in (20), the reflexive introduces the binding component, B . But now I incorporate a modification based on Williams (1994), where the antecedent of an anaphor is taken to be an unassigned θ -role, rather than the DP to which this θ -role is ultimately applied. So in the tree below, the B -component introduced by the reflexive is bound by the external θ -role of the infinitive verb, *enjoy*. By (35d) these two identify on VP, and this composed role percolates on. But on reaching CP, the whole θ -role cannot continue, and *Elsewhere* kicks in, licensing separation of A and B . On V-bar B identifies with the internal θ -role of the matrix verb, *persuade*, (again, as in (35d)) and subsequent

¹¹ = $[A,B] + [B]$

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 to the reflexive:

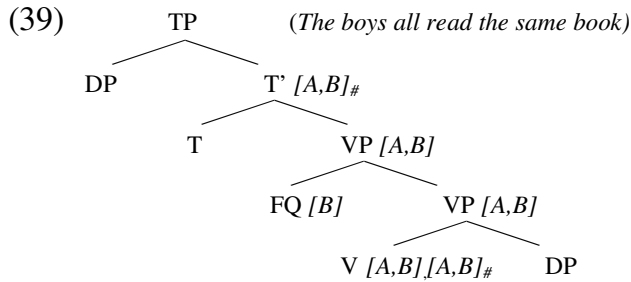
(37) [Bill persuaded Ben [to enjoy himself]]



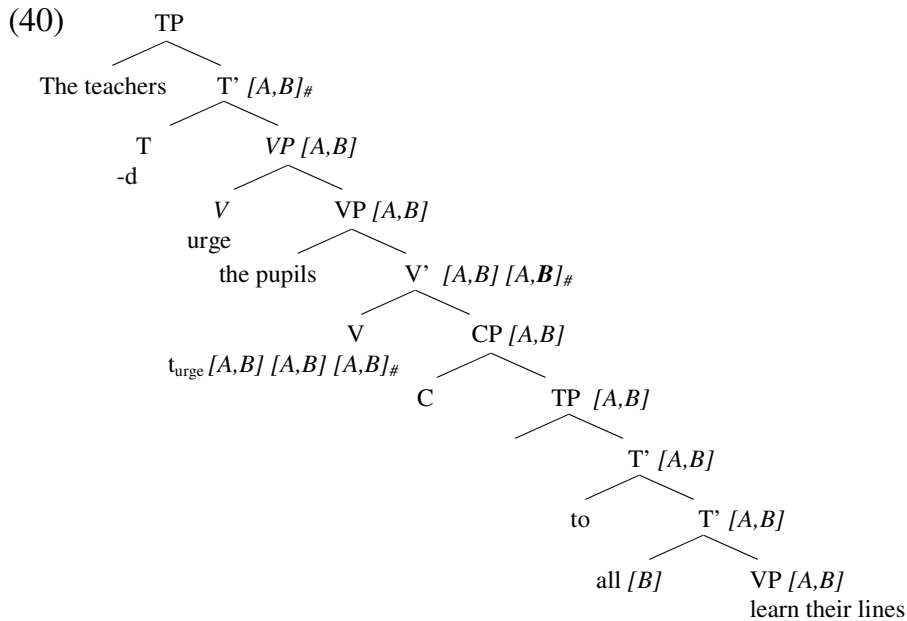
2.5.3 *Floating Quantifiers*. Finally I turn to (3), and to the locality conditions of floating quantifiers (FQs) in infinitivals:

(38) The teachers urged the pupils_i [PRO_i to all_i learn their lines]

Drawing on an earlier analysis in Janke and Neeleman (2005), FQs are analysed as anaphoric adverbials that must left-attach to a verbal category. As an anaphor, an FQ will be licensed in the same manner as the reflexive in (30), so will introduce the binding component, B , which must be bound by an unassigned θ -role. So in an example like (39) the FQ *all* is bound by the verb's external θ -role, by means of its B -component identifying with the B -component of the external role. The composed θ -role percolates to T-bar, where it is applied to the subject. In this way the FQ is interpretively associated with the DP satisfying the θ -role that binds it.



The representation for (38) proceeds in similar fashion. The FQ introduces *B*, which identifies with the infinitive verb's external θ -role. At CP the θ -role components separate, whole θ -role percolation being barred across this boundary. *Elsewhere* permits *B* to percolate on, which it does until meeting the unassigned internal θ -role of the matrix verb, with which it identifies. Subsequent assignment of this θ -role to the matrix object secures the interpretive linking of the FQ with the matrix object DP:



2.6 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 govern them. In each case the mechanism used has been the introduction of a selectional requirement by a syntactically dependent element and its percolation to an antecedent. The dependent element was the

controlled infinitival clause (32), the secondary predicate (36), the reflexive (37), or the FQ (38), whereas the antecedent was the DP in the matrix clause from which these dependents gained their reference. Having answered for these constructions without a null-subject, I turn to Icelandic quirky-case phenomena, which on the surface suggest that ridding the grammar of PRO might be premature. I start by introducing the Icelandic agreement pattern, and then outlining how a compositional approach can answer for the recalcitrant data, with a view to showing its advantages over a PRO-based one.

3 The case system in Icelandic

This section aims to show that despite the peculiar case and agreement system of Icelandic, there is no need to appeal to PRO. In this language, adjectives, participles, secondary predicates and FQs inflect for case and phi-features, showing agreement with their subject. 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 patterns with non-case-marked elements (ie NP-trace) rather than case-marked elements (wh-trace) with regard to *wanna* contraction, in not blocking contraction (see Jaeggli 1980, Berendsen 1986, Hornstein 1999, 2001), casts doubt on this analysis. Equally, it remains unanswered as to why this subject cannot be overt. If, as is argued here, there is no PRO in that position, both the contraction data and the reason as to why there can generally not be an overt DP in this position are unproblematic: with nothing to intervene, contraction is unhindered, and if there is nothing there, this ‘nothing’ cannot be overt. But this returns us to the unanswered agreement facts, the focus of this section. A brief description of the case and agreement properties of Icelandic will be given, followed by an analysis for the pattern shown, with the overall aim of putting the mechanism mapped out in the previous section to work on more controversial Icelandic data. I begin by contrasting the case and agreement possibilities of regular adjectives with that of quirky adjectives. Whereas the former take nominative subjects and show morphological case- and phi-agreement with these subjects, quirky adjectives, whose subjects are lexically case-marked, bear a default form. I go on to introduce a mechanism that will account for the peculiar agreement facts of Icelandic. A simple rule of combination joins regular adjectives with their affixes, whereas quirky adjectives are stored lexically, linked to their case forms. On entering the syntax this distinction is masked, but their contrastive agreement behaviour will be explained by a simple Economy principle, which is sensitive to their differing

histories. Economy also answers for the peculiar subject-verb agreement facts. The presence of main verb agreement correlates exactly with regular adjectives, being entirely absent when the verb is quirky. By incorporating an idea dating back to Jakobson (1935/1966), which put loosely, states that arguments may be licensed in more than one way, it will become clear why regular verbs must, and quirky verbs cannot, agree with their subjects. More specifically, verb agreement has a licensing capacity absent from non-agreeing verbs, so a verb that agrees with its subject, licenses it in virtue of that agreement. In the absence of such agreement, licensing of the subject is procured through case. With the agreement facts in section 3 in place, it will become possible in the next section, to turn to the overall aim, namely to answer for the agreement found in Icelandic infinitival clauses, using the mechanism set out in the first half of this paper. Its success in doing so, will remove the need for any reliance on PRO.

3.1 Regular and Quirky predicate agreement

In Icelandic a regular adjective always shows agreement with the argument it qualifies, in both case and phi-features. This is demonstrated in the examples below, which have a masculine, feminine and neuter argument, in (a), (b) and (c) respectively, and in each instance the adjective agrees with its antecedent:

- (41) 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)

The agreement pattern of regular predicates contrasts with that of ‘quirky’ ones, a small class of Icelandic verbs/predicates, chiefly characterised by their requiring non-nominative subjects. The case on these quirky predicates’ surface subjects cannot be predicted on the basis of syntactic structure, but is an idiosyncratic phenomenon, peculiar to each predicate. Examples are given below.

- (42) a. Henni var kalt b. Hana vantadi vinnu c. Hennar var saknad
Her(D) was cold Her(A) lacked job(A) Her(G) was missed
‘She was freezing’ ‘She lacked/needed a job’ ‘She was missed’ (by somebody)

(Sigurðsson 2002 his (2),(3),(4))

The rigidity they display, in terms of the case they require on their subjects, can be 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 will assign, (43). In this way it is θ -dependent, in that its locus of case-assignment is inextricably bound up with that of the θ -role.

(43) kalt : [θ^{CASE}]

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 (44), where the quirky adjective, *kalt*, which requires a dative subject, is given a nominative.

(44) a. Henni var kalt b. *Hún var kalt
 Her(D) was cold She(N) was cold
 'She was freezing' 'She was freezing'

Unlike quirky adjectives, a regular adjective is stored in the lexicon linked only to a bare θ -role. Morphological endings also have their own lexical entries, which in Icelandic amount to four case possibilities, namely 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 de 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:

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

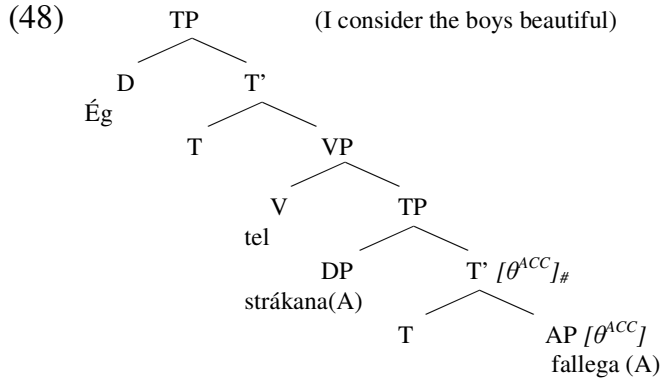
The combining of a regular adjective with a morphological ending will result in the representation in (46).

(46)
$$\begin{array}{c} A \theta^{CASE} \\ \diagdown \quad \diagup \\ A \theta \quad \quad \quad AFFIX (CASE) \end{array}$$

The result will be 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 inherently:

(47) (a)
$$\begin{array}{c} A \theta^{CASE} \\ \diagdown \quad \diagup \\ A \theta \quad \quad \quad AFFIX (CASE) \end{array}$$
 (b) $A \theta^{CASE}$

The mechanism responsible for morphological case-agreement on the adjectives in (41) is demonstrated using (41b), repeated here as (48)¹². 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:



Unlike regular adjectives, which as we saw in (41), agree obligatorily with their subjects, quirky adjectives invariably bear a default form, namely 3rd person, nominative, singular, being absolutely barred from agreeing in case with their subjects:

- (49) a. Honum er kalt b. *Honum er kaldum¹³
 Him_(D3sg) is cold_(dflt) Him_(D3sg) is cold_(D)

These predicates' compulsory default status can be understood in terms of an Economy principle, which essentially states that the output of a linguistic operation must 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 (50a), stored lexically with its case-specified θ -role, might combine with a separately stored morphological case ending, as in (50b):

- (50) (a) kalt: θ^{DAT} (b) AFFIX (DAT)

Once combined, as in (51), 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:

¹² The remaining phi-features of the adjective, namely gender and number, also match those of the argument it qualifies. An account of phi-feature agreement is given in section 4.4

¹³ 'Cold' in Icelandic has two possible forms, one quirky, the other regular. This example represents the quirky variety inflecting for dative case, which is barred. Alternatively it could be interpreted as a regular predicate, but as such it must take a nominative subject so is again barred.

The empirical basis for this argument is not inconsistent with Sigurðsson (1993), where, building on work by Holmberg (1985) and Taraldsen (1994), it is noted that structural case correlates with the presence of agreement, and inherent case with its absence. But in Sigurðsson's work it is crucial that nominative case is a proper case, structurally assigned, because subject-verb agreement is tied to a featural correlation between a head and its specifier. The clausal case feature is considered weak/unspecified, requiring a strong/specified counterpart on inflection. This featural matching surfaces as visible agreement on the verb. In contrast, inherent case is specified and so coincides with the non-agreeing (weak) forms characterising quirky verbs. What all these approaches agree on is 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 present account does not aim to answer for the agreement pattern via spec-head agreement, and so avoids the introduction of non-specified features that in turn require agreement projections to house them. The claim that nominative case is no case is controversial, and rejected in Sigurðsson (1991, 1996), so the next section concentrates on providing some support for it.

3.2.2 Bi-modal argument-marking. A number of arguments are provided by Neeleman and Weerman (1999) in support of nominative case being a misnomer; here I concentrate on two. Firstly, in an agglutinative language such as modern 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:

(55) Modern Turkish paradigm for 'hand'

Singular:	Plural:	
<i>Nom</i> el	<i>Nom</i> eller	
<i>Gen</i> elin	<i>Gen</i> ellerin	
<i>Dat</i> ele	<i>Dat</i> ellere	
<i>Acc</i> eli	<i>Acc</i> elleri	
<i>Abl</i> elden	<i>Abl</i> ellerden	
<i>Loc</i> elde	<i>Loc</i> ellerde	(N & W'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 affix.

On the assumption that heads 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 verbs to select a nominative DP. Lexical case selection is not regulated by any structural rules of the 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):

- (56) Henni þóttu þau fyndin
 Her(Dfsg) thought(3pl) they(Npl) amusing
 ‘She found them amusing’

This does not refute the prediction that verbs should not be able to select a nominative complement because nominative case on the object is not determined by the property of a particular verb, but by the structure in which the verb appears, and so is not an example of lexical selection.

In Sigurðsson (1996) it is noted that adjectives which show nominative agreement in finite clauses become accusative in ECM clauses. In (58a) the adjective has nominative, masculine, plural agreement, whereas in the ECM structure in (57b) its ending becomes accusative in accordance with the accusative subject of its clause (Sigurðsson’s (27),(28)):

- (57) 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)

If we pay attention to the main verb, rather than just the adjectival agreement, we can see that the data is in line with the claim that main verb agreement is in complementary distribution with case on the subject. In (a) the adjective lacks case-agreement entirely, being only inflected for gender and number (analyses for which are provided in section 3.4), whilst the verb, being 3pl, agrees in number and person with its subject. In (b) however, the adjective does agree in case (Acc) with

its antecedent, but the verb, although optional, is crucially without tense, providing support for the claim that an argument licensed through case is not further licensed through subject-verb agreement.

This section has reviewed the case and agreement properties of Icelandic adjectives, and also the agreement properties of main verbs. The incorporation of an Economy principle has answered for the peculiarities of quirky adjectives, whilst an appeal to a bi-modal analysis of argument marking has dealt with the presence versus the absence of main verb agreement: when the main verb agrees with the subject, case marking on that subject is unnecessary, but in the absence of such agreement, case must license the subject. For both regular and quirky adjectives, their case-agreement has been tied to the respective adjective's θ -role and whether or not it combines with a morphological affix. The fact that this θ -role is ultimately applied to the predicate's subject, answers for why case-agreement appears to be tied directly to the subject.

4 Icelandic case agreement in obligatorily controlled infinitives

The agreement properties characterising adjectives do not change once plugged into controlled infinitivals: quirks continue to require a default form, whilst regular adjectives obligatorily agree. It is when we turn to secondary predicates in infinitivals that the need to separate case- from phi-agreement becomes apparent. Whereas the case-agreement on secondary predicates is local, and can be predicted on the basis of the category of the infinitive main verb with which it shares the clause, its phi-features agree with the antecedent in the matrix clause, giving the impression of a long-distance syntactic dependency. But we will see examples that point to a non-syntactic answer for this agreement, leaving case as the only syntactic relation, which behaves exactly as predicted. What this section will show then, is that the mechanism set out in section 2 allows for all the case variations found with Icelandic, whilst precluding impossible ones.

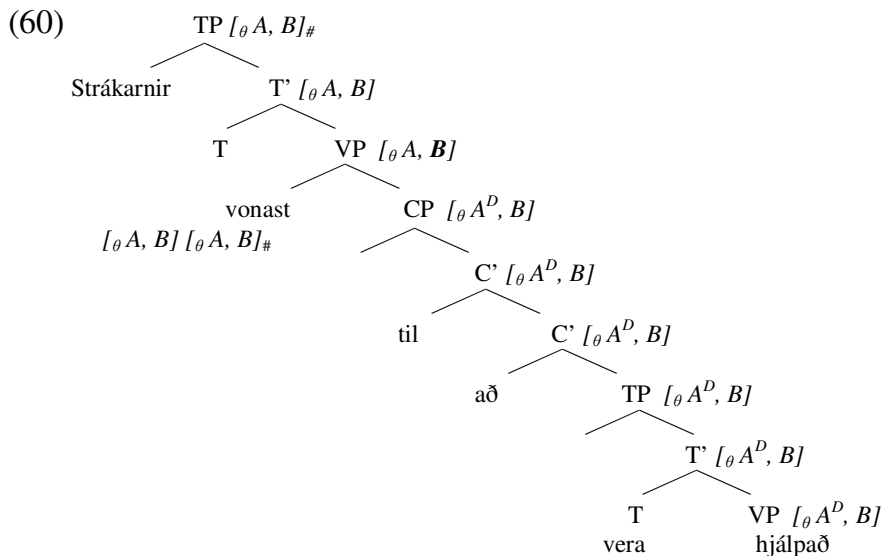
4.1 Quirky Infinitivals

If the agreement behaviour of quirky adjectives is regulated by their local subject in finite clauses, this regulation might also generalise to 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, thus answering for the consistent behaviour of quirky verbs across both finite and non-finite clauses. Just as the dative subject in (58a) is somehow responsible for the default form of the participle, so is the null(dative)-subject in the infinitival clause in (58b):

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

Problems with this account will be addressed in section 5, but for now I turn straight to the alternative based on θ -role decomposition, where PRO is dispensed with entirely. This would work as set out in the tree in (60). The θ -role introduced by the quirky participle consists of two components, by now familiar, *A* and *B*. But recall from (50), that a quirky θ -role must be linked to the case licensed by the quirky predicate in question, so it remains to link this inherent case with a composite θ -role. And 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 syntactically visible dative case feature is linked:

- (59) Quirky (dative) Case θ -role: [θA^D , *B*]



The composite θ -role introduced by *hjálpað* in (60) 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. Continuation of this composed θ -role to the matrix subject establishes the necessary connection between *hjálpað* and the subject it is predicated of.

Having shown the basic workings of the approach for a straightforward case, I turn now to secondary predicates, first illustrating the agreement they show, then answering for this pattern in the same way.

4.2 Secondary predicates in infinitives

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

- (61) a. Strákarnir hittu kennarann drukinn
 boys.the_(Nm,pl) met teacher.the_(Amsg) drunk_(Amsg)
- b. Strákarnir hittu kennarann drukknir
 boys.the_(Nm,pl) met the teacher drunk_(Nm,pl) (Sigurðsson 2002 (72),(73))

In control environments, the case-agreement on secondary predicates varies according to the type of verb used in the infinitival, not the type of verb used in the matrix. This becomes clear in the next set of examples which look at the agreement possibilities for the regular secondary predicate, *drukinn* (drunk), in infinitivals. The secondary predicate is combined with a regular and a quirky participle in the infinitivals in (62) and (63) respectively, but in both of these examples the same regular control verb is used, namely *vona* (to hope), which takes a nominative subject. To control for possible interference from the matrix clause, examples (64) and (65) use a quirky matrix control verb, *vanta*, (to lack/need) which takes an accusative subject, thereby checking whether case on the matrix subject can impact on the case-agreement on the secondary predicate in the infinitival. To sum up, two predicate types - regular and quirky - varying across the matrix and infinitive clauses give four possibilities, and collectively these examples show that the case-endings alternate in the expected direction - quirky case with quirky participles, 'nominative' case with regular ones.¹⁵

- (62) Regular matrix control verb + regular participle in the infinitival clause:

Ekki hafði ég vonast til að vera lamin drukinn
 Not had I_(N) hoped for to be beaten_(Nfsg) drunk_(Nfsg)
 'I had definitely not hoped to be beaten drunk'

- (63) Regular matrix control verb + quirky participle in the infinitival clause:

Ekki hafði ég vonast til að vera hjálpað drukinni/??drukinn
 Not had I_(N) hoped for to be helped_(dflt) drunk_(Dfsg/??Nfsg)
 'I had definitely not hoped to be helped drunk'

¹⁵ Apparently the last two examples might distress the prescriptivist, 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/beaten drunk: the ultimate embarrassment!' (Gunnar Hrafn Hrafnbjargarson pc)

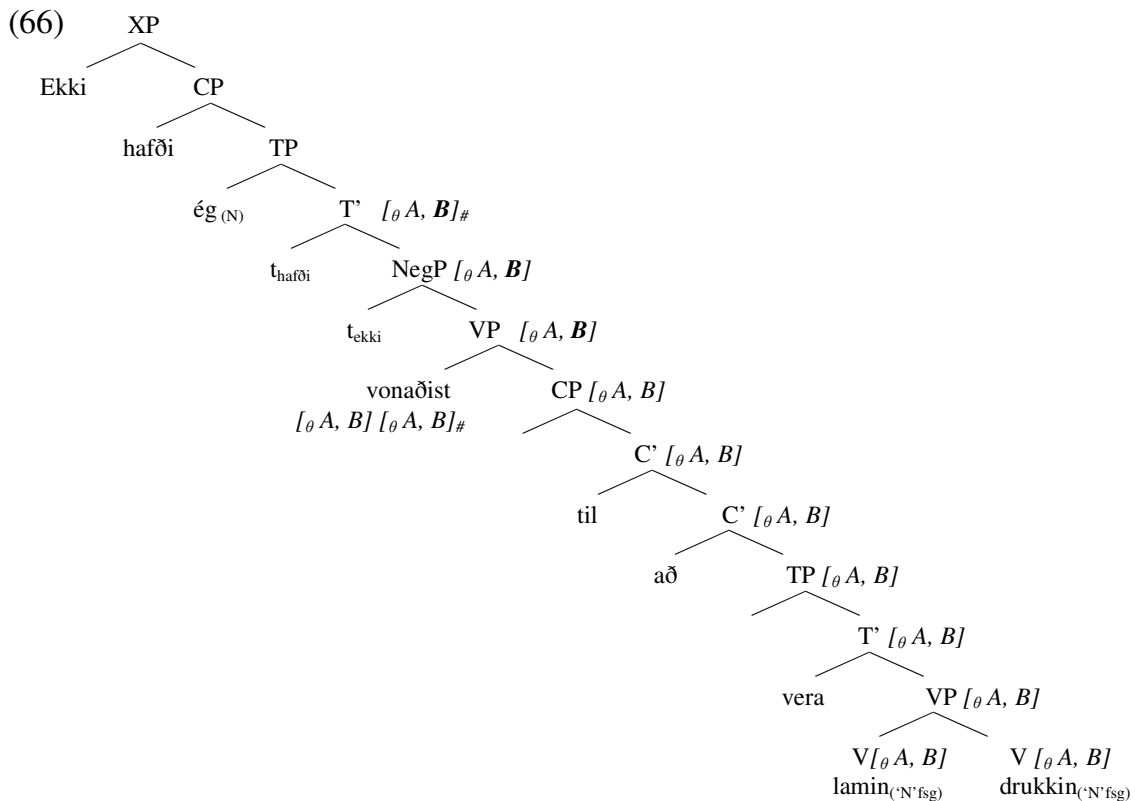
- (64) Quirky matrix control verb + quirky participle in the infinitival clause:

Mig vantaði bara að vera hjálpað drukkinni/*drukkna
 Me_(ACC) lacked only to be helped_(dflt) drunk_(Dfsg/*Afsfg)
 'All that I needed was to be helped drunk'

- (65) Quirky matrix control verb + regular participle in the infinitival clause:

Mig vantaði bara að vera lamin drukkin/*drukkna
 Me_(ACC) lacked only to be beaten_(Nfsg) drunk_(Nfsg/*Afsfg)
 'All that I needed was to be beaten drunk'

The mechanism of θ -role percolation, together with θ -role decomposition lends itself well to answering for these case-agreement possibilities. I turn to (62) first, represented in (66), which is consistent (but no more) with it being the regular participle in the infinitival clause that decides the secondary predicate's case-agreement, as opposed to the matrix control verb.

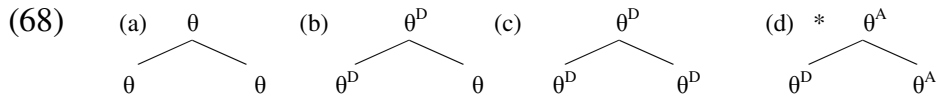


Recall that regular predicates are not inherently linked to any particular case, but combine with their morphological affix pre-syntactically. But since nominative has

been analysed above as the absence of case, the θ -role complexes of the participle and the secondary predicate in fact lack any case-specification. By (35a), then, these θ -roles identify on the node immediately dominating them, and the resulting composite percolates to CP. As a means of regulating the identification of θ -roles, I incorporate the following condition to rule out conflicting cases:

(67) Theta-Identification Stricture: θ -role-identification must respect linked cases.

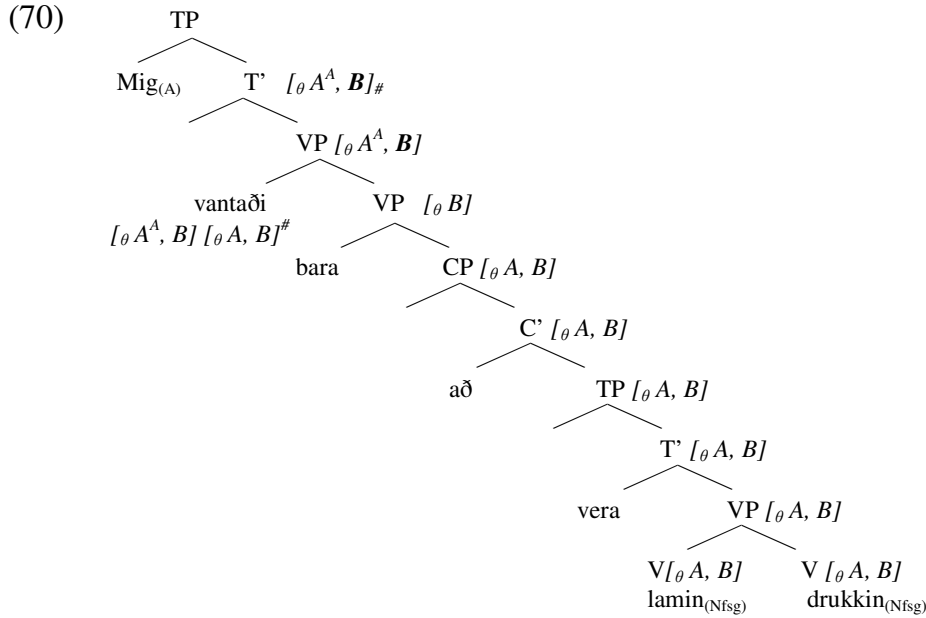
The implementation of this condition will impact on θ -identification by allowing (68a,b,c) but ruling out (68d), where two θ -roles are linked to different cases:



So in (66), identification of the participle's and predicates' θ -roles conforms to this condition, neither of them being specified for case (68a). At CP only *B* continues, and identifies with the *B*-component of the matrix verb's external θ -role, again permitted in virtue of (68a). 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.

Proof that the matrix verb's subject does not impact on the case-agreement possibilities within the infinitival clause, is provided by (65), repeated here as (69), which demonstrates that use of a quirky control verb in the matrix has no effect on the case-agreement on the secondary predicate in the infinitival. That is, case-agreement is strictly local, accusative agreement across the CP being out:

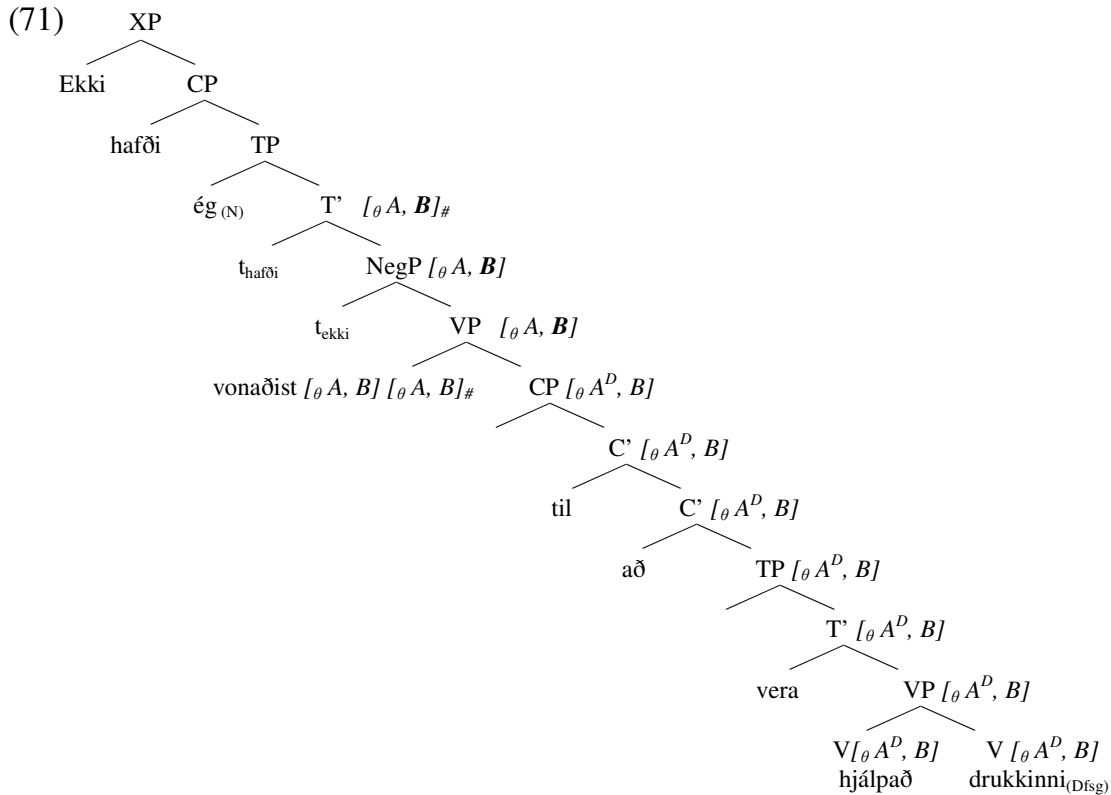
- (69) Mig vantaði bara að vera lamin drukkin/*drukkna
 Me_(ACC) lacked only to be beaten_(Nfsg) drunk_(Nfsg/*Afs)
 'All that I needed was to be beaten drunk'



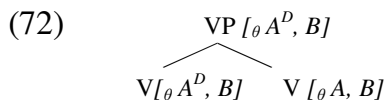
The tree starts as previously, with the two unspecified θ -roles of the regular participle and secondary predicate identifying on VP. At CP B separates from A , continuing until it identifies with the B -component of the matrix verb's external θ -role ((35) and (68)). The external θ -role's accusative linked A -component ensures that on application of this θ -role, the matrix subject has 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.

(63), laid out in (71), 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 a predicate that determines its own case, and *drukkinni* shows morphological case-agreement consonant with the dative-linked θ -role it has identified with. This composed θ -role percolates to CP, at which point only B , licensed by *Elsewhere*, continues to the matrix, and identifies with the B -component of the matrix verb's external θ -role, permitted by (68). This θ -role is then applied to the matrix subject.¹⁶

¹⁶ Ensuring that the predicate phi-features are semantically compatible with the denotation of the subject will require a semantic rule of the sort applicable in pronominal agreement.



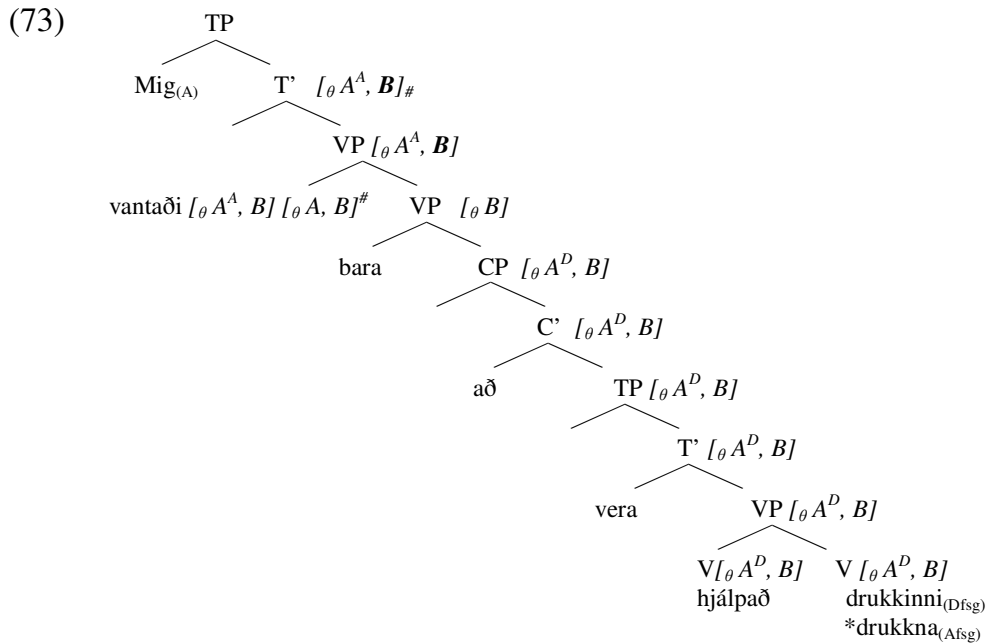
Still without explanation, is that there are some speakers who accept, albeit not completely, a nominative ending on *drunk* in the example above, as indicated in (63). This is not ruled out by Θ -Stricture, since one of the two identifying θ -roles is unspecified for case, a scenario covered by (68b):



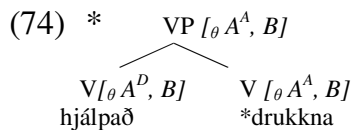
But an appeal to the Elsewhere Principle, as formulated in (29), would answer for this marked reading. This principle gives precedence to a more specified form over a more general one, so the dative marking on the predicate should always be preferred over the ‘nominative’, which according to the present analysis represents an underspecification. And this is indeed true; the nominative although possible is much less acceptable than the dative. The less absolute nature of this principle ties in well with the relative acceptability of the nominative in this construction. The stricture in (67) permits it, yet *Elsewhere* discourages it.

That the agreement of the secondary predicate in (71) is dictated by the participle with which it is combined, as opposed to the matrix subject, is made clear by

comparing it with (64), represented in (73), where an accusative matrix subject fails to trigger case-agreement between it and the secondary predicate in the infinitival:



The impossibility of accusative agreement on the secondary predicate is ruled out by the *Stricture*. Despite *drunk* being a regular predicate, and so not lexically specified for case, by (45), 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 *Stricture*, as formulated in (67): *Hjálpað* has a dative-marked θ -role and *drukkna* an accusative-marked one, prohibiting their identification:



4.3 Secondary predication and θ -identification

Corroboration for an account of secondary predication based on identifying θ -roles is provided by looking at the combination of two quirky predicates in the infinitival. Although it is not easy to embed quirky secondary predicates into control clauses, when they do occur, they are also obligatorily default. This is illustrated in the example below, in which the quirky secondary predicate *kalt* must have no agreement on it if it is to retain its original quirky reading:

- (75) Ég vonaðist til að versna ekki svona kalt
 I hoped for to become worse not so cold
 'I hoped that I would not become worse so freezing'

That a quirky predicate is unable to show agreement in a control clause is unsurprising; they have case inherently, so their behaviour should remain constant irrespective of whether they appear as primary or secondary predicates. But given that they hold inherent case, if two quirky predicates, the one licensing a different case from the other, coincide in an infinitival, this should cause a problem as regards their identification, since both cases will be in competition with each other. We can test this with the example in (76a). Example (a) is predicted to be much worse than (b) because in (a) the relevant predicates clash according to the case of the subject they (would) have; *verkja* takes an accusative subject, whereas *versna* takes a dative. The awkwardness of (a) can be understood as stemming from an inability to resolve the clash of these cases under identification:

- (76) a. *?Ég vonaðist til að verkja ekki svona kalt
 I hoped for to feel pain not so cold
 'I hoped that I would not feel pain so freezing'
- b. Ég vonaðist til að versna ekki svona kalt
 I hoped for to become worse not so cold
 'I hoped that I would not become worse so freezing'

4.4 Phi-features

The phi-features seen on the participles and secondary predicates in examples (62)–(65) behave rather differently from the case-features. Firstly the number features match those of the antecedent in the matrix clause, suggesting that they are not clause-bounded in the way that case is. But secondly, what is made apparent from using the first person in these examples is that gender features cannot even be said to be stemming from the matrix antecedent. The feminine agreement on *lamin*, *drukkinni* and *drukin* in these examples cannot stem syntactically from the matrix subject, since the 1st person has no masculine/feminine distinction. Without any syntactic antecedent, it would be strange to propose that such agreement falls within syntactic boundaries. This supports the claim introduced in the previous section, namely that the phi-features on participles and adjectives must be treated differently from those on verbs, but now more specifically, that they cannot be syntactically regulated.

Taken alone the examples in (62)–(65) give us no reason to suspect that the same is true of number, since in those examples number matches the matrix antecedent.

But I would like to suggest that this is nevertheless so, and for corroboration turn to an example of arbitrary control. The examples that follow show that number agreement on a participle and a secondary predicate is regulated according to the sex of the speaker. Were a male speaker to recite the sentence in (77), the agreement facts would be as in (a), but with a female speaker the agreement must be as in (b). Lastly, if a group of females recite the same sentence the agreement alters to (c).

- (77) a. Að vera **barinn drukinn** er hræðilegt, að vera **barinn nakinn** er ekki svo slæmt.
 To be beaten_(N.m.sg) drunk_(N.m.sg) is horrible, to be beaten_(Nmsg) naked_(Nmsg) is not so bad.
- b. Að vera **barin drukin** er hræðilegt, að vera **barin nakin** er ekki svo slæmt
 To be beaten_(N.f.sg) drunk_(N.f.sg) is horrible, to be beaten_(Nfsg) naked_(Nfsg) is not so bad
- c. Að vera **barðar druknar** er hræðilegt, að vera **barðar naktar** er ekki svo slæmt
 To be beaten_(N.f.pl) drunk_(N.f.pl) is horrible, to be beaten_(Nfpl) naked_(Nfpl) is not so bad

As these examples demonstrate, both gender and number mark these predicates, and whether or not there is masculine/feminine, plural/singular agreement depends on the sex and number of the speaker(s). What it does not depend on is any syntactic antecedent, reinforcing the claim that these phi-features cannot be syntactically regulated. Proponents of a PRO-based account might account for this agreement through PRO:

- (78) Að vera PRO_(Nmsg) barinn_(Nmsg) drukinn_(Nmsg) er hræðilegt, að vera
 To be beaten_(N.m.sg) drunk_(N.m.sg) is horrible, to be
 PRO_(Nmsg) barinn_(Nmsg) nakinn_(Nmsg) er ekki svo slæmt.
 beaten_(Nmsg) naked_(Nmsg) is not so bad.

But note that this only shifts the original problem along a notch, as well as adding a new one. We must now either posit some transferral mechanism from which PRO inherits the necessary features which can be passed on to the secondary predicate, as in Sigurðsson (2003), or introduce multiple instances of this ill-defined element, problems with which are addressed in the next section.

This section has aimed to explain the case and agreement facts of Icelandic secondary predicates in infinitivals using a simple rule of morphological combination and a framework in which θ -roles are syntactic objects, which percolate to their arguments. Implementation of these mechanisms has made it possible to answer for the data without depending on an empty category with spurious properties. I have claimed that case-agreement and phi-agreement must be treated separately, providing evidence that the former is syntactically determined, and so restricted by locality, whereas the latter, which is present with or without a syntactic antecedent, cannot be so. Case-agreement in Icelandic, often the bane of any linguistic generalisation, receives a coherent explanation if this demarcation between case- and phi-features is granted.

5 Alternative accounts for Icelandic agreement

What follows in this section is not a general critique of a PRO-based or movement-based approach to control; but I concentrate on some obstacles these respective approaches meet when trying to account for Icelandic agreement phenomena. But of course the implication is that hampered by such complications, these two approaches seem less appealing than an analysis which through the absence of an empty category can avoid them.

5.1 Case-marked PRO and Icelandic agreement

The examples in (62)-(65) and (77) make it difficult to maintain a small clause, PRO-based, analysis of secondary agreement in infinitivals. In Sigurðsson (2002) it is suggested that the agreement properties of secondary predicates might be transferred via PRO. On this view PRO inherits case, number and gender features from its antecedent, before transmitting these values to the secondary predicate:

(79) Henni leið illa drukkinni
 Her_(Dfsg) felt_(3sg) badly drunk_(Dfsg)
 ‘She felt badly when drunk’ (Sigurðsson 2002 (76))

(80) Her_(D3fsg) felt badly [PRO_(D3fsg) drunk_(D3fsg)]

But an account that answers for the agreement on the secondary predicate using some transferral mechanism faces a number of problems. 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 is used to answer for the agreement on the secondary predicate,

which, as we have seen in section 4.3, varies according to the sex and number of the speaker(s). But notwithstanding this problem, the approach doesn't actually achieve its aim; a fact brought to the fore by changing the example into the first person:

- (81) Mér leið illa drukkinni
 Me_(D1sg) felt_(3sg) badly drunk_(Dfsg)
 'I felt badly when drunk'

As stated earlier, *drukkinni*, bears dative, feminine, singular agreement. But from where could the feminine agreement have originated? In order for it 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 have the 1st person:

- (82) *Me_(D1sg) felt badly [PRO*_(D3fsg)/_(D1fsg) drunk_(D3fsg)]

An alternative would be to say that PRO enters pre-specified, which would amount to our sanctioning multiple lexical entries of PRO, but the proliferation of an ill-defined element such as PRO can only be a setback.

Lastly, as already intimated earlier, if PRO bears case in the way that any overt DP does, why doesn't it pattern with case-marked empty elements and block wanna contraction? The fact that it doesn't, is in line with the view of OC infinitivals put forward here, namely that their subject positions are not case positions, and house nothing at all.

5.2 Control as Movement and Icelandic Agreement

In offering a movement account of control, Hornstein (2000) modifies Θ -theory, sanctioning multiple θ -roles on A-chains. Subsequently, Boeckx and Hornstein (2003) also modify case theory to answer for the quirky case-agreement facts in Icelandic infinitivals: quirky case-marked A-chains may have more than one case. This follows, they say, if one grants the modification of Θ -theory for control: quirky case is θ -linked, so if multiple θ -roles are sanctioned, so too should the quirky case inherent to these θ -roles. Changing a whole module of the grammar to answer for the agreement facts of Icelandic infinitivals seems undesirable from a conceptual point of view. But this argument aside, I think the validity of some of the examples used by the authors is also in question. Consider example (83). This example is used by the authors to mark a distinction between the agreement conditions governing quirky versus structural case. The claim is that whereas

structural case transcends clause boundaries, quirky case is determined locally (Boeckx and Hornstein's 14 and 17 respectively):

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

In order to answer for the data above it is necessary to ensure that we do not prematurely lump secondary predicates, 'semi-predicates' (i.e. alone) and FQs in one basket, because this has led to a mistaken analysis of (84). A short detour is necessary to illustrate this, but the pay off will be a clearer demarcation between these elements, and a better understanding of the agreement facts. Note that Boeckx and Hornstein (2003) depend on examples with 'alone' to represent the category of 'secondary predicates/floating quantifiers', using these terms interchangeably. But elements such as 'alone' do not share the distribution of so-called FQs; where 'alone' is possible in (83), the FQ 'all' is not, either in English or Icelandic:

- (84) a. John asked the boy(s) to come alone
a'. *John asked the boys to come all
- b. Jón bað Bjarna að koma einan/??einn
b'. *Jón bað strákana að koma alla/allir

Under the NP-stranding analysis of FQs (see Sportiche 1988, Bošković 2004), an FQ strands the NP with which it is associated, moving leftward to the clause edge. If 'alone' patterns with FQs, it is rather odd that it can neither appear next to the NP from where it originated, nor to its supposed landing site:

- (85) a. All the boys went to the park
b. *Alone the boy went to the park¹⁷
- (86) a. The boys all went to the park
b. ??The boy alone went to the park¹⁸

The reason this is important is that the agreement facts of 'alone' in Icelandic are rather different from FQs, where the unmarked option is for case agreement to be

¹⁷ Ok with strong intonation or comma.

¹⁸ Again with strong intonation on 'alone', this example improves.

determined locally (a, b, c are from Sigurðsson 1991, his (8) b, c, d respectively, whereas a', b', c' = Sigurðsson pc):

- (87) a. Strákarnir vonast til að vanta ekki alla í skólann
The boys hope for to lack for not all(A) in school
a'. *Strákana langar ekki til að vanta allir í skólann
The boys(A) longed not for to lack all(N) in school
- b. Strákarnir vonast til að leiðast ekki öllum í skóla
The boys(N) hope for to bore not all(D) in school
b'. *Strákana langar ekki til að leiðast allir/alla í skóla
The boys(A) longed not for to bore all(N/A) in school
- c. Strákarnir vonast til að verða allra getið í ræðunni
The boys(N) hope for to be all(G) mentioned in the speech
c'. *Strákana langar ekki til að verða allir/alla getið í ræðunni¹⁹
The boys(A) long not for to be all(N/A) mentioned in the speech

Importantly, the agreement pattern of FQs does not alter in cases of object control, cross-clause case agreement with the matrix object being out:

- (88) a. Jón bað mennina (um) að hlaupa allir/*alla hratt
Jon asked the men(Ampl) to run all(Nmpl/*Ampl) quickly
- b. Jón skipaði mömmunum að dansa allir/öllum hægt
Jon ordered the men(Dmpl) to dance all(Nmpl)/*(Dmpl) slowly

So far then, FQs and semi-predicates seem to pattern rather differently. Now let's look at the agreement facts of secondary predicates, which appear at first to be less clear-cut:

- (89) Jón bað hana að dansa nakin/*nakta
Jon(N) asked her(A) to dance naked(N/*A)
- (90) a. Jón skipaði honum að dansa nöktum
Jon(N) ordered him(D) to dance naked(D)

¹⁹ Default nominatives, however, are apparently not as bad as long-distance agreeing accusatives: a. ??Strákarnir vonast til að vanta ekki allir(N) í skólann
b. *Strákarnir vonast til að leiðast ekki allir(N) í skóla
c. *Strákarnir vonast til að verða allir(N) getið í ræðunni (Sigurðsson pc)

- b. Jón skipaði honum að dansa nakinn
Jon(N) ordered him(D) to dance naked(N)

In (89), accusative agreement on the depictive is not possible, ruling out any controlling of agreement from the matrix object. In (90), however, both dative and nominative are possible. But crucially the interpretation of these sentences differs according to the case agreement on the depictive. With dative agreement (a), the sentence means that he, the object, was naked when Jon ordered him to dance. With the nominative, however (b), the sentence means that he was ordered to dance naked. These varying interpretations demand rather different structures; in the dative, the secondary predicate must be attached high (91), in contrast to the nominative example, which forces low VP-internal attachment (92). These differing structures then, fall in line with the present proposal, which keeps case per se strictly local, rather than Boeckx and Hornstein (2003), where non-local accusative agreement is argued for. When the secondary predicate modifies the object (91), it is generated outside of the CP. But in (92) it is VP-internal, and hence there is no agreement with anything outside the clause:

- (91) [TP Jón [T' [VP skipaði [VP honum [VP [VP t_v [CP [C' að [VP dansa]]]] nöfum]]]]]
 (92) [TP Jón [T' [VP skipaði [VP honum [V' t_v [CP [C' að [VP dansa nakinn]]]]]]]]]]

Now to return to Boeckx and Hornstein's original example, where cross-clause agreement of 'alone' looked possible, a parallel counter argument can be made. I repeat the example below:

- (93) Jón bað hann að koma einan/?einn
Jon asked him(A) to come alone(A/N)

Just as with secondary predicates, different cases on these 'semi-predicates' force different interpretations, which in turn imply varying structures. With accusative agreement (94) the sentence has a partitive interpretation, such that 'it was only him who was asked to come, as opposed to anyone else in the group'. On this reading *alone* cannot be inside the VP, since it must take scope over the object. In contrast, the nominative reading (95), which has the interpretation such that 'he was asked to come by himself' implies that *alone* is VP-internal, explaining its inability to get accusative on that reading: case agreement is strictly local and the matrix object lies beyond its boundaries.

- (94) [TP Jón [T' [VP bað [VP hann [VP [VP t_v [CP [C' að [VP koma]]]] einan]]]]]]]

(95) [TP Jón [T' [VP bað [VP hann [V' t_v [CP [C' að [VP koma einn]]]]]]]]]

To summarise, it seems that FQs, secondary predicates and semi-predicates do all demand locally determined case-agreement. The apparent transgression to this generalisation, were instances of object control where case agreement between an object controller and a secondary or 'semi-predicate' looked possible. But distinguishing their interpretations showed this was not cross-clause agreement at all, since when the predicate in question agrees with the matrix object, it must be attached high, outside of the infinitive, in order to take scope over it. This seems to be a more coherent explanation of the Icelandic agreement facts than that suggested by B & H (2003), where the agreement pattern was concentrated on at the expense of their meanings, resulting in an incorrect analysis.²⁰

²⁰ A potential discrepancy to the generalisations from the data above, is the agreement found with adjectives in infinitive clauses, where cross-CP agreement appears to be possible after all:

- 1) Maria skipaði honum að vera góður/ góðum
Maria ordered him to be good(N)/(D) (Thráinsson 1979)
- 2) Maria bað hana að vera góð/góða
Maria asked hana to be good(N)/(A)

The possibility of the dative or accusative in 1 and 2 respectively, seems to point to case-agreement across CP, but by creating a pseudo cleft of the above examples, the dative and the accusative agreement becomes impossible, perhaps hinting at different structures:

- 3) a) Að vera góður var það sem þau skipuðu honum (að vera)
To be good(N) was it which they ordered him(D) to be
'To be good was what they ordered him to be'
- b) *Að vera góðum var það sem þau skipuðu honum (að vera)
To be good(D) was it which they ordered him(D) to be
'To be good was what they ordered him to be'
- c) Að vera góð var það sem þau bað hana (að vera)
To be good(N) was it which they asked her(A) to be
'To be good was what they asked her to be'
- d) *Að vera góða var það sem þau bað hana (að vera)
To be good(N) was it which they asked her (A) to be
'To be good was what they ordered him to be' (G H Hrafnbjargarson pc)

If it is true that only CPs pseudo-cleft, then the impossibility of creating one with (3b and d) suggests that these infinitives might not have CP status. But as they stand they don't have different interpretations, as would be expected if (3a and c) were a CP and (3b and d) something 'less'. But when modified by a time adverbial, such as 'all day', the picture becomes still murkier. When a matrix verb selecting a dative object, such as 'order' is used, the adjective in the infinitive can be either nominative or dative. With nominative adjectival agreement, two readings are possible (4a and b), but the former is more salient. With the dative, however, only one interpretation is possible, namely that in (5b):

6 Conclusion

This paper has offered a representation of OC, without a null subject to regulate the anaphoric dependency between the infinitival clause and the matrix antecedent. Drawing on the de-compositional nature of θ -roles, independently motivated by Italian light-verb constructions, the subject properties of the controlled infinitive were reinterpreted in terms of the activity of the external θ -role released by the infinitive verb. 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. Not without significance is its relative success in tackling the case-agreement properties of predicates in Icelandic infinitival clauses, phenomena which have so far resisted any unified analysis.

-
- 4) María skipaði honum að vera góður allan daginn
 Maria(N) ordered him(D) to be good(N) all(A) day(A)
 a) Maria ordered him to be good for the whole day (more salient)
 b) All day long, Maria was ordering him to be good
- 5) María skipaði honum að vera góðum allan daginn
 Maria(N) ordered him(D) to be good(D) all(A) day(A)
 a) *Maria ordered him to be good for the whole day
 b) All day long, Maria was ordering him to be good

But when the matrix verb selects an accusative object, the readings become rather different. Whereas the meaning accompanying the nominative remains ambiguous, the accusative, rather than patterning with the dative above, has the exact opposite pattern:

- 6) María bað hana að vera góð allan daginn
 Maria(N) asked her(A) to be good(N) all(A) day(A)
 a) Maria asked her to be good for the whole day (more salient)
 b) All day long, Maria was asking her to be good

The possible meanings associated with the construction when the adjective in the infinitival is accusative is the **reverse** of what was possible in the dative (i.e. b is ruled out rather than a):

- 7) María bað hana að vera góða allan daginn
 Maria(N) asked her(A) to be good(A) all(A) day(A)
 a) Maria asked her to be good for the whole day
 b) *All day long, Maria was asking her to be good

The reasons for this contrast remain to be worked out on a clearer day.

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