What It Means to Agree:  
The Behavior of Case and Phi Features in Icelandic Control  

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1. Introduction

This paper utilizes agreement phenomena in Icelandic control to investigate the nature of the relationship between the controller and PRO. Concord between predicate adjectives and subjects suggests that PRO always bears the controller’s phi features and optionally bears the controller’s case feature. To date, no proposal has divorced this necessary agreement in phi features from the optional agreement in case.

I build on two strands of previous research. The first is the idea that PRO bears standard case – i.e., the case of overt lexical DPs (Thráinsson 1979, Andrews 1981, 1982; Sigurðsson 1989, 1991; Landau 2004, 2006, among others). Additionally, I follow Boeckx and Hornstein (2006) and Landau (2000, 2004, 2006) in utilizing multiple Agree to account for feature transmission. However, I depart from these analyses by arguing that there is an obligatory direct Agree relation between the controller and PRO, which results in phi-feature matching. Crucially, I argue that there is an optional multiple Agree relation which results in case matching.

Additionally, I provide an account of a previously unexplained phenomenon. In control with ‘promise’, optionality in case agreement disappears: PRO cannot bear the case of the controller. I illustrate that this is due to the structural uniqueness of ‘promise’. I propose that the object blocks multiple Agree, preventing the controller and PRO from being assigned case by the same head.

This paper is organized as follows. Section 2 presents the data in light of the relevant literature; Section 3 provides an analysis of the split between case and phi features; Section 4 accounts for the ‘promise’ construction; and Section 5 provides a summary of the proposal.

2. Overview of the data

Control in Icelandic has received a great deal of attention throughout the control literature, particularly with respect to the distribution of PRO and case. Evidence from case concord challenged the idea proposed in the GB framework that PRO is either case-less or bears a null case.1 Many researchers (notably Andrews 1981, 1982; Sigurðsson 1989, 1991; and Thráinsson 1979)2 observed that items which agree with their subjects in finite clauses also ostensibly agree with PRO in control clauses. For instance, predicate adjectives in finite clauses agree in case, gender, and number with the subjects they modify, as shown in (1).

(1) a. þeir (Nom.masc.pl.) eru ríkir (Nom.masc.pl.)  
   they                     are  rich  
   ‘They are rich.’

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1 See Bobaljik and Wurmbrand (2007) for an overview of proposals and challenges to case theory.

2 Additional evidence for PRO bearing case comes from Nominative objects in infinitives. Nominative objects were argued to be licensed when the subject bore a quirky case, as seen in finite clauses.
b. hún (Nom.fem.sg.) verður rík (Nom.fem.sg.)
she will-be rich
‘She will be rich.’ (Andrews 1982:22)

Given this pattern, it appears that the adjectives in the infinitival clauses in (2) agree with their subject, PRO.

(2) a. hana(Acc.fem.sg.) langar til að PROi vera vinsaela(Acc.fem.sg.)
she longs toward to to-be popular
‘She longs to be popular.’ (Andrews 1982:26)

b. hún (Nom) skipaði honum(Dat.masc.sg) að PROi vera góðum(Dat.masc.sg.)
she ordered him to to-be good
‘She ordered him to be good.’ (Andrews 1981:453)

c. ég tel hana(Acc.fem.sg.) vonast til að PROi vera vinsaela(Acc.fem.sg.)
I believe her to-hope toward to to-be popular
‘I believe her to hope to be popular.’ (Andrews 1982:26)

These sentences exemplify three types of control; subject control (2a), object control (2b), and object control embedded under ECM (2c). In all of these examples, the adjective in the lower clause bears the case, gender, and number features of the controller. Because we know that adjectives agree with their subjects, we can deduce that each adjective overtly reflects the features of PRO.

In the recent control literature, data such as (2) have been utilized to advocate the Movement Theory of Control (MTC) (Hornstein 1999, 2003 and Boeckx and Hornstein 2004, 2006). Under this account, a DP trace – not ∏PRO – resides in the subject position of the lower clause. For instance, in (2a) ‘she’ moves from the lower to the higher clause and case concord with the lower clause adjective is established via a functional head agreeing with both the moved DP and the adjective. There is, however, a complexity to this agreement pattern which poses a challenge to the MTC. The adjective in the lower clause can also bear Nominative case, as shown in (3) and (4). 3

(3) a. hana(Acc.fem.sg.) langar til að PROi vera vonsael(Nom.fem.sg.)/vinsaela(Acc.fem.sg.)
she longs toward to to-be popular
‘She longs to be popular.’ (Andrews 1982:26)

b. hún skipaði honum(Dat.masc.sg.) að PROi vera góðurn(Nom.masc.sg.)/góðum(Dat.masc.sg.)
she ordered him to to-be good
‘She ordered him to be good.’ (Andrews 1981:453)

c. ég tel hana(Acc.fem.sg.) vonast til að PROi vera vinsaela(Acc.fem.sg.)/vonsael(Nom.fem.sg.)
I believe her to-hope toward to to-be popular
‘I believe her to hope to be popular.’ (Andrews 1982:26)

(4) Jón bað Bjarna(Acc.masc.sg.) að koma einan(Acc.masc.sg.)/??einn (Nom.masc.sg).
Jon asked Bjarni to come alone
‘Jon asked Bjarni to come alone.’ (Boeckx and Hornstein 2006:595)

According to the MTC, a DP surfaces with the case that it is assigned in the highest position. If case is assigned to the adjective in the lower clause via the same head, Nominative should not be an option. As Bobaljik & Landau (2007) point out, Boeckx & Hornstein (2006) dismiss the Nominative option as marginal, arguing that distance might force a failure of multiple Agree. However, Boeckx & Hornstein acknowledge in a footnote that Nominative is perfectly acceptable for many speakers and

3 In (3), the options are listed in order of preference, as reported by Andrews (1981, 1982).
Bobaljik & Landau provide evidence from native speaker intuitions that the Nominative option is not at all marginal. As both Bobaljik & Landau and Boeckx & Hornstein note, in sentences such as (5) neither Nominative nor the case of the controller is available.

(5) Bjarna langaði ekki til að leiðast einum/*einan/*einn
Bjarni(Acc.masc.sg.) wanted not to to be bored alone(Dat.masc.sg.)*Acc/*Nom
‘Bjarni wanted not to be bored alone’ (Boeckx and Hornstein 2006:596)

The lower clause adjective is necessarily Dative because leiðast ‘be bored’ requires a dative subject. Boeckx & Hornstein propose that the quirky Accusative in the higher clause cannot be assigned across a clause boundary. However, Bobaljik & Landau point out that structural Accusative also cannot be assigned across a clause boundary when the lower clause predicate requires a quirky subject, as in (6), which is based on Boeckx & Hornstein’s example (7).

(6) Jón bað hann að leiðast ekki einum/*einan/*einn
Jon asked him(Acc.masc.sg.) to be bored not alone.(Dat.masc.sg.)*Acc/*Nom
‘Jon asked him to not be bored alone.’ (Bobaljik and Landau 2007:5)

(7) Þeir segja hana(Acc) virðast (vera) ríðka(Acc)/*rik (Nom)
they say her to-seem (to-be) rich (Andrews 1982:25)

(8) Jón taldi Bjarna hafa hlaupið einan/*einn
Jon.Nom considered Bjarni.Acc have run alone.Acc/Nom
‘Jon considered Bjarni to have run alone.’ (Boeckx and Hornstein 2006:601)

While it seems that there are reasons to question the MTC in light of the Icelandic data, it is not clear that previous non-movement accounts can adequately explain the data either. In particular, the debate surrounding these data has focused on case. However, the examples in (3) - (6) show that irrespective of the case borne by the adjective, it always agrees in phi features (gender and number) with the controller (or moved DP in the MTC account).

Both Landau (2000, 2004, 2006) and Boeckx & Hornstein utilize multiple Agree to account for feature transmission. Under Landau’s account, the relationship between the controller and PRO is mediated by functional head, shown in (9).

(9) [F [controller] [CP..PRO]]
    Agree

Likeeise, as discussed above, Boeckx & Hornstein propose that the same head assigns case to the moved DP and the adjective, as shown in (10).

(10) F...[[NP] [FQ/SP]]
    (Boeckx and Hornstein 2006:599)

Neither of these accounts would predict phi feature agreement in the absence of case agreement. Following Landau’s proposal, F should ensure that both elements share all features. Following Boeckx & Hornstein’s proposal that Nominative surfaces in the infinitival clause when multiple Agree fails, we should also see instances of phi feature agreement failing.
Additionally, an observation made by Andrews (1981) has gone unexplained in the literature. In control with ‘promise’, case optionality disappears. The lower clause adjective is necessarily Nominative. As shown in (11), phi features agree, but curiously, Accusative is not an option.

\[ \text{they believe her to have promised him to be good} \]

‘They believe her to have promised him to be good.’ (Andrews 1981:453)

The proposal presented in this paper divorces the mechanisms under which case and agreement relationships are established. Thus, we can account for the three descriptive generalizations outlined above: (1) necessary phi feature agreement in all constructions; (2) optional case agreement in the absence of an embedded quirky PRO; and (3) necessary case non-agreement with ‘promise’.

3. The case and phi feature divide

In this section I argue that control necessarily involves phi feature transmission from the controller to PRO via a direct Agree relationship, contra Landau’s (2000, 2004, 2006) indirect relationship shown in (9). This accounts for why phi features are always transferred and there is no optionality. Conversely, there is no direct transfer of case from the controller to PRO. The functional head that assigns case to the controller optionally assigns case to PRO via multiple Agree (Hiraiwa 2001). When PRO bears Nominative, the head that assigns case to the controller does not assign case to PRO and Nominative surfaces as a default. When PRO bears quirky case, the higher functional head only assigns case to the controller because PRO is not visible. In control with ‘promise’, I argue that the Dative object is late merged. In this construction, the object blocks case transmission, but not phi feature transmission.

3.1 Theoretical assumptions

I follow Landau’s (2004, 2006) proposal that PRO has a [-R] feature. In order for its reference to be established, PRO must enter into an agreement relationship with the controller. The result of this relationship is that PRO and the controller necessarily bear the same phi features.

I assume that like overt DPs, PRO needs to be assigned case. I follow Schütze’s (2001) proposal that DPs which are not assigned case in the syntax receive default case at Spell-Out. According to Schütze (2001): “The default case forms of a language are those that are used to spell out nominal expressions (e.g., DPs) that are not associated with any case feature assigned or otherwise determined by syntactic mechanisms” (Schütze 2001:206).

Finally, I assume a system of feature matching, schematized in (12), which ensures that adjectives and their subjects bear the same features.

\[ \text{T° } [[\text{DP(subject)}] [\text{AP}]] \]

The structure in (12) resembles the multiple Agree structure proposed by Landau (2000, 2004, 2006) for control and by Boeckx and Hornstein (2006) for case-matching. The difference is that this relationship is established clause-internally. In both finite and non-finite contexts, T° mediates the relationship between subjects and adjectives. I assume that non-finite T° does not assign a case feature, so its role is to establish a relationship between the adjective and PRO.

3.2 Analysis

I begin by accounting for sentences which display case optionality; (3b) is repeated in (13).

\[ \text{she longs towards to be popular} \]

‘She longs to be popular.’ (Andrews 1982:26)

Option 1: Controller and PRO bear same case

During the first stage of the derivation, PRO is merged in Spec,VP of the lower clause. Non-finite T° establishes a relationship between PRO and the adjective, ensuring that they bear the same features
at Spell-Out. Next, the controller is merged in the higher clause. PRO moves to the edge of the phase, Spec, CP, and Agrees with the controller. This Agree relation is forced by PRO’s [-R] feature Landau (2004, 2006), resulting in PRO inheriting the controller’s phi features. These steps are shown in (14).

(14)

\[
\begin{array}{c}
\text{vP} \\
\text{‘she’ [fem.sg.]} \\
\phi \\
\text{PRO [fem.sg.]} \\
\text{C’} \\
\text{T’} \\
\text{T°} \\
\text{vP} \\
\text{DP} \\
\text{‘popular’} \\
\end{array}
\]

During the next stage of the derivation, the functional head in the higher clause is merged and assigns case to both the controller and PRO, as shown in (15).

(15)

\[
\begin{array}{c}
\text{KP} \\
\text{K} \\
\text{vP} \\
\text{‘she’ [fem.sg.]} \\
\phi \\
\text{case} \\
\text{PRO [fem.sg.]} \\
\text{C’} \\
\text{T’} \\
\text{T°} \\
\text{vP} \\
\text{DP} \\
\text{‘popular’ [fem.sg.]} \\
\end{array}
\]

I propose that in (15), the case-assigning functional head K can Agree with both DPs for two reasons: (1) the controller and PRO share a referential index, and (2) there is no source of case for PRO in the infinitival clause. This is formalized in (16), a revised version of Agree, and explicated below.

(16) **Agree:** A higher head X° or phrase XP values the features of the closest Y°/YP that has unvalued features. X°/XP optionally values the features of a farther away Z°/ZP that bears the same index as Y°/YP iff Z°/ZP is visible for feature valuation. Agree between X°/XP and Z°/ZP is licensed only if there is no intervening head or phrase that bears an index distinct from Z°/ZP.
The operation in (16) collapses Agree and multiple Agree. For the most part, I follow Chomsky’s (2000) assumptions about the standard operation Agree. However, I assume that phrases, as well as heads, can be the structurally higher element. This higher item necessarily values an unvalued feature on the closest head or phrase that has an unvalued feature, as schematized in (17). This ensures both that the controller is assigned case by a head and that PRO inherits phi features directly from the controller, which is a phrase.

\[
\text{(17)} \quad \left[ \text{XP} \to \text{XP} \left[ \text{Y}_{\text{P}} \ldots \text{Z}_{\text{P}} \ldots \right] \right]
\]

That same higher head or phrase optionally enters into a multiple Agree relation and values the unvalued features on additional heads or phrases that share an index with the higher element, as shown in (18).

\[
\text{(18)} \quad \left[ \text{XP} \to \text{XP} \left[ \text{Y}_{\text{P}} \ldots \text{Z}_{\text{P}} \ldots \right] \right]
\]

The structure in (18) can only apply if ZP has not already had its features valued. As we will see, the structure in (18) is not an option when PRO is assigned quirky case in the lower clause.

Finally, (16) provides locality conditions on multiple Agree. The features of additional items cannot be valued if there is a distinct index-bearing item which intervenes, as in (19).

\[
\text{(19)} \quad * \left[ \text{XP} \to \text{XP} \left[ \text{Y}_{\text{P}} \ldots \text{W}_{\text{P}} \ldots \text{Z}_{\text{P}} \ldots \right] \right]
\]

This is particularly important for the analysis of ‘promise’, in which I argue that the Dative object prevents X from assigning case to PRO. Using the operation Agree outlined above, the rest of the data can be accounted for.

**Option 2: PRO bears Nominative**

This derivation is like the one in (14), except that K assigns case to the controller, but not to PRO. Since PRO is not assigned case in the derivation, it bears Nominative by default, as shown in (20).4

\[
\text{(20)} \quad [\text{KP} \to \text{K} \left[ \text{v}_{\text{P}} \ldots \text{controller}_{\text{i}} \ldots \left[ \text{CP} \to \text{PRO}_{\text{i}} \left[ \text{default Nominative} \right] \ldots \right] \right]]
\]

Following (16), K is allowed to Agree with PRO because it bears the same index as the controller, but the multiple Agree option is not employed.

**Option 3: PRO bears Quirky Case**

In example (6), repeated below as (21), Dative is the only option for the lower clause adjective. The analysis is presented in (22).

\[
\text{(21)} \quad \text{Jón bað hann að leiðast ekki einum/*einad/*einn Jon asked him(Acc.masc.sg.) to be.bored not alone.(Dat.masc.sg.)/*Acc/*Nom}
\]

‘Jon asked him to not be bored alone’ (Bobaljik and Landau 2007:5)

\[
\text{(22)} \quad [\text{KP} \to \text{K} \left[ \text{v}_{\text{P}} \ldots \text{controller}_{\text{i}} \ldots \left[ \text{CP} \to \text{PRO}_{\text{i}} \left[ \text{case Dative} \right] \ldots \right] \right]]
\]

4 Alternatively, Bobaljik and Landau (2007) propose that Nominative is assigned in the infinitival clause. This is consistent with earlier arguments for PRO bearing standard case (see references in the introduction). I do not think that this assumption is at odds with the present analysis. It could be that when PRO is not assigned Nominative in the infinitival clause that it is assigned case by the higher functional head.
As with the previous derivations, PRO agrees with the controller to inherit phi features. The analysis is similar to (20) in that K assigns case only to the controller. However, the difference is that because PRO is assigned case in the lower clause, it is not visible for additional case-assigning operations. This proposal is in stark contrast to the MTC in which a DP can be assigned case multiple times. As Bobaljik and Landau (2007) point out, the Dative that is assigned in the lower clause in (21) should be erased when ‘him’ moves to the higher clause and the head that assigns Accusative to ‘him’ should also be able to assign Accusative to ‘alone’, but this does not happen. Having accounted for the instances where case optionality appears and where it is blocked, we can now move on to account for the unique behavior of ‘promise’.

4. The special case of ‘promise’

‘Promise’ poses an interesting problem for the account of case optionality proposed above (and for all theories of control). Phi feature agreement is mandatory, but case agreement is not possible, as shown in (23).

(23) Þeir telja hanað(Acc.f.sg.) hafa lofað honum(Dat) að PROi vera góðð(Nom.f.sg.)/góða(Acc)

They believe her to have promised him to be good.

(Andrews 1981:453)

Unlike (21), which has a quirky Dative PRO, in (23) PRO does not get case from the lower clause verb. Additionally, this lack of optionality is not a property of control being embedded under ECM. The same type of structures which do not involve ‘promise’ display case optionality (see (3c)).

As is well-known, ‘promise’ is unique because it forces subject control across an object. Other verbs that take an object and an infinitive force object control. These verbs include ‘persuade’, ‘force’, ‘order’, and ‘request’. In Icelandic, these verbs display the predicted case optionality (see (3b)). My proposal makes crucial use of the difference between ‘promise’ and these other verbs. I argue that the object of ‘promise’ intervenes for the purpose of case transmission, but not for the purpose of phi feature transmission.

I follow the Minimal Distance Principle (Rosenbaum 1970), which holds that the controller is the closest c-commanding DP. Therefore, control is established in (24a), but not (24b).

(24)a. Control established
   b. Control not established

The core of the analysis for ‘promise’ is that at the point when control is established and phi features are transferred, the structure resembles (24a), illustrated in (25a), but at the point when case is assigned, the structure resembles (24b), illustrated in (25b).

(25)a. \[v\ P DP_{i(subject controller)}…[CP PRO_{i}…VP]]
   b. \[KP K [v\ P DP_{i(subject controller)}] [\alpha P DP_{j(dative object)} [CP PRO_{i}…VP]]\]

The structure in (25b) violates the condition on Agree which blocks feature valuation across an interverner that bears a distinct index. But how did we get from (25a) to (25b)? I propose that the Dative object of ‘promise’ is an applicative and is late merged.\(^5\) This allows for subject control and the

\(^5\) I merge the dative as a high applicative (above the verb). Pylkkänen (2002) proposes that high applicatives add an argument to the event described by the verb while low applicatives indicate a transfer of possession between the direct and indirect object. Based on these characterizations, it seems that the indirect object of ‘promise’ is a
transmission of phi features while capturing the fact that case cannot be transmitted. The derivation in (26) illustrates the late merge of the Dative object.⁶

\[
\begin{array}{c}
KP \\
\vdash K \\
\vdash vP \\
\vdash \text{Phase Boundary} \\
\vdash \text{her} \\
\vdash v' \\
\vdash \text{Applic.P} \\
\vdash \text{Applic.P'} \\
\vdash \text{dative object} \\
\vdash \text{Applic°} \\
\vdash \text{VP} \\
\vdash \text{V} \\
\vdash \text{CP} \\
\vdash \text{PRO°} \\
\vdash \text{AP} \\
\vdash \text{‘promise’} \\
\vdash \text{‘good’} \\
\end{array}
\]

The Dative object cannot be the controller because Agree has already been established with the subject. Further, PRO cannot be assigned Dative because the object and PRO bear distinct referential indices. Evidence that the Dative is an applicative is that it is optional, as in John promised to be good.

This analysis crucially relies on the Dative object being merged after the controller but before K. Why can’t K Agree with the controller and PRO before the dative object is merged? This would deliver subject control and the optionality observed in other control constructions. However, merging the Dative after the case-assigner violates the Phase Impenetrability Condition (Chomsky 1999, 2000, 2001). The Dative object is merged inside vP and the case-assigner is merged outside vP, which is commonly assumed to be a phase. Merging the Dative after K is illicit because it would require merging a DP inside of a phase after the phase has been closed.⁷ With verbs such as ‘persuade’, ‘force’, and ‘order’, the object is not late merged because it is a real argument of the verb, as exemplified by the ungrammaticality of *John ordered to be good. In these cases, we get object control and there is no intervener between the controller and PRO.

⁶ See Stepanov (2001) and references therein for arguments for the late merge of adjuncts.

⁷ The present system would need to allow for Visser’s (1973) Generalization to be upheld. Object control verbs are easily passivized – John was ordered/persuaded to leave – while subject control verbs resist passivization – *John was tried/promised to leave. The system would also need to account for cases in which it seems that ‘promise’ allows for object control – John was promised to be allowed to leave early. In Larson’s (1991) account, Visser’s Generalization is obeyed because the D-structure object does not c-command the infinitival. Larson argues that since control is established at D-structure, there is no possible controller in sentences such as *John was promised to leave. In the system I have proposed, the object of ‘promise’ does c-command the infinitival, allowing for object control in the passive. So it seems that late merge of the object is optional.
5. Conclusion

I have provided an account of control which derives the different behavior of case and phi features. I proposed that there is a necessary direct Agree relation between the controller and PRO which results in phi feature transmission and an optional multiple Agree relation between the case-assigner for the controller and PRO. Crucially, I have motivated an operation Agree that allows for items which share an index to have their features assigned by the same head. Finally, I have argued that the previously unexplained specialness of ‘promise’ can be derived from conditions on Agree and multiple Agree.

References
