Pair-Merge and Feature-Valuation via Minimal Search: Evidence from Icelandic

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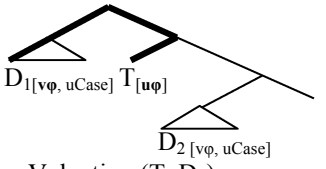
1. Introduction

This paper provides a new approach to Case and agreement under the recent framework by Chomsky (2015). According to Chomsky (2015), under the Strong Minimalist Thesis, the best scenario is that phenomena would be explained by interaction of the simplest computational operation *Merge*, interacting with general principles of minimal computation (MC). As for Merge, Chomsky notes that (set-)Merge applies freely. Nomura (2014, 2015a, b) and Epstein, Kitahara, and Seely (EKS) (2016) extend Chomsky's form of argument to pair-Merge and propose that pair-Merge also applies freely.[1] Under this scenario, as a labeling algorithm (LA), which is a special case of minimal search (MS), falls under MC, seemingly syntactic operations other than Merge should all fall under MC. This paper argues that Feature Valuation is also a special case of MS and hence falls under MC. Thus, we propose Feature Valuation as follows:

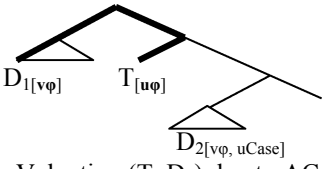
(1) *Feature Valuation*: is a minimal computational relation that values unvalued features.
   a. *Φ-Valuation*: MS seeks a head H with unvalued φ features (uφ) and its matching H and values uφ by its relation to it.
   b. *Case-Valuation*: MS seeks a head H with unvalued Case features (uCase) and its matching H and values uCase by its relation to it.
   c. *Activation Condition (AC)*: The matching head H can participate in Valuation only if it has some unvalued feature.

(2) *Φ-Valuation*:

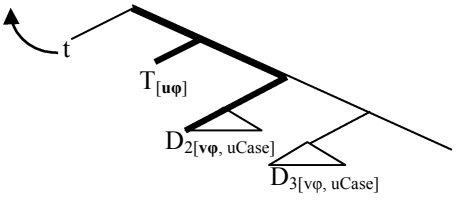
a. φ-Valuation (T, D_1)



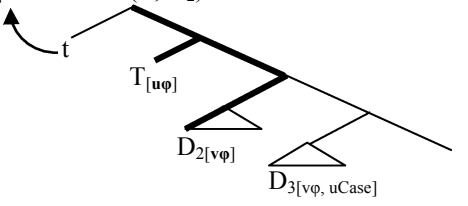
b. *φ-Valuation (T, D_1) due to AC



c. φ-Valuation (T, D_2)



d. *φ-Valuation (T, D_2) due to AC



Under this φ-Valuation, MS finds a head H with uφ and its matching H. For instance, in (2a), MS finds T and D_1, but not D_2 because "less is better than more, minimal search is better than deeper search" (cf.

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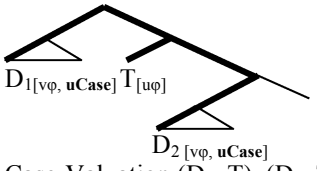
[1] Throughout this paper, I use the term *pair-Merge* to mean *pair-Merge of heads* but not *pair-Merge of phrases*.

 Proceedings of the 34th West Coast Conference on Formal Linguistics, ed. Aaron Kaplan et al., 395-403. Somerville, MA: Cascadilla Proceedings Project.

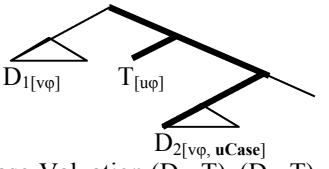
Chomsky 2014:5). In (2b), φ-Valuation does not take place because D_1 does not contain unvalued feature, although MS finds T and D_1 (due to AC). For Valuation, D_1 should be dislocated as in (2c). As in (2d), if D_2 does not contain unvalued feature, then φ-Valuation does not take place again due to AC.

(3) *Case-Valuation*:

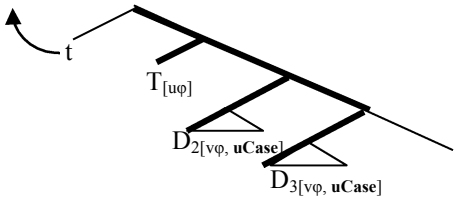
a. Case-Valuation (D_1, T), (D_2, T)



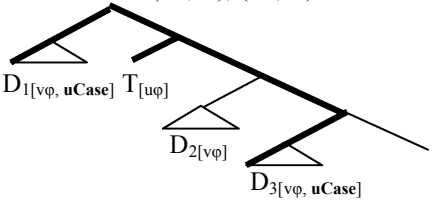
b. Case-Valuation (D_2, T)



c. Case-Valuation (D_2, T), (D_3, T)



d. Case-Valuation (D_2, T), (D_3, T)



As for Case-Valuation, it is much simpler. Since MS finds H with uCase and its matching H, it finds all the heads with uCase and its matching H. Thus, in (3a), MS finds D_1 and D_2 and its matching T, while, as in (3b), it does not find D_1 with no uCase but finds D_2 with uCase. As you can see in (3a-d), all the heads with uCase are Case-valued by their relation to it. In this Case-Valuation system, the only possible intervener is another potential matching H. However, since Case-Valuation takes place only in the relevant phase domain, such an intervention never happens. Therefore, nominative is valued when the matching H is C/T, accusative when it is v*/R. In this paper, I will show that this proposed MS based Feature Valuation, together with some consequences of pair-Merge, will readily account for the problematic intervention paradigms in Icelandic.

2. Internal/External Pair-Merge

Chomsky (2015) proposes that pair-Merge of R to v* forms an amalgam [R-v*]. He argues that "the host should be affixed to the raised element" in head-raising. Therefore, v* is rendered invisible to LA by pair-Merge and it loses its phase property. Now let us consider a sentence in (4) and its derivation and order of rules.

(4) *They expected John to win*

(5) The derivation and the order of rules for (4):

a. $[_{\beta}R \ [_{\alpha}DP_{\varphi} \ \ldots]]$ → (i)

b. $[_{\gamma}DP_{\varphi} \ [_{\beta}R \ [_{\alpha}t_{DP} \ \ldots]]]$ → (ii)

c. $[_{\delta}v^*_{u\varphi} \ [_{\gamma}DP_{\varphi} \ [_{\beta}R \ [_{\alpha}t_{DP} \ \ldots]]]]$ → (iii)

d. $[_{\delta}v^* \ [_{\gamma}DP_{\varphi} \ [_{\beta}R_{u\varphi}[_{\alpha}t_{DP} \ \ldots]]]]$ → (iv)

e. $[_{\delta}R\text{-}v^* \ [_{\gamma}DP_{\varphi} \ [_{\beta}t_{R} \ [_{\alpha}t_{DP} \ \ldots]]]]$ → (v)

(i) Form R-α by External set-Merge (EM): β is of the form {H, XP}

(ii) Form DP-β by Internal set-Merge (IM): γ is of the form {XP, YP}

(iii) Form v*-γ by EM, reaching the phase level

(iv) Inheritance of uφ from v* to R, Labeling; γ is labeled <φ, φ>

(v) Form [R-v*]-γ by pair-Merge (pM), Transfer of α

As in (5e), raising of R to v* yields an amalgam with v* adjoined to R and hence v* becomes invisible so that it loses its phase property. Phasehood is activated on the copy of R and thus its complement,

which is α, is transferred so that DP (which can be a wh-phrase) remains in situ at the edge and is therefore accessible to extraction at the next phase.

Extending Chomsky's (2015) form of argument to pair-Merge, Nomura (2014, 2015a, b) and EKS (2016) propose that pair-Merge of R to v* can take place even when v* bears its unvalued φ-features (uφ) and claim that the phase-head status of v* is cancelled because pair-Merge of R to v* makes v* (including its uφ) invisible. EKS propose that R and v* can be each taken directly from the lexicon and externally pair-Merged together:

(6) External pair-Merge of R to v* can take place even when v* bears its uφ and the phase-head status of v* is cancelled because pair-Merge of R to v* makes v* (including its uφ) invisible.
(EKS 2016:95)

3. Weak Phases

In response to Legate's (2003) empirical observations on passive/unaccusative verbs, Chomsky (2001) proposes to differentiate between strong and weak phases. While strong phases trigger Transfer and license accusative Case, weak phases do not. EKS (2016) claims that phase-cancellation by pair-Merge takes place in verbal phrases with these verbs and thus the effects of "weak phase" follow without postulating the notion "weak phase." According to EKS (2016), their proposed analysis predicts that "phase-cancellation by external pair-Merge of heads takes place in verbal phrases with passive, raising, unaccusative and bridge verbs, but not in verbal phrases with transitive (taking a direct object) and intransitive (unergative) verbs if intransitive (unergative) verbs are hidden transitives in the sense of Hale and Keyser (1993)" and they also suggest that phase-cancellation by external pair-Merge of heads takes place in verbal phrases with verbs in Icelandic dative-nominative constructions.

Notice, however, that the verbs that are mentioned above behave quite differently. For instance, while passive/unaccusative/raising verbs neither select an external argument nor license accusative, bridge verbs select an external argument and in fact some bridge verbs license accusative in ECM constructions. Moreover, verbs in Icelandic dative-nominative constructions are transitive verbs because they select an external argument (dative) and take an object (nominative). Thus, these verbs can be classified into the following three types:

(7) **Type I:** neither select an external argument nor license accusative
a. *Passive verbs*: John was invited *t*.
b. *Unaccusative verbs*: John's train arrived *t*.
c. *Raising verbs*: John seems [*t* to like her].

(8) **Type II:** select an external argument and license accusative when certain conditions are met.[2]
a. *Bridge verbs taking a finite clause (no accusative-licensing)*:
What do you think that Ken read?
b. *Bridge verbs taking a non-finite clause (accusative-licensing)*:
She believes **him** to be a genius.

(9) **Type III:** select an external argument but do not license accusative
Verbs in Icelandic dative-nominative constructions:
Jóni líkuðu þessir sokkar
Jon.D liked.3PL these socks.PL.N
'Jon liked these socks.' (Jónsson 1996:143)

I claim that Type II and III should be explained in the different way from external pair-Merge and that our proposed analysis resolves the long-standing problem concerning nominative Case licensing in Icelandic, without requiring the notion of "weak phase."

[2] Unergative verbs may belong to Type II. See Nomura (2014, 2015a, b) for the relevant discussions.

4. Internal Pair-Merge Prior to Inheritance

In Nomura (2014, 2015a, b), I propose that internal pair-Merge of R to v* can take place prior to Inheritance of uφ from v* to R, and argue that **external** pair-Merge takes place in verbal phrases with passive and unaccusative verbs which do not take an external argument, while **internal** pair-Merge **prior to Inheritance** takes place in those with some transitive verbs which take an external argument but do not necessarily license accusative Case.

(10) **Internal** pair-Merge of R to v* can take place **prior to Inheritance of uφ from v* to R** and the phase-head status of v* is cancelled because pair-Merge of R to v* makes v* (including its uφ) invisible.

(Nomura 2014, 2015a, b)

Now let us consider sentences like (8a). Suppose that the raising-to-object takes place. As in (11), α should raise to SPEC-R in β so that β is of the form {XP, YP}. In this case, the label should be the pair of the agreeing elements. As Chomsky himself points out, however, since the raised object (*that*-clause in this case) lacks the relevant featrures, β does not seem to be labeled and uφ of R remains unvalued.

(11) Raising-to-object (labeling failure)

a. [Ken read what]
b. **labeling failure** **uφ remains unvalued** C[Ken read what]
c. [$_\alpha$what C[Ken read t_{what}]]
d. R (think) [$_\alpha$what C[Ken read t_{what}]]
e. [$_\beta$) $_\alpha$what **C** [Ken read t_{what}]] [**R** (think) t_α]]
f. v*$_{u\varphi}$ [$_\beta$[$_\alpha$$t_{what}$ C [Ken read t_{what}]] [R (think) t_α]]]
g. v* [$_\beta$[$_\alpha$$t_{what}$ C [Ken read t_{what}]] [($R_{u\varphi}$) think) t_α]]]
h. [$_\gamma$what do you $R_{u\varphi}$-v* [$_\beta$[$_\alpha$$t_{what}$ C [Ken read t_{what}]] [t_R t_α]]]

Instead, suppose that such a raising-to-object does not take place as in (12) and hence α remains in situ so that the labeling problem here would not arise. There are, however, at least two problems for this approach. If Inheritance of uφ from v* to R takes place as in (12f), like (11), uφ of R remains unvalued because there is no agreeing element in β. Another problem is about extractability out of the embedded clause. As in (12g), since phasehood is activated on the copy of R, its complement, which is α, should be transferred at the matrix v* phase level. Since the raising-to-object (raising of α to SPEC-R in β) does not take place, wh-phrase remains in α and hence, becomes inaccessible to extraction at the next phase γ. Therefore, nothing cannot be extracted out of the embedded clause under this analysis.

(12) No raising-to-object (failure of extraction of wh-object out of the embedded clause)

a. [Ken read what]
b. **uφ remains unvalued** C[Ken read what]
c. [$_\alpha$what C[Ken read t_{what}]]
d. [$_\beta$ R [$_\alpha$what C[Ken read t_{what}]]]
e. v*$_{u\varphi}$ [$_\beta$ R [$_\alpha$what C[Ken read t_{what}]]]
f. v* [$_\beta$ ($R_{u\varphi}$) [$_\alpha$what C[Ken read t_{what}]]] Inheritance of uφ from v* to R
g. <$R_{u\varphi}$, v*> [$_\beta$ t_R [$_\alpha$what C[Ken read t_{what}]]] Transfer of α
h. [$_\gamma$what do you <$R_{u\varphi}$, v*> [$_\beta$ t_R [$_\alpha$$t_{what}$ C[Ken read t_{what}]]]] **No extraction of *what* out of α**

Suppose that internal pair-Merge of R to v* takes place prior to Inheritance of uφ from v* to R, as is illustrated in (13). As in (13c), since pair-Merge of R to v* makes v* invisible (together with uφ), the phase-head status of v* is cancelled. Therefore, Transfer does not apply and *what* in SPEC-C is accessible to the next phase head δ as in (13d).

(13) The derivation and the order of rules for (8a): *What do you think that Ken read?*

a. $[_{\beta}$ R $[_{\alpha}$ what C[Ken read t_{what}]]] → (i)

b. $[_{\gamma}$ v*$_{u\varphi}$ $[_{\beta}$ R $[_{\alpha}$ what C[Ken read t_{what}]]]] → (ii)

c. $[_{\gamma}$ R-v*$_{u\varphi}$ $[_{\beta}$ t_R $[_{\alpha}$ what C[Ken read t_{what}]]]] → (iii)

d. $[_{\delta}$ **what** do you $[_{\gamma}$ R-v*$_{u\varphi}$ $[_{\beta}$ t_R $[_{\alpha}$ **t_{what}** C[Ken read t_{what}]]]]

(i) Form R-α by EM: β is of the form {H, XP}

(ii) Form v*-β by EM: γ is of the form {HP, XP}, reaching the phase level

(iii) Form [R-v*]-β by **pM prior to Inheritance**, cancel the phase-head status of v*

Thus, internal pair-Merge needs to take place prior to Inheritance in order to derive sentences like (8a).

Now consider sentences like (8b). The derivation and the order of rules for (8b) are exactly the same as in (5). As we have seen in (5), DP moves to SPEC-R, Inheritance of uφ from v* to R takes place, γ is labeled <φ, φ>, accusative Case is valued, and then internal pair-Merge takes place.[3]

Remember that Chomsky (2015) assumes that "R raises to v* forming R with v* affixed, hence invisible, so phasehood is activated on the copy of R" but at the same time he gives the following definition of the (in)visibility.

(14) The definition of the (in)visibility (Chomsky's 2014 spring lectures):
α is in the domain D if and only if every copy of α is in D.

In Nomura (2015a, b), I raise a question of how it is that phasehood is activated on the copy of R, given that the copy of R is invisible to LA. Therefore, contrary to Chomsky (2015), I claim that when uφ of v* is transmitted to R, phasehood is activated on R. So, cancellation of the phase-head status of v* is not a trigger to activate phasehood on R. When phasehood is activated on R, Transfer applies to its complement when all the tasks at the phase level are done. Therefore, the copy of R does not need to be visible for being an active phase and should be invisible as in (14).

5. Icelandic facts

5.1. Type II Verbs: Bridge Verbs

It is widely known in the Icelandic literature that a dative NP is inaccessible for agreement, but nevertheless blocks agreement when it is intervening between the finite verb and a nominative NP. Thus, intervention is observed when there is a dative NP between the finite verb and a nominative NP as in (15), while it is not when there is no intervening dative NP as in (16).

(15) Mér virðist/*virðast [Jóni líka þessir sokkar]
me.D seem.3SG/3PL Jón.D to.like these socks.m.PL.N
'Jon seems to me to like these socks.' (Svenonius 2004:277)

(16) Mér virðast [þeir þekkja Maríu]
me.D seem.3PL they.N to.know Maria.A
'They seem to me to know Maria.' (Jónsson 1996:174)

Since the nominative NP in the embedded clause shows agreement with the finite verb in (16), it is assumed to be licensed by the matrix T. This means that there is no intervening v* between the finite verb and the nominative NP in (16). Therefore, it is not so surprising if the nominative NP in (15) is

[3] As Noam Chomsky (p.c.) points out that raising of R to v* seems to be part of externalization, internal pair-Merge takes place at the very end of its cycle. In other words, it seems that all (syntactic) applicable operations must take place prior to internal pair-Merge. Therefore, internal pair-Merge prior to Inheritance does not literally take place 'prior to' Inheritance but it takes place when Inheritance is not applicable. Under the assumption that pair-Merge applies freely, it is not clear how this rule-ordering can be captured, so I will leave this issue for future research.

also licensed by the matrix T because there seems to be no intervening v*. Namely, it is considered that weak phase is involved in (15) and (16).

Let us consider *believe*-type ECM in Icelandic. It is obvious that the verb *believe* licenses accusative Case in Icelandic as in (17). Interestingly, when the subject of the non-finite clause is marked dative, its object is marked nominative as in (18).

(17) Ég hafði talið [Maríu vita svarið]
I.N had believed Maria.A to.know the answer
'I had believed Maria to know the answer.' (Jónsson 1996:166)

(18) Hann hafði talið [Jóni líka þessir sokkar]
he.N had believed John.D to.like these socks.m.PL.N
'He had believed John to like these socks.' (Jónsson 1996:170)

Notice that there is an intervening v* between the matrix T and the nominative NP in (18), given that accusative NP is licensed in (17). Therefore, the nominative NP seems not to be licensed by the matrix T in (18). Thus, the Case of the nominative NP in (18) is often considered as a default Case.

Although two distinct types of v are assumed in the standard theory, once we adopt the proposal on Valuation and pair-Merge, we no longer need to postulate such a distinction: we can eliminate the notion of weak phase. As a consequence, we can also eliminate the default Case analysis of Icelandic nominative objects and show that nominative objects are uniformly licensed by the matrix T.

As for the standard ECM construction in (17), the derivation and the order of rules for (17) are exactly the same as in (5). As for (18), the embedded subject is dative. Assuming that a dative NP does not bear uCase or that uCase has already been valued, it cannot participate in Labeling/Valuation. Suppose that raising-to-object takes place in (18). The derivation and the order of rules for (18) are given in (19).

(19) The derivation and the order of rules for (18): Raising-to-object

a.				$[_{\beta}$ R	$[_{\alpha}$ DAT	…	DP_{φ}	]]	Form R-α by EM
b.			$[_{\gamma}$ DAT	$[_{\beta}$ R	$[_{\alpha}$ t_{DAT}	…	DP_{φ}	]]]	Form DAT-β by IM
c.		$[_{\delta}$ $v^*_{u\varphi}$	$[_{\gamma}$ DAT	$[_{\beta}$ R	$[_{\alpha}$ t_{DAT}	…	DP_{φ}	]]]]	Form v*-γ by EM, reaching the phase level
d.		$[_{\delta}$ v*	$[_{\gamma}$ DAT	$[_{\beta}$ $R_{u\varphi}$	$[_{\alpha}$ t_{DAT}	…	DP_{φ}	]]]]	Inheritance of uφ from v* to R, Labeling failure of γ, **uφ of R remains unvalued**

As in (19d), γ cannot be labeled because dative NP does not have uCase and uφ of R remains unvalued, hence the derivation will not converge. Suppose, instead, that such a raising-to-object does not take place as in (20). Here again, if Inheritance takes place, uφ of R will remain unvalued.

(20) The derivation and the order of rules for (18): No raising-to-object

a.			$[_{\beta}$ R	$[_{\alpha}$ DAT	…	DP_{φ}	]]	Form R-α by EM
b.	$[_{\gamma}$ $v^*_{u\varphi}$	$[_{\beta}$ R	$[_{\alpha}$ DAT	…	DP_{φ}	]]]	Form v*-β by EM, reaching the phase level
c.	$[_{\gamma}$ v*	$[_{\beta}$ $R_{u\varphi}$	$[_{\alpha}$ DAT	…	DP_{φ}	]]]	Inheritance of uφ from v* to R, **uφ of R remains unvalued**

Now consider the case where pair-Merge takes place prior to Inheritance. As in (21c), phasehood is not activated on R, and v* loses its phase property by internal pair-Merge. Therefore, Transfer does not apply and the derivation continues. In (21e), phasehood is activated on T via Inheritance. Then, DP in the embedded clause is in the domain of the matrix C/T so that it is accessible to T.

(21) The derivation and the order of rules for (18): pair-Merge prior to Inheritance

a. $[_{\beta}R \ [_{\alpha}$ DAT … DP_{φ}]] → (i)

b. $[_{\gamma}$ v*$_{u\varphi}$ $[_{\beta}$ R $[_{\alpha}$ DAT … DP_{φ}]]] → (ii)

c. $[_{\gamma}$ R-v*$_{u\varphi}[_{\beta}$ t_R $[_{\alpha}$ DAT … DP_{φ}]]] → (iii)

d. C_{φ} $[_{\kappa}$ EA_{φ} $[_{\varepsilon}$ T $[_{\delta}$ $t_{EA}[_{\gamma}$ R-v*$_{u\varphi}[_{\beta}$ t_R $[_{\alpha}$ DAT … DP_{φ}]]]] → (iv)

e. C $[_{\kappa}$ EA_{φ} $[_{\varepsilon}$ T_{φ} $[_{\delta}$ $t_{EA}[_{\gamma}$ R-v*$_{u\varphi}[_{\beta}$ t_R $[_{\alpha}$ DAT … DP_{φ}]]]] → (v)

(i) Form R-α by EM

(ii) Form v*-β by EM, reaching the phase level

(iii) Form [R-v*]-β by pM prior to inheritance, **cancel the phase-head status of v***

(iv) Form C-κ by EM, reaching the phase level

(v) Inheritance of uφ from C to T, Labeling: κ is labeled <φ, φ>, Transfer of δ

Under the proposed Case-Valuation, it does not matter whether the dative NP intervenes between the matrix T and the nominative NP because MS simply looks for an H with uCase and its matching H in its search domain and all the heads with uCase will be Case-valued by their relation to it, namely nominative is valued when the matching H is C/T, accusative when it is v*/R. What is important here is that there is no active v* between T and the nominative NP, which is a potential intervener for nominative Case-Valuation. The analysis I propose here succinctly cancels the phase-head status of v* in (18) and thus the nominative NP is in the search domain at the C/T phase level. As for φ-Valuation, MS finds T and its matching H, a head of an external argument (EA), as in (21) so that uφ of T is valued by its relation to it, namely T receives valued φ of EA.

Thus, phase-cancellation by internal pair-Merge prior to Inheritance explains why v* in (18) gets invisible while v* in (17) is visible. Hence, the long-standing problem concerning licensing nominative Case in Icelandic ECM constructions is resolved, without postulating default Case.

5.2. Type III Verbs: Verbs in Icelandic Dative-Nominative Constructions

Now let us consider Type III verbs. Since the verbal phrase headed by this type of verbs never licenses accusative, uφ of v* must not be transmitted to R. What is unique about dative-nominative constructions is that dative NP is inaccessible for agreement. An immediate question arises as to how the datives are licensed. Woolford (2006) among many others claims that there are two types of nonstructural Case and that the dative Case in Icelandic dative-nominative constructions is categorized as inherent Case. The relevant proposals by Woolford (2006) are given in (22) – (24).

(22) Two types of nonstructural Case (Woolford 2006:112)
Lexical Case: Idiosyncratic, lexically selected Case
Inherent Case: Case inherently associated with certain θ-positions

(23) Complementary distribution of lexical and inherent Case (Woolford 2006:113)
Lexical Case may occur on themes/internal arguments, but not on external arguments or on (shifted) DP goal arguments.
Inherent Case may occur on external arguments and on (shifted) DP goal arguments, but not on themes/internal arguments.

(24) Lexical and inherent Case licensing (Woolford 2006:113)
a. Lexical heads (e.g., V, P) license idiosyncratic lexical Case.
b. Little/light v heads license inherent Case.

Adopting Woolford's proposal that v heads license inherent dative Case of an external argument, I propose that Inherent Case is licensed in SPEC-v* by paired labeling <φ, φ>. Now let us consider (9). The derivation and the order of rules for (9) are illustrated in (25). Since inherent dative Case is valued on DP in γ, the dative NP cannot participate in Valuation. Notice that Icelandic is one of the verb second (V2) languages. Thus assuming there has to be some relevant features available, the dative NP

moves to SPEC-C. When the dative NP is dislocated from SPEC-T, MS finds T with uφ and the embedded DP as its matching H, and values uφ of T by its relation to it. After everything is done, pair-Merge of T to C takes place as in (25i). Thus, we can capture the agreement facts in dative-nominative constructions in Icelandic.

(25) The derivation and the order of rules for (9):

a.							[$_{\alpha}$ R	DP$_{\varphi}$]	
b.						[$_{\beta}$ v*$_{u\varphi}$	[$_{\alpha}$ R	DP$_{\varphi}$]]	→ (i)
c.					[$_{\gamma}$ DP$_{\varphi}$	[$_{\beta}$ v*$_{u\varphi}$	[$_{\alpha}$ R	DP$_{\varphi}$]]]	→ (ii)
d.					[$_{\gamma}$ DAT	[$_{\beta}$ v*$_{u\varphi}$	[$_{\alpha}$ R	DP$_{\varphi}$]]]	→ (iii)
e.					[$_{\gamma}$ DAT	[$_{\beta}$ R-v*$_{u\varphi}$	[$_{\alpha}$ t$_{R}$	DP$_{\varphi}$]]]	→ (iv)
f.		[$_{\kappa}$ C$_{u\varphi}$	[$_{\varepsilon}$ DAT	[$_{\delta}$ T	[$_{\gamma}$ t$_{DAT}$	[$_{\beta}$ R-v*$_{u\varphi}$	[$_{\alpha}$ t$_{R}$	DP$_{\varphi}$]]]	→ (v)
g.		[$_{\kappa}$ C	[$_{\varepsilon}$ DAT	[$_{\delta}$ T$_{u\varphi}$	[$_{\gamma}$ t$_{DAT}$	[$_{\beta}$ R-v*$_{u\varphi}$	[$_{\alpha}$ t$_{R}$	DP$_{\varphi}$]]]	→ (vi)
h.	[DAT	[$_{\kappa}$ C	[$_{\varepsilon}$ t$_{DAT}$	[$_{\delta}$ T$_{u\varphi}$	[$_{\gamma}$ t$_{DAT}$	[$_{\beta}$ R-v*$_{u\varphi}$	[$_{\alpha}$ t$_{R}$	DP$_{\varphi}$]]]	→ (vii)
i.	[DAT	[$_{\kappa}$ T-C	[$_{\varepsilon}$ t$_{DAT}$	[$_{\delta}$ t$_{T}$	[$_{\gamma}$ t$_{DAT}$	[$_{\beta}$ R-v*$_{u\varphi}$	[$_{\alpha}$ t$_{R}$	DP$_{\varphi}$]]]	→ (viii)

(i) Form v*-α, reaching the phase level
(ii) Form DP-β, Labeling; γ is labeled <φ, φ>
(iii) Inherent dative Case is licensed on DP
(iv) pM of R to v*, cancel the phase-head status of v*
(v) Form C-ε, reaching the phase level
(vi) Inheritance of uφ from C to T
(vii) Form DAT-κ, φ-Valuation (T, DP)
(viii) pM of T to C, Transfer γ

5.3. Default Agreement

In section 5.1, we have observed the intervention effects in agreement when there is a dative NP between the finite verb and a nominative NP, resulting in default agreement as in (15). Notice, however, that we have not explained how default agreement is derived. Interestingly, according to Ussery's (2009) survey at the University of Iceland, agreement with nominative objects in sentences like (9) is always optional. The rates of agreement in various types of constructions are summarized as in (26).

(26) Rate of Agreement Across Construction Types (Ussery 2009:3)

Word Order	**Rate of Agreement**
Mono-clauses	
Dat-verb-Nom	47%
Expl-verb-Dat-Nom	36%
Bi-clauses	
Dat-verb-[Nom …]	36%
Expl-verb-Dat-[Nom …]	18%

Thus, default agreement should always be an option when the subject is non-nominative in Icelandic. It is commonly assumed that if there is no accessible NP, default agreement is triggered cross-linguistically but we need to explain why default agreement is possible even when there is an accessible NP in the domain of the finite verb. Now let us consider the example in (27) and its derivation and the order of rules for default agreement in (27).

(27) Sumum stelpunum líka/líkar peningarnir
some girls.D like.3PL/3SG money-the.N.PL
'Some girls like the money.' (Ussery 2009:1)

(28) The derivation and the order of rules for default agreement in (27):

a. $[_{\kappa}\ C_{u\varphi}\ [_{\varepsilon}\ DAT\ [_{\delta}\ T\ [_{\gamma}\ t_{DAT}\ [_{\beta}\ R\text{-}v^{*}_{u\varphi}\ [_{\alpha}\ t_{R}\ DP_{\varphi}\ ]]]]]]$ → (i)

b. $[_{\lambda}DAT\ [_{\kappa}\ C_{u\varphi}\ [_{\varepsilon}\ t_{DAT}\ [_{\delta}\ T\ [_{\gamma}\ t_{DAT}\ [_{\beta}\ R\text{-}v^{*}_{u\varphi}\ [_{\alpha}\ t_{R}\ DP_{\varphi}\ ]]]]]]$ → (ii)

c. $[_{\lambda}DAT\ [_{\kappa}\ T\text{-}C_{u\varphi}\ [_{\varepsilon}\ t_{DAT}\ [_{\delta}\ t_{T}\ [_{\gamma}\ t_{DAT}\ [_{\beta}\ R\text{-}v^{*}_{u\varphi}\ [_{\alpha}\ t_{R}\ DP_{\varphi}\ ]]]]]]$ → (iii)

(i) Form C-ε, reaching the phase level

(ii) Form DAT-κ, *φ-Valuation (C, DAT), Case-Valuation (DP, C)

(iii) pM of T to C

The derivation in (28a) is the same as that in (25f). Unlike (25g), prior to Inheritance of uφ from C to T, the dative NP moves to SPEC-C for V2 effects. In (28b), since the dative NP does not have uCase, φ-Valuation (C, DAT) does not take place but Case-Valuation (DP, C) does. Now, pair-Merge of T to C takes place so that it makes uφ of C invisible. I suspect this is how default agreement is derived in Icelandic.

6. Conclusion

This paper provided a new approach to Case and agreement, discussing internal pair-Merge prior to Inheritance and inherent Case licensing. Without postulating the notion of "weak phase," we could not only capture the effects of "weak phase" but also give an account for the long-standing problematic paradigm in Icelandic, which was not fully resolved by the approach that required the notion of "weak phase." If the proposed analysis is on the right track, Feature-Valuation is not an asymmetric "probe-goal" relation. Finally, this paper suggests that pair-Merge of T to C prior to Inheritance is the key to derive default agreement.

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