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Richards, M. (2020). Rethinking principles A and B from a Free Merge perspective. In A. Bárány, T. Biberauer, J. Douglas, & S. Vikner (Eds.), *Syntactic architecture and its consequences I: syntax inside the grammar* (pp. 497-509). (Open Generative Syntax; Vol. 9). Language Science Press. <https://doi.org/10.5281/zenodo.3972873>

### **Published in:**

Syntactic architecture and its consequences I: syntax inside the grammar

### **Document Version:**

Publisher's PDF, also known as Version of record

### **Queen's University Belfast - Research Portal:**

[Link to publication record in Queen's University Belfast Research Portal](#)

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# Chapter 21

## Rethinking principles A and B from a Free Merge perspective

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This squib sketches out the beginnings of a bottom-up, minimalist rethinking of pronominal reference constraints (essentially, principles A and B of the binding theory) in terms of an approach to grammar-internal optionality originally pursued in Biberauer & Roberts 2005, Biberauer & Richards 2006. By combining a movement theory of binding (Hornstein 2001; 2013; Kayne 2002; Abe 2014) with phase theory (Chomsky 2000 et seq.), the essential difference between local binding and local obviation reduces to the choice between Internal Merge and External Merge at the phase level, each yielding a distinct interpretive outcome at the conceptual-intentional (CI) interface. Further, if the phase constitutes the maximal domain in which linguistic constraints can apply, then interpretive freedom is expected beyond the phase level. In this way, restrictions on the interpretation of pronouns turn out to be the CI equivalent of ordering restrictions at the sensorimotor interface (PF), which likewise obtain up to the phase level but not beyond (Richards 2004; 2007).

### 1 The price of freedom

In its more recent developments, the Minimalist program has moved away from its earlier emphasis on the formal features that trigger operations and the formal constraints that restrict them. Accordingly, from the perspective of the strong Minimalist thesis (SMT), in which language-specific technology is expensive (i.e. adds to the “first factor”; Chomsky 2005), optionality should no longer surprise



us. The free application of operations is the default expectation.<sup>1</sup> Whereas earlier Minimalism (Chomsky 1995) viewed optionality as problematic, with optional rules and operations effectively excluded by a conspiracy of last resort and full interpretation, it is in fact “obligatoriness” that is unexpected, as any limitation on this freedom has to somehow be legislated for in the form of a language-specific rule or constraint, thus departing from the SMT (unless this restriction can be reduced to more general, “third-factor” considerations). By contrast, there is no need to legislate for optionality. A maximally empty, minimally specified UG will necessarily leave many options open, giving rise to operational indeterminacies, as explored and exploited in “underspecification” models of (parametric) variation (see, e.g., Uriagereka 1994; Biberauer & Richards 2006; Berwick & Chomsky 2011; Richards 2008; Kandybowicz 2009; Boeckx 2011; Roberts & Holmberg 2010); it also leads naturally to an “overgenerate and filter” view of the syntax–interface relation (see, e.g., Richards 2004; 2007 on the syntax–phonetic form (PF) relation), perhaps based on *Free Merge* (cf. Chomsky 2007; 2008; 2013; 2015 – see footnote 1; also Boeckx 2011). Operative freedom itself now comes for free; it is the restrictions on this freedom (rules, constraints: the mechanisms of obligatoriness) that come at a price, carrying the burden of explanation.

In this light, we need to reconsider how (and where) apparent strictures (or their effect) might arise in this system. A simple way to curb the excesses of a free syntax is to make it responsible to the interfaces, so that the choices we make (in the syntax) have consequences (at the interface). From this perspective, sometimes called *interface economy* (cf. Reinhart 1995; Fox 2000; Chomsky 2001; Biberauer & Richards 2006), the choice of applying a syntactic operation like Merge may itself be free, but this choice must be cashed out at the interface in the form of an interpretive effect – an *effect on outcome* (EOO; Chomsky 2001: 34). Optional operations thus have an obligatory EOO. Equally, where a derivational option is independently excluded,<sup>2</sup> we might expect the opposite pattern to obtain. These two scenarios were summarized in Biberauer & Richards (2006) as in (1).

- (1) a. Optional operations feed obligatory interpretations;
- b. Obligatory operations feed optional interpretations.

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<sup>1</sup>Cf. Chomsky (2015: 10–11) on “the lingering idea, carried over from earlier work, that each operation has to be motivated by satisfying some demand. But there is no reason to retain this condition. Operations can be free, with the outcome evaluated at the phase level for transfer and interpretation at the interfaces”.

<sup>2</sup>For example, the phase impenetrability condition might exclude the option of Internal Merge, where this would cross a phase boundary. See §2.2 below.

The refinement I would like to propose and pursue here is that an EOO will only be discernible up to a certain point in the derivation, namely the phase level. In terms of Biberauer & Richards (2006), this means that the phase is the level at which the system “minds” (i.e. the level at which the derivational choices within a phase are made to count). Beyond the phase level, the system stops caring,<sup>3</sup> and interpretive freedom will therefore result (i.e. a lack of EOO, equivalent to 1b). Let us refer to this as Claim 1, as in (2).

## (2) Claim 1

The phase is the maximal domain in which syntactic/interpretive constraints can apply. Each choice within a phase registers a distinct EOO at the interface.

Effectively, the EOO rationale in (1a), in combination with phases, will conspire to *give the illusion* of local (syntactic) constraints. In terms of (free) Merge, the choice between applying Internal or External Merge at a given point in the derivation – yielding copies versus repetitions, respectively, at the interface – can only make a difference within a phase. The relevance of the copy/repetition distinction at the interface is therefore predicted to break down beyond the phase level, as (3) ostensibly confirms.

(3)  $He_i$  thinks [<sub>CP</sub> that  $he_{i/j}$  can help Mary ]

Here, due to the intervening CP phase boundary, the higher instance of *he* may be interpreted as either a copy of the lower *he* (hence referentially identical), or else as an independent repetition (hence with independent reference). By contrast, where this choice is made within a phase, EOOs are predicted to arise, as summarized in Claim 2.

## (4) Claim 2

Merge *within* a phase will be constrained (e.g. subject to particular interpretive restrictions) in a way that Merge *across* phases is not.

At PF, this yields order-preservation constraints on phase-internal movement (Richards 2004; 2007), as I shall briefly review in §2.1. This then leads to my main claim, in §2.2 – namely, that binding conditions (principles A and B) can be rethought of, and made sense of, as the conceptual-intentional (CI) equivalent of order preservation at PF.

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<sup>3</sup>This follows from the idea that phases are the units of computation, and that there is no memory of derivational information beyond the phase level (cf. Chomsky 2015: 8: “The basic principle is that memory is phase-level – as, e.g., in distinguishing copies from repetitions”).

## 2 Escape to freedom

The “obligatoriness” of local binding and obviation constraints, as captured by principles A and B of the binding theory, is unexpected from the minimalist perspective set out in the previous section. A Roberts-style “rethink” of this pervasive property of human language is therefore in order, with the aim of reconciling it with the SMT. If we can rationalize and naturalize the binding principles in terms of (2) and (4), i.e. as emergent EOs, we will have gone some way towards achieving this aim. To see how this might work, it is worthwhile revisiting the analysis of Holmberg’s generalization from Richards 2004, in which (2) and (4) conspire to constrain the interpretive output of Merge at the PF interface.

### 2.1 Phase-internal interpretive restrictions on Free Merge at PF: Order preservation

There is evidence to believe that local movements such as object shift are subject to certain ordering restrictions that do not hold of longer-distance or successive-cyclic movement. For VO languages, this restriction is famously captured under Holmberg’s generalization (HG; Holmberg 1986; 1999); essentially, “VO in” implies “VO out”, thus excluding object shift in cases where the verb does not move to a position above the object, as in (5b).

(5) Icelandic

- a. Nemandinn las [<sub>v\*P</sub> (*bókina*) *t*<sub>nemandinn</sub> ekki [<sub>VP</sub> *t*<sub>las</sub> (*bókina*) ]]  
the.student read the.book not the.book  
“The student didn’t read the book.”
- b. Nemandinn hefur [<sub>v\*P</sub> (*\*bókina*) *t*<sub>nemandinn</sub> ekki [<sub>VP</sub> *lesið* (*bókina*) ]]  
the.student has the.book not read the.book  
“The student hasn’t read the book.”

Taking short-distance movement of the object shift kind to be *vP*- (and thus phase-) internal, the relevant generalization seems to be that ordering freedom arises only once the *vP* phase is escaped. Thus longer-distance (cross-phasal) movement out of the *vP* phase is free to invert the original order, as in the case of A-movement/passivization, *wh*-movement, topicalization, etc.

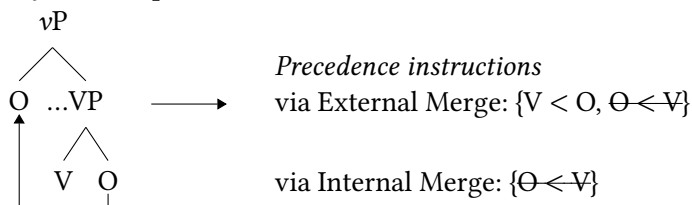
- (6) a. A man [<sub>vP</sub> arrived (*a-man*) ]  
b. John was [<sub>vP</sub> rescued (*John*) ]  
c. John, I [<sub>v\*P</sub> like (*John*) ]  
d. Which book did you [<sub>v\*P</sub> read (*which-book*) ]

The constraint on short-distance movement such that the derived order must reinstate the base order is an unexpected limitation on Free Merge; it is another unexpected instance of “obligatoriness”. The phase-internal nature of this constraint, combined with the assumption that linear order is imposed only at the sensorimotor interface and is not a property of the syntactic structure itself,<sup>4</sup> suggests an approach to HG in terms of *cyclic linearization* (i.e. linearization by phase). Such a system is notably proposed in Fox & Pesetsky (2005), with the interesting property that ordering freedom is allowed within a phase but not beyond, contra the claims in (2) and (4) above. An alternative is offered in Richards (2004; 2007), in which the same effects are delivered by the opposite set of assumptions – i.e., ordering freedom is allowed beyond the phase but not within, in conformance with (2) and (4). This alternative follows from a Merge-based linearization algorithm in which (symmetrical) Merge overspecifies the word order between Merge pairs (sisters), giving PF both options each time (head-first, head-final); cf. Epstein et al. 1998. Then, at the phase level, the interface simply discards one of these options, consistently. Such an “overgenerate-and-filter” approach to linearization may be expressed as in (7).

- (7) Parametrized desymmetrization  
 Given Merge( $\alpha, \beta$ )  $\rightarrow$  \*{ $\langle \alpha, \beta \rangle$ ,  $\langle \beta, \alpha \rangle$ }:
- a. Head-initial = delete all *Comp* < *Head*  
 [i.e. { $\langle \alpha, \beta \rangle$ ,  $\langle \beta, \alpha \rangle$ }  $\rightarrow$  { $\langle \alpha, \beta \rangle$ ,  $\langle \beta, \alpha \rangle$ }]
  - b. Head-final = delete all *Head* < *Comp*  
 [i.e. { $\langle \alpha, \beta \rangle$ ,  $\langle \beta, \alpha \rangle$ }  $\rightarrow$  { $\langle \alpha, \beta \rangle$ ,  $\langle \beta, \alpha \rangle$ }]

The contrast between (5) and (6) is a straightforward consequence of this system. As depicted in (8), short object displacement to spec-vP across V is only orderable by (7a) where further movement of V across the displaced object takes place, so that the latter becomes the tail of a V < O chain, rather than the head of an O < V chain. (Any such O < V instruction would be deleted and thus “undone” at PF, by 7a.)

- (8) Object shift (phase-internal)



<sup>4</sup>This long-standing insight is first elaborated in Chomsky (1995: 334–340); more recently, it finds expression in the claim that “[o]rder is relegated to externalization” (Chomsky 2015: 4).

The upshot is that HG is derived for exactly that subset of languages in which it holds (i.e. those set to (7a): VO languages). Beyond the  $\nu$ P phase level, however, the information about the original ordering sister is lost, due to phase-level memory (cf. footnote 3), and the displaced DP is effectively relinearized in the higher phase (hence the possibility of inverted orders, as in 6). Interpretive freedom at PF is thus the result of escaping the phase; the expected optionality re-emerges beyond the phase level.

## 2.2 Phase-internal interpretive restrictions on Free Merge at SEM: Binding principles

An obvious question is what the equivalent of PF order preservation would be at the CI-interface. Is there a similar basic pattern to the one in (5–6) in which Merge choices made locally (within the  $\nu$ P phase) are interpretively constrained at the interface, with interpretive freedom again re-emerging once the phase is escaped? My contention here is that principles A and B of the binding theory instantiate just this pattern, and thus again implicate a minimalist system based on (2) and (4).

Clearly, in order to reconstruct the principles of binding in terms of Merge choices, some version of a movement theory of binding (MTB) must be assumed (Hornstein 2001; 2009; 2013; Kayne 2002; Abe 2014), with anaphors and/or pronouns analysed as pronounced lower copies (cf. also Heinat 2003). The present article is not the place to provide a full justification of the MTB or to pursue the technicalities of lower-copy realization (see above references and related work); suffice it to say that I take the MTB to be the null hypothesis in a system of unconstrained (“free”) Merge, in which Internal Merge to  $\theta$ -positions cannot (and should not) be excluded in the syntax, and in which Internal Merge provides the simplest possible mechanism by which to derive referentially identified occurrences (tokens), in the form of copies. However, in a crucial departure from earlier versions of Hornstein’s MTB,<sup>5</sup> it cannot be the case that anaphors and pronouns (principles A and B) stand in an “elsewhere” relation, such that pronouns result wherever movement is not possible. Rather, the present system relies on there being a critical choice point (within the phase) where both options (Move and Merge) are equally available, with each choice then yielding a complementary outcome at the interface.

We restrict ourselves here to considering just the core facts of principles A and B. Our aim is to simply derive the complementary distribution of anaphors

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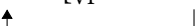
<sup>5</sup>More recent versions, such as Hornstein (2013), come a lot closer to the present proposal.

and pronouns within a given local domain, and thus the fundamental difference between obligatory binding and obligatory obviation. These core facts are given in (9).

- (9) a. He<sub>i</sub> likes himself<sub>i/\*j</sub> (principle A, local; obligatory coreference)  
 b. He<sub>i</sub> likes him<sub>\*i/j</sub> (principle B, local; obligatory obviation/disjoint reference)  
 c. He<sub>i</sub> thinks that Mary likes him<sub>i/j</sub> (non-local; referential freedom)  
 d. His<sub>i</sub> mother likes him<sub>i/j</sub> (no c-command; referential freedom)

To derive the contrast between (9a) and (9b), consider first the derivation at the point where the external argument (EA) is merged, after  $v^*$  has been merged with its complement VP. At this point, there is a free choice between Internal Merge (IM) or External Merge (EM): either option is in principle possible here (and in practice too, as long as the VP and its contents have not yet been transferred). Since this choice is made phase-internally, the information as to which choice is made is available at the interface, upon Transfer. Each option is therefore exploited at the interface in the form of a different EOO (cf. 2).

According to the first option, the internal argument (IA) may be raised to spec- $vP$  to form the EA, as in (10).<sup>6</sup>

- (10) Option 1: Internal Merge of the IA to form the EA  
 $[\text{v}^*P \text{ he } v^* [\text{VP likes him } (\rightarrow \text{himself}) ]]$   


Since IM is chosen and IM here is optional (given the availability of another option, viz. EM), this choice must have an effect at the CI-interface (cf. 2). The two occurrences of the relevant lexical item are detectable as copies at the phase level; therefore, the result (EOO) is obligatory referential identity at CI (i.e. *he = himself*,

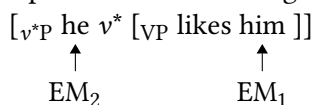
<sup>6</sup>The lower copy here is spelled out overtly, as an anaphor, and not deleted or left unpronounced, as it is in the case of passive/unaccusative IM of the IA. The salient difference between the two cases that accounts for this divergence is the nature of the  $v$  head. The defective  $v$  associated with passives/unaccusatives is unable to value Case on the IA (cf. Chomsky 2001). The IA thus remains active, raising automatically to the phase edge to evade Transfer (cf. Chomsky 2000). Since the lower (active) copy is not transferred, it cannot be realized at PF (i.e. pronounced). By contrast, (10) involves a transitive  $v^*$ , which values Case (accusative) on the IA. Thus deactivated, the lower copy of the IA is a candidate for Transfer and thus for PF-realization.



or a covariant/bound-variable reading with a quantificational antecedent, as in *Every boy likes himself*), in line with (1a).

Alternatively, the other option is for EM to apply at this stage, as in (11).

(11) Option 2: External Merge of *he* to form the EA



Since EM is chosen and EM here is optional (given the availability of another option, viz. IM), this choice must likewise have a distinct effect at the CI-interface. The two occurrences of the relevant lexical item are detectable as independent repetitions at the phase level; therefore, the result (EOO) is obligatory disjoint reference at SEM (i.e. *he* ≠ *him*, or the absence of a bound-variable reading with a quantificational antecedent, as in *Every boy likes him*), again in line with (1a).

Turning finally to (9c) and (9d), here the two indexed positions cannot be derivationally related by IM. In the case of (9c), this is due to the presence of at least one intervening phase boundary (the CP headed by ‘that’). The embedded IA is therefore rendered inaccessible to the matrix subject position, in accordance with the phase impenetrability condition. In (9d), an interarboreal or sideward dependency would be required to link the two positions. It is arguable that such dependencies do not conform to the simplest conception of Merge (cf. Chomsky 2007): in this case, *him* is not contained in the sister of *his*, and thus *his* cannot be the result of IM of *him*. In both cases, therefore, only EM is possible.<sup>7</sup> Since EM is now obligatory (there being no option of IM, unlike in (10–11) above), it will be associated with interpretive freedom, in line with (1b). Consequently, incidental coreference/covariance becomes a possible interpretation. As with the trans-phasal dependencies in (6), crossing a phase results in liberation at the interface. This opening up of interpretive possibilities has the interesting consequence that there are two derivational sources for the same interpretation. Thus, for example, a bound variable may be derived either via the phase-internal, obligatory route (cf. 9a), or via the cross-phasal, optional route (as in 9c,d). I leave further exploration of this consequence for future research.<sup>8</sup>

<sup>7</sup>The same is true for those cases where the lower pronoun (bound or otherwise) is contained within an island, such as *Every actor<sub>i</sub> denied the rumour that the studio fired him<sub>i/j</sub>*.

<sup>8</sup>Hornstein (2013) independently argues for a non-uniform approach to bound variables (i.e. those which are the product of movement and those which are not), on compelling empirical grounds. The approach proposed here thus lends further support to Hornstein’s hunch. Note, too, that any c-command requirement on bound variables will only characterize the first kind (the local, IM-derived kind). Thus bound variables are readily available in (9d)-type config-

### 3 Conclusion

In the same spirit as Hornstein (2009; 2013), we have tried to shed light on the question of why restrictions such as the binding principles should exist at all (i.e. why they should be a characteristic property of human language). The answer we have begun to develop here offers a potential first step in “rethinking” the binding theory from the ground up. It is based on the idea that whilst Merge itself might be free, its interpretation is not (up to the phase level), due to the EOO rationale in (1/2). The MTB in conjunction with phases then delivers the *effect* of interpretive constraints (principles A and B).<sup>9</sup> Binding conditions reduce to the differential interpretation of free Merge choices within a phase (i.e. the maximum domain in which the system can “care”): the choice between IM and EM is cashed out at the interface in a complementary manner, yielding obligatorily coreferent copies (local binding) versus obligatorily disjoint repetitions (local obviation), respectively. By contrast, interpretive freedom (including optional coreference) arises with cross-phasal dependencies, as default optionality re-emerges beyond the phase level.

Finally, it should be noted that the sketch presented above leaves many questions open and avenues unexplored. I am grateful to two anonymous reviewers and an editor for highlighting some of these. Amongst the most immediate empirical challenges facing this approach are long-distance reflexives and other cross-clausal referential dependencies, such as those holding between a null embedded subject and a matrix overt subject in null-subject languages in structures like (3); non-local SE anaphors (contrasting with local SELF anaphors) are another relevant point of variation here (cf. Reinhart & Reuland 1993; Lidz 2001). Such cases present a problem for the model proposed here, as they all involve obligatoriness effects that appear to hold beyond the phase level, i.e. where optionality would be predicted (cf. 9c). An approach in terms of cancellation or

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urations, as in *Everyone<sub>i</sub>'s mother likes him<sub>i/j</sub>*, where (importantly) the non-coreferential/non-covariant interpretation of *him* is also an option. The same goes for non-local variable binding, as in *Every criminal<sub>i</sub> thinks the police are after him<sub>i/j</sub>*, instantiating (9c), where again the bound reading is only optional. As discussed in §1, there is no need for the grammar to legislate for optionality, as this is the default state of affairs from the minimalist perspective; only non-optional, forced readings are unexpected and demand an explanation.

<sup>9</sup>Similarly, the phase delivers the *effect* of the government-and-binding theory (GB) binding domain, since it is at the phase level that these choices apply and are made to count. Clearly, this is not the same as claiming the phase to actually *be* the binding domain (redux) in any primitive sense, in which pronouns must be free and anaphors bound; see e.g. Uriagereka & Gallego 2006; Hicks 2009; Sabel 2012 for other ways to conceive the relation between binding domains and phases.

extension of the intermediate phases suggests itself for such cases of non-local binding (see Livitz 2016 for such an analysis of Russian embedded null subjects), or else the relevant variation might be attributed to the nature of Transfer itself (cf. the distinction between weak and strong Transfer implied in Chomsky 2008). A reviewer also asks about non-complementary distribution, i.e. configurations in which both the pronoun and the anaphor freely alternate and are equally acceptable (or indeed, equally unacceptable, as in the cases of overlapping reference discussed in Reinhart & Reuland 1993). It is important to note in this connection that the present approach takes only obligatoriness, not optionality, to demand an explanation under the SMT and a minimally specified UG (cf. §1; indeed, its main conceptual advantage is that it only seeks to explain what needs to be explained, reducing the core binding facts to principled variation and leaving the rest open to free variation). More specifically, interpretively constrained pronominal/anaphoric forms are predicted to arise only where two Merge options (internal and external) compete at the phase level. Where either Internal or External Merge is unavailable (cf. footnote 2), interpretive optionality and thus non-complementarity should re-emerge, at either or both interfaces. For SEM, an example of such non-complementarity has already been discussed (the freely interpreted embedded pronoun in (9c)); the PHON equivalent (i.e. multiple realizational options) is no less expected, and may be manifested in the form of pronoun/anaphor interchangeability, as found in certain DP and PP configurations. These tentative suggestions indicate at least some of the empirical and theoretical directions in which the current approach might be immediately extended.

## Abbreviations

CI	conceptual-intentional	IA	internal argument
EA	external argument	IM	Internal Merge
EM	External Merge	MTB	movement theory of binding
EOO	effect on outcome	PF	phonetic form
GB	government-and-binding theory	SMT	strong Minimalist thesis
HG	Holmberg's generalization	UG	Universal Grammar

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