A CASE PHASE ANALYSIS OF ONLINE BINDING IN ENGLISH*

Réjean Canac-Marquis
Simon Fraser University

1. Introduction

This paper proposes that binding properties of moved constituents in English, as illustrated by Online binding effects (so-called "Barss sentences", Barss 1986), are best captured through a Case Phase analysis (Canac-Marquis 2004, 2005) according to which uninterpretable feature checking (e.g. Case in this instance) defines potential phase categories and subsumes local binding domains. The analysis of Online Binding developed here has several advantages: i) it provides an alternative to questionable aspects of standard Online Binding analyses ii) it sheds light on a new data paradigm introduced by Abel (2003) which remains unexplained under standard analyses iii) it is not specific to Online Binding phenomena, but follows without further assumption from a general Case Phase analysis of Binding domains. In fact, it is our view that Online Binding effects are exactly what one would except from a Case Phase analysis of Binding domains.

2. The Phenomenon: Online Binding

The Online binding phenomenon, including so called "Barss' sentences" (Barss 1986), refers to local binding configurations that can only be licensed in the process of moving/reconstructing a constituent. We can categorize the phenomena according to where Binding occurs: Binding occurring before Move, also conceived as Reconstruction (Chomsky 1986, Barss 1986, Lebeau 1988) as exemplified in (1); and Binding occurring during or after Move , as in (2b) and (2c), respectively.

(1) a. [each other's$_i$ supporters] frightened the candidates$_i$
b. [which pictures of himself$_i$] does John$_i$ like t ?

(2) a. *John$_i$ wonders if Mary likes [a picture of himself$_i$]
b. John$_i$ wonders [which pictures of himself$_i$] Mary likes t
c. [Which picture of himself$_i$] does John$_i$ [t [think Mary likes t]]

*I wish to thank my colleagues in the *Interface* project for their comments at the early stage of this paper, in particular: Anne-Maria Di Sciullo, Rosemarie Déchaine, Yves Roberge, Virgina Hill and Manuel Espanol Echevaria I also thanks comments from the audience at the CLA meeting at UBC. Research Funding for this paper was partly provided by the MCRI SSHRC grant #412-2003-1003 *Interface Asymmetries and Cognitive Treatments* directed by Anne-Maria Di Sciullo (UQAM); VP-Research and FASS Dean's office, Simon Fraser University.

Actes du congrès annuel de l'Association canadienne de linguistique 2008.
Proceedings of the 2008 annual conference of the Canadian Linguistic Association.
© 2008 Réjean Canac-Marquis

Each pre- or post- Move scenario can involve A or A-bar movement, with some important distinctive properties that should follow from a unified analysis. The latter point is crucial in our view: many standard analyses have focused on parts of the phenomena, e.g. Reconstruction at the expense of online or post Move binding, but doing so they missed important insights as to what the phenomena as a whole can tell us not only about a unified theory of Binding that applies at any point of a derivation under constant principles, but a derivational model of grammar that applies by phases. Indeed, one of our global claim in this paper is that Online Binding phenomena provide further evidence not only to the assumption that syntactic derivations are incremental in nature, but on the very identity of syntactic phases.

2.1 Previous Accounts and Issues

Let us first review some standard analyses of the phenomena and raise issues for them. The issues will pave the way to our proposal in section 3.

2.1.1 Partial accounts: Reconstruction and Anywhere Condition

Example (2c) above has been analyzed as a straightforward case of Reconstruction (Chomsky 1976, 1981, Freidin and Lasnik 1981), whereas binding occur at LF after the move constituent has been put back in its base-generated position. The idea that a parallel analysis could apply to (1a) has been the subject of much debate in the 80's, as the proposal that A-movement could allow reconstruction was an equivocal issue at best. One of the main challenges was to explain why both types of Reconstructions would display distinctive properties such as the apparent obligatoriness vs optionality of Reconstruction with A-bar versus A-movement, respectively. Examples in (3) illustrate that distinction (examples from Lasnik and Uriagereka 1988):

(3) a. $\text{John}_i/\text{he}_i$ seems to himself_i [t_i to be happy]
b. *him_1 /himself_1 only, John_1 likes t_1

In (3a), reconstruction of A-movement would have to be optional otherwise a condition B or C would be triggered. In contrast, reconstruction in (3b) must obligatorily apply to ensure a Condition B. (3c) confirms that condition B is indeed at play in (3b).

In addition to providing no real explanation as to why A and A-bar reconstruction would be different, there are both conceptual and empirical issues with that approach. First, Lasnik (2003), exploring a claim of Chomsky (1995), provides very conclusive arguments that reconstruction actually does not occur in A-chains (See Canac-Marquis 2005 for a review of these arguments). If this is correct, then examples such as (1a) require an alternative explanation. Secondly, even if there were reconstruction in A-chains, it still would not fully explain the paradigm of online binding. For instance, examples such as (4), introduced by Barss (1986), contrasts with (3b) in showing that A-binding can occur not only before or after movement, but at any intermediate step of the derivation.

(4) Him_1/$himself_1$ only, $John_1$ thinks that Mary likes t_1

These types of examples led Belletti and Rizzi (1988) to propose an additional explanation to mere Reconstruction, namely that Condition A, and only condition A, is an "anywhere" condition that can apply at any point in a derivation. Crucially then, Condition A could apply off any step of a derivation, i.e. D-structure, S-structure and LF. The proposal allowed to captured the "online" binding cases, but conceptually merely shifted the question raised earlier about A and A-bar reconstruction: Why should Condition A be different, in particular to condition B? It is indeed crucial that Condition B not also be an anywhere or everywhere condition to avoid ruling out a number of grammatical cases, such as (3a) or (4) or (5) below, which for Belletti and Rizzi is a condition B, and not a condition A, violation.[1]

(5) *$himself_i$ seems to him t_i to be happy

2.1.2 Anywhere Condition Issues

Notwithstanding the issue of why Condition A should crucially be different than condition B, the Anywhere Condition remains the standard explanation for online binding paradigms. If we now try to apply this condition within minimalist assumptions, in particular the fundamental concept of derivation by phase, we seem to run into some problems.

Following Chomsky (2001, 2004), Binding applies at the C/I interface (after spell out) and *v*P and CP are phases. Now consider example (1a), repeated as (6) below, in light of those assumptions.

(6) a. $[_{CP}\ [_{TP}\ ([_{vP}$ frightened the $candidates_i\ [_{DP}$ each other's$_i$ supporters]]]]
b. $([_{CP}\ [_{TP}\ [_{DP}$ each other's$_i$ supporters]$_j$ $[_{vP}$ frightened the $candidates_i\ t_j$]]]

Assuming, along Belletti and Rizzi, that the surface subject of psych verbs are underlying objects, (6a) shows the relative position of the anaphor and its antecedent prior to A-movement. In order to be bound, the anaphor would need to spell out along with the experiencer object in the *v*P phase prior to raising, but in order to do so, the entire DP would presumably need to do so as well under minimalist assumption. But that DP must raise to the next CP phase before spelling out, as nominative Case, an uninterpretable feature, need be checked first at TP. The problem is thus: How can the subject DP spell out both in *v*P phase (to allow anaphor binding prior to raising, e.g. 6a) and CP-phase (to allow nominative case-checking after raising e.g. 6b)? To the extent that, under minimalist assumptions, in order for the anywhere condition to apply spell out would have had to occur, it seems to fail to capture this type of example. Indeed,

[1] However (5) might arguably be out because *himself* cannot bear nominative case. An example such as "$John_i$ expected $himself_i$ to seem to him_i t_i to be more intelligent" seems to support that view: it is reportedly quite acceptable under a context where, e.g. John is watching a rerun of a TV interview in which he was a participant.

recall that the anywhere condition is based on the assumption that binding can occur at any point of a derivation, e.g. S-structure. The only plausible solution would be to assume that Reconstruction applies at LF, but that seem to run against Chomsky's and Lasnik's own argument that Reconstruction does not apply to A-chains.[2]

Another shortcoming of the anywhere condition and/or Reconstruction approaches is the observation of intriguing contrasts in Abels (2003), shown in (7). Abel does not provide an explanation for the binding paradigm, as this was not his main interest in discussing it, but it now begs to be accounted for.

(7) a. * Mary seemed to $John_1$ to like [these pictures of $himself_1$]
b. [These pictures of $himself_i]_2$ seem to $John_i$ to be t_2 on sale
c. [Which pictures of $himself_1]_2$ did it seem to $John_1$ that Mary liked t_2?
d. *[Which pictures of $himself_1]_2$ did Mary seem to $John_1$ to like t_2?

The contrast (7a/b) shows that online binding must be available through A-movement, in a way parallel for A-bar movement in (7c). A first surprising contrast is (7c/d), showing that online binding is only available in (7c), yet both are A-bar type movements. In particular, assuming a derivation by phase, the intermediate vP edge (of *like*) in (7d) should allow an intermediate binding position for the anaphor, just as the intermediate CP phase presumably does in (7c). Why it wouldn't is a rather puzzling issue. The only difference in these examples seems to reside in the tenseness of the intermediate verb *seem*, but standard phase theory assumptions do not capture how this distinction could play out in this case. Another puzzling contrast is (7b/d), where tenseness of *seem* does not seem to be at play, but rather, the type of movement involved, i.e. A vs A-bar. Yet, we already saw in (7a/b) that A-movement allowed online binding just a swell as A-bar movement.

As we will argue in a later section, the real factor behind these seemingly tense and movement type contrasts is Case, which in our view, directly affects the nature of the intermediate phases and therefore online binding opportunities. Standard phase analyses do not take Case into account and fail to account for these online binding contrasts.

In sum, we saw that a Reconstruction approach to online binding effects has both conceptual and empirical issues, while the Anywhere Condition approach requires treating Condition A distinctly from Condition B, while still being incompatible with a standard derivation by phase analysis. Finally, we pointed out a new online binding paradigm, raised in Abel (2003), which seems to defy any attempt at capturing online binding contrasts based on Chomsky's standard vP and CP versions of phases. The next section presents an alternative framework for defining the nature of syntactic phases. I will then use this framework to develop an alternative analysis of online binding cases.

---

[2] Lasnik (2003) recognizes this contradiction and claims that examples such as (1a) are now ungrammatical in his own judgment, though they were not before. Our view here is that many authors have recognized the grammaticality of such cases and that one needs to adjust the theory, not the facts, to account for the latter.

2.0 Case Phases

For Chomsky (2000, 2001), a phase is a syntactic object defined as a domain for cyclic interpretation. While Chomsky identifies vP and CP as phases, other categories have been identified as phases in the literature: DPs (Adger 2003); ApplP (McGinnis 2004); M-Domains and N-domains for morphology (DiSciullo 2003). In Canac-Marquis (2004, 2005), I proposed that phases correlate with uninterpretable feature (e.g. **Case**) checking Projections: TP, AgrP/*v*P , ApplPs (McGinnis 2004), DPs (Adger 2003), PPs (Bokovic 2004).[3]

(8) Case feature checking (through spec-head) allows phase spell out and defines potential phase categories.

I argued that the notion Case Phase follows directly from Minimalist assumptions: Case is an uninterpretable feature that must delete prior to spell out. Therefore, Case checking on a DP and its case-checking category (i.e. TP, PP, AgrP, etc.) is the minimal spell out (phase) point in a derivation, for that DP and its Case-checking category. Economy principles of early closer and spell out would suggest that these minimal phase categories should actually correspond to phases. If so, these phases should be traceable through various domain closure effects. For instance, a central prediction of this proposal is that a DP should remain semantically inactive (w.r.t. binding and scope, cross-over effects, etc.) prior to its spell out to C/I interface, which means prior to Case Checking under a Case Phase analysis. As summarized in the table in (8) below, with illustrating examples in (9) and (10), properties defining fundamental asymmetries between A/A-bar Chains directly support this prediction. Hence, in an argument Chain, the copy/trace at the interface between an A-Chains and an A-bar Chain is the Case position, which under our view, correspond to the entry point of a DP at the C/I interface, i.e. the Phase. Hence, the fact that binding, cross-over, reconstruction and scope properties of a DP fundamentally shift at that very point is no coincidence under our view, but reflects the fact that it is where it becomes visible at the C/I interface.

[3] CP could also be a phase if it bears Case or an uninterpretable Wh feature (by opposition to an interpretable Q feature). I have not yet develop the proposal for that, but the analysis at the end of this paper alludes to this possibility.

(8) A/A-bar Chains asymmetries

	A-Chains	A-Bar Chains
Feed Binding	YES	NO
Binding Reconstruction	NO	YES
Scope Reconstruction	NO	YES
WCO	NO	YES

(9) **A-chains**

a. Feed A-Binding:
John$_i$ seems to himself [t_i to be happy]

b. No Binding Reconstruction (Chomsky 1995:210)
[That John$_i$ was asleep]$_j$ seems to him$_i$ [t_j to be correct]

c. No Scope reconstruction (Lasnik 2003: 134)
[no one]$_i$ is certain t_i to solve the problem
it is certain that no one solved the problem

d. No WCO effect:
Who$_i$ seems to his$_i$ mother [t_i to be intelligent]

(10) **A-bar chains**

a. Do not feed A-Binding:
*Who$_i$ does [each other$_i$'s supporters] like t_i

b. Binding Reconstruction
*[Which portrait of John$_i$]$_j$does he$_i$ prefer t_j

c. Scope Reconstruction:
This man, some picture of whom everyone knows, … (narrow scope)

d. WCO effect:
?*Who$_i$ does [his$_i$ supporters] like t_i

2.1 Case Phase and Binding Conditions

Another objective of Case Phase is to recapture Binding domains as Phase domains, as defined by the Phase Impenetrability Condition (Chomsky 2001). In other words, Binding Conditions can be restated in term of Phase domains:

(11) Binding Conditions, Canac-Marquis (2005)

a. Condition A: A reflexive is bound in its phase at spell out

b. Condition B: A pronoun is free in its phase at spell out

The following examples illustrates the analysis of a basic reflexive configuration.

(12) Legend: **(** = phase
~~John~~ = trace/copy
John = C/I spell out or head of chain in a derivation

([$_{TP}$[John$_i$]**(**[$_{AgroP}$himself$_i$[$_{vP}$~~John~~$_i$ likes ~~himself~~$_i$]]]

TP and AgroP are the Case phases in this structure (I am assuming, contra Chomsky 2001, but along Lasnik 2003 and Bokovic 2004), that accusative case is checked in spec of AgroP, i.e. covert movement applies on the mapping to C/I. *John* becomes "semantically active" only at TP phase, i.e. after nominative Case is checked on T. *himself* in Spec of AgroP is also active after accusative case checking, As *himself* sits at the *edge* of phase AgroP, it can escape the latter (by delaying its spell out) and can thus spell out and be bound in the same phase (TP) as *John*. In sum, phase domains, as defined by PIC, correspond to the Binding domain for reflexive and the non-binding domain of pronouns in English.

I refer the reader to Canac-Marquis (2005) for a detailed discussion of the extensive English paradigm. One configuration that is important for our discussion here however is the status of PPs, which I shall review shortly. Reuland and Reinhart (1993) noted an important asymmetry between argument PPs in (14) and adjunct PPs in (15), where the complementary distribution between pronouns and reflexives seems to collapse.

(13) Argument PPs (R&R:661)
a. *Max* speaks with *himself*/**him*
b. *Lucy*'s joke about *herself*/**her*

(14) Predicate and adjunct PPs (R&R:664)
a. *Max* saw a gun near *himself*/*him*
b. *Lucy* counted five tourists in the room apart *herself*/*her*

These examples beg the question of the status of PPs as potential phases. As P marks Case, PPs could potentially define phase domains. Following Bokovic

(2004) I will assume that Case-checking through Spec-head applies in PPs, making PP a phase, but DP always escapes that PP phase by covert Move to edge of PP.4 I will further assume that theta-roles assigned conjointly by V-P require V-P to spell out together at C/I interface for interpretation.5 With these assumptions in hand, let us consider the analyses for the predicate versus adjunct PPs (DP move to spec of P not represented).

(15) Argument PP

([$_{TP}$ Max$_i$ [$_{vP}$ Max speaks [$_{PP}$ with himself$_i$/*him$_i$]]]

(16) Adjunct PP

([$_{TP}$ Max$_i$ **(**[$_{AgroP}$ 5 snakes[$_{vP}$ Max counted t [$_{PP}$near him$_i$]] near himself$_i$]]

The argument PP case in (15) goes as follows. Note first that apart from PP itself, there is actually only one phase in this sentence, namely TP. The theta-role assigned conjointly by V-P requires P and V to spell out together at C/I interface, namely at the TP phase. Therefore, the only licit choice is the reflexive, as it spells out in the same TP phase as its antecedent. In contrast, the adjunct PP (16) does not need to spell out with the verbal head and in fact, can spell out independently (Lebeau 1988; Uriagereka 1999). This leaves two options: i) **Early spell out** of the PP by itself or in domain of AgroP/vP phase, which implies the choice of *him*,or alternatively ii) **Delayed spell out** within TP phase (at the *edge* of *v*P/AgroP), which then allows the reflexive *himself* to be bound in the same phase as its antecedent. In other words, the option of *him/himself* is due to a derivational choice, itself due to the adjunct status of the PP phase containing the anaphoric element.

As we shall now argue in the next section, this option of early versus delayed spell out, rendered possible by the fact that PPs are self contained Case phases, is exactly what permits online binding effects. In fact, in addition to analyzing online binding cases, the next section will draw parallel analyses for cases that have not traditionally been treated as online binding case, but which can now be reduced to the same basic strategies. As such, this will reinforce our view that online binding effects are just an instance of the fact that PPs are self-contained phases that can spell out at different point of a derivation, yielding optional binding configurations. As such, online binding is just what one would expect from a theory of binding domains based on phase domains.

---

[4] That assumption is not crucial to our analysis: see Canac-Marquis (2005) for a different view where PPs do not involve spec-head checking.

[5] In the case of PP movement, I assume that spell out to C/I interface can be separate from spell out at PF, the latter being subject to pied-piping requirements for, e.g. Move feature. More generally, there is not a necessary one to one correspondence between C/I spell out and PF spell out, as copy-traces can be the location for C/I spell out only, i.e. an alternative perspective of the reconstruction process without actual reconstruction.

3.0 Online Binding as Early/Delayed C/I Spell Out.

Let us now consider the analyses of online binding and other similar cases under the Case phase framework. Let us keep in mind throughout the discussion that, contrary to the standard anywhere condition approach presented in the first section, no special status need be asserted or maintained for Condition A or B to cover online binding cases: they will fall out from the general analysis of Binding domains as Case Phase domains**.** The analysis is built around the option of early versus delayed spell outs of PPs. Let us start with example (1a), reproduced as (17):

(17) *Each other's*$_i$ supporters frightened *the candidates*$_i$

([$_{TP...}$ [$_{DP}$[~~each other's$_i$~~] supporters]$_j$ ([$_{AgrP}$ [$_{DP}$ the candidates]$_i$ [[$_{DP}$each other's$_i$] ~~supporters~~]$_j$ [$_{vP}$ frightened t$_j$ …]]]

The key to this example is the fact that *each other's* bears its own Case and can be early-spelled out in AgroP phase, before raising of subject DP to TP phase; nothing prevents spelling a sub-part of constituent, as long as Case is checked, which is what occurs in (17). The next example involves early spell out with A-Bar movement:

(18) *John*$_i$ wonders which picture of *him*$_i$ Mary likes

([$_{TP}$ John wonders [$_{CP}$ [~~which pictures of him$_i$~~] ([$_{TP}$ Mary ([$_{AgrP}$ [which pictures of him$_i$] likes t$_i$]]]]]

Once the direct object moves to AgroP and checks case, the pronoun *him* can spell out alongside the whole DP. Coreference with *John* requires a pronoun, as *John* lies outside the phase domain of *him.* The same phrase with an anaphor is a case of delayed spell out:

(19) *John*$_i$ wonders which picture of *himself*$_i$ Mary likes

([$_{TP}$ John wonders [$_{CP}$ [~~which pictures~~ of himself$_i$] ([$_{TP}$ Mary ([$_{AgroP}$ [which pictures ~~of himself$_i$~~] likes t]]]]

Delayed spell out of PP *of himself* brings the reflexive into the main TP phase domain in which the higher subject is included, i.e. *himself* is bound in its phase. Notice that it is the adjunct status of *of himself* which allows it to delay its spell out. Next is a case of binding across a DP without pronominal antecedent.

(20) *Lucie*$_i$ saw a picture of *her*$_i$

([$_{TP}$Lucie$_i$ ([$_{AgrP}$[$_{DP}$a picture [of her$_i$]] [$_{vP}$[Lucie$_i$] saw [$_{DP}$ ~~a picture of her$_i$~~]]]]

The PP of her spells out after raising a picture of her into AgroP for Case checking. The PP remains in the domain of AgrP phase, thus AgroP is its Binding domain. Its antecedent Lucie resides in the next TP phase, thus a

pronoun is selected for coreference in this case (i.e. *him* is free in its phase). The same sentence with a reflexive is a case of delayed spell out:

(21) *Lucie*$_i$ saw a picture of *herself*$_i$

([$_{TP}$ Lucie$_i$ ([$_{AgrP}$ [$_{DP}$ a picture [of herself$_i$]] [$_{vP}$…[Lucie$_i$] saw [a picture of herself]]]

After raising to Spec of AgroP, spell out of adjunct *of herself* is delayed to TP phase, after AgroP phase spelled out (or alternatively, the adjunct PP is adjoined to the structure after AgroP spell out). The PP is therefore part of the TP phase which contains the subject Lucie: the reflexive is bound in the TP phase.

The previous analysis of DPs applies directly to examples of cross sentential binding such as (22), first noted in Chomsky (1981):

(22) *John$_i$* thought that pictures of *himself$_i$* were on sale

([$_{TP}$ John$_i$ thought [$_{CP}$ that ([$_{TP}$ [$_{DP}$ pictures of him$_i$/of himself$_i$] were on sale]]]

Spell out of PP *of him* contained in the embedded subject can occur at the IP-phase of the embedded sentence (*him* spells out as free in its phase). The alternative though, is for adjunct PP *of himself* to delay spell out: the next phase up is main clause TP and PP being at the **edge** of lower IP phase, it resides in the phase of the main subject: the reflexive *himself* is bound in its phase.

As we are considering cross-sentential binding, let us look in passing at another example that seems to contrast with (22), namely binding across a prepositional complementizer.

(23) *John*$_i$ wanted for *himself*$_i$ /**him$_i$* to be happy

([$_{TP}$[John$_i$] [$_{vP}$~~John$_i$~~ wanted] ([$_{CP}$ himself$_i$/*him$_i$ for [$_{TP}$ ~~himself$_i$/*him$_i$~~ to be happy]]]]

According to standard analyses, *for* is a prepositional complementizer assigning structural case to the subject of the infinitive (Kayne 1981, Chomsky 1981). Since *for* is prepositional and assigns case, CP becomes a phase and *himself* must covertly raise to spec CP for Case checking. By sitting at the edge of CP phase, *himself* becomes part of the main TP phase and is thus bound in its phase. The pronoun is excluded in the same position.

3.1 Abel's Paradigm

Let us now return to the paradigm that seemed to defy any standard analysis of online binding, in particular the anywhere condition. I repeat the examples in (7) below for convenience.

(7) a. * Mary seemed to John$_1$ to like [these pictures of himself$_1$]
b. [These pictures of himself$_i$]$_2$ seem to John$_i$ to be t$_2$ on sale
c. [Which pictures of himself$_1$]$_2$ did it seem to John$_1$ that Mary liked t$_2$?
d. *[Which pictures of himself$_1$]$_2$ did Mary seem to John$_1$ to like t$_2$?

As we pointed out first discussing these examples, the crucial contrasts to explain seem to involve a tense/infinitival TP distinction in (c/d) and a movement type (A/A-bar) in (b/d). As I shall argue, these two seemingly unrelated factors can be reduced to one, crucial element: Case.

Let us start with the two A-bar movement contrast, (7c) and (d). (7c) can be analyzed as an instance of delayed spell out. In the first step of derivation, *which pictures of himself* move to Spec of AgroP to check accusative case, and spell out of *of himself* is delayed until it can reach a higher phase containing an antecedent. The next cycle brings *which pictures of himself* to the edge of TP phase. From that position, *of himself* could (C/I) spell out in the same phase as *John*, which stands in the next TP phase. This is illustrated in (24).[6]

(24) Which picture of *himself$_1$* did it seem to *John$_i$* that Mary like?

([Which ~~pict. of himself~~$_1$] did **(**[$_{TP}$it seem to John$_1$ that **(**[$_{TP}$[~~Which~~ ~~pict.~~ of himself$_1$] Mary **(**[$_{Agrp}$[~~Which~~ pictures ~~of himself~~$_1$] liked t]]]?

Let us now consider how this analysis of (7c) extends to the contrast with (7d). Both cases involves A-bar movement, so the type of movement is not at play. The essential difference between these example is the fact that the verb *seem* is used in its expletive form in (7c), whereas as a raising verb in (7d). This difference suggests a natural explanation, namely that with *seem* as a raising verb, there is no intermediate CP projection allowing an intermediate online binding site for the reflexive included in the Wh-moved DP. However, the problem, and the solution, cannot be that simple as a quick comparison with (7a) reveals: (7a) does not have an intermediate CP projection, yet intermediate online binding seems possible, as the comparison with (7b) suggests. In sum, the explanation for these contrasts cannot be reduced to the (un)-availability of an intermediate CP projection.

---

[6] There is an alternative derivation to consider, namely that binding could apply from spec of CP if the latter were a phase, as follows:

i. **(**[Which ~~pict. of himself~~$_1$] did **(**[$_{TP}$it seem to John$_1$ that **(**[$_{CP}$[~~Which~~ ~~pict.~~ of himself$_1$] **(**[$_{TP}$ t Mary **(**[$_{Agrp}$[~~Which~~ pictures ~~of himself~~$_1$] liked t]]]?

This option begs the question of whether CP is a phase or not. Though an interesting question, we will not address it in this limited work, but will point out that under our proposal, CP would not be a phase per se, but only if an uninterpretable feature would need to be checked, e.g. Case or Wh. As the sentence is not a indirect/direct question or a relative clause, it seems that Case would be the only reasonable option. We hope to explore this issue in future work.

Let us step back then and consider another way in which the verb *seem* may differ in its expletive versus raising use, and I propose Case. Let us assume for the sake of argument for now, that raising-*seem* assigns Case to its sentential complement (sentential ergative), whereas expletive-*seem* doesn't (unaccusative). Under Case Phase, this would require the sentential complement of raising-*seem* in (7a) and (7b) to raise to spec AgroP for Case checking. This move however, creates a number of potential issues. First, the embedded subject should presumably move out of the sentential complement (by adjoining to it creating a TP edge segment) before the latter raises to AgroP, otherwise a move island effect would be triggered and subject raising could not apply. In other words, sentential raising for case-checking into AgroP would be a remnant TP movement, leaving the subject-to-be raised behind and resulting in the following intermediate configurations for (7a) in (24) and (7b) in (25) (reducing some copies to "t" for clarity):

(24) *Mary seemed to *John*$_i$ to like these pictures of *himself*$_i$

([$_{TP}$ **(**[$_{AgroP}$ [$_{TP}$ to **(**[$_{AgroP}$ [these pictures of himself$_1$]$_m$ [$_{vP}$ ~~Mary~~ like t$_m$]]]$_k$ seemed to John$_1$ [$_{TP}$ [Mary] t$_k$]

(25) These pictures of *himself*$_i$ seem to *John*$_i$ to be on sale

([$_{TP}$ **(**[$_{AgroP}$ [$_{TP}$ to be [~~these pictures of himself~~$_1$] on sale]$_m$ [$_{vP}$ seemed to John$_1$ [$_{TP}$ [these picture of himself] t$_m$]

As can be see from comparing these intermediate points of each derivation, only in (24) is the intended antecedent *John* in a position to c-command and bind the reflexive while in being in the same AgroP phase. Hence, (24) is analyzed as a case of early spell out of *of himself* before the whole DP *these pictures of himself* raises to the main TP phase, in a fashion parallel to the analysis of a psych verb case in (17).

This analysis of the contrast (7a/b) now provides us with a direct explanation for the contrast (7c/d). In particular, (7d) can now be excluded on the same basis as (7b): as the DP containing the reflexive is not the targeted constituent for subject raising, it raises immediately to the spec AgroP of *seemed* and once in that position, relies outside the c-command domain of its intended antecedent, *to John*. The corresponding intermediate configuration is shown in (26).

(26) *Which pictures of *himself*$_i$ did Mary seem to *John*$_i$ to like ?

([$_{TP}$ did **(**[$_{AgroP}$ [$_{TP}$ to [which pictures of himself]$_m$ [$_{vP}$ ~~Mary~~ like t$_m$]]$_k$ seemed to John$_1$ [$_{TP}$ [Mary] t$_k$]

In sum, assuming that raising-*seem* assigns case to its sentential constituent, acting as a sentential ergative verb, allows us to capture Abel's challenging online binding contrasts in terms of the Case Phase analysis of

online binding we developed in this paper. What remains to be shown is whether the distinction between the two types of *seem* uses can be independently justified, a matter we leave to further research.

4.0 Conclusion

This concludes our proposal that binding properties of moved constituents in English, as illustrated by Online binding effects (including so-called "Barss sentences", Barss 1986), are best captured through a Case Phase analysis (Canac-Marquis 2004, 2005) according to which uninterpretable feature checking (e.g. Case in this instance) defines potential phase categories and subsumes local binding domains. Our analysis showed that a standard approach to online binding effect, developed in the 80's, failed to apply within minimalist assumption and could not capture a more recent and challenging online binding paradigm raised by Abel (2003). These results provides support for an approach to the nature of syntactic phases that not defined in the absolute, but relative to the specific features of a construction. Future research will develop the notion of Case Phase to other constructions, such as scrambling, and also explore the status of CP as phase category based on whether or not it bear an uninterpretable feature.

References

Abels, Klaus (2003) *Successive Cyclicity, Anti-Locality and Adposition Stranding*, Ph.D. Dissertation: University of Connecticut.

Adger, David. 2003 Stress and Phrasal Syntax. *GLOW* abstract.

Aoun, J. 1982. The Formal nature of Anaphoric Relations. MIT Ph.d. Dissertation.

Barss, Andrew. 1986. *Chains and Anaphoric Dependence: On Reconstruction and its Implications*. Doctoral Dissertation. MIT, Cambridge, Mass.

Belleti, A. & G. Rizzi. 1988. Psych verbs and Theta Theory. *Linguistic Inquiry* 19: 1-34.

Bokovic, Z. 2004. "Case and Agreement with Genitive of Quantification in Russian." InN: Boeckx, Cedric (ed.) Agreement Systems. Amsterdam, Netherlands: Benjamins.

Canac-Marquis, R. 2004. Bound Pronoun Variables and Incremental Interpretation, in A. Branco, T.McEnery and R. Mitkov (eds) *Proceedings of DAARC 2004.* Lisboa, Portugal: Ediçoes Colibri : 39-54

Canac-Marquis, R. 2005. Phases and Local Binding Domains", paper presented at the HPSG Binding Workshop, University of Lisbon.

Chomsky, N. 2000. Minimalism: The Framework. *In Step by step: Essays in Syntax in Honor of Howard Lasnik*, ed. by J. Martin, D. Michael and U. Uriagereka. 89-155. Cambridge, Mass: MIT Press.

Chomsky, N. 2001. Derivation by Phase. *In Ken Hale: A Life in Language*.ed. by Michael Kenstowicz, 1-52. Cambridge, Mass: MIT Press.

Di Sciullo, A.M. 2003. Morphological Phases. In Hang-Jin Yoon (ed.) *Generative Grammar in a Broader Perspective. Proceedings of the 4th GLOW in Asia 2003*

Gast, Volker. 2004. The Interpretation of Logoriphic *self*-Forms. In A. Branco, T.McEnery and R. Mitkov (eds) *Proceedings of DAARC 2004.* Lisboa, Portugal: Ediçoes Colibri.

Hiraiwa, K. 2005. *Dimensions of Symmetry in Syntax* MIT Ph.D. Dissertation.

Kayne, R.1981. On Certain Differences Between French and English, *LI* 12.

Lasnik, H. 2003. *Minillaist Investigations in LinguisticTheory.* Routledge : London

Lebeaux, D. 1988. Ph. D. Dissertation, University of Massachusetts, Amherst. Published by GLSA.

McGinnis, Martha 2003 Lethal Ambiguity. *LI*, 35, 1:47-97

Reinhart, T. 1983. *Anaphora and Semantic Interpretation*, University of Chicago Press, Chicago, Illinois.

Reinhart, T. and E. Reuland. 1993. Reflexivity. LI 24,4: 657-721

Svenonius, P. 2004. On the Edge, in D. Adger, C. de Cat and G. Tsoulas (eds). *Peripheries: Syntactic Edges and their Effects*. Kluwer Academic.

Uriagereka, J. 1999. Multiple Spell Out, in S.D. Epstein & M Hornstein (eds) *Working Minimalism.* Cambridge, Mass: The MIT Press. pp. 251-283.