

CONCEPTUAL STRUCTURE CONDITIONS ON REFLEXIVE ANAPHORS¹

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ABSTRACT: The main goal of this paper is to present three arguments (two empirical and one conceptual) against a purely syntactic version of Binding Theory and to propose a very rough outline for an alternative, following some suggestions by Jackendoff (1972, 1992) and Culicover and Jackendoff (2005). The first argument is borrowed from Jackendoff (1992) and is concerned with an interaction between the binding of reflexives and an instance of what Nunberg (1979, 1995) calls reference transfers. The second argument explores the binding possibilities of reflexive anaphors in A'-positions. The third one involves a conceptual critique of a mode of analyzing imperatives initially practiced by Culicover (1971). All of these considerations – along with the independent necessity of a notion of binding that covers binding inside Lexical Conceptual Structures (cf. Jackendoff 1990) and the phenomenon of control (cf. Culicover and Jackendoff 2005) – build a strong cumulative case against a purely syntactic version of Binding Theory. The alternative I tentatively offer against this “syntactocentric” approach involves formulating a rule to license the occurrence of the reflexives as an interface principle: it will state a well-formed correspondence between syntactic objects and semantic configurations in Conceptual Structure, a level of mental representation conceived by Jackendoff (1983, 1990, 2002, 2007).

KEYWORDS: reflexives; anaphors; Binding Theory; Conceptual Structure.

RESUMO: O principal objetivo deste artigo é apresentar três argumentos (dois empíricos e um conceitual) contra uma versão puramente sintática da Teoria da Ligação e propor um esboço bastante esquemático de uma alternativa, seguindo algumas sugestões de Jackendoff (1972, 1992) e Culicover e Jackendoff (2005). O primeiro argumento é recolhido de Jackendoff (1992) e diz respeito a uma interação entre a ligação de reflexivos e uma instância do que Nunberg (1979, 1995) chama de transferência de referência. O segundo argumento explora as possibilidades de ligação de reflexivos anafóricos em posições-A'. O terceiro envolve uma crítica conceitual de um modo de analisar imperativos inicialmente praticado por Culicover (1971). Todas essas considerações – juntamente com a necessidade independente de uma noção de ligação que contemple a ligação dentro de Estruturas Conceituais Lexicais (cf. Jackendoff 1990) e o fenômeno do controle (cf. Culicover e Jackendoff 2005) – constituem um forte caso cumulativo contra uma versão puramente sintática da Teoria da Ligação. A alternativa que eu ofereço, tentativamente, contra essa abordagem “sintactocêntrica” envolve formular uma regra para licenciar a ocorrência de reflexivos como um princípio de interface: tal regra deve enunciar uma correspondência bem-formada entre objetos sintáticos e configurações semânticas na

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estrutura conceitual, um nível de representação mental concebido por Jackendoff (1983, 1990, 2002, 2007).

PALAVRAS-CHAVE: reflexivos; anáforas; Teoria da Ligação; Estrutura Conceitual.

1. THE HISTORY OF GENERATIVE GRAMMAR AND THE TREATMENT OF REFLEXIVE ANAPHORS

It is quite easily overlooked that the early 1970s represented a major (perhaps *the major*) turning point in the history of modern generative grammar. Right after Chomsky (1972) and Jackendoff (1972) issued their compelling (and mutually influenced) critiques of the burgeoning generative semantics movement, a new architecture of grammar emerged (the Extended Standard Theory) and, with it, a new and original research agenda for the study of language.

In many ways, this new agenda embodied the very antithesis of what generative semantics was all about. While Lakoff (1970) and Postal (1972) advocated the need for global derivational constraints and Ross (1970) postulated very specific and *ad hoc* transformations such as his famous performative deletion rule, Chomsky (1970, 1973) sought to reduce the descriptive power of generative grammars in two complementary ways. One was in the reduction of the base component to X-Bar Theory within the lexicalist hypothesis, and the other, in the attempt to formulate general conditions on transformations. This latter move would, in effect, come to eliminate the need for specific rules of raising, deletion and insertion – all of which were used and abused in the hands of the generative semanticists, who needed them aplenty to get from their highly abstract and semantically homomorphic structures to the extremely exiguous phonetic outputs language wears on its sleeves.

The general impulse was just the reduction of descriptive machinery in order to arrive at a very constrained theory of UG, thereby simplifying the task of the language learner, who, presumably, had to jump from scattered data to a finite characterization of an infinite set. In so doing, the more the learner innately knows about the general properties of this finite characterization – now called an I-language – the better. In other words, the stricter the UG, the greater our chance of solving Plato's problem (cf. Chomsky 1986, 2005). It may have been hard to see it then, but this was, in effect, the seed that gave rise to the Chomsky's (1981) celebrated Principles and Parameters framework.

There was, however, another sense in which this silent revolution of the early 1970's represented a move away from the habits of the generative semanticists. This second tendency, however, is not so flattering. It refers to an ever-growing negligence toward semantics as an independent (i.e. generative) system, which is characteristic of Chomsky's more technical work on language. In this sense, the particular incarnation of generative grammar that arose in the early 1970s turned against one of its main actors: Ray Jackendoff, one whose suggestions my work here is based.

Jackendoff (1972, 1976, 1983, 1990, 2002) has persistently advocated that the reduction of syntactic machinery only makes sense alongside an explicit (and independently motivated) account of semantic representation, which can, in turn, take over some explanatory burden off of narrow syntax.³ He correctly perceives that recognizing the autonomy (and the generative character) of semantics does not preclude or threaten the autonomy of syntax. In fact, it contributes to it, insofar as it allows us to envision semantic solutions to issues that, otherwise, would have to be forcefully shoved into syntax. The autonomy thesis should not be confused with *syntactocentrism*, the idea that narrow syntax is the sole generative engine behind language (cf. Culicover and Jackendoff 2005, Jackendoff 2007). As Jackendoff put it, way back then: "it appears quite possible that the addition (...) of semantic rules (...), though it produces conceptually more complex grammars, results in fewer possible grammars, and grammars that capture more generalizations" (Jackendoff 1972: 14).

This advice was not well heard, in a way which is particularly relevant for the treatment reflexive anaphors receive within the generative tradition. When Binding Theory (BT), the component of grammar relevant to this issue, received its mature formulation in Chomsky (1980, 1981), almost nobody had thought of invoking a level semantic representation to absorb restrictions on correferential NPs (despite Jackendoff's (1972: chap. 4) interesting ideas on the matter). It was merely assumed, without much argument, that the highly constrained structural configurations that govern the distribution of reflexives pertain only to narrow syntactic structure. As

³ I speak here of a contrast between semantic representation and *narrow* syntax because, in a broad semiotic sense, semantic representation is *also* a kind of syntax, as Chomsky frequently reminds us. It may be, however, that this broad sense is *very broad indeed*, to the point of rendering even *externalist* semantics (namely, a theory of language-world relations) as a mode of syntax, since it concerns only formal relations among objects. Searle (1992, chap. 9) goes as far as arguing that any process at all can be described syntactically. If that is so, it seems to me this broad sense of syntax is pretty much useless for discriminating among levels of linguistic description. Following the Representational Modularity view of Jackendoff (1997), I take it that levels of cognitive organization (such as phonology, syntax and semantics) should be defined primarily by their basic units and combinatorial principles.

Büring (2005: 10) notes, this tendency was taken so seriously that the occurrence of reflexives (and other NP types) under BT's rigid constraints became habitually used, in turn, as diagnostics for syntactic structure. Starting with Lees and Klima (1963), but really taking off with Chomsky (1973), a succession of proposals in that spirit ensued: anaphors had to find their referents within Tensed Sentences, Specified Subject Domains, Nominative Islands or Governing Categories, and, moreover, they had to bear identical indices to c-commanding antecedents. All such notions and relations can be seen as devices for grabbing constraints on coreference with one's bare syntactic hands (cf. Lasnik 1989: chap.1 for a somewhat outdated historical overview of BT). Yet, it all seemed to work reasonably well.

Lo and behold comes Jackendoff (1992), throwing some convenient snakes into BT's syntactocentric paradise. Building on earlier proposals, such as Jackendoff (1990), in which he argued that we need a notion of binding to cover conceptual dependencies inside lexical entries (to capture NPs with multiple θ -roles), he proposed that a purely syntactic BT (SBT) is incapable of capturing significant facts about the interpretation of reflexives in English. The main thrust of my article is to summarize this and other evidence against SBT, emphasizing the need for including an autonomous level of Conceptual Structure within one's account of language (cf. Jackendoff 1983, 1990, 2002, 2007; Culicover and Jackendoff 2005).

In section 2, I will give a summary of the theory of Conceptual Structure and review Jackendoff's (1992) main argument, which involves the interaction of anaphoric binding with reference transfers and formulate two others, concerning the occurrence of reflexive anaphors in A'-positions and imperative constructions. In section 3, I will sketch some admittedly half-baked ideas about how such issues could be addressed in the spirit of Jackendoff's (1983, 1990, 2002) Conceptual Semantics and Culicover and Jackendoff's (2005) *Simpler Syntax*. In section 4, I will present some problems for a purely semantic account and suggest possible routes to escape them. I will close with some very general remarks about how this shift could, in principle, contribute to current "minimalist" tendencies, which, however noble in their objectives, tend to go through enormous efforts to preserve traditional syntactocentric assumptions, much to the detriment of their alleged "simplicity".

Throughout most of this paper, I will be presupposing a very conservative version of SBT, more or less along the lines of Chomsky (1981), mentioning only some small innovations proposed in Chomsky (1995). One could accuse me of beating a

dead horse, but my objective is to examine the general abstract nature of the theory, not to get at the ultimate truth about the miniscule details regarding reflexives. With this in mind, too much attention to different technical implementations within the same overall framework seems to be beside the point.

2. THREE ARGUMENTS AGAINST SBT

In this section, I want to articulate arguments against the purely syntactic version of BT. Obviously, none of these will constitute ultimate refutations or irremediable falsifications of the theory, since no piece of empirical evidence has this kind of power. As Quine (1961) convincingly shows, we can fondle with a scientific theory in many ingenious ways to ensure that it deals readily with any fact someone throws at it. My point is, then, not that an alternative to SBT must have the ultimate virtue of brute empirical coverage, but that it should handle evidence in ways that make sense, that seem independently motivated or explanatory, that build on previously recognized principles, and so on. The overarching epistemological goal for linguistics, in my view, is the criterion of “graceful integration” with the rest of the cognitive and biological sciences, as Jackendoff (2011) states.

With that in mind, I can think of (at least) three ways of motivating an alternative to SBT. They involve, respectively, reference transfers, A'-anaphors and imperatives. I will not probe all of them in depth, but only enough to show how Conceptual Structure conditions on BT can (also) be prompted on the grounds of offering natural analyses for phenomena for which SBT has hitherto been unsuccessful. Before I get into the arguments, some general theoretical assumptions about Conceptual Structure should be clarified.

2.1 GENERAL THEORETICAL BACKGROUND

Conceptual Structure (CS) is an algebraic feature-based representation of word, sentence and utterance meanings. It is a representation in terms of which rules of inference can be implemented and which supports judgements about truth and falsity relative to a knowledge base (cf. Jackendoff 2002). Like syntax, CS is hierarchical and combinatorial. Unlike syntax, however, its basic units are not things like Nouns, Verbs and Adjectives – or some featural decomposition thereof –, but

conceptualized Objects, Events, States, Properties and Places (which don't correspond *one-to-one* to any syntactic category or feature). Since the class of possible concepts (much like the class of possible sentences) is infinite, concepts cannot be individually listed, but must be compositionally generated from primitives according to some finite procedure. The main procedure for generating concepts is functional application. Each concept can, thus, be regarded as an n -ary function, for every natural number n : a State concept, for instance, is typically the result of applying a bivalent State-function (like BE) to an Object and a Property (cf.: Zwarts and Verkuyl (1994) for a model-theoretic formalization of Conceptual Semantics).

Although CS is indeed a level of *semantic representation* – since, in Pietroski's (2017) phraseology, it is *what syntax connects pronunciations with* – it does encode pragmatic inferences like the coercions to be discussed in 2.2. Jackendoff (1983: 105) states that if, as he holds, semantics simply is conceptual structure, there should be no level of mental representation devoted solely to linguistic interpretation:

[S]emantic and conceptual structure collapse into a unified level, and syntactic form is mapped by the correspondence rules directly into conceptual structure, without an intermediate level that accounts for purely linguistic inference. [...] If this is the case, the distinction between “semantic” rules of linguistic inference and “pragmatic” rules of linguistic interaction with general knowledge is less marked than is often supposed. In a theory with an autonomous semantic level, the two kinds of rules involve different levels of mental representation. Here, however, they both are rules for the manipulation of conceptual structures; they deal with the same primitives and principles of combination.

The fact that the distinction between semantics and pragmatics becomes “less marked” does not mean that it wholly disappears. It is still the case that lexical items are conventionally associated with particular CSs and that syntactic configurations correspond to certain modes of semantic composition. A notion of *linguistically encoded* meaning is preserved. What is abandoned is the view that such meaning is so encoded in a level separate from the level over which (defeasible) pragmatic rules of inference take place. The interpretation of syntactic objects, the semantic rules (meaning postulates, entailments and the like), and the pragmatic inferences are all mappings into CSs (the latter two are mappings from CSs to CSs).

2.2 REFLEXIVES AND REFERENCE TRANSFERS

Now, on to the arguments. The first of these is the curious and intricate case presented by Jackendoff (1992), which also figures, with some important augmentations, in Culicover and Jackendoff (2005, chap. 10). Jackendoff's main goal is to find an instance of binding that can't be plausibly explained with resources available to narrow syntax, as much as one could be willing to complicate it with covert structure. The cases he exploits display an interaction between bound reflexives and a class of coercions that Nunberg (1979, 1995) calls reference transfers. Since these are a kind of pragmatic (albeit somewhat conventionalized) inference over CS, eliciting the relevant intuitions requires a good deal of contextualization and story-telling. Imagine, then, that I'm guiding my mother through the wax museum and, suddenly, I tell her:

(1) Look, mother! There's John and Jackie Kennedy and here's Paul McCartney and over there is Ringo!

What (1) shows is that there is a principle of language use that allows us to refer to representations (in this case, wax depictions) by using the names of the real people they represent. This principle, which I'll call the Representation Rule (RR, for short), is a kind of reference transfer, since it comprises the contextual application of a function which systematically maps Entities to related Entities of some kind (in this case, it maps people into their physical representations).

Let us characterize this process, based on Culicover and Jackendoff's (2005, chap. 6) account of coercions, as the optional insertion of a lexical item with no phonology or syntax in the Conceptual Structure (CS) of the sentence. What happens in (1) is, thus, a kind of free pragmatic enrichment, in the terms of Recanati (2004), in which a conventionalized piece of CS (an "unarticulated constituent") is attached to the literal meaning of each proper name in order to make the sentence pragmatically acceptable. I'll assume the piece of CS in question is the CS-function below, which maps an Entity (of any ontological category) into its representation:

$$\lambda x \in D_e. \text{REPRESENTATION}(x)$$

Applying the CS-function above to the CS constituent [Object RINGO] we get [Object REPRESENTATION ([Object RINGO])], which denotes, in our mental construal of the world, a representation of Ringo. So far, so good.⁴

A curious fact emerges as one notices that RR can apply, not only to the CS of fully referential expressions, like [NP Ringo] in the example above, but also to those of pronouns, including reflexive anaphors. Let's say now that Ringo Starr and I are walking together through the wax museum when, all of sudden, as soon as we come upon the statues of The Beatles

(2) Ringo starts undressing himself.

One possible reading for (2) involves Ringo taking off the clothes of his statue. I'll represent this interpretation, for ease of exposition, as “<plain> Ringo starts undressing <statue> himself”. In this case, as this notational device makes evident, the reference transfer coercion is applied, not to the CS associated to the proper name “Ringo” but to the one linked to the anaphor “himself”.

This is where things start getting a little bit fishy for SBT. What the Principle A of SBT says, even in one of its most recent formulations, is:

Principle A_{SBT}: “If α is an anaphor, interpret it as coreferential with a c-commanding phrase in its domain.” (Chomsky 1995: 194)

⁴ I'm making the simplifying assumption that $\lambda x \in D_e$. REPRESENTATION(x) is a function of the unusual type $\langle e, e \rangle$, much like Frege's (2009) analysis for “the capital of x” in the definite description “the capital of the German Empire”. It may be the case, as Heim and Kratzer (1998, p. 73-74) suggest, that this proposal for the compositional structure of definite descriptions is mistaken. The same criticism is applicable to my approach, since the result of applying $\lambda x \in D_e$. REPRESENTATION(x) to [[Ringo]] amounts to a definite description (roughly paraphrasable as “the representation of Ringo”). Given that Conceptual Semantics does not assume truth-values as part of its metalanguage, a more formally accurate proposal could regard RR as inserting into the CS of each NP in (1) the function $\lambda x \in D_e$. [$\lambda y \in D_e$. REPRESENTATION(x,y)], which is of type $\langle e, ev \rangle$, where e ranges over Objects and v over Situations. That is the function which maps an Object x into the function which maps an Object y into a Situation iff x is a representation of y . The RR coercion would then have to supply, in addition to that, some counterpart to Russell's *iota* operator, which signals uniqueness (*iota* is of type $\langle ev, e \rangle$). *Iota*, in effect, converts a Property (an entity of type $\langle e, v \rangle$) into an Object which uniquely satisfies that Property. The resulting derivation for the interpretation of [NP Ringo] in (1) would look like this:

Lexical Interface Rule: [[Ringo]] = [Object RINGO]
 RR: [$\lambda x \in D_e$. [$\lambda y \in D_e$. REPRESENTATION(x,y)]([Object RINGO])]
 = [$\lambda x \in D_e$. REPRESENTATION(x, [Object RINGO])]
 = [Object REPRESENTATION ([Object RINGO])]

This derivation neatly illustrates the operation of what Jackendoff (1997) calls enriched composition, since most of the conceptual material that enters into it (all functions except the constant [Object RINGO]) does so only through the operation of RR and not by signal-driven linguistic decoding.

This is apparently falsified by (2), where “himself” is both surely an anaphor, and, at least on the face of it, not interpreted as coreferential with [_{NP} Ringo] (the only plausible candidate for a c-commanding phrase in its domain).⁵ Of course, one could still spare SBT by claiming that what gives the anaphor its reference in (2) is not Principle A_{SBT}, but RR, conceived as a purely pragmatic inference drawn to save an apparently deviant utterance. (2) would be simply a case where RR happens to apply to the reflexive, just as in (1) it applies to the full NP. Moreover, RR, in this view, would not affect the proposition – the CS we *grammatically* associate with (2) – only its “pragmatic content” (supposing, *pace* Jackendoff, that such is indeed separable from purely linguistic meaning). Hence, cases such as (2) would be purposely outside the scope of SBT, falling under a Gricean theory of pragmatics. This is essentially the view held by Chomsky (personal communication) with respect to these issues.

But Jackendoff’s (1992) argument does not stop there. He finds an interesting constraint on the application of RR that cannot be comfortably phrased in such pragmatic terms. Suppose now Ringo and I are drunk in the wax museum. I accidentally bump into the statue of John and

(3) Ringo falls on himself.

The *only* possible reading for (3) is one according to which <plain> Ringo falls on <statue> Ringo. However, another interpretation, namely, one in which <statue> Ringo falls on <plain> Ringo should also be feasible on purely pragmatic grounds. The proposition that the statue fell on the guy is surely a relevant, informative and overall cooperative one to make manifest in those circumstances. And, if RR applies without structural restrictions, there is no reason why (3) couldn’t be used express it. But it can’t, somehow.

⁵ This is explicitly denied by Nunberg (1995) in his answer to Jackendoff’s use of reference transfers against SBT. He claims Jackendoff (1992) assumes without argument that, in cases like (2), what gets transferred is the meaning of the reflexive, when, in his own analysis, it is, in fact, the meaning *verb* (i.e. the *predicate* UNDRESS). So, what happens, according to him, is that “undress”, which would usually mean $\lambda y.\lambda x.$ UNDRESS (AGENT:x,PATIENT:y) goes on to denote another relation, a relation people acquire to themselves in virtue of undressing their own statues. That is, something along the lines of $\lambda y.\lambda x.$ UNDRESS STATUE OF SELF (AGENT:x,PATIENT:y), where $x=y$. One way to counter this would be inquire into the properties of the semantic function $\lambda x.$ REPRESENTATION(x), that appears to enter into the CS of reference transfers like (1) and (2). Unlike the ingenious alternative proposed by Nunberg (1995), this particular conceptual function displays some robust independent motivation. It seems especially handy for solving traditional puzzles in the philosophy of language, like referential opacity in intensional contexts (cf. Jackendoff 1983, chap. 11).

One could even devise a context in which the proposition that the statue fell on the guy would be the *most* viable interpretation, pragmatically speaking. Say Ringo and I are walking through the wax museum. All of the sudden, I accidentally bump into John, and, through a domino effect, John falls over Paul, Paul falls on George, George falls on Ringo and

(4) ? Ringo topples over and *falls on himself*.

Still, (4) couldn't express the proposition that <statue> Ringo falls on <plain> Ringo. Why is that? Something seems to go amiss when we try applying RR to a subject that is supposed to be the antecedent of a reflexive.

The contrast in acceptability between the two interpretations in (5) is strikingly parallel to the one between their explicit counterparts in (6), which are handled in traditional textbook ways by SBT:

- (5) a. <plain> Ringo fell on <statue> himself.
b. * <statue> Ringo fell on <plain> himself.
- (6) a. Ringo fell on a statue of himself.
b. * A statue of Ringo fell on himself

This seems to suggest, against the purely pragmatic account, that the contrast in (5) has something to do with structural configurations. And it really does seem that what accounts for the contrasts in (5) and (6) is a similar structural principle (violated in the (b) cases). But Principle A_{SBT} can't be it, since there is no plausible story about how (5) and (6) are syntactically alike. Notice though that, if there was, the syntactocentric gamble could peacefully keep its dices rolling: one could maintain that behind each of the readings in (5) lies (in some covert level of syntax) its fully-fledged counterpart in (6), from which it derives its acceptability profile. The principle that accounts for the contrast in acceptability could be the identical for both cases. And, by assumption, it would mention only syntactic elements. A "beheading" transformation would be responsible for getting us from (6) to (5). Feeding off hidden levels, Principle A_{SBT} could thereby live to see another day.

But Culicover and Jackendoff (2005) go through great lengths to show that (5) can't be syntactically derived from anything like (6) through PF-deletion operations

or other kinds of transformational machinery. Unarguably syntactic phenomena like case assignment and agreement occur as if both readings in (5) share the same untampered syntactic structure at all conceivable levels. The RR coercion cannot be syntactically represented. Since it must be represented *somewhere*, by lack of options, it can only be represented in CS. Jackendoff (1990, p. 60-70) offers further motivations for this. It should, therefore, be the case that something in the conditions that license the occurrence of reflexives mention semantic, and not merely syntactic configurations. BT must not be (exclusively) a syntactic module of the grammar.

The natural conclusions of the considerations above are: (i) pragmatics alone can't explain the contrast in acceptability between (5a) and (5b); (ii) even if it could, we'd be missing out on a generalization if we refused to account for that contrast and its parallel in the cases (6a) and (6b) with the same principle. Since BT is, by definition, the module of grammar that accounts for the asymmetries in (6), accounting for all of the above contrasts with the same principle entails removing (some of) BT's constraints from narrow syntax and formulating them in terms of a different level of representation. Specifically, a part of BT must apply at the level in which the RR operation applies. Jackendoff's (1992) argument purports to establish that such a level can only be CS. It can't be syntax nor a level of unstructured "pragmatic content". What we should pursue is, thus, a version of BT that renders constraints on NP coreferentiality potentially sensitive to semantic and pragmatic factors (since both take place over CS). I'll take up these points in section 3.⁶

2.3 REFLEXIVES IN A'-POSITIONS

The second motivation for a conceptualist construal of BT concerns the occurrence of reflexive anaphors in A'-positions. I have in mind cases like (7) and (8):

⁶ Parallel results obtain if we get RR to interact with coreferring R-expressions: Ringo and I are strolling through the wax museum. Suddenly, I accidentally bump into one of the statues and

(i) Ringo falls on Ringo.

In (i), the result seems to be precisely the opposite of (5), which is expected since the fully referential NP substitutes for the anaphor. The preferred interpretation, at least for me, is "<statue> Ringo falls on <plain> Ringo". The RR / explicit pattern we see between (5) and (6) is reinforced by noting (i) can be paraphrased as:

(ii) The statue of Ringo fell on Ringo.

For SBT, in (ii), the two NPs are allowed to be coreferential because they are not bound. Are we not missing out on a generalization again if we don't extend this rationale for (i)? But to do that, we must, again, abandon the view that binding is defined in narrow syntax. We must maintain binding is defined over CS and that fully referential NPs must correspond to unbound CS constituents, regardless of whether they're syntactically bound (as they are in (i)).

(7) To himself John gives too much importance.

(8) Mary wondered which picture of himself Bill saw.

There is, clearly, no plausible superficial constituent structure analysis that says how the topicalized anaphor in (7) could be bound by “John”, or how the anaphor within the fronted wh-phrase in (8) could be bound by “Bill”, as required by Principle A_{SBT} , in Chomsky’s (1981) formulation. Belletti and Rizzi (1988) propose a solution to this problem within the GB framework allowing Principle A_{SBT} to apply at all levels of syntactic representation, even in D-Structure, where the c-command relations relevant to the definition of binding are satisfied for both (7) and (8). This alternative is no longer available in the minimalist architecture, where internally motivated levels of representation (D-Structure and S-Structure) are wholly dispensed with (cf. Chomsky 1995, 2005).

Other proposals handled these cases by assuming the operation of reconstruction applies, making [PP to himself] in (7) move back to its original D-Structure position in LF, resulting in something like (9):

(9) John gives too much importance to himself.

Sentence (9) is exempt from Principle A_{SBT} violations, and the reconstruction process that generates it does get the binding facts straight. But it involves a redundant and *ad hoc* operation of moving something back to where it started, plus an unwarranted procedure for eliminating traces *in situ*. This is, again, somewhat repugnant to a minimalist outlook, both in assuming D-Structure as a level from which movement proceeds and for postulating computational operations which are dubious in their “economic” status.

Chomsky (1995: 185-186), already within a minimalist framework, assumes a modified version of this latter account, seeking to purge it from some of the aforementioned inconveniences:

Reconstruction is a curious operation [...]. If possible, the process should be eliminated. An approach that has occasionally been suggested is the “copy theory” of movement: the trace left behind is a copy of the moved element, deleted by a principle of the PF component in the case of overt movement. But at LF the copy remains, providing the materials for “reconstruction”.

Since Move is no longer conceived of as a primitive principle, but rather as an application of Copy + Merge (thereby eliminating the technology of traces to mark tail and intermittent positions in chains), the structure corresponding to (8) would be something like (8’):

(8’) Mary wondered [_{CP} [_{NP} [+wh] which picture of himself] [_{TP} Bill saw [_{NP} [+wh] which picture of himself]]].

In deriving (8’), [_{NP} [+wh] which picture of himself] first combines with the verb, and, later in the derivation, it is Copied and Merged to the Specifier position of CP, in order to check its strong wh-feature (cf. Hornstein Nunes and Grohmann 2005). The NP undergoes no movement of “return” to its most embedded position since its copy never leaves that position in the first place. The lowest copy is retained and is, therefore, visible to Binding Conditions, which are assumed to apply to it at LF. Reconstruction is thus reconceived as “an epiphenomenon of a process of selection of copies to be interpreted at LF” (Guimarães 2015: 41). It is important to note that this approach presumes an asymmetry between the two copies: the one that gets pronounced is not the same as the one that gets interpreted and licensed by SBT. The copy that gets pronounced in (8’) is, as usual, the one that asymmetrically c-commands the other (cf. Fukui and Takano 1998), but the one that gets interpreted (and evaluated by SBT) is always the *in situ* one.

There are, however, potential counterexamples to this proposal, which were pointed out to me by Culicover (personal communication). These involve cases like (10), in which the A’-anaphor has to pick out the matrix subject as its antecedent:

- (10) a. Mary wondered which picture of herself Bill saw.
 b. The students asked what attitudes about each other the teacher had noticed.

The structures corresponding to (10) would be somewhat like:

(10’) a. Mary wondered [_{CP} [_{NP} [+wh] which picture of herself] [_{TP} Bill saw [_{NP} [+wh] which picture of herself]]].

b. The students asked [_{CP} [_{NP} [+wh] what attitudes about each other] [_{TP} the teacher had noticed [_{NP} [+wh] what attitudes about each other]]].

But both (10'a) and (10'b) are likely illicit on SBT grounds. If the relevant copy for BT interpretation of the anaphor is the *in situ* one (as suggested in the discussion of (8')), correferentiality with matrix subjects should be barred on the grounds of BT-locality. The most embedded copy of the wh-NP, the one that is claimed to be visible for BT, is *not within the same local domain of its antecedent*, regardless of how one decides to conceive of binding domains (for this example, TPs will do).⁷ A sentence like (10a) would be, thus, rendered ungrammatical according to the SBT+Copy Theory account for the same reason as (11):

(11) * Mary said [_{TP} Bill saw that picture of herself].

An account in terms of CS – possibly supplemented by *information structure* constraints that anaphors within subjectless NPs should abide to when correferring (cf. Kuno 1987, Pollard and Sag 1992) – is arguably simpler. It assumes no unpronounced elements or PF deletion operations, which excessively complicate the derivation and representations of all cases mentioned in this section. The mere replacement of traces for copies in the Minimalist Program does not speak to these concerns: in both cases, there is still a proliferation of “occult” structures motivated (largely) on the grounds of Interface and Structural Uniformity (cf. Culicover and Jackendoff 2005: chap. 1). The main reason for presuming that in (7) and (8) we have movement in the first place is the assumption that, on some underlying level, these structures are transparent in their mapping to semantics and “regular”, being “distorted” by subsequent operations (Move or Copy + Merge + Delete). However

⁷ The very fact that A'-anaphors *can* be ambiguous between having a matrix or an embedded subject as antecedent – a fact explicitly acknowledged by Chomsky (1995: 188) – presents the same difficulty for reconstruction/invisible copy accounts. As an anonymous reviewer remarks, one could at this point resort to a reformulation of Principle A_{SBT} in terms of A'-anaphoric chains, wherein an A'-anaphoric chain is licensed iff *any* of its members is. In that case, the domain condition in Principle A_{SBT} would be applied to whichever copy satisfies it, even if it be the structurally higher one. This accounts for the data in (10), where there is a potential local binder for the A'-copy, but it does nothing to elucidate the acceptability of (i) and (ii) (Pollard and Sag 1994: 248):

(i) [Which picture of herself] does Mary think John likes [~~which picture of herself~~]?

(ii) [Which picture of herself] did John say Mary was afraid he had [~~which picture of herself~~]?

These show that it is not sufficient to merely state that Principle A_{SBT} can apply to either copy. *Both* of the copies in (i) and (ii) fail to meet the requirement of having a local accessible binder and, regardless of that, these sentences are fine.

widespread, these are merely theoretical presuppositions that have not been sufficiently argued for on empirical grounds.

The CS account would simply say that something like (9) (in language-neutral notation) is the CS counterpart of the sentence (7). Binding principles are stated directly in terms of the CS configuration, and the structure (7) is thereby licensed. No movement is involved changing (9) into (7), and (7) back again into (9). (7) and (9) simply share a common CS, and their differences are registered in a different tier in semantic representation, Jackendoff's (2002) *information structure*.

As for (10), it has a strong logophoric flavor, and as such, it exemplifies – along with all other cases of *picture-noun reflexives* without a possessor/subject – what Pollard and Sag (1992) call *exempt anaphors* (meaning that they're exempt from the grammatical requirement of a local binder). As I'll argue in section 4, to allow for such cases we might need to assume a parallel constraint on reflexive anaphors pertaining to information structure (cf. Jackendoff 1972, 2002).

2.4 OBJECT REFLEXIVES IN IMPERATIVES

The third argument against a purely syntactic account of binding has to do with reflexives in the object position of imperative sentences. In fact, the observation I will make is so simple that it barely deserves to be called an argument. I merely wish to suggest that, if one is willing to abandon certain common assumptions about the interface between syntax and semantics, there emerges an obvious (and more economical) alternative to a leading mode of analysis of imperatives at least since Culicover (1971). My reasoning here is openly borrowed from Searle's (1979) methodological critique generative grammar and from its interpretation, in a more modern context, by Moura (2015). It is, therefore, more of a conceptual argument than an empirical one.

Let us consider the facts in (12), partly gathered by Searle (1979: 165):

- (12) a. Hit yourself
- b. *Hit you.
- c. You hit yourself.
- d. *Hit himself.
- e. Hit him.

- f. He hit himself.
- g. *He hit yourself.

The mainstream view is that in order to sustain a maximally general (and purely syntactic) rule for the distribution of reflexives (along the lines of Principle A_{SBT}), we need to say that, in imperative sentences like (12a), there is a covert [_{NP}you] in the subject position to license the object reflexive on purely syntactic grounds.⁸ The deep structure of (12a) is, thus, something like (12c). There is, then, a posterior (obligatory) operation that deletes the subject constituent, in order to match the surface form (12a) and to make sure the sentence is interpreted as an imperative.

This kind of analysis was implemented by Culicover (1971), who formulated a “You-deletion rule” for precisely these reasons. He noticed that “the first step in most transformational accounts of the imperative is the motivation of a rule which deletes an underlying *you*-subject” (Culicover 1971: 8). By doing so, he argued, one is capable of “explaining the distribution of reflexives in imperative sentences by relating imperatives to declaratives at the deep structure level” (Culicover 1971: 9). That is, all sentences would be underlyingly declarative – in contraposition to Ross’ (1970) performative hypothesis – and would be “transformed” into imperatives by subsequent operations, like “you-deletion”. Since these highly specific transformations are, by now, far out of fashion, the remnant of “you-deletion” would probably be thought of as a PF ellipsis of some sort, driven by a kind of [imperative] feature in ForceP (cf. Rizzi 1997). Regardless of what one believes drives the deletion (a specific rule or a syntactic feature), the common supposition is that there has to be an underlying “you” subject in order to allow for a reflexive in the object position.

The details of particular proposals are not particularly important here (cf. Rupp 2003, Zanuttini 2008). What is intriguing is the peculiar pattern of analysis they collectively instantiate. As Searle (1979: 165) perspicuously notes, their logical underpinnings can be characterized along the following lines:

⁸ As Culicover (personal communication) points out, a similar account would have to be extended to nominals like the one in “*letters to/from oneself* are so sad to read”, which, under SBT, would have to be derived from “one’s letters to/from oneself”. There are also some potential obstacles for this approach. Imagine a couple is going through marital counselling and the therapist says to one of them:

(i) Always listen to *yourself* and *each other*.

According to SBT, both the reflexive and the reciprocal in (i) must have base-generated antecedents. But what could they be? If there is only one antecedent, it is hard to explain how it could jointly satisfy conflicting agreement requirements (“yourself” requires a singular antecedent and “each other” a plural one). If there are two, one for each anaphoric expression, we would have to postulate two subjects for that sentence. Neither of these options sounds too promising.

For any [...] two forms F and G, if F and G generally occur together in the surface structure of sentences, and if facts about the form or presence of one are determined by the nature of the other, then for any sentence S in which F occurs in the surface structure, but G does not occur, then there is some deep structure of S in which G occurs, but where it is deleted in the surface structure.

This argument form is, clearly, not valid in and of itself. Its intuitive appeal, Searle goes on to argue, is derived from an underlying assumption about the nature of grammar, namely, that “the rules which specify the distribution of syntactical elements must mention only syntactical categories” (Searle 1979: 166). This is, essentially, the assumption of *syntactocentrism*, defined by Jackendoff (2007: 35) as the view in which “generativity is localized entirely in the syntactic component of the grammar [...] and that phonology [...] and semantics [...] are purely ‘interpretive’”.

However important in establishing that *something* about language was generative – an outstanding achievement in the heydays of behaviorism and structural linguistics –, syntactocentrism has its drawbacks, both empirically and conceptually. Empirically, it faces some serious difficulties in dealing with phenomena such as the one mentioned in section 2.2 (see Culicover and Jackendoff (2005) for more), and, besides, it does not seem to cohere with what we know – with a good degree of confidence – about phonology (cf. Goldsmith 1976, Liberman and Prince 1977). Conceptually, it often presents a threat to the *autonomy of syntax*, motivating unnecessary complications of syntactic structure in order to seize phenomena which are prosodic/semantic/pragmatic in nature. A division of labor into semantic and phonological components – conceived as separate generative systems with independently motivated properties – might well allow us to dispense with highly abstract and complicated syntactic structures, as long as we are willing to tolerate “dirtier” interfaces. This seems to make sense from a biological point of view, since syntax is a recent and sudden innovation that had to attach to a pre-existing (and very complex) Conceptual Structure system (cf. Jackendoff 2002: chap. 8). All of this goes to show that the underlying rationale for a “deletion” analysis of imperative subjects is not unquestionable, and we may have overriding reasons to go without it.

But how exactly would an alternative go about? Plainly, no syntactic deletion rule would be needed if structural binding conditions were stated over CS, where both the Actor and the Patient (the latter corresponding to the reflexive) are instantiated, ensuring the correct interpretation. There would be simply nothing *in the syntax*

associated with the Actor/addressee in CS. The reflexive in (12a) would be licensed because it corresponds to a CS constituent which is, in some sense to be clarified, CS-bound (despite there being no syntactic constituent to bind it). Therefore, the rule that licenses the occurrence of the reflexive would have to be an *interface rule*: it would not “mention only syntactic categories”, to recapture Searle’s (1979: 166) terms. It would state a well-formed *correspondence* between syntactic objects and semantic configurations. I’ll try formulating it in the next section.

One last observation is in order. Searle’s (1979) personal suggestion for sorting out the distribution of reflexives in (12) is, in my view, completely misleading, and should not be confused with the view I am advocating here. He seems to believe that we can eschew a representation of the Actor/addressee for a sentence like (12a) altogether, *including* in CS. According to him, the rule that licenses the occurrence of the reflexive does not have to relate two levels of structure at all. It should merely relate the reflexive (a linguistic entity) to an aspect of a concrete speech situation (something in the world), namely, the hearer in flesh-and-blood. As long as there is a salient hearer in the speech situation, we could use a reflexive to pick him out and refer to him. Moreover, the fact that imperatives can omit the subject supposedly follows from an “independently motivated theory of speech acts”, which states that the imperative, as a directive illocutionary act, “necessarily involves a predication of the hearer” (Searle 1979: 170). Since the existence of the hearer is a given, there would be no need to resort to structural representations of any kind, whether syntactic (like on SBT) or semantic (like on the CS account).

But even if this “speech act approach” makes sense theoretically (which is doubtful), it is empirically false, and grossly so. A hearer/addressee is, indeed, usually present and prominent when we’re talking. But, nonetheless, there are certain structural configurations which prohibit the omission of a “you” in some imperative constructions. An interesting one is when the verb is preceded by a modal, as illustrated by Culicover’s (1971: 15) examples in (13):

- (13) a. * Must finish cutting your toenails!
- b. * May have a cup of cocoa!
- c. * Will eat the spinach!

Furthermore, there are cases in which, regardless of the (obvious) presence of the hearer in a speech situation, the reflexive simply can't corefer to him, presumably because of some structural condition on anaphoric coreference, which, as I'll argue, should be formulated over CS:⁹

- (14) a. * Tell my friends I asked yourself to come.
b. * Come to my house to remind me to pay yourself.
c. * Bring my picture of yourself.
d. Bring a picture of yourself.

A mere "speech act" theory of binding that accounts for cases like (12a) by licensing the reflexive as long as it relates to presence of a hearer has no way of handling these data. If we transfer the task of explaining anaphors to speech act theory, understood as a theory of unstructured speech situations in the world, we have no way to formulate why a reflexive can't occur in some cases, being fine in others. We need some notion of structure over which to define the conditions that (14a-c) presumably violate and that (14d) obeys. We need formal representations to formulate linguistic constraints. That's part of the task I'll undertake below.

3. A (VERY) PREMATURE OUTLINE OF CSBT

A CS component in BT (CSBT, for short) should ideally cope with all of the cases that fall under SBT and more (data like (2), (3), (7), (8) and (12)). If this component covers *all* facts concerning the distribution of reflexive anaphors (and other NP types) in all languages, it would, in effect, amount to a conceptualist *reduction* of BT. There are a handful of proposals in this spirit in the non-mainstream generative syntax literature (the most famous of which is probably Van Hoek's (1997)), but I believe they go too far. At least I haven't been able to convince myself that CS (or any other mode of semantic representation) is able to take over the explanatory burden for *all* of the facts concerning binding. Examples in point will be explicitly reported in section 4.

⁹ The presence of a speaker (which is even more obvious than the hearer's) should also license an utterance like "*Hit myself". Still, it clearly doesn't.

At this very rudimentary stage of my research, any concrete proposal about a phenomenon this complex is likely to sound too premature. My idea, for now, is to stay as close as possible to the classical statements of binding principles, like the one found in Chomsky (1981) (with the proviso that the relevant level of structure is CS, not syntax) and see how far they can take us. This means, in a nutshell, formulating restrictions on coreference/covaluation for NPs taking into account three basic factors: (i) a classification of NPs into discrete lexical types; (ii) a notion of CS-accessibility in terms of which asymmetries in binding can be explained; (iii) a notion of CS-locality, or binding category.

The need for substantial revision is certain to befall, but I think what is sketched below is a good starting point from which to proceed.

3.1 CS-BINDING

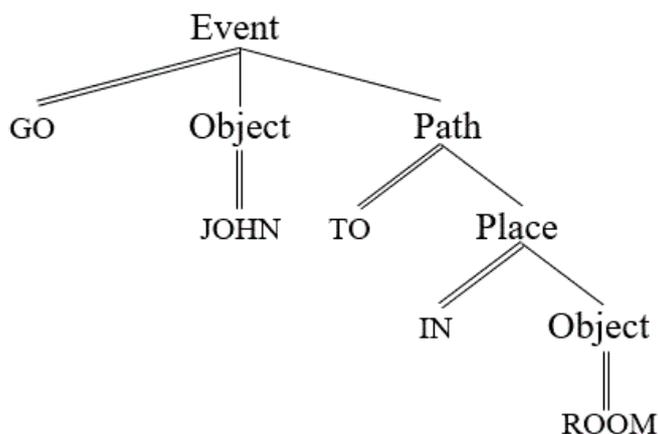
For (i), I'll assume the usual tripartite classification of Chomsky (1981: 188): NPs are either going to be anaphors (like reflexives and reciprocals), pronouns or R-expressions. For (ii), I'll, tentatively, stick to the idea of a CS counterpart to c-command. Luckily, we can represent CS in a tree-notation (cf. Pinker 1989), much like n-ary branching phrase structure trees, so the definition of c-command can stay pretty much the same as the one made famous by Reinhart (1976: 146), specifying only that the variables "A" and "B" range over CS constituent nodes:

CS-command: Node A CS-commands node B if and only if neither A nor B dominates the other and the first branching node which dominates A dominates B.

For a concrete example, like (15), the arboreal CS representation would be (16), where capitals correspond to conceptual constituents, and uppercases correspond to conceptual functions. There is also an equivalent (and more commonly used) labeled bracketing notation (17) which captures the same relations, perhaps less intuitively. I'll switch between both of them in what follows, simplifying when needed.

(15) John went into the room.

(16)



(17) [Event GO ([Object JOHN],[Path TO ([Place IN ([Object ROOM])])])]

In (16), [Object JOHN] CS-commands the Path, Place and Object constituents. [Path TO ([Place IN ([Object ROOM])])] also CS-commands [Object JOHN]. It should be noted that TO, IN, ROOM and even JOHN CS-command nothing, because they're not full blown conceptual constituents: they're conceptual functions – though JOHN and ROOM are nullary conceptual functions (i.e. constants).

With this, and the addition of reference marking indices to CS (as suggested by Zwarts and Verkuyl (1994: 11))¹⁰, we can define CS Binding, very predictably, as:

CS-Binding: A conceptual constituent is CS-bound if and only if it is CS-commanded by a coindexed conceptual constituent (i.e. its CS-binder).

Note that, as we saw for imperatives like (12a), CS-binders need not always correspond to syntactic antecedents. With what we have thus far, we can finally provide a counterpart to Principle A_{SBT} in CS, which I'll call Principle A_{CSBT}:

Principle A_{CSBT}: An anaphor (a reflexive or a reciprocal) must correspond to a conceptual constituent which is CS-bound within its local domain.

This is what I had in mind in section 2.4 when I said the rule that licenses the occurrence of reflexives had to be an interface rule. Principle A_{CSBT} is just that, since it states a well-formed *correspondence* between a class of syntactic objects (anaphors) and structural configurations in Conceptual Structure (CS-binding in a local domain).

¹⁰ Following Zwarts and Verkuyl (1994), I take indices to be interpreted according to an assignment function, which maps natural numbers to individuals. I also assume Büring's (2005) Prohibition Against Accidental Coreference axiom, that demands assignments to be *one-to-one*.

In other words, if an anaphor is linked to a conceptual constituent which is CS-bound in a local domain, its interface is licensed by the correspondence rule Principle A_{CSBT} .

Besides arguably covering most cases for which Principle A_{SBT} was designed, Principle A_{CSBT} , thus formulated, is enough to account for the puzzling facts about the interaction of reflexives and reference transfers mentioned in section 2.2. These cases, repeated below, were interesting because they displayed something in CS that was *obviously* not present in the syntax.

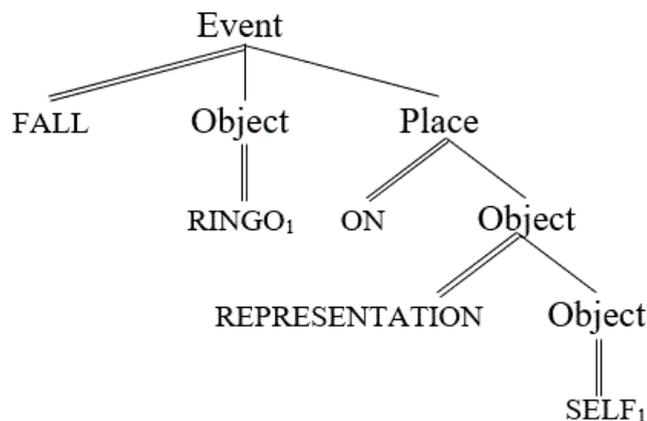
(3) Ringo falls on himself.

(5) a. <plain> Ringo fell on <statue> himself.

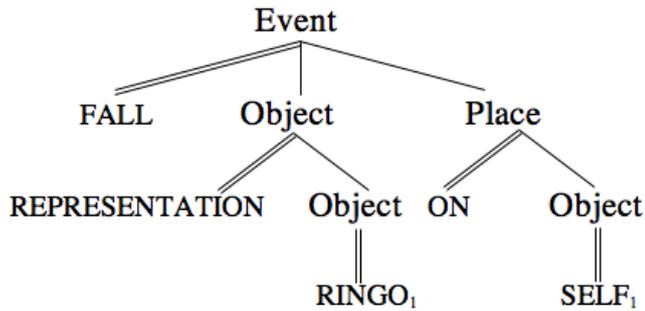
b. * <statue> Ringo fell on <plain> himself.

The intervening element – the conceptual function $\lambda x \in D_e . \text{REPRESENTATION}(x)$, added by coercion – is potentially capable of interfering with CS-command relations relevant to the definition of CS-binding, and, therefore, with the admissibility of a reflexive anaphor in the syntax. The corresponding CS representations for readings (5a) and (5b) are given, respectively, in (18a) and (18b):

(18a)



(18b)



The reason why the linkage of (3) to (18b) is ill-formed – preventing the RR coercion to apply to the subject there – is because the conceptual constituent which corresponds to the reflexive anaphor, namely, the typed variable [Object SELF], is not CS-bound by [Object RINGO]. Since the first branching node dominating [Object RINGO] does not dominate [Object SELF], the former constituent does not CS-command (and, hence, does not CS-bind) the latter, as would be required for licensing the anaphor in accordance with Principle ACSBT. Exactly the same principle accounts for the pattern in (6), repeated below, since (6a) has a CS equivalent to (18a) and (6b) to (18b).

- (6) a. Ringo fell on a statue of himself.
 b. * A statue of Ringo fell on himself

By the way, this analysis entails that Principle ACSBT is, emphatically, *not a notational equivalent* of Principle ASBT. There is at least one prediction that Principle ACSBT makes and Principle ASBT (under reasonable assumptions about the syntax of (3)) is silent about, namely: the prediction that (5a) is a fine interpretation for (3), while (5b), due to its ill-formed interface, is not.

There are arguably other cases, which are, however, encircled by longstanding polemics (cf. Postal 1971, Jackendoff 1972, Culicover and Jackendoff 2005). Data like (19)-(21) were always somewhat uncomfortable for SBT: in (19a) the antecedent does not c-command the reflexive, but the structure is fine; in (20b) and (21b) it does, but the result is deviant. Various ancillary hypotheses and devices were developed to handle these sentences within the tradition. Given plausible CSs for them, we could

explain their argument binding asymmetries simply by claiming the (b) versions violate the CS-command requirement on CS-binding:¹¹

- (19) a. Jane talked to Paul about himself.
 b. * Jane talked about Paul to himself.
- (20) a. Yoko showed John himself (in the mirror).
 b. * Yoko showed John to himself (in the mirror).
- (21) a. George was pleased with himself (in the performance).
 b. * George pleased himself (in the performance).

Postal's (1971) Crossover Principle is, therefore, not necessary to explain (19), since the deviance of (19b) is not, on this account, a result of an ill-performed movement, but rather of an ill-formed *correspondence* to the CS in (19b') (see note 11). Since CS is also sufficient to encode the asymmetry between the two internal arguments of (20), CSBT allows us to preserve ternary branching flat-structures for these VPs, *contra* Larson's (1988) popular suggestions. Similar considerations apply to (21): in (21a) the subject corresponds to [_{Object} GEORGE], which CS-binds the element that corresponds to the anaphor, in accordance with Principle A_{CSBT}. In (21b), the [_{Object} GEORGE] constituent is embedded in another function, thereby ruining the CS-command relation required for it to CS-bind [_{Object} SELF].¹² In all of these cases, there appears to be a conflict between the predictions of c-command and those of CS-command, and CS-command seems to provide more natural solutions.

3.2 A DOMAIN FOR CS-BINDING

The issues around (iii), the question of defining a domain for CS-binding, seem to be a bit trickier. That is also the main *locus* of contention in the history of SBT (cf.

¹¹ To make this more concrete, highly schematized CS representations for the ill-formed cases are provided. In all of these, the SELF constituent is *not* CS-bound (which is why the correspondence to an anaphor comes out ungrammatical):

- (19b') [CAUSE (JANE, [GO ([INFORMATION (PAUL_i)], [TO (SELF_i)])])]
 (20b') [CAUSE (YOKO, [SEE (SELF_i, [REPRESENTATION (JOHN_i)])])]
 (21b') [CAUSE ([PERFORMANCE-OF (GEORGE_i)], [BE (SELF_i, PLEASED)])]

¹² There is an interpretation which can be properly linked to (21b) though: one in which George is touching his intimate parts during the show. This can be thought of an instance of what Postal (*apud* Harris 1993: 202) called *Euphemistic Genital Deletion*: the process of omitting graphic nouns from the surface form of a sentence (e.g. "John is huge"). In the CS that corresponds to this reading, however, [_{Object} GEORGE] *does* CS-command [_{Object} SELF]. This might be yet another case of reference transfer applied to reflexives, since [_{Object} SELF] would be embedded within the function $\lambda x \in D_e. \text{PART-OF}(x)$.

Lasnik 1989: chap.1). In fact, it is the attempt to define a *uniform* notion of locality across syntactic categories (most relevantly, one that applies to both Sentences and NPs) that made Chomsky's (1981, 1986) formulations of BT so complex in the first place. The simplest assumption, *a priori*, is indeed one that recognizes only *one* type of binding category. At present, it would be interesting to discover how far we can go with the following:

Domain_{CSBT}: The domain for CS-binding is the ontological category of a Situation.

If we assume a CS-formation rule for Situations along the lines of (22) (this seems to be presupposed in most of Jackendoff's (2002) and Culicover and Jackendoff's (2005) CS representations), the known effects of Chomsky's (1973) Tensed Sentence Condition can be pretty well mimicked. According to (22), Situations are, more or less, the semantic counterparts of TPs, grounding Events and States in particular evaluation-times.

- (22) [Situation] → [Situation TENSE ([Event EVENT-FUNCTION])]
 [Situation] → [Situation TENSE ([State STATE-FUNCTION])]

Given (22), the definition of Domain_{CSBT} can explain rather easily the contrast in acceptability of reflexive anaphors in raising to object constructions – like (23a) – and that-complements – like (23b). In order to make this manifest, we need only to assume (23a) corresponds, schematically, to (24a) and that (23b) corresponds to (24b). The linking between (23b) and (24b) will be ill-formed because the conceptual constituent which is linked to the anaphor is not bound *within its local Situation*:

- (23) a. John expects himself to win.
 b. * John expects that himself will win.
- (24) a. [Situation PRESENT ([State EXPECT ([JOHN]₁, [Event WIN ([SELF]₁)])])]
 b. [Situation PRESENT ([State EXPECT ([JOHN]₁, [Situation FUTURE ([Event WIN ([SELF]₁)])])])]

What isn't so clear is how the aforementioned definition of $\text{Domain}_{\text{CSBT}}$ is supposed handle cases for which the Specified Subject Condition of Chomsky (1973) was first conceived. See the contrasts in (25):

- (25) a. The men saw pictures of themselves.
 b. * The men saw my pictures of themselves.

I believe we still can stick to the (very conservative) idea of $\text{Domain}_{\text{CSBT}}$ sketched above as long as we take the CS associated with (25b) to contain a kind of lambda extraction structure like (26), where a Situation is converted into a Property:

(26) [Situation PAST ([Event SEE ([Object MEN]₁, [Object PICTURES]; [$\text{Property } \lambda\alpha.$ [Situation PAST ([Event CAUSE ([Object ME], [α]; [$\text{Property OF (SELVES}_1$)])))])))]¹³

This would mean that the CSs associated with sentences like (25b) – and presumably all other cases of Picture-NPs with filled in subjects – are strikingly similar to the CSs Jackendoff (2002) and Culicover and Jackendoff (2005) attribute to relative clauses. This seems to be correct, at least on a first approximation, since (25b) does in fact appear to be akin to (27):

- (27) * The men saw the pictures that I took of themselves.

The reason why (25b) is bad then, is because its reflexive anaphor corresponds to a CS-constituent which is not bound *within a Situation*, since its own local Situation is the one headed by PAST, which is mapped into a property of PICTURES by the lambda operator.

A similar explanation, I think, can be extended to the interaction of reflexives and what are perhaps the most famous examples of reference transfers, namely, Nunberg's (1979: 149) *ham sandwich* cases, where a waiter refers to a customer using the name of the product he consumed. Culicover and Jackendoff (2005: 381) observe

¹³ The notational device “;” indicates that the conceptual constituent following it is added to the CS not as an argument satisfying a functional variable, but rather as a restrictive modifier of the concept which immediately contains it (cf. Jackendoff 1976, 2002). I am also narrowing down the reading of the possessive, which is polysemous, to indicate a causer (“my picture” = “the picture I *took*”).

a sensible difference between this coercion and the statue one discussed in 2.2: the ham sandwich case does not allow pronouns to be coerced, as can be seen in (28).

(28) * *<plain>* The ham sandwich pleased *<person associated with>* itself.¹⁴

If we assume the CS correlated with (28) also contains a lambda operator (as it does in Jackendoff (2002: 389-390)), resulting in something like (29), this fact follows naturally from the account of binding domains sketched above.

(29) [Situation PAST ([Event PLEASE ([Object HAM SANDWICH]₁, [Object PERSON; [Property λ α . [Situation PAST ([Event ASSOCIATE ([Object α], [Object SELF]₁)])])])])]

Instead of stipulating the impossibility of coercing pronouns in (28) as an idiosyncratic property of *a particular kind* of coercion, the representation in (29) allows us to deduce it from our definition of Domain_{CSBT}. Here, as in (26), the conceptual element correspondent to the anaphor tries to find its CS-binder outside of the threshold of its own local Situation. The correspondence between the syntactic and semantic structures collapses because this constitutes a violation of the locality requirement in the interface constraint Principle A_{CSBT}.

It is interesting to see how this account overlaps nicely with the predictions of Jackendoff's (1972) Thematic Hierarchy Condition, where reflexives had to be coreferential to θ -commanding (i.e. thematically more prominent) NPs. This empirical equivalence seems natural in light of the fact that Jackendoff (1990) recast thematic prominence in terms of structural conditions on CS. Thematic roles are, in his more recent picture, defined over particular CS configurations within Situations. This is why we can say, much like Jackendoff (1972: 148), that Agents CS-command Goals, and Goals CS-command Themes, and so on. Binding always proceeds from Agents to Themes, throughout the thematic hierarchy. Though possibly empirically equivalent to this earlier account, this new, more "configurational" formulation of a semantic BT has the advantage of not assuming an inventory of thematic roles or relations as a theoretical primitive, as Jackendoff (1990) argues we shouldn't.

¹⁴ A sentence like (i) below is deviant because of the CS-binding requirement in Principle A_{CSBT}:

(i) * *<person associated with>* The ham sandwich ordered *<plain>* itself.
As Culicover and Jackendoff (2005: 382) suggest, (i)'s violation of CS-binding is formally homologous to the Ringo case displayed in (18b), to (19b), to (20b) and to (21b) above.

4. GOING BEYOND CSBT: OBLIQUENESS AND INFORMATION STRUCTURE

Despite being a good first approximation, the highly agreeable and simple version of CSBT given above runs into obvious empirical drawbacks, at least as long as its integration with other grammatical (and maybe even extra-grammatical) constraints on anaphora are not fully fleshed out. I will briefly mention here some of these difficulties and point out possible ways of solving them (not necessarily within the confines of CSBT).

An immediate objection to my account concerns reflexives which simply do not correspond to any CSs, being semantically inert, like the ones in (30):

- (30) a. Ringo behaved himself.
b. Anna perjured herself.

This phenomenon, though somewhat sparse in English, is abundant in other languages, like Romance and German. It also presented a minor embarrassment for SBT since it is somewhat odd to think of the reflexives in (30) as bearing indices (a necessary condition for being bound) or "coreferring" to anything, since they're semantically vacuous. It seems better to treat them as pieces of syntactic structure which have, for some reason, become autonomous and devoid of semantic significance. Buring (2005: 22) suggests these vacuous reflexives solely attach to verbs which are historically related to transitives. They are, so to speak, place-holders for arguments that no longer exists in the lexical CSs of their verbs.

A way of fitting them into my picture is to embed my earlier formulation of Principle A_{CSBT} within a conditional statement:

(Revised) Principle A_{CSBT} : *If the anaphor* (a reflexive or a reciprocal) *corresponds to a CS*, its CS must be CS-bound within its local domain.

Inasmuch as the sentences in (30) are simply cases where the antecedent of the conditional statement is false, they (trivially) satisfy (Revised) Principle A_{CSBT} .

More troublesome facts appear in active/passive alternations like (31):

- (31) a. John punched himself.
b. * Himself was punched by John.

It is reasonable to assume that (31a) and (31b) share roughly the same conceptual structure. And their interfaces are licensed by Principle A_{CSBT} because, in both, the anaphor corresponds to a locally CS-bound conceptual constituent. In the more intuitive θ -command vocabulary of Jackendoff (1972), we can say that in both sentences of (31) we have a licit CS-binding configuration, because the anaphor corresponds to a Patient, which is lower on the Thematic Hierarchy than the Agent, to which it corefers. How can it be possible then that they're so manifestly opposed in their acceptability? In order to account for this, I think we need to assume, parallel to Principle A_{CSBT} , a *syntactic* constraint for anaphors which occupy argument positions. I'll call this an *obliqueness condition*, inspired by alternative generative theories like HPSG (cf. Pollard and Sag 1992, 1994):

Obliqueness Condition: Argument anaphors must be more oblique than their antecedents within their head's subcategorization list.¹⁵

Unlike the syntactic constraints assumed within SBT, this one is not couched on configurational notions like c-command or Governing Categories. One surely needs to labor on the details of this proposal, especially on how "more oblique" is to be properly defined. For the purposes of accounting for the anomaly of (31b), defining it relative to an obliqueness hierarchy like the one below is enough (cf. Keenan and Comrie 1977):

Obliqueness Hierarchy: <Nominative, Accusative, Oblique>

A well-supported universal prediction about language follows rather smoothly from this: the non-existence of Nominative (or subject) anaphors. This is precisely why (31b) is bad. If anaphors always have to be more oblique than their antecedents, they can't be marked for Nominative case, since no antecedent is going to be able to meet the requirement of being less oblique than that. This was also a prediction of

¹⁵ This does a job similar to the GF-Binding Conditions that Culicover and Jackendoff (2005: chap. 6) formulate within the broader context of their Simpler Syntax Hypothesis.

GB-style SBT because of the way Governing Categories were ultimately defined (cf. Chomsky 1981: 211), but the inferential route was way more indirect.

(31b) is a case where Principle A_{CSBT} is satisfied and the Obliqueness Condition is violated. What happens in the opposite scenario, where Principle A_{CSBT} is violated and Obliqueness Condition is obeyed? This would be a case like (32), which was pointed out to me by Jackendoff (personal communication):

(32) ? John was punched by himself.

Even though (32) is somewhat deviant – thereby reinforcing the need for a semantic constraint on reflexive anaphors such as Principle A_{CSBT} – it is, intriguingly, unarguably not *as bad* as (31b). What should we infer from this? How can it be that violation of one principle produces blatant ungrammaticality (Obliqueness Condition in (31b)) and of another (Principle A_{CSBT} in (32)) produces merely a weak kind of anomaly (which can possibly be overcome by contextual factors)?

A possible way out of this conundrum is to admit, along with Burzio (1998) and Menuzzi (1999), that constraints on anaphoric relations are *violable* and *ranked*, in an OT-like system. It might be that grammatical function constraints like the Obliqueness Condition are ranked higher (at least in English), making them harder to violate than CS conditions. CS constraints may be more easily overridden by discursive factors; perhaps, in (32), by the need to focalize the Agent of the punching, emphasizing the fact that John was harmed by no one but himself. A similar effect may be achieved through Jackendoff's (1983) formalism of "preference rules".¹⁶

Before closing this section, I want to go back to an issue mentioned near the end of 2.3: exempt anaphors (in the sense of Pollard and Sag (1992, 1994)) like picture-noun reflexives. What happens when an anaphoric form is *not a co-argument of its antecedent within a given subcategorization list*? In other words, what happens when an anaphor is *exempt* from the Obliqueness Condition? Does that also make it exempt from Principle A_{CSBT} ?

¹⁶ As an anonymous reviewer points out, there may be more at stake in adopting this alternative, such as shift from the computational theory of mind to a connectionist architecture. I am not, myself, so pessimistic about the prospects of handling optimization and preference rules in standard symbolic terms. However, there should be no firewall protecting grand theses in the philosophy of mind from the dirty details of empirical debate, even if the topic sounds as trite as judgements about (32). If connectionism is the only way to capture fuzziness, gradience and violable constraints, then so be it. Cognition seems to be full of those (cf. Jackendoff 1983: chap. 8, Prince and Smolensky 2004).

There is *some* reason to think that it does. Let us go back to the examples in (10) and add some other ones which are similar to notably problematic cases first exposed by Jackendoff (1969: 39-40):

- (10) a. Mary wondered which picture of herself Bill saw.
b. The students asked what attitudes about each other the teacher had noticed.
- (33) a. Tom believes that there is a picture of himself hanging in the post office.
b. John's greatest problem is a fear of himself.

There seems to be no way to devise CSs for these sentences in which the configurations relevant to Principle A_{CSBT} are met. In (33b) the CS of the anaphor is not CS-bound by the [Object JOHN], and, in all of the other cases, the locality requirement laid out in 3.2 is grossly violated: the anaphoric CSs are not bound within their local Situations. As Pollard and Sag (1992) and Kuno (1987) propose, it may be that the reference of these anaphors is not determined by grammatical principles at all, but, instead, by a condition on *information structure*.

Information structure is defined by Jackendoff (2002: 408) as the mode of cognitive organization concerned with “the means by which the speaker intends the sentence to inform the hearer, in the context of previous discourse”. It is, therefore, a form of mental representation over which constraints can be defined, just like syntax and CS. Being exempt from *grammatical* requirements would not entail, therefore, that exempt anaphors are wholly unconstrained. A first approximation to the information structure condition that governs them might go as following:

Information Structure Condition: Exempt anaphors must be coreferential to the most informationally prominent entity in the discourse, the one whose *point of view* is being elaborated in the sentence within which they're contained (cf. Kuno 1987).

Since it is usual for subject positions to be iconically filled by informationally prominent entities and since “Mary” is the *subject* of (10), this requirement is satisfied for that example. A similar explanation can be extended for (10b) and (33a).

In (33b), the antecedent of the anaphor is not the subject, but it is the *first* word of sentence and the only one that denotes a *human*: two plausible criteria for determining informational prominence.

The proper interaction between obliqueness, CS and information structure conditions on NP coreference needs to be worked out in much greater detail than I can do here. It may be, for instance, that the Obliqueness Condition renders unnecessary the locality requirement in Principle A_{CSBT} and that the presumed effects of locality on non-argument NPs are completely devolved to the Information Structure Condition (cf. Pollard and Sag 1992: 273).¹⁷ But what we can see so far is that, even though these systems are somewhat redundant (like many principles in language and cognition (cf. Jackendoff 2011)), all of them operate well on cases where the other fails. For instance, the Obliqueness Condition accounts for the contrast in (31), CSBT doesn't; CSBT accounts for the coercion cases in (5), but the obliqueness demand does nothing for teasing those apart. The information structure condition, in turn, accounts for (10) and (33): cases which are probably exempt from both CSBT and obliqueness. This is what justifies investigating *all* of these systems, being open minded to the hypothesis that none will be reducible to the other.

5. FINAL REMARKS: WHO WANTS A CSBT ANYWAY?

My main goal in this paper was to present three major arguments (two empirical and one conceptual) against a purely syntactic version of Binding Theory and to propose a very rough outline of an alternative, closely following some suggestions by Jackendoff (1972, 1992) and Culicover and Jackendoff (2005). My first argument was, in fact, borrowed from Jackendoff (1992) and took advantage of an interaction between the binding of reflexives and an instance of Nunberg's (1979, 1995) reference transfers. The second argument explored the binding possibilities of reflexive anaphors under so-called A'-movement. The third one was a conceptual

¹⁷ This would overthrow one of the main motivations for subsuming the Ringo coercion sentences of section 2.2 under CSBT. The homology between “<plain>Ringo fell on <statue> himself” and “Ringo fell on a statue of himself” would break down by the realization that the latter (but not the former) anaphor is *exempt* from grammatical requirements like Principle A_{CSBT}. In light of this, we can ask whether Principle A_{CSBT} can be thoroughly eliminated and have *all* of its presumed effects reproduced by the Information Structure Condition. I am skeptical about this, since the binders in (19)-(20) need not be informationally more prominent (note that they're not the *subjects* of the sentences, but the direct objects). Moreover, the same binding asymmetries in coercions we observed for “Ringo fell on himself” also arise for “Yoko pushed Ringo into himself”, where “Ringo” need not correspond to the more prominent element either (for all we know, that sentence may develop Yoko's point of view).

critique of a mode of analyzing imperatives initially practiced by Culicover (1971). All of these considerations – along with the independent necessity of a notion of CS-binding that covers binding inside Lexical Conceptual Structures (cf. Jackendoff 1990: chap. 3) and the phenomenon of control (cf. Culicover and Jackendoff 2005: chap. 12) – build a strong cumulative case against a purely syntactic BT.

The alternative I offered against this “syntactocentric” approach required formulating structural conditions on a well-motivated level of *semantic* representation: Conceptual Structure, as it is conceived in Jackendoff (1983, 1990, 2002, 2007). Although I focused mainly on the CS constraints on NP coreferentiality, by no means I meant to suggest that other (more syntactic) factors may be involved. One such factor, which, pretty obviously to me, needs to supplement CSBT is the *Obliqueness Condition* inspired by Pollard and Sag (1992, 1994). More discursive factors, like information structure could also be relevant, though I’m not so sure about how to characterize them. These two issues were hinted upon in section 4.

What may be thoroughly eliminated, however, are phrase structure conditions on NP coreference. It seems to me that Conceptual Structure (or a thematic hierarchy derived from it) can take over all of the more “configurational” aspects of binding in a productive way. In other words, there is nothing c-command and Governing Categories can do that CS-command and Situations can't. This is, indeed, what Culicover and Jackendoff (2005: 379) hint at:

[I]t may be the case that, in the absence of an articulated theory of conceptual structure, syntactic [i.e. phrase structure] conditions on Principle A have seemed plausible (and the only available possibility) because their effects are so similar to parallel conceptual structure conditions which are in fact the correct choice.

I believe even mainstream generative grammar, at least by its own current standards, could profit from this kind of "conceptualist" reduction of BT's configurational machinery. It may be useful to reconceive all BT's complex stipulations and notions – like binding domains, c-command and indices (most of which have been abandoned in the Minimalist Program anyway) – to try and justify them in terms of properties of an independently existing C-I System. All of this would facilitate an evolutionary account of language and provide a "principled explanation" of phenomena, in precisely the sense of Chomsky (2005: 10):

We can regard an explanation of properties of language as principled insofar as it can be reduced to properties of the interface systems and general considerations of computational efficiency and the like. Needless to say, these “external” conditions are only partially understood: we have to learn about the conditions that set the problem in the course of trying to solve it.

Of course, it remains to be shown that the aspects of CS summoned in my formulation of constraints on NP coreference emerge as explanatory in accounting for other phenomena, both within and outside language. My empirical scope here was, I confess, shamefully small.¹⁸ Jackendoff (2007: chap. 4), however, presents promising analyses indicating the presence of formal analogies to CS-binding in the structure of complex actions. If these structures call upon the same relations and notions as the ones used here (as they seem to), this would contribute greatly to the integration of my proposals with the rest of cognitive science. A noble goal to pursue.

CS-binding may be, in the end, part of the “Faculty of Language in a broad sense” (FLB) of Hauser et al. (2002), and not something specifically designed for language. It would be merely *recruited* by the syntax-semantics interface once syntactic categories like reflexive anaphors are established in language, since we need a regular manner of finding referents for them. Such a move would also count as desirable in a minimalist framework, where, according to Hornstein (2009), more “general” operations, which apply elsewhere in cognition, should be preferred on the grounds of simplicity. As he says, “operations and principles at work in other parts of the cognitive economy are natural resources for linguistic computations” (Hornstein 2009: 3). Placing BT, at least partly, on CS is a necessary first step in this direction.

The motivation behind this particular way of framing the issue (presenting a theory of binding along the lines Culicover and Jackendoff (2005: chap. 10) suggest, but as an alternative “minimalist” account) is to get linguists who work in theoretical syntax back in touch with the surrounding intellectual community - a goal I believe is commonly shared by both Chomsky (2005) and Jackendoff (2002, 2007). It is often hard to get people who work with generative syntax to engage with other, more cognitively oriented approaches. I think that is essential, both for cognitively oriented approaches, so they can begin addressing crucial issues that were very thoroughly explored by generative grammarians, and, most of all, for proponents of generative

¹⁸ In particular, little mention was made to the data that stimulated the influential reflexivity-type theories of Reinhart and Reuland (1993) and Reuland (2011), LFG approaches like Bresnan’s (2001) or Menuzzi’s (1999) Optimality-theoretic alternative. A careful assessment of all these would be sure to provoke substantial changes in my proposals.

grammar, if we really want to take seriously the idea of a “bilingualistic” perspective on language.

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