CHAPTER 5

Empty categories as Copy and No Transfer

Non-obligatory control and partial null subjects

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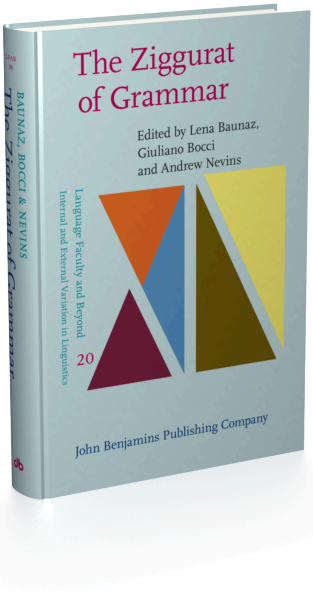

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We assume the Copy theory of control, under which obligatory control depends on a Copy relation between the controller and the controllee, followed by deletion of the latter ('PRO'). We further assume that pro subjects undergo deletion (No Transfer) under Agree with rich I. We are interested in the compatibility of this framework with some instances of null subjects, whose status is intermediate between standard PRO and pro. We first consider non-obligatory control and partial control, adopting an account in terms of logophoric binding via the phase edge. We then propose that the finite null subjects of Brazilian Portuguese instantiate finite control, but of the non-obligatory, logophoric kind.

Keywords: Control, null subject, Copy, Transfer, phase

1. Trace, PRO and pro

1.1 Copy and deletion

In the copy theory of movement (Chomsky 1995: 185) the derivation of an English raising sentence is as in (1). The DP *John* undergoes External Merge (EM) in theta-position and then Internal Merge (IM) into matrix subject position to satisfy the Extended Projection Principle (EPP) — however this is construed. The two copies form a chain, and the lower copy undergoes deletion.

(1) *John seems [$_{IP}$ ~~John~~ to win].*

Hornstein (1999) proposes that the movement derivation in (1) also applies to obligatory control (OC), for instance (2a) below, thus reducing PRO to a deleted copy. His movement theory of control (MTC) implies that a DP can undergo EM in theta-position (the controlee) and satisfy a second theta-position by IM (the controller). The latter operation is a violation of the principle that Chomsky

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(2021: 18) calls Duality of Semantics (DoS), stating that "EM is associated with θ-roles" (for an earlier formulation see Chomsky (2000: 103)).

Chomsky (2021, 2024) instead outlines a copy theory of control (CTC) compatible with DoS, proposing that a control structure like (2a) is derived by EM of the two separate inscriptions of *John*. The two identical inscriptions in (2a) are in a c-command relation within the same phasal domain, assuming that infinitival CPs are not phasal (cf. Saito 2024). At Transfer, they enter the Copy relation, as in (2b), and as part of Externalization (EXT) the lower member of the Copy relation deletes.

(2) a. *John tried [John to win].*
b. Copy: <John, ~~John~~>

Contrary to what has long been held in generative grammar, Chomsky (2021: 20) also proposes that derivations are strictly Markovian, namely that "the history is not preserved in the current state". This means that at the derivational stage represented in (1) and (2), there are no means to retrieve information about derivational history, for instance in the form of a chain, understood as a representation of the contexts of occurrence of a constituent that has undergone IM. Rather, at Transfer, Copy applies to the two inscriptions of *John* in raising, (3), as in control, (2). This way, raising and OC reduce to different interpretations, namely one vs. two theta-roles (see Manzini and Roussou 2000), irrespective of their derivational history.

(3) a. *John seems [$_{IP}$ John to win].*
b. Copy: <John, ~~John~~>

In what follows, we adopt the CTC without further questioning its basic assumptions[1] — and try to extend its mode of explanation from OC to other empirical domains. This leads us to consider the last remaining empty category (EC) of standard GB and minimalist theory, namely pro. According to Borer (1986) (also Alexiadou and Anagnostopoulou 1998), an expletive pro is not required to satisfy the EPP in Null Subject Languages (NSLs), since this can be directly achieved by rich inflection. More recently, Chomsky (2015: 9) suggests parameterizing the EPP in terms of Labeling. In NSLs, I is rich and can label, while in non-NSLs, such as English, I is weak and cannot label on its own, requiring merger of a DP with IP and Labeling of the resulting constituent by Agree. Merger of pro is necessary (in

1. A reviewer points out that DoS is a theoretical postulate that is not independently forced and raises the question why IM couldn't be entirely dispensed with (favoring EM and Copy). The necessity of IM does not follow from DoS as adopted in the text, but it does follow from the second half of the principle, namely "IM [is associated] with discourse/information-related functions" (Chomsky 2021: 18), which is again postulated. We refer to Chomsky (2021, 2024) for possible independent consequences of DoS, impossible to pursue here.

theta-position) only if there is a theta-role that needs to be satisfied by the null subject (see also Collins 2024).[2]

Against this background, Holmberg (2005) argues that pro is an actual pronoun that deletes under feature identity with a rich inflection (also Roberts 2010). Saab (2009: 654) executes this idea in terms of 'No Transfer', which means no lexical insertion for the abstract terminals of syntax, given the Late Insertion assumption of Distributed Morphology (DM). In other words, a null subject in NSLs may be represented as having the same structure as overt pronouns, as in (4b); see especially Barbosa (2019). The abstract pronoun enters Agree with rich I, and at Spell-Out feature identity with rich I licenses deletion construed as No Transfer.

(4) a. *Parlano.* (Italian)
speak.3PL
'They speak.'
b. $[_{IP}$ I $[_{DP}$ D $[_{nP}$ φ$]]]$ $[_{vP}$ V → No Transfer *NSL, pro*

In short, control (PRO), raising (A-copy) and null subjects (pro) are identified at the PHON (Phonology) interface by the fact that they involve 'deletion under identity' — though identity may be licensed under very different conditions, typically language-specific. At the SEM (Semantics) interface, their interpretation differs according to whether they enter the Copy relation or not. Copy yields the reading of a bound variable (movement or control), otherwise a free pronoun reading is possible (NSL).

1.2 A reformulation of the CTC

The preceding discussion connects copy and deletion theories of raising and OC, with deletion theories of null subjects. Yet the versions of these two sets of phenomena presented above are potentially inconsistent. Following Chomsky (2021, 2024) we adopted representations of the type in (2)–(3) for raising and OC, where No Transfer affects lexical terminals, while in (4) we have assumed that null subjects undergo No Transfer at EXT. In this latter instance, no lexical terminal is deleted; instead, the abstract terminal is not Spelled Out.

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2. Pro-drop is also robustly attested in languages like Chinese, Japanese, Korean that lack agreement inflections entirely. The present, quite standard account of inflection-licensed pro-drop seems compatible for instance with the discussion of radical pro-drop by Barbosa (2019: 520). Adopting Tomioka's (2003) generalization that these are NP-languages (as opposed to DP languages), Barbosa proposes in radical pro-drop a minimal pronoun NP combines with a null D independently available, lifting its denotation to that of individuals. The point here is not whether we endorse this account or not, just its compatibility with present assumptions (cf. also fn. 4).

Consider the OC derivation in (2) again. There is a crucial timing issue embedded in the notion of phase, as regulating Transfer in particular, and that is 'what is seen by the computation and when'. Chomsky (1995) argues that the derivation only sees abstract formal features. If this is correct, then the derivation in (2) takes a rather different shape. Essentially, both the lower argument (the controllee) and the higher argument (the controller) are visible to syntax just as feature bundles, namely D and *n*, as in (5a). The Copy relation implies that as part of INT (Interpretation) the two inscriptions of [D [n]] are read as occurrences of the same syntactic object (copies), cf. (5b). We lexicalize the verbs and *to* just for ease of processing; also, the subscripts in (5b) are only a shorthand for the contexts of occurrence of the two copies.

(5) a. ... $[_{vP}$ [D [n]] *tried* $[_{IP}$ *to* $[_{vP}$ [D [n]] *win*]]]
b. Copy < $[D\ [n]]_1$, $[D\ [n]]_2$ >

Only the interfaces, SEM and PHON, see more than formal features. The No Transfer account of deletion proposed by Saab (2009) presupposes the DM framework. Without committing ourselves to other aspects of DM, we take Lexical Insertion (LI) to be one of the tasks executed as part of the Transfer procedure common to both interfaces. In the structure in (5), LI takes place in the higher position of the Copy pair, with PHON and SEM as in (6a). More interesting is the mapping to the interfaces of the lower member of the Copy pair. INT sees the Copy relation as an instruction to treat the lower [D [n]] as a bound variable of *John* (cf. sloppy identity under ellipsis). The EXT procedure sees the same relation as an instruction not to Spell Out the lower [D [n]], as in (6b). Identity with the higher copy ensures recoverability of the lower one under No Transfer ('deletion').

(6) a. EXT: $[D\ [n]]_1$ → /dʒɔn/
INT: JOHN
b. EXT: $[D\ [n]]_2$ → Ø [No Transfer: Copy relation]
INT: bound variable

In short, in OC configurations, core syntax builds identity relations at the phase level into copy pairs interpreted as antecedent-bound variable configurations at INT, and as No Transfer of the abstract terminal corresponding to the lower member of the Copy relation at EXT. The CTC as outlined and adapted here upholds a modular conception of grammar, where EXT and INT do not know about one another and more importantly, syntax does not know about them. The crucial implication is that syntactically, there is in fact no distinction between the abstract terminal [D [n]] in (5)–(6) and the null pronoun postulated for NSLs. What differs is the licensing conditions of No Transfer and the possible interpretations.

In the rest of the paper, we focus on null subjects that fall between PRO and pro. We first consider Non-Obligatory Control (NOC) infinitives in English, including both anaphoric (or rather, logophoric) readings and arbitrary (generic) free readings. We next consider so-called partial NSLs, based on data from Brazilian Portuguese (Barbosa 2019, cf. Holmberg 2005 on Finnish, Shlonsky 2009 on Hebrew), whose null subjects can be generic or anaphoric (logophoric), but not deictic. In constructing a unified account of the various configurations mentioned, we exploit the independence of the syntax, the EXT procedure and the INT procedure. Variation is the result of the free interplay of varying EXT conditions with an essentially invariant INT range.

2. Non-obligatory control

2.1 Arb NOC

By hypothesis, canonical OC like (2) and (5) is derived by Copy formation between the embedded subject and a matrix argument, and by deletion of the lower copy, yielding a null subject. NOC is the label that is generally given to all those instances of infinitival null subjects that cannot have the OC derivation either because there is no antecedent, or because the antecedent is non-local or not c-commanding. Indeed, non-finite clauses in English allow for null subjects in the absence of controllers, in which case they have a so-called arbitrary (generic) interpretation, (see (7)). In these cases, the null subject behaves as an indefinite (a free variable) closed by a Generic operator, as part of the INT procedure.

(7) a. *It suffices [__ to speak].*
b. *It is unclear [whether __ to speak].*

The other core examples of NOC involve configurations like (8) where an antecedent is present but one or more of the conditions on Copy do not apply between the null subject and its antecedent. In (8a) (Super-Equi example, Grinder 1970), *John* does not c-command the infinitival subject, which is also in a subject island, hence a phasal CP. In (8b–c), *John* c-commands the deletion site, but the latter is embedded in a phasal CP, barring Copy. The connection between (7) and (8) is confirmed by the fact that however marginal, the arbitrary interpretation is also possible in (8).

(8) a. *[__ to hurt himself/?oneself] would bother John.*
b. *John wondered [whether __ to behave himself/?oneself].*
c. *John said that [__ to hurt himself/?oneself] would be a problem.*

Within the MTC, Hornstein (1999: 91) is forced to assume that despite the similarity of embedding contexts, the null subject in NOC is a pro and not a copy as in OC. In present terms, this amounts to saying that NOC infinitives involve a [D [n]] not transferred to PHON — along the lines of NSLs. As far as we can tell, this is also the only extant proposal on NOC compatible with Chomsky's (2021, 2024) CTC.[3]

The problems with such a proposal are evident. The null subject of NOC infinitives in (7)–(8) has at least one interpretation that is inadmissible with canonical null subjects, namely the generic interpretation. Vice versa, canonical null subjects have a possible free deictic interpretation that is unavailable to subjects of NOC infinitives. In other words, Italian (9a) can refer to a definite individual, but not to a generic set. The latter meaning requires the presence of so-called impersonal *si* 'one'. Similarly, (9b) can have either an anaphoric or a deictic interpretation, while no deictic interpretation is available in NOC.

(9) a. *Vince facilmente.*
win-3SG easily
'He/*One wins easily.'
b. *Gianni dice che __ vincerà facilmente.*
Gianni say.3SG that win.3SG.FUT easily
'Gianni says that he will win easily.'

The idea that there is a pro, with certain inherent and context independent properties, is hardly compatible with its putative occurrence in both NSLs and in NOC. Indeed, within the framework established in Section 1, the question is no longer whether an EC with a certain interpretation and certain conditions of (non-)externalization fits a certain grammatical slot. Rather this question is resolved into three simpler, independent ones: whether Copy holds, whether No Transfer is licensed as part of EXT (generally under identity), and which interpretations are available for the identity element (bound variable, coreference, etc.). Consider first arb NOC, as in (7a) with the structure in (10) (see the next section for the logophoric readings). So far, we have seen two configurations capable of licensing No Transfer of [D [n]]. One is Copy, excluded by hypothesis in (7)–(8). The other is Agree with I, as in the finite sentences of NSLs, also excluded on the assumption that infinitival I has no φ-probe. Valuation of the φ-features of I in

3. In later developments of the MTC, NOC is treated by means of Sideward Movement. The discussion concerning Sideward Movement revolves around issues of Economy (or Resource Restriction in terms of Chomsky 2021), namely how many objects are accessible at each stage of the derivation (Boeckx, Hornestein and Nuñes 2010: 86, Chomsky 2019: 39–40). This issue is beyond the scope of the present work. We simply follow Chomsky in excluding Sideward Movement (also Parallel Movement, Late Merge).

NSLs requires a [D [n]] with valued features. We suggest that in infinitives it may simply have unvalued ones. The latter are set on default values at EXT that may be taken to be recoverable without recourse to an antecedent, as in (10c), thus introducing a third licensing mechanism. The INT procedure treats default [D [n]] as an indefinite (a free variable), providing a quantificational closure for it via a Generic operator in (10c).[4]

(10) a. ... [$_{vP}$ suffices [$_{CP}$ C [$_{IP}$ to [$_{vP}$ [D [n]] speak]]]]
b. [No Copy]
c. EXT: [D [n]] → Ø [No Transfer: Default feature values]
INT: [D [n]] → indefinite, Gen closure

We turn next to the other type of NOC, displaying coreference between the null subject and an antecedent.

2.2 Logophoric NOC

One prominent line of explanation of NOC holds that the null subjects are logophors. This is explicitly proposed by Landau (2013), who treats logophoricity as a semantico-pragmatic notion, and by McFadden and Sundaresan (2018), who treat perspectival anaphora (cf. Sundaresan 2018) as the result of Agree. A similar, syntactic analysis of logophors (no mention of NOC) is presented by Charnavel (2020), who eschews Agree in favor of a phase-based mechanism (cf. Charnavel and Sportiche 2016).[5]

In general, the distribution of NOC with respect to OC is very similar to that described by the literature for logophors with respect to anaphors. This is because there is no locality (phase-internal) or c-command restriction on NOC as opposed to OC — and the same holds for logophors with respect to plain anaphors, according to the references just quoted. Instead, the requirement on logophors is that they must have an antecedent that is a perspective holder, namely a subject of a propositional attitude or an experiencer (or a spatial perspective holder, according to Sundaresan, but not to Charnavel).

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4. Radical pro-drop languages allow the generic interpretation of null subjects (e.g. Holmberg and Phimsawat 2015 on Korean, Chinese and Thai). According to Barbosa (2019), tentatively adopted for radical pro-drop in fn. 3, the null pronouns of radical pro-drop languages are NPs, not DPs, and this allows quantificational closure. However, we could adopt a uniform DP categorization for pronouns (lexical and null), letting D vary between [+definite], licensed by rich agreement, and [–definite], licensed by quantificational closure.

5. For an overview of logophoricity, see Charnavel (2021) and Sundaresan (2021).

For Sundaresan (2018) and McFadden and Sundaresan (2018), who explicitly address NOC, the first step of the derivation of NOC is syntactic. McFadden and Sundaresan use the Upro notation, reminiscent of Landau's (2015) minimal pronoun, based on the assumption that the various null arguments are contextually determined. The null subject of the gerund enters Agree with a null argument in Spec, PerspP (Perspective Phrase) at the left periphery of the sentence — a (U)pro at least in the notation of Sundaresan (2018). This syntactic step, like all applications of Agree, is strictly local (it obeys Minimality and the Phase Impenetrability Condition, PIC). The NOC null subject is valued by the perspectival null pronoun acting as a probe via Upward Agree (Zeijlstra 2012).

(11) a. __ *having just arrived in town, the main hotel seems to Bill the best place to stay.*

b. [$_{\text{PersP}}$ Upro Pers [Upro having just arrived in town]] …
⌊_____⌋ (Agree)

The second stage of the derivation is semantic and involves coreference of the left peripheral Upro with some suitable perspective holder antecedent, namely *Bill* in (11). As commented by Sundaresan (2018: 23) "the relationship between the antecedent and the perspectival pro in the local phase of the anaphor must thus necessarily be non-structural". As McFadden and Sundaresan (2018: 40) put it, the connection "is handled by conditions on discourse".

Charnavel and Sportiche (2016) and Charnavel (2020) take plain anaphor binding to be an interface operation, whose domain is the Spell-Out domain of a phase. This means that plain anaphor binding has two key properties of Copy, namely operating at the interface (at Transfer) and at the phase level.[6] Regarding logophors, Charnavel's proposal is very similar to Sundaresan's, namely that their local antecedent is a *pro* subject of a LogP (Logophor Phrase) at the left periphery of the sentence. This latter *pro* is licensed by a logophoric center antecedent. According to Charnavel (2020: 679) "the referential value of the logophoric center is determined pragmatically".

6. In other words, the question arises whether plain anaphor binding can reduce to the Copy relation with the lower copy realized as an anaphor — as suggested by (Chomsky 2021: 25). Charnavel and Sportiche (2023) address English *self*-anaphors — and though we cannot enter into details here, the proposed derivation involves unprobed movement to a theta-position — which nevertheless obeys locality (and c-command). They observe that A-movement canonically targets a non-theta position and involves probing. But this is of course not true of Copy.

Against this background, consider (8a). When the *that* phase-head is merged, closing the embedded CP phase, there is no argument for the embedded [D [n]] argument to enter Copy with, cf. (12).[7]

(12) ...[$_{CP}$ *that* [$_{IP}$ [$_{CP}$ [D [n]] [$_{IP}$ *to* [$_{vP}$ [D [n]] *hurt himself*]]] *would* ...

Other alternatives are open. Let us assume minimally that the external argument [D [n]] evacuates to the edge of CP by IM, as in (13a). Copy applies between the two inscriptions of [D [n]] in (13b), licensing the lower one at EXT (No Transfer) and at INT (bound variable) in (13c). Avoiding cartographic-style heads, Charnavel's Log or Sundaresan's Persp are construed here as features of phase heads, namely the sentential subject C in (13a).

(13) a. ...[$_{CP}$ *that* [$_{IP}$ [$_{CP}$ [D [n]] C$_{[Log/Persp]}$ [$_{IP}$ *to* [$_{vP}$ [D [n]] *win*]]] *would* ...
b. Copy < [D [n]]$_1$, [D [n]]$_2$ >
c. EXT: [D [n]]$_2$ → Ø
INT: [D [n]]$_2$ → bound variable

At the next derivational stage then, a logophoric antecedent for [D [n]]$_1$ in (13b) is established. Both Charnavel and Sundaresan assume that this step is pragmatic. However, in the conception of empty categories embraced here, this cannot be right. Rather, the logophoric antecedent is what ultimately licenses No Transfer at EXT and provides an interpretation at INT, as schematized in (14).

(14) a. ...[$_{vP}$ *John says* [$_{CP}$ *that* [$_{CP}$ [D [n]] ...
b. EXT: [D [n]] → Ø (deletion under identity)
INT: [D [n]] → coreference with perspective holder

Note that the derivation in (14) looks like improper movement: [D [n]] is IM-ed in an A'-position and then bound from an A-position.[8] Interestingly, Charnavel (2020: 705), explicitly posits that a logophoric projection (LogP) can be present in every spell-out domain, which means that every phase is presented from an individual's perspective. Following this hypothesis, it seems to us that (14a) is naturally revised as in (15) with logophoric coreference reducing to binding from phase edge to phase edge. Note that all long-distance dependencies of this sort display the character of operator-variable dependencies (strong cross-over, etc.);

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7. Semantic differences confirm the different status of OC and NOC. Thus, under ellipsis, OC (Copy, cf. (6)) forces the sloppy reading of the elided OC complement, while NOC admits sloppy or strict readings (see McFadden and Sundaresan 2018).

8. Chomsky (2021: 28–29) on *easy-to-please* constructions suggests that IM from argument position to the edge of CP creates a predicate which is then applied to the subject of *easy*, EM-ed in A position. This is excluded in NOC because of the absence of predication.

an obvious case in point is topicalization, eventually with resumptive clitics. Therefore, we see no principled objection in this respect.

(15) $[_{CP}$ *John* $C_{Log/Persp}$ … $[_{vP}$ *John says* $[_{CP}$ *that* $[_{CP}$ [D [n]] $C_{Log/Persp}$

Despite the above schematic presentation, our main point is that the CTC and more generally the No Transfer analysis of null subjects (or arguments) are compatible with an account for NOC within broadly accepted guidelines. One potential difficulty has to do with the rigid separation of generic and logophoric NOC in the discussion so far. In proposing generic closure in (10), we have implicitly assumed that it comes with a [+human] restriction, necessary to account for the obligatory human interpretation of the null pronoun in examples such as *It is possible to roll down the hill* (Chomsky 1981, cf. Landau 2013: §7.5 a.o.). The fact that human reference is also a property of logophors poses the problem of the relation between the two readings of NOC.[9] Formally, we could say that contexts excluding Copy undergo the logophoric derivation (13) building a necessary [+human] restriction into the null pronoun. Generic closure (cf. (10)) becomes available but as a way to rescue the absence of a logophoric antecedent (or as a way of providing a logophoric center at the interface, if we accept the generic reading of (11)).

Given limitations of space, we do not aim here at refining the analysis of NOC, but rather at proposing an analysis of partial null subjects that assimilates them to logophoric control (NOC). Before that we turn to another potential problem for CTC, that of partial and split control.

2.3 Partial and split control

Two key examples of partial/split control are reproduced in (16), slightly modified from Landau (2024a: 28). As in OC, the embedded null subject takes its reference from the closest matrix argument, here the object. However, the embedded verb in (16a) and the adverb *together* in (16b) necessarily imply a plurality, yielding partial control ('the chair and others') in the first case and split control ('Dan and Susan') in the second. For brevity, we refer to partial control in what follows, although similar arguments extend to split control.

(16) a. *Susan persuaded the chair [__ to meet without her].*
b. *Susan persuaded Dan [__ to continue working together on this].*

Landau (2024a) points out that CTC is unable to account for partial control. Indeed, if the embedded null subject is not identical to its antecedent, Copy can-

9. This line of discussion was prompted by our reviewer.

not apply. As Landau (2024a) puts it, there is no partial raising, after all. Therefore, according to Landau, (16) requires a non-Copy approach.

Within his own Two-tiered Theory of Control, Landau (2015) argues that OC corresponds to two different structures. Non-attitude control verbs (e.g., modals, aspectuals) embed a predicate, whose open variable corresponds to PRO, as in (17a). Attitude and communicative verbs, on the other hand, as in (16), take propositional complements. In this case PRO is not directly bound by its matrix antecedent but by a pro argument in the embedded Spec, CP, where C is +Log, as in (17b) (cf. Landau 2024c).

(17) a. $[_{TP}$ PRO …] *Predicative clause*
b. $[_{CP}$ *pro* C_{+log} … $[_{TP}$ ~~PRO~~ …]] *Logophoric clause*

Granting Landau's conclusions as to the inapplicability of Copy to (16), this means that the empirical coverage of CTC is that of Landau's predication control. Under CTC, what Landau calls logophoric OC must evidently be assimilated to NOC. Indeed, according to Landau (2015: 85),

> the difference boils down to the fact that the projected coordinate of the logophoric C (in the present notation, pro_x or pro_y) is a bound variable in OC but a free variable in NOC. […] The coordinate variable in OC necessarily picks out […] the attitude context specified on the embedded C, but may pick out *any* attitude context (including the utterance context) in NOC. Ultimately, the contrast seems to be grounded in the fact that complements are selected whereas subjects and adjuncts are not.

Indeed, the difference between (16) and NOC in (8) is that no c-command and locality restrictions are observed in (8), while they are in (16). Yet Landau himself in the above passage sketches a possible reason why this is so: the difference has to do with complement infinitives vs. subjects and adjuncts (see Manzini's 1983 generalization in terms of government).

Apart from attitude and communicative verbs, experiencer predicates also display logophoric control, since experiencers can be perspective holders. Predicates of this class allow their infinitival complement to be raised to subject position. As Landau (2001) shows, in that case they display the properties of classical NOC (or Super-Equi). Specifically, the null subject in (18a) can be anaphoric to the matrix clause subject or to the non-c-commanding experiencer or have arbitrary reference. However, anaphoric reference to the experiencer is forced if the sentence is postverbal, as in (18b). If the co-argument of the control sentence is a theme and not an experiencer, as in (19), this pattern does not arise, in the sense that the infinitival sentence has stable NOC properties. Landau (2001) proposes that the infinitival clause in (19b) is truly extraposed — roughly adjoined to vP

and outside the c-command domain of the theme — while in (18b) the infinitival clause is an internal argument of the verb and in the c-command domain of the experiencer.

(18) a. *Mary knew that [__ perjuring himself/herself] disturbed John.*
b. *Mary knew that it disturbed John [__ to perjure himself/*herself].*

(19) a. *Mary knew that [__ perjuring himself/herself] damaged John.*
b. *Mary knew that it damaged John [__ to perjure himself/herself].*

From the evidence in (18) we conclude that infinitival complement clauses in the domain of logophoric/perspectival co-arguments are bound by the latter. This is not Copy control because partial control is possible. In the absence of binding by a co-argument, the properties of logophoric/perspectival anaphora emerge fully, in so-called NOC contexts. The real question at this point is formalizing the restrictions observed. We leave it open here. Instead, in the space at our disposal, we review another set of empirical data connected to the so-called partial NSLs, here Brazilian Portuguese, drawing a parallel with NOC/logophoric null subjects.

3. Partial null subjects

3.1 Partial null subjects in Brazilian Portuguese

Null subjects of finite sentences in Brazilian Portuguese (BP) are strikingly different from those of full NSLs, like Italian or Spanish, or in fact European Portuguese (EP). The overall BP pattern has also been discussed for other languages including Finnish (Holmberg 2005), Hebrew (Shlonsky 2009), Marathi (Holmberg et al. 2009), generally labeled as partial NSLs.

A (3rd person) null subject of a finite sentence in BP can be interpreted in two ways, namely as coreferential with an antecedent, see (20a), or as generic if no antecedent is available, see (20b) (examples from Barbosa 2019). Therefore, in both examples in (20), the typical deictic interpretation of null subjects in NSLs is impossible in BP. Vice versa, the generic interpretation in (20b) is impossible in NSLs. In Italian, Spanish, and EP generic reference can only be established by means of the *se/si* clitic, cf. (9) above.

(20) a. *O Joao disse que __ comprou um computador.*
the Joao said.3SG that bought. 3SG a computer
'Joao said that he bought a computer.'
b. *E' assim que __ faz o doce.*
be.3SG so that make.3SG the cake
'It is in this way that one makes the cake.'

The BP pattern in (20) has been treated in terms of OC, mainly within the MTC, e.g., by Rodrigues (2004: Chapter 4), Ferreira (2009: 30), Nuñes (2009). Other theorists argue against this conclusion (Modesto 2007, Holmberg et al. 2009). As far as we can tell, the possibility that BP partial null subjects are indeed connected with control — but with NOC, rather than with OC — is not explored in the literature.[10] The first relevant piece of evidence concerns the possibility for the finite null subject of BP to get an indefinite, generic reading (20b). This pattern differentiates BP finite null subjects from those of full NSLs, but also from OC, pointing towards an affinity with NOC.

The second piece of evidence concerns the coreferential readings in (20a). The literature agrees that in case of multiple embeddings the antecedent of the null subject must be the closest subject, blocking (21a). However, minimal distance effects are neutralized if the intervening subject is an expletive, as in (21b) (from Holmberg et al. 2009: 82). Evidently, a Copy analysis is unavailable, (but also equivalent analyses like copy, predication, etc.) since there is at least one C phase head between *Maria* and the null argumental subject in (21b). Holmberg et al. (2009) also report the possibility of a null subject inside an embedded interrogative, as in (21c), which has a phasal C as the complementizer suggests.

(21) a. **A Maria disse* que *o médico acha* que *está gravida.*
the Maria said.3SG that the doctor think.3SG that is pregnant
'Maria said that the doctor thinks she is pregnant.'

b. *A Maria disse* que *é verdade* que *entornou o copo.*
the Maria said.3SG that is true that knocked.over.3SG the glass
'Maria said it's true that she knocked over the glass.'

c. *O João perguntou* se *podia dormir aqui.*
the John asked. 3SG if could.3SG sleep.INF here
'John asked if he could stay the night.'

In short, there is evidence that antecedent-null subject relations in BP do not obey the PIC or in fact Minimality. Modesto (2007) shows that although verbs of communication involve at least two possible antecedents in the matrix sentence, the preferred antecedent is the subject, cf. (22a). According to Holmberg et al. (2009) though, the object reading can also be forced, cf. (22b). Preference for subject antecedents across an object in (22a) violates Minimality.

10. Landau (2024b) includes BP in 'noncanonical Obligatory Control' cases along with Balkan-style finite control. The latter however instantiate *bona fide* OC (see Manzini and Roussou 2024 for a CTC account).

(22) a. *O Pedro convenceu o João que __ tinha que ir embora.*
the Pedro convinced.3SG the João that had.3SG that go away
'Pedro convinced João that he (Pedro) had to leave.'

b. *O Zé convenceu os meninos que __ tinham que ir embora.*
the Ze convinced.3SG the kids that had.3PL that go away
'Ze convinced the kids that they had to leave.'

But are the semantics that of OC? Rodrigues (2004) claims that examples like (23) only have the sloppy reading of the ellipsis, while both Holmberg et al. (2009) and Barbosa (2019) argue that the strict reading (the only natural reading) is possible. This means that the BP finite null subject does not have the bound variable reading typical of OC (Copy in present terms).

(23) *A Maria encucou que __ estava grávida e o Paulo também.*
the Maria got.worried.3SG that was pregnant and the Paulo too
'Mary got worried that she was pregnant and Paulo did too.'

Summarizing so far, we take it as an established result that partial null subjects in BP are not licensed via Copy, followed by No Transfer of the lower copy and interpretation as a bound variable, and are not pronominal either, unlike in NSLs. Instead, we propose that partial NSLs have a form of null subject logophors akin to a finite NOC. Holmberg (2005) explicitly speaks of "logophoric subject pronoun" with respect to Finnish and comes very close to what we have just proposed for NOC in stating that "the φP has to move to the edge of a phase to be accessible for a DP in the next phase", though he does not offer a technical account.

Let us first comment on the empirical viability of the proposed reduction of partial NSLs to null logophors. To begin with, there is the matter of the intervention constraint in (21a). But the discussion in Section 2 already provides us with a possible insight as to why there should be a nearest controller effect in a logophoric binding. The null subject in examples like (21a) is contained within a complement of the communicative verb, hence it is in the configuration which also triggers binding by a c-commanding co-argument in English infinitival contexts, cf. (18) above.

Another issue that requires attention is c-command.[11] Holmberg et al. (2009) show that Finnish allows the partial null subject counterpart of English (24),

11. To our knowledge, the BP literature does not (systematically) discuss finite null subject sentences in subject position, i.e. the finite counterpart to infinitival NOC sentences in (8a), (8c), that allow us to establish that there is no c-command constraint on NOC.

where *John* does not c-command the null pronoun. In BP, judgements consistently are that coreference is blocked, as in (25) (from Holmberg et al. 2009: 91).

(24) *John's idea is [___ to leave immediately].*

(25) **A ideia do José era que ___ ia embora imediatamente.*
the idea of-DET José was that went.3SG away immediately
'José's idea was that he would leave immediately.'

Holmberg et al. (2009) suggest that (24) involves 'connectivity under copular specificational predication', expected to license relations that otherwise might require c-command. The reason why the relevant reading would not be available in BP remains therefore an open issue — and more generally this is true of predictions concerning c-command.

Overall, we conclude that there is evidence that NOC and partial NSLs instantiate the same phenomenon, namely logophoric null subjects. Unlike OC null subjects, they are not sensitive to locality (phases), nor do they yield a bound variable reading. At the same time, they contrast with canonical NSLs whose null subjects are regular pronouns, capable of deictic reference as well as of coreferential readings. We turn our attention to possible formalizations of these patterns in the next section.

3.2 Some formalization

We have maintained throughout that lexical and null noun phrases, independently of their interpretation, are DPs. Therefore, the categorial skeleton seen by Narrow Syntax is [D [n]]. The semantics of null DPs (bound variables, logophors, pronouns) is restricted by the relations that these elements can or must get into, not by their internal structure (Landau 2015, McFadden and Sundaresan 2018, for various executions). In his seminal work on NSLs, Holmberg (2005) similarly assumes that all null arguments are φPs. His proposal is that what makes canonical NSLs different from partial NSLs is the nature of the I probe taking the null subject as its goal. In canonical NSLs, unlike partial ones, I is richer endowed with a D feature. We assume that shifting the burden of explaining partial NSLs to I is the correct idea (cf. also Barbosa 2019).

Consider the example in (20a). Given the preceding discussion, the syntactic structure of the embedded sentence is as in (26a), with C a phase head. In full NSLs (see Section 1) Agree between I and DP is sufficient to ensure No Transfer of the latter at EXT. We may then embrace Holmberg's (2005) idea that I in BP is defective with respect to D. We take this to imply that No Transfer at EXT is not ensured under identity with rich I, because the D content is unrecoverable.

(26) a. … [$_{CP}$ *que* [$_{IP}$ I [D [n]] [$_{vP}$ *comprou um computador*]
(Agree)

b. EXT: [D [n]] → * Ø [No Transfer under Agree]

More precisely, what is blocked in (26) is No Transfer of a definite pronoun. In Example (20b), a free indefinite null subject is licensed with generic ('impersonal') interpretation. In considering generic ('arbitrary') NOC in (10), we assumed that the features of [D [n]] enter the derivation unvalued, and are set on default values at EXT. According to our discussion in Section 2, this is possible because infinitival I lacks a φ-feature probe. Now, the finite inflection of BP does have a φ-probe. Let us assume nevertheless that [D [n]] has unvalued features. Following Preminger (2014) this does not lead to a failure of the derivation but to the setting of φ-features on default values at EXT on all unvalued terminals. At INT, [D [n]] is an indefinite (free variable) closed by generic quantification, as in (27b), cf. (10) above.

(27) a. … [$_{CP}$ *que* [$_{IP}$ I [D [n]] [$_{vP}$ *faz o doce*]

b. EXT: [D [n]] → Ø [No Transfer under default]
INT: [D [n]] → indefinite, generic closure

Let us then return to (20b). Given the failure of (26), some alternative solution becomes necessary, along the lines sketched for logophoric NOC. Following Section 2, the abstract terminal is copied to the edge of phase, as in (28b), licensing deletion (No Transfer) of the lower copy. Once in that position, [D [n]] can be bound from a logophoric center/perspective holder (licensing its deletion in turn).

(28) a. … [$_{CP}$ [D [n]] *que* [$_{IP}$ I [D [n]] …

b. Copy < [D [n]]$_1$, [D [n]]$_2$ >

c. INT: [D [n]]$_2$ → bound variable
[D [n]]$_1$ → logophor

d. EXT: [D [n]]$_2$ → Ø [No Transfer: identity under Copy]
[D [n]]$_1$ → Ø [No Transfer: identity under anaphora]

The derivation in (28) captures the two basic requirements of partial NSLs. First, No Transfer of the abstract DP is not licensed under Agree (identity) with I, making BP different from standard NSLs. Second, null subjects are licensed under the same mechanism as English infinitival NOC, capturing the similarity of partial NSLs to control. At this point however, we need to ask why English, which has NOC, is not a partial (or full) NSL via a NOC-like mechanism.

Again Holmberg (2005) points in the right direction, by involving the EPP. We suggest that the problem in English is that weak I triggers the EPP, which

following Chomsky (2013, 2015) we construe as the need for DP to move to the edge of I for reasons of Labeling. Once this movement has taken place, the DP is frozen and cannot undergo further syntactic operations; see Rizzi's (2010) Criterial Freezing. We assume that this blocks the logophoric derivation in (27), and specifically deletion of the labelling subject. In turn, the proposal that the EPP holds in English, but not in BP is consistent with the well-known fact that BP does not have subject expletives and allows free inversion, for instance in (29) (see Duarte and Figuereido Silva 2016 for an overview).

(29) *Chegaram tres pessoas.*
arrived.3PL three persons
'Three persons arrived.'

4. Conclusions and further prospects

The object of our discussion has been the lexical ECs of GB theory, namely PRO and pro. We have sought to contribute to a trend present in the current literature, namely the elimination of ECs in favor of No Transfer licensed by various mechanisms. To this end, we have considered some intermediate typologies on the PRO-pro continuum, namely, NOC infinitives in English and partial null subjects in Brazilian Portuguese.

The classical notions of PRO and pro embed in syntax both interpretive properties and licensing conditions at externalization. Thus, infinitival subjects are identified with bound variable interpretations while pronominal interpretations are identified with subject of rich I. The present discussion instead takes a fully modular conception of the operations performed by syntax, EXT and INT. As sketched in (30), we assume that at SEM, the full repertory of pronominal interpretations is present in all languages. These interpretations may be sensitive to syntax: specifically, the bound variable interpretation depends on syntactic Copy. However, lexical/zero alternations or other conditions at EXT may depend on syntax, but not on SEM. Copy automatically translates into deletion of the lower copy in the relation. Other ways of No Transfer under identity include Agree with rich I.

(30)

SEM	SYNTAX	PHON
Deictic reference	(&Transfer)	No Transfer – under identity
Anaphoric/Logophoric ref	Copy	(Copy, Agree, anaphora, ...)
Generic/Existential closure	Agree	- under default
Bound variable	IM	

The various factors of variation at PHON in (30), and their interaction with semantic and syntactic universals, make it very hard to even describe variation in null subject phenomena in terms of the classical repertory of ECs. Relinquishing the pro/PRO divide in favor of a fully modular approach gives us better prospects for descriptive adequacy, apart from theoretical simplicity.

As a final note we point out a path for future research regarding a potential parallelism between subject and object positions. A proper understanding of objects requires us to look beyond morphophonological quirks which can blur the picture. Thus, since Rizzi (1986) Romance subject clitic languages (e.g., North Italian varieties) are widely construed as NSLs. This means that subject clitics are not a way to satisfy the subject EPP but a morphological device licensing null subjects like rich I. Sportiche (1996) treats (Romance) object clitics as syntactic heads licensing object pros (null objects). Manzini and Pescarini (2022) further emphasize the parallelism with North Italian subject clitics arguing that clitics are not functional heads heading their own projection but rather adjoined to phase heads. In short, Romance has null objects, though masked by the clitic morphology. We leave the topic open for future research.

Abbreviations

Abbreviations are generally glossed the first time they appear in the text. A short glossary is also provided for ease of reference:

CTC (Copy Theory of Control)
DoS (Duality of Semantics)
EC (empty category)
EM (External Merge)
EXT (Externalization)
IM (Internal Merge)
INT (Interpretation)
MTC (Movement Theory of Control)
NOC (Non-Obligatory Control)
NSL (Null Subject Language)
OC (Obligatory Control)
PHON (Phonology interface)
PIC (Phase Impenetrability Condition)
SEM (Semantics interface).

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