The Copy Theory of Control, Finite control and Non-Obligatory Control

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Abstract

The Copy Theory of Control (CTC) follows from the Markovian property of derivations (Chomsky 2021). We show how the CTC accounts for finite and non-obligatory control (NOC), by assuming that deletion is 'No Transfer' (Saab 2009) and that narrow syntax sees Formal Features (FFs) only (Chomsky 1995). While deletion under copy formation yields non-finite control, deletion by Agree with a rich I followed by copy yields finite control, hence a pro with a PRO-like interpretation. In NOC neither mechanism is available; the unvalued features of the subject are not transferred; interpretation assigns them an arbitrary or logophoric reading.

Keywords: copy, control, finiteness, null subject, no transfer, phase

1. The Copy Theory of Control

Chomsky (1995: 185) adopts "the copy theory of movement" as part of the minimalist program. Movement is an operation of Internal Merge (IM) targeting a syntactic object that has already entered the derivation by External Merge (EM) and copying it in a higher position. In the resulting chain (a pair of copies), the lower member deletes at the phonological interface. For instance, in English (1) *John* undergoes EM in θ-position and then IM to matrix subject position (forced by the Extended Projection Principle, EPP). The two copies form a chain, and the lower copy undergoes deletion.

(1) John seems [$_{IP}$ ~~John~~ to speak]

In early minimalism, the abandonment of traces as empty categories (ECs) did not lead to a revision of PRO and pro. The challenge of reorganizing ECs around the new analysis of movement was sized by the Movement Theory of Control (MTC, Hornstein 1999). The idea was that the derivation in (1) could be applied to examples of Obligatory Control (OC) like (2) by assuming θ-roles to be features. Exactly as a moved argument can check different sets of agreement features so it can check different θ-roles *qua* features. So, *John* in (2) undergoes EM in one θ-position and IM into another. Everything else is as in (1).

(2) John tried [~~John~~ to speak]

The MTC means abandoning a postulate that Chomsky (2000: 103) formulates as follows "pure merge [i.e. EM] in θ-position is required of (and restricted to) arguments".[1] In Chomsky (2021) this is captured under Duality of Semantics which (re)states that "EM is associated with θ-roles" (p. 18). Moreover, Chomsky (2021) introduces a new departure in this essentially stable picture. Under Minimal Yield (MY) derivations are "Markovian in a strong sense beyond the normal Markovian property of derivations. The derived Workspace, the current state of the derivation, does not contain items that were generated earlier. […] the history is not preserved in the current state by virtue of MY" (p. 20). This statement opens the way to a new proposal about control.

Suppose that in accordance with Duality of Semantics we construct a structure like (2)

[1] Chomsky (2000: fn. 35), reacting to Hornstein (1999), Manzini and Roussou (2000), builds this θ-theoretic principle on the configurational argument structure of Hale & Keyser (1993), adapted in Chomsky (1995).

by EM of the two separate inscriptions of *John*. We furthermore take infinitival sentences not to be phases in (2) as in (1). Under these assumptions, at Transfer (1) and (2) are not distinguishable – not in the absence of a record of their derivational history. As schematized in (3), Chomsky (2021, 2024) proposes that the two identical inscriptions within the same phasal domain are identified as copies; formally, they are in a Copy relation. Following the formation of the Copy pair (Form Copy in Chomsky's (2021) terms), the lower copy deletes.

(3) a. John seems [$_{IP}$ John to speak] 'trace'
Copy: <John, ~~John~~>

b. John tried [John to speak] 'PRO'
Copy: <John, ~~John~~>

In this way, Chomsky (2021, 2024) succeeds in unifying control with movement under Copy and deletion, without giving up Duality of Semantics. Though the unification of control and raising is not something new, what is worth emphasizing is the potential shift of research focus represented by the strong Markovian property.

Landau (2024) criticizes control as FC and defends his Two-tiered Theory of Control (TTC) (see Landau 2015). The TTC takes the classical view (already defended by Landau against the MTC) that raising and control are syntactically disambiguated, since control involves an indefinite subject (a free variable) and a predication operation, while raising involves a full NP copy. On the other hand, Chomsky (2021, 2024) moves towards a fully modular picture: it is only the Interpretive procedure (INT) that computes the interpretive import of the two Copy relations in (3), namely, one θ-role vs. two θ-roles.[2] Still, Chomsky

[2] Incidentally, this bears on another debate in early minimalism. Brody (1995: 10) notes that it is a "standard assumption that the grammar contains a designated interface interpretive level" and argues that "the assumption

does not say anything about the Externalization (EXT) procedure, beyond the deletion requirement following FC.

The present short article takes as its starting point Chomsky's modular picture and discusses two relevant case studies in ECs, specifically involving control in the light of the CTC and pro-drop. The first case study concerns OC into finite sentences (here Greek), the second concerns Non-Obligatory Control (NOC). These are two cases well-documented in the literature where the choice between PRO and pro is not so clear-cut: a PRO-like subject in a pro-context vs a pro-subject in a PRO-context respectively. In previous models, finite control is subsumed under whatever mechanism subsumes OC, i.e. movement for the MTC (Boeckx and Hornstein 2006), or predicative control (PRO) for Landau (2015:53), despite the independent availability of a null subject (pro). In turn, NOC is explained as an occurrence of pro. For MTC this is due to the absence of the conditions that would license a copy (MTC); for TTC, pro is postulated to provide a local binder for PRO. Despite different implementations, both conclusions are potentially problematic for reasons that we briefly review below. Our aim is to contribute to the ongoing discussion by proposing an account for them compatible with the CTC.

Let us briefly consider the canonical occurrences of pro, in Null Subject Languages (NSLs). As argued initially by Borer (1986) expletive pro is not necessary to satisfy the EPP, since this can be done directly by a rich I (also Alexiadou and Anagnostopoulou 1998). This line of explanation is adopted by Chomsky (2015: 9). On the other hand, referential pro is still required. Recall that θ-positions need to be satisfied by EM. In the absence of a lexical argument, pro fulfills this requirement, remaining in vP-internal position, while the EPP is

that such an interface level exists is incompatible with a derivational approach to the chain-Move α cluster of properties". Thus, while maintaining the derivational nature of syntax, Chomsky (2021, 2024) goes towards a representationalist position where chains are interpretive and not reflections of the history of movement.

satisfied by rich I. This is our first background assumption. Unlike for trace and PRO, no antecedent is necessary for pro, nor is a local antecedent possible, just as for lexical pronouns.

Next, given the Copy approach to trace of Chomsky (1995), Holmberg (2005) notices that a deletion approach to pro is possible as well (also Roberts 2010). Under this alternative, pro is an actual pronoun that deletes under feature identity with a rich inflection. Saab (2009: 654) in turn construes deletion in terms of 'No Transfer', that is no lexical insertion for the abstract terminals of syntax, given the Late Insertion assumption of Distributed Morphology. Deletion as 'No Transfer' is our second background assumption. Schematically, in (4b) the pronoun, notated as [DP [nP]], enters Agree with rich I. At Spell-Out, feature identity with rich I licenses deletion construed in present terms as 'No Transfer' (no Spell-Out). As in CTC, the null subject arises due to deletion under identity, although the licensing sources are different in the two cases (an antecedent vs. rich I).

(4) a. Parlano (Italian)
speak-3PL

b. $[_{IP}$ I $[\ [_{DP}$ D $[_{nP}$ φ]] $[_{vP}$ V 'pro'
→ No Transfer

In the next section, we start by considering finite control. We take Greek as our representative case study, as it is well documented in the literature. We argue that the CTC captures the differences with respect to pro-drop in terms of whether Copy does or does not apply (with obvious consequence for the interpretation procedure INT) and in terms of what licenses deletion as part of Externalization (EXT). Under the fully modular organization of the grammar that the CTC presupposes, what is a PRO at INT (a θ-marked copy) may very well be pro at EXT (licensed by Agree with rich I). Under this approach, the entire question

of PRO vs. pro becomes meaningless even at a descriptive level.[3]

We turn next to English NOC, where the CTC in principle faces the same issues as the MTC (free readings under generic closure, logophoric readings). We argue that again, the question whether PRO or pro is involved is meaningless. Conditions at INT may overlap with those of pro (as dictated by the lack of Copy), but conditions at EXT are closer to PRO. Though this is a work with limited ambitions based on just a couple of test cases, we would like to suggest that the CTC, as part of a fully modular model of grammar, offers the best chance to explain null arguments that fall in between canonical PRO or pro.

2. Finite control

2.1 The problem: properties of Balkan subjunctives

In all Balkan languages, including Greek, the control reading is found in finite clauses embedded under the so-called subjunctive particle (henceforth, PRT), namely *na* in Greek. Unlike infinitives, *na*-sentences exhibit a dual pattern. First, they allow for a free pronominal reading of their null subject corresponding to pro in classical generative terms, alternating with nominative subjects, as for instance in (5a). At the same time, the controlled reading of the embedded subject of *na*-sentences is also possible and in fact forced with verbs of obligatory control, such as the modal in (5b).

(5)	a.	O	Janis	theli	na	fiji	(o Petros)
		the	Janis	want-3SG	PRT	leave-3SG	(the Peter)

[3] According to Landau (2024: 6) "PRO and pro, on the TTC, are […]one and the same minimal pronoun, consisting of a D feature and an unvalued ϕ-set, acquiring its particular features and interpretation according to the environment in which it is inserted". This description of PRO and pro only considers syntax and its interpretive interface, leaving aside any discussion of syntax and its phonological interface.

'Janis wants (him/Petros) to leave'

b. O Petros borese na fiji

the Peter could-3SG PRT leave-3SG

'Peter was able to leave on his own.'

As mentioned in the previous section and detailed below, the aim of generative theory has generally been that of providing non-ambiguous syntactic structures for the two possible interpretations in (5), that is pronominal reference vs control (bound reference). In what follows, we outline the limits of these attempts.

In GB and classical minimalist theory, the control reading in (5b) is tied to PRO, which is constrained to Caseless positions by Chomsky (1981) or to null Case positions by Chomsky (1995). Generative accounts of finite control focus on the obvious problem that PRO (as required by interpretation) would have to occur in a position where it alternates with ordinary nominative subjects. Iatridou (1993) argues that it is Tense, and not agreement, that is responsible for nominative Case in Greek (also Varlokosta 1994). Therefore, the control sentence in (5b) has a semantically defective Tense which blocks nominative, and for this reason it can license PRO.[4] However, Philippaki-Warburton and Catsimali (1999) show that secondary predicates cross-referencing the controlled subject of a *na*-clause are overtly in the nominative case in (6). Based on this and similar data, they argue that the controlled subject in Greek is *pro* (as originally proposed by Philippaki-Warburton 1987) and cannot be PRO.

(6) o Petros borese na fiji monos tu

the Peter could.3SG PRT leave.3SG alone=his

[4] Terzi (1992) maintains PRO and argues against defective tense: PRO is possible to the extent that C is null; raising of *na*+V to C renders the latter a proper governor, excluding PRO and forcing pro.

‘Peter was able to leave on his own.’

The tenseless nature of control sentences is upheld by Landau (2000, 2004), who argues that in finite control complements Tense is bound, yielding anaphoric Agr and a PRO subject. Whether PRO does or does not have Case is irrelevant. The idea that Tense in finite control is defective is further endorsed by the MTC (Boeckx and Hornstein 2006, see also Kapetangianni and Seely 2007 for Greek, and Alboiu 2007 for Romanian).

Greek morphosyntax supports the interpretive distinction between bound or dependent Tense (exhaustive or partial control) vs. independent Tense (no control) (Spyropoulos 2007, Roussou 2009). Specifically, a past embedded form is excluded, even with past matrix verbs, in bound Tense examples like (5b). However, this correlation does not necessarily hold even in Balkan languages. Manzini and Savoia (2007) provide systematic examples of ordinary sequence-of-tense configurations with OC (and raising) in Albanian, as in (7).

(7) fuɾnɔva t ɛ=bəja (Arbëresh)
finished-1SG PRT it=did-1SG
‘I finished doing it’

These counterexamples are not isolated. In reviewing the application of the same tenselessness idea to (hyper)raising, Zyman (2023) mentions counterevidence from the Bantu languages, among others. Therefore, for empirical reasons, the stream of literature trying to enforce PRO (or movement, or predication) in Balkan finite control via the tenselessness of the embedded verb seems to be called into doubt. So, we take PRT-sentences to be ordinary tensed sentences, independently of the interpretation of their subject.

Another notion of defectivity associated with control clauses is the absence of a full

CP, as proposed by Wurmbrand (2001). Wurmbrand and Lohninger (2023) argue that finite control clauses of the Greek type are also reduced to the IP level, still missing the CP structure. This is not the place to review the complex literature on the Balkan subjunctive particle[5]; the point we keep is that in structural terms, all of the various approaches leave the C position, that is, the phase head in the sense of Chomsky (2001), free, as schematized in (8). This is verified notably by the fact that there are *that*-type specialized complementizers in some Balkan languages, but not in Greek, embedding PRT-sentences.

(8) $[_{CP}$ C [PRT $[_{IP}$ I …]]]

Crucially, data from Romanian (Dobrovie-Sorin 2001, Alboiu 2007, a.o.) and from Albanian (Manzini and Savoia 2007) show that the combination of PRT with a *that*-type complementizer blocks the control reading. Consequently, obligatorily control predicates only display bare PRT complements. In the Romanian examples below (from Alboiu 2007: 197) the specialized complementizer *ca* is ruled out in the control context.

(9) a. Victor va încerca (*ca pe Mihai) să-l ajute.
Victor will.3SG try that PE Mihai PRT-cl help-3SG

b. Victor va încerca să ajute pe Mihai.
Victor will.3SG try PRT help-3SG PE Mihai
'Victor will try to help Mihai.'

[5] In early approaches, the subjunctive particle was assigned to a Mood position (Rivero 1994). Following Rizzi's (1997) C-field, it has been assigned a lower C position such as Fin (for example, Hill 2013), or a M(odality) position part of the C-field (Roberts and Roussou 2003).

In short, known evidence is compatible with the conclusion that a bound reading of the null subject requires a sentence introduced by a bare PRT (no *that*-type complementizer), suggesting an absent or defective C phase head. In what follows, we will take this as an acquired result, without further discussion. Note the relation between control and the PRT this is a one-way implication: control requires a bare PRT-sentence, but a bare PRT-sentence is not restricted to control. In this respect, the structural properties of PRT-complements do not (directly at least) lead to a disambiguation of PRO and pro (see section 2.4).

2.2 The CTC applied to finite control

Let us first see how CTC applies to English, for instance (2). Once the derivation of the embedded vP is complete with merger of the external argument *John* (10a), I merges (10b). At this point a few assumptions about the structure of the English infinitival clause become relevant. As far as we can tell, there is no evidence for a φ-probe on I and therefore for Agree with *John*, or for *John* raising under the EPP (see Manzini and Roussou 2000, Grohmann et al. 2000). Therefore, we display the lower inscription of *John* in situ throughout the derivation. Next, no C phase head merges (suggested by the absence of a complementizer).[6] The derivation proceeds with merger of the matrix predicate, followed by external merge of another inscription of *John* as its external argument (10c). The merger of the matrix v phase head closes the embedded vP phase, inclusive of *v* (Chomsky 2021), shaded in (10c).

(10) a. [$_{vP}$ John speak]

b. [$_{IP}$ to [$_{vP}$ John speak]]

c. [$_{vP}$ John tried [$_{IP}$ to [$_{vP}$ John speak]]]

[6] Saito (2024) modifies the notion of phase in order to account for FC in the presence of a C head.

Finally, finite I merges, and φ-Agree with *John* takes place followed by IM of *John* to the edge of IP, satisfying the EPP (11a). Root C closes the matrix vP phase, shaded in (11a). At phase Transfer, the Copy relation applies between the two inscriptions of *John* as it satisfies the three necessary prerequisites: identity of X and Y, X c-commands Y, X and Y are in the same phase (Chomsky 2021). Once Copy is established as in (11b), the lower copy deletes as part of the EXT procedure (11c).

(11) a. C [$_{IP}$ John I [$_{vP}$ John tried [$_{IP}$ to [$_{vP}$ John speak]]]]

b. Copy <John, ~~John~~>

c. EXT: Copy <John, John> → <John, ~~John~~>

With the appropriate modifications, the derivation of a finite control sentence like Greek (5b) proceeds in parallel with English infinitival control. The embedded inscription of *Petros* is introduced by EM with the embedded predicate and it φ-agrees with the embedded finite I, which unlike the English infinitival I is endowed with φ-features, cf. (12a). Since Greek is a null-subject language (NSL), raising of *Petros* to the EPP position is not necessary (see the discussion in section 1). The PRT *na* merges followed by merger of the matrix predicate. The next step involves EM of the second inscription of *Petros* as the external argument of *borese*, as in (12b). Upon merger of matrix I and C, as in (12c),*Petros* φ-Agrees with I. At the same time, merger of the C-I phase head triggers Transfer of the vP phase, shaded in (12c).

(12) a. … [$_{IP}$ I [$_{vP}$ fiji o Petros]]

b. … [$_{vP}$ o Petros borese [$_{PrtP}$ na [$_{IP}$ I [$_{vP}$ fiji o Petros]]]]

c. [$_{CP}$ C [$_{IP}$ I [$_{vP}$ o Petros borese [$_{PrtP}$ na [$_{IP}$ I [$_{vP}$ fiji o Petros]]]]]]

In the absence of an embedded C phase head, Copy holds between the two EM-ed inscriptions of *Petros*, as in (13a). The lower copy then deletes (13b). Recall that *na*-complements are not (CP) phases, despite the finite form of the verb and the embedding under a sentential particle (the PRT). In other words, the lower and higher inscriptions of *Petros* are within the same phasal domain. This means that Copy can relate the two inscriptions before the phase is sent to EXT.

(13) a. Copy < o Petros, o Petros >

b. EXT: < o Petros, ~~o Petros~~ >

In order to block finite control in English it is therefore sufficient to assume that all finite embedding is phasal in English, which seems to be empirically correct.

Let us draw some provisional conclusions. As anticipated in section 1, and shown in more detail in this section, the CTC has the therapeutic effect of putting an end to the old question as to the status of the EC in finite control, namely PRO vs pro. The question simply ceases to exist, since control is now Copy and deletion (understood as 'No Transfer') of lexical terminals. In the next section, we consider some further examples of control, with a view to better define the relation between the CTC and the deletion account of null subjects.

2.3 An alternative construal of the CTC

The canonical configuration in (5b) is not the sole configuration of finite control attested in Greek (or in other Balkan languages with finite control). The NSL status of Greek (and of other Balkan languages) also means that both the controller and the controllee may lack a phonological realization, as in (14). The standard account of this type of examples is that both

the higher and the lower argument involved in the Copy relation are pro subjects.

(14) Borese na fiji
was.able-3SG PRT leave-3SG
'He/she was able to leave'

Recall that in terms of the discussion in section 1, pro is simply a pronoun, that is, a [D [n]] structure, that undergoes deletion ('No Transfer'), as part of the EXT procedure. In (14), then, a [D [n]] pronoun undergoes EM as the argument of *fiji*. I carries φ-features and Agree takes place between I and [D [n]] in the absence of an intervening v* phase, as in (15a). The features of I are rich enough to project without the subject moving to the edge of I (no EPP). The particle *na* merges next and the derivation proceeds with merger of the matrix predicate and of its external argument, again a pronoun [D [n]], as in (15b). The last step in the derivation is Merge of matrix I and Agree with the vP-internal argument, as in (15c). The absence of an embedded C-phase head means that the two pronouns are in the same phase, entering the Copy relation in (15d). Thus, the two inscriptions of [D [n]] are interpreted as copies of the same argument, hence as being in the control relation (two θ-roles).

(15) a. … [$_{IP}$ I [$_{vP}$ fiji [D [n]]]]
Agree

b. … [$_{vP}$ [D [n]] [$_{vP}$ borese [$_{PRTP}$ na [$_{IP}$ I [$_{vP}$ fiji [D [n]]]]]]]

c. [$_{IP}$ I [$_{vP}$ [D [n]] [$_{vP}$ borese [$_{PRTP}$ na [$_{IP}$ I [$_{vP}$ fiji [D [n]]]]]]]]
Agree

d. Copy <[D [n]], [D [n]] >

The interesting point of the derivation in (15) is the treatment of the [D [n]] by the

EXT procedure. Deletion (No Transfer) of the controller [D [n]] is derived via Agree with rich matrix I. Matters are not so simple with the controllee though. In principle, there are two possible EXT procedures, yielding the desired result. The lower copy in the Copy pair in (15d) may delete (No Transfer) under identity with the higher copy. However, there is an alternative procedure, under which the lower [D [n]] in (15) deletes under identity with its own I, in which case 'No Transfer' is licensed by Agree with rich I, cf. (16). As far as we can tell, this ambiguity is innocuous since it determines redundancy, but no contradiction. Anticipating the discussion in section 2.4, we note that it is precisely licensing with I that does not render all *na*-sentences control contexts.

(16) EXT: < [D [n]], ~~[D [n]]~~ > under Copy

< [D [n]], ~~[D [n]]~~ > under Agree with rich I

At the same time, comparison between the derivations in (15)-(16) and those in (12)-(13) raises the issue of the potential inconsistency between the 'No Transfer' approach to deletion in pro-drop and the assumption that actual terminals are deleted in the CTC. We suggest that the issue is largely notational. Assuming along with Chomsky (1995) that the derivation only sees abstract Formal Features (FFs), we can go back to the original example of finite control in (5b). Both the lower (controllee) and the higher (controller) arguments are visible to core syntax as just [D [n]] structures. In (17) we lexicalize the verb and *na* for ease of exposition; under the model that we are pursuing, all inscriptions that enter the derivation are seen by syntactic operations just as FFs – this holds for the verb and the particle as well. (17a) is structurally identical to (12c), yielding the Copy pair in (17b), cf. (13a).

(17) a. $[_{CP}$ C $[_{IP}$ I $[_{vP}$ [D [n]] borese $[_{PRTP}$ na $[_{IP}$ I $[_{vP}$ fiji [D [n]]]]]]]]

b. Copy < [D [n]], [D [n]] >

Crucially, the two interfaces see more than FFs. In the control examples with an overt controller, the mapping to the interfaces is as in (18). Lexical Insertion as part of Transfer takes place in the controller but not in the controllee position, licensed by Copy and by Agree with rich I (control and pro-drop). At INT the referential content of the name is inserted.

(18) $[D\ [n]]_1$ borese [na fiji $[D\ [n]]_2$]

EXT: $[D\ [n]]_1 \rightarrow$ /petros/ INT: $[D\ [n]]_1$ = PETROS

$[D\ [n]]_2 \rightarrow \varnothing$ (Copy; Agree with rich I) $[D\ [n]]_2$ = PETROS

In the case where both the controller and the controllee are silent, the mapping to EXT and INT is as in (19). At EXT, there is no variation in the treatment of the controllee. On the other hand, the controller is deleted ('No Transfer') under identity with rich I. Note that its interpretation does not include any lexical restriction (beyond that contained in φ-features, notably gender), so it is that of a pronoun.[7]

(19) $[D\ [n]]_1$ borese [$[D\ [n]]_2$ na fiji]

EXT: $[D\ [n]]_1 \rightarrow \varnothing$ (Agree with rich I) INT: $[D\ [n]]_1$ = HE

[7] The account of deletion as 'No Transfer' is consistent with Late Insertion of vocabulary items, as in Distributed Morphology (DM), which is in fact the framework adopted by Saab (2009). At the same time, Late Insertion does not have to be tied to DM which assumes the existence of an independent component serving as a computational buffer between Narrow Syntax and PHON (Phonology). In itself, Late Insertion is perfectly compatible with direct transfer to PHON. This clarification is orthogonal to the present discussion and will not be considered further.

$[D\ [n]]_2 \rightarrow \varnothing$ (Copy & Agree with rich I] $[D\ [n]]_2$ = HE

Greek allows for one further option, where the overt member of a control relation is in the controllee position, while the silent one is in the controller position, as in (20). These patterns were already observed by Philippaki-Warburton & Catsimali (1999). The MTC treats the data in (20) as backward control where the higher copy in the movement chain deletes, as opposed to the lower one (Polinsky & Potsdam 2002, Alexiadou et al 2010 on Greek).[8]

(20)	Borese	na	fiji	o	Petros
	could-3SG	PRT	leave-3SG	the	Petros
	'Petros was able to leave'				

Deletion of the higher copy raises two important questions. First, whether copy deletion is arbitrary (can either copy delete?), and second whether it is in fact possible for a deletion site to be identified in the absence of c-command. The two questions are related, and we offer a single answer to both under the CTC. If deletion/No Transfer can affect the higher member of a Copy pair, it is evident that this must be connected to the NSL status of the language. Indeed, given the discussion that precedes, the licensing condition on deletion of the controller is taken to be Agree with rich I. Crucially, recoverability of lexical content implies lexical insertion in the controllee position. What INT sees is the referential content of

[8] Alexiadou et al. (2019) treat (20) as an instance of Long Distance Agree (LDA) instead of movement. In either case, the view that the embedded T is defective is endorsed. Regarding the embedded subject, Alexiadou and Anagnostopoulou (2021) assume that nominative is an unmarked Case, and the φ-features of T can only agree with an unmarked Case, following the dependent case model. We have already criticized the defective T approach. With respect to Case, we assume the standard minimalist Agree model of Case of Chomsky (2001).

the proper name, as in (21).

(21) $[D\ [n]]_1$ borese [na fiji $[D\ [n]]_2$]

EXT: $[D\ [n]]_1 \rightarrow \varnothing$ (Agree with rich I) INT: $[D\ [n]]_1$ = PETROS

$[D\ [n]]_2 \rightarrow$ /petros/ $[D\ [n]]_2$ = PETROS

A desirable outcome of this approach is that it predicts that so-called backward control in Greek is restricted to cases where the controller is the subject and not the object (Alexiadou and Anagnostopoulou 2019). This restriction follows directly from Agree and delete with rich I, an option unavailable for objects.

On similar grounds we can answer the question why the same alternative at EXT is not open in English (thus no backward control). English is a non-NSL, which means that the subject EPP holds. Chomsky (2015) suggests that movement to the Edge of IP is enforced for reasons of labeling. In turn, labeling of a constituent by 'Spec-Head' Agree is taken to derive Rizzi's (2010) criterial freezing (Chomsky 2013). We may then assume that the latter implies that the finite subject in English is not only unmovable, but also inaccessible to other operations, hence undeletable. In short, not one but two differences are seen to divide Greek and English. First, there is the existence of non-phasal finite complements in Greek (the bare PRT-sentences), but not in English. Second, the two languages are on opposite sides of the Null Subject parameter.

In short, Narrow Syntax builds identity relations at the local (phase) level into Copy pairs. Because of the fully modular treatment of the tasks of Narrow Syntax and of the EXT and the INT procedures, variation at EXT is uninfluential on interpretation at INT. However, both variation at EXT and interpretation at INT are restricted by Narrow Syntax and here notably by the Copy relation at Transfer. In a language like English No Transfer is licensed

by the Copy relation, while in Greek, it is licensed by Copy or by Agree with rich I.

2.4 Non-Control PRT-sentences

We now return to (5a), repeated below as (22), where the very same context, namely the *na*-sentence, permits a pronominal reading, or to put it differently it does not force a control reading. This is what Landau (2004) calls a 'free subjunctive' (vs. a control one). Can we account for this dual pattern without extra stipulations?

(22) O Janis theli na fiji
the Janis want-3SG PRT leave-3SG
'Janis wants (him) to leave'

The answer to this question is positive. The simplest way to proceed is to assume along with Chomsky (2021) that Copy can but need not apply. Recall from section 1 that there is a one way-implication between control and *na*. While finite control requires a *na*-sentence, the reverse does not hold, as the *na*-sentence is compatible with non-control readings. Recall also that given the NSL property of Greek, the [D [n]] argument identified with the subject can delete under agree with rich I. This step is always present in the *na*-sentence irrespective of whether the copy pair takes place or not, which was pointed out as a redundancy issue in (16). This dual pattern does not (readily at least) arise in English which does not have the option of deletion under Agree with rich I. Thus the [D [n]] subject in a non-finite sentence can only delete via the copy pair relation (but see section 5 on NOC), yielding control.

Given the above, in the context of a *na*-sentence two different sets of interface procedures may be initiated at Transfer, according to whether Copy does or does not apply,

as in (23). Under (23b), the INT and EXT procedures yield control. If Copy does not apply, as in (23b') then the derivation proceeds as in (24). Deletion (No Transfer) still applies to the lower subject under Agree with rich I (pro-drop), while interpretively it is a free pronoun.

(23) a. $[D\ [n]]_1$ V [na V $[D\ [n]]_2$]

b. Copy < [D [n]], [D [n]] > b' no copy

(24) EXT: $[D\ [n]]_1 \rightarrow$ /janis/ INT: $[D\ [n]]_1 \rightarrow$ JANIS

$[D\ [n]]_2 \rightarrow \varnothing$ (Agree with rich I) $[D\ [n]]_2 \rightarrow$ HE

The assumption we need to make is that this optionality is conditioned by lexical properties, which is embedded in all theories of control. For example, the TTC is forced to assume that there is a predication (control) vs. a full sentential structure (free subjunctive). Similarly, the MTC would encode the facts via a movement derivation vs. a pro lexical EC. The CTC takes a different approach to the division of labor between the different components of grammar. The control vs non-control pattern discussed above is not disambiguated by the syntax;[9] rather, control and null subjects are two interpretations of the same structure.

3. Non-Obligatory Control

3.1 NOC and 'arb' control

We now turn to our second case study that of Non-Obligatory Control (NOC). In English infinitives, OC alternates with Non-Obligatory Control (NOC). Two options are open under

[9] Chomsky (2024) takes Copy (FC) to be obligatory. If we adopt this view, we will have to assume that non-control finite sentences have an abstract C phase head which blocks the copy relation. However, there is no morphosyntactic evidence in Greek to support this structure.

NOC. In the absence of a controller, the null subject of infinitival sentences can have a so-called arbitrary (Arb) interpretation, essentially a generic interpretation. The null subject is interpreted as an indefinite (a free variable) closed by a Generic operator, as in (25). Evidently no Copy pair is involved and no deletion of a lower copy.

(25) a. It suffices [__ to speak]

b. It is unclear [whether __ to speak]

A second set of English data, while compatible with an anaphoric construal of the infinitival null subject, confirms the unavailability of the Copy relation. In examples like (26) at least one of the conditions on Copy does not apply between the deletion site and the DP it corefers with. In (26a) *John* does not c-command the null subject. In (26b)-(27c) *John* c-commands the null subject, but a CP phase intervenes between them (the embedded interrogative and the embedded *that*-clause respectively). The connection between the examples in (25) and (26) is confirmed by the fact that however marginally, the arbitrary interpretation is also possible in (26) for the null subject.

(26) a. [__ to win] would bother John

b. John wondered [when __ to speak]

c. John said that [__ to win] would be a problem

Let us begin by considering the arb examples. Chomsky (2021, 2024) is simply silent on NOC. Turning to the MTC, Hornstein (1999) concludes that despite the similarity of contexts of embedding, the null subject involved in NOC has no relation to the null subject involved in OC. Specifically, NOC involves a pro null subject. A conclusion along these lines

can be adopted in the CTC, but not without further elaboration. The putative pro in (25) has an interpretation inadmissible with canonical null subjects, namely the generic interpretation; vice versa, canonical null subjects have a possible deictic interpretation that is unavailable to subjects of NOC infinitives. In other words, the Italian example in (4) (*parlano* 'they speak') requires the *si* clitic to license a generic interpretation (*si parla* 'one speaks'), while the standard definite, deictic interpretation of (4) is unavailable in (25).

Within the framework established in section 1, the question is no longer whether an EC with lexically predetermined features, dictating a certain interpretation and certain conditions of (non-)externalization, fits a certain grammatical slot. This complex question is resolved into three simpler, independent questions: first, whether Copy does or does not hold; second, whether 'No Transfer' is licensed as part of EXT (under identity); third, which interpretations are available for the identity element (bound variable, coreference, etc.).

Consider then arb NOC, as in (25a) with the partial structure in (27). So far, we have seen two configurations capable of licensing No Transfer of [D [n]], namely, Copy and Agree with I. Copy has been explicitly excluded above; apart from empirical reasons differentiating arb and pro-drop, identification by I is excluded if there is no probe on infinitival I, as assumed throughout. We suggest that [D [n]] in (27) differs from the null subject of NSLs, in that it has unvalued features, while the one in NSLs has fully valued features. The former is set on default values at EXT that may reasonably be taken to be recoverable without recourse to an antecedent, as in (27c). As for the INT procedure, it seems to treat [D [n]] as an indefinite, i.e. a free variable, providing a quantificational closure for it, via a Generic operator, as in (27c).

(27) a. … [$_{IP}$ to [$_{vP}$ [D [n]] win]]]

b. [No Copy]

c. EXT: [D [n]] $\rightarrow \varnothing$ (default feature values)

INT: [D [n]] $\rightarrow$ indefinite, Gen closure

As implied by previous discussion, we need some syntactic mechanism to regulate the 'traffic' between the two types of null subjects with fully specified features and with indefinite features. This mechanism may be provided by I. There is no probe on I in (27), so that the unvalued nature of the features of the [D [n]] pronoun is irrelevant. However, the probe on finite I requires a fully valued pronoun to set it, excluding an indefinite interpretation; this correctly excludes a null subject from a finite clause in English.

The question we now ask is whether the properties that we have imputed to arb (i.e. generic) null subjects are compatible with the derivation of the other type of NOC, displaying coreference between the null subject and an antecedent. We turn to this next.

3.2 Logophoric NOC

One prominent line of explanation of NOC holds that NOC null subjects are logophors (Landau 2013, McFadden and Sundaresan 2018). In general, the distribution of NOC with respect to OC is very similar to that described in the literature for logophors with respect to anaphors. In essence NOC is the Elsewhere of OC (see Hornstein 2001) and so are logophors with respect to plain anaphors (Sundaresan 2018, Charnavel 2020). There is therefore no locality or c-command restriction. What is required instead is for the antecedent to be a perspective holder, such as a subject of a propositional attitude, an experiencer, or a deictic perspective holder. On this basis we may assume that the idea of NOC as logophor is empirically supported. We next see how this can be formalized in current terms.

In McFadden and Sundaresan's (2018) approach, NOC involves two derivational steps. At step one, a null subject pronoun enters Agree with a null pronoun in the Spec of

PersP (Perspective Phrase). At step two, the null pronoun in PersP becomes coreferential with some suitable antecedent, i.e., a perspective holder, as in (29). The EC involved in (29) is what McFadden and Sundaresan call Upro, which is reminiscent of Landau's (2015) minimal pronoun under TTC, as far as we can tell.

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

b. [$_{PersP}$ Upro Persp [Upro having just arrived in town]]

Charnavel and Sportiche (2016) reject Agree as the mechanism for logophoric binding. One of their arguments is that when Agree applies to plain anaphors it must be upward, since the lower pro is unvalued and gets valued by the higher one. More importantly, they take binding of anaphors to be defined in terms of the notion of phase which is (broadly) compatible with Copy.[10] While the local antecedent for plain anaphors is a co-argument, the local antecedent of a logophor is a *pro* subject of a logophoric operator Op_{log} heading LogP (Logophor Phrase), licensed by the logophoric antecedent. Though Charnavel and Sportiche do not address NOC, what we have is potentially a two-step model of it, which is phase-based instead of Agree-based. In short, both accounts discussed above postulate a phrase that mediates the logophoric reading, by connecting the logophor to its antecedent.

Against this background, consider the canonical example of Super-Equi (Ginder 1970) in (26b). When the *that* phase head is merged, closing the embedded CP phase, there is no co-argument with which the embedded [D [n]] argument can enter Copy yielding OC. However, alternatives are open. One consists in arbitrary control, as detailed in the previous

[10] In fact, Chomsky (2021: 25) entertains the possibility that Copy is responsible for anaphor binding (Binding Pinciple A). Note however that in this instance the lower member of the Copy relation (i.e. the plain anaphor) would be externalized. We leave the issue open here; see Saito (2024).

section. Another alternative, automatically offered by the grammar, is IM of the embedded [D [n]] argument to the edge of the phase, as shown in (29). Copy applies between the two inscriptions of [D [n]], licensing the lower one. Instead of postulating a cartographic projection (Sundaresan 2018, Chernavel 2020), namely Log or Pers, which is just a diacritic encoding a requirement for binding by a perspective holder/logophoric center, we take a more economical ('minimalist') approach illustrated in (29).

(29) a. … $[_{CP}$ that $[_{IP}$ $[_{CP}$ [D [n]] $[_{IP}$ to $[_{vP}$ [D [n]] win]]] would …

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

c. EXT: $[D\ [n]]_2 \rightarrow \varnothing$ (Copy) INT: $[D\ [n]]_2 \rightarrow$ HE(SELF)

At the next stage of the derivation, by hypothesis, a logophoric antecedent is established for $[D\ [n]]_1$, licensing deletion (No Transfer) of the higher copy of the pair at EXT, as well as providing an interpretation at INT. This hypothesis is schematized in (30), where *John* is associated with its lexical content in the example for ease of processing.

(30) a. … $[_{vP}$ John says $[_{CP}$ that $[_{CP}$ [D [n]] $[_{IP}$ [D [n]] …]] …

b. EXT: $[D\ [n]]_1 \rightarrow \varnothing$ (identity) INT: $[D\ [n]]_1 \rightarrow$ HE(SELF)

The derivation in (30) raises the obvious question whether we can allow a [D [n]] argument to be first IM-ed in an A'-position and then be bound from an A-position.[11]

[11] Chomsky (2021: 28-29) proposes something similar for *easy-to-please* constructions: IM from argument position to edge of CP position creates a predicate, which is then applied to the subject of *easy*, EM-ed in A position. Predication however is excluded in NOC due to the lack of locality.

Alternatively, we observe that Log/Pers properties are hosted at the edge of phases containing perspective holders/logophoric centres. If so, then, logophoric coreference reduces to binding from phase edge to phase edge, as in (31). Ideally, syntax does not encode interpretive instructions such as Log/Pers, tough nothing of what we say is incompatible with them.

(31) $[_{CP}$ John (Log/Pers) … $[_{vP}$ John says $[_{CP}$ that $[_{CP}$ [D [n]] $[_{IP}$ [D [n]] …]]

Finally, recall that for Landau (2015, 2024), OC also is two-tiered (whence the TTC). The kind of OC that we have so far exemplified with English (2) is a predication structure in the TTC. On the other hand, the infinitival complements of attitude verbs whose null subjects are compatible with partial control is not a predication but a logophoric structure. Landau (2020) argues that instances of NOC in terms of logophoricity are also found with complements to communication verbs. The structure he proposes is very similar to the one reviewed above for NOC, notably involving a C_{Log} where C bears different features depending on its antecedent, along the lines of (28).

4. Conclusions

In the present paper we have taken the Markovian property of derivations as our starting point and considered the CTC on the basis of two sets of empirical data: finite control and NOC. On the assumption that deletion is understood as 'No Transfer' by the EXT procedure, we have argued that there are two basic configurations capable of licensing No Transfer of [D [n]], namely, Copy and Agree with I, sufficient to resolve the PRO vs pro issue. A further configuration (the elsewhere) arises in NOC where 'No Transfer' of the unvalued features of [D [n]] does not give rise to unrecoverable content. The syntactic derivation sees FFs only, while the two operations INT and EXT take care of the readings that arise and the

phonological realization of inscriptions. Arguably this approach captures the variation attested regarding null subjects without necessitating empty categories such as pro and PRO.

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