Noncanonical Obligatory Control

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Abstract

Intensive research on Obligatory Control (OC) in the past two decades has revealed a rich crosslinguistic terrain of deviations from the classical format. Five types of noncanonical OC are surveyed here: Finite control, controlled overt pronouns, partial control, proxy control and crossed control. Each one is described and illustrated, paying attention to methodological difficulties in establishing its characteristic empirical signature. We then turn to a critical assessment of leading theoretical accounts of these phenomena, pointing to merits and faults, and indicating how they can be integrated with broader concerns of syntactic theory.

Keywords: finite control, overt PRO, partial control, proxy control, crossed control

1. Introduction

Textbook examples of Obligatory Control (OC) are often given and discussed in a rather formulaic manner. First, English examples are presented.

(1) a. Bill$_i$ promised Sue [PRO$_i$ to play the song].
b. Bill persuaded Sue$_i$ [PRO$_i$ to play the song].

The following observations are then made: (i) The subject of the complement clause is a null category, notated as *PRO*; (ii) The reference of that subject is fully determined by a matrix argument (the control relation/dependency); (iii) That argument may be the subject (1a) or object (1b). However, the notion of *control* usually implies much more for many scholars, and comes with a baggage of assumptions about finiteness of OC complements, nullness of PRO etc. Many of those assumptions have been critically investigated throughout the years. The goal of this article is to systematize important findings and generalizations emerging from this critical literature.

In an attempt to distill the core properties of OC that have emerged from decades of research, Landau (2013:29) proposed *The OC signature* (X and S are *co-dependent* if they saturate or modify the same predicate).

(2) *The OC signature*
In a construction [... X$_i$ ... [$_S$ Y$_i$ ...] ...], where Y is the subject of clause S, if:
a. X must be (a) co-dependent(s) of S, AND
b. Y (or part of it) must be interpreted as a bound variable

Then this is an *Obligatory Control* construction (X=controller, Y=controllee)

(2a) guarantees that arbitrary control (3a), long-distance control (3b) and non-c-commanding control (3c) are excluded in OC constructions. Neither the arbitrary referent of PRO$_{arb}$ in (3a),

nor *Mary*, the referent of PRO in (3b,c), are participants in the *hate*-event, where the co-dependent of the infinitive should be found.

(3) a. * Mary hates [PRO_{arb} to nominate oneself].
b. * $Mary_i$ realized that John hated [PRO_i to nominate herself].
c. * $Mary's_i$ colleagues hated [PRO_i to nominate herself].

The locality of OC is reflected in another familiar property, namely, the obligatory sloppy reading of PRO inside elided VPs. A sloppy reading simply means that the controller of PRO in the ellipsis site must be a co-dependent of the infinitive hosting PRO and cannot be any remote nominal outside that domain (as the strict reading requires).

(4) a. $Mary_i$ expected [PRO_i to attend the ceremony], and Sue_j did too
~~expect [$PRO_{j/*i}$ to attend the ceremony]~~
b. Mary encouraged $Paul_i$ [PRO_i to attend the ceremony], but not $David_j$
~~encourage [$PRO_{j/*i}$ to attend the ceremony].~~

In the subject control example (4a), PRO in the second conjunct must be controlled by the local subject *Sue*; in the object control example (4b), PRO in the second conjunct must be controlled by the local object *David*. Of course, normal pronominal subjects are not similarly restricted in choosing their antecedents.

(5) a. $Mary_i$ realized that John would hate [for her_i to nominate herself].
b. $Mary_i$ colleagues knew [that she_i nominated herself].
c. Mary said to $Bill_i$ [that he_i should attend the ceremony],
but not to $David_j$ [~~that $he_{i/j}$ should attend the ceremony~~].

Turning to property (2b), it is brought out in contexts where a bound variable reading and a referential reading produce different truth conditions. Consider a scenario where Peter, Jane and Roy play some game. In one ending, they disagree on who won the game. In another ending, they all agree it was Peter.

(6) a. Peter claimed that he (Peter) won, Jane claimed that she (Jane) won and Roy claimed that he (Roy) won.
b. Peter, Jane and Roy claimed that Peter won the game.

These two scenarios produce distinct truth conditions for (7a-b). Specifically, sentence (7a) is false under scenario (6a) and true under (6b). Sentence (7b), on the other hand, is ambiguous; on one of its readings, it is synonymous to (7a), producing falsity in (6a) and truth in (6b). On its other reading, however, (6a) makes it true (6b) makes it false.

(7) a. Only $Peter_i$ claimed [PRO_i to be the winner].
b. Only $Peter_i$ claimed [that he_i was the winner].

The two relevant reading are represented in (8).

(8) a. Bound variable reading: Peter = Only x [x claimed x is the winner].
b. Strict reading: Peter = Only x [x claimed Peter is the winner].

Property (2b) states that PRO is unlike pronouns in that in OC contexts, it must be interpreted as a bound variable (whose binder is the controller), whereas normal pronouns normally allow either the bound variable or the referential reading.

The OC signature is very compact and minimal; many properties often associated with OC are left out of it. Exactly what is the status of these properties, found in what we may label as "Canonical OC"? We can spell out some of them as follows.

(9) *Canonical OC*
a. The complement is nonfinite.
b. The controlled subject is null.
c. The control relation is identity of reference.
d. The control relation is direct (unmediated by a "middleman").
e. The controller occurs in the matrix clause.

Research in the past two decades has unearthed a wealth of facts related to OC that call into question the centrality of these properties to OC. It seems that the time is ripe to reconsider what we take to be the core properties of OC in light of these discoveries. If the constructions in (1) are taken as canonical OC, then recent research highlights the ubiquity and robustness of "noncanonical OC" constructions of various sorts.

In the present article, I will focus on five types of noncanonical control, challenging each of these assumptions. Section 2 addresses varieties of *finite* control in a number of languages. Section 3 addresses languages that allow or demand the controlled subject to surface as an overt pronoun. Section 4 discusses *partial* control and its relation to comitative phrases, plurality and distributivity. Section 5 addresses proxy control, where the controller and PRO are indirectly linked via a third party – a recipient of permission. Section 6 addresses the curious construction of *crossed* control in Austronesian languages, where the agent of the matrix predicate, also serving as the controller, appears inside the complement clause. Section 7 concludes with a generalized characterization of OC, broad enough to cover all the noncanonical cases, and states some central open questions for future research.[1]

A note on my methodology in putting together this article. The vastness and diversity of the literature surveyed here poses nontrivial difficulties for any attempt at being maximally systematic. For example, what one author defines as "finite OC" may be inconsistent with another author's definition, because, as we know very well, "finiteness" is not a clear-cut category. In other cases, such as overt PRO or crossed control, the empirical picture is not yet fully clear in the relevant sources, and more fieldwork is needed to fill in the blanks. Rather than excluding "borderline" or under-documented case studies, my strategy in this article has been deliberately *inclusive*. It is precisely the task of future research, which hopefully this article will stimulate, to make the final decision on the status of controversial data. My own

[1] One noncanonical OC construction that I leave out of this survey is backward control, where the controllee is a lexical DP (Polinsky and Potsdam 2002, Fukuda 2008, Potsdam 2009, Haddad and Potsdam 2013). The phenomenon is real but its scope has been overestimated (see Kwon et al. 2010 on Korean, Yoshimoto 2013 on Japanese, Coftas 2016 on Romanian and Alexiadou and Anagnostopoulou 2021 on Greek for different reanalyses of cases formerly thought to instantiate backward control). Also left out is the much rarer copy control (Lee 2003, Haddad 2009), whose status is less clear (Kissock 2013).

job, at present, is to highlight these data and point out why they are potentially interesting or challenging to prevalent conceptions of OC.

Before we start, it would be useful to introduce a fundamental distinction between two types of OC predicates (and their associated complements): Attitude predicates and nonattitude ones. Semantically, attitude predicates quantify over "centered worlds" (or contexts), which are consistent with the attitude holder's state of knowledge or desires, as well as with their perception of who they are (von Stechow 2003, Stephenson 2010, Pearson 2016). Nonattitude predicates involve quantification over possible worlds as well, but crucially there is no relativization to any subjective attitude in the choice of these worlds. It turns out that syntactically, complements of the former class are bigger than those of the latter class (Landau 2015, Wurmbrand and Lohninger to appear). In fact, it is not uncommon to find reduced complementation ("restructuring") in the latter class, whereas it is nearly absent from the former.

Each of the two classes breaks into several subclasses, as follows.[2]

(10) *Non-attitude predicates*
   a. Implicatives
      dare, manage, make sure, bother, remember, get, see fit, condescend, avoid, forget, fail, refrain, decline, neglect, force, compel.
   b. Aspectual
      begin, start, continue, finish, stop, resume.
   c. Modal
      have, need, may, should, is able, must.
   d. Evaluative (adjectives)
      rude, silly, smart, kind, (im)polite, bold, modest, cruel, cowardly, crazy

(11) *Attitude predicates*
   a. Factives
      glad, sad, regret, like, dislike, hate, loath, surprised, shocked, sorry.
   b. Propositional
      believe, think, suppose, imagine, say, claim, assert, affirm, declare, deny.
   c. Desideratives
      want, prefer, yearn, arrange, hope, afraid, refuse, agree, plan, aspire, offer, decide, mean, intend, resolve, strive, demand, promise, choose, eager, ready.
   d. Interrogatives
      wonder, ask, find out, interrogate, inquire, contemplate, deliberate, guess, grasp, understand, know, unclear.

This classification of control predicates will be crucial to some of the noncanonical OC constructions to be discussed below.[3]

[2] Note that the lists are not meant to describe English or any other specific language, where some of the predicates fail to select OC complements; rather, they reflect the overall lexical inventory attested across languages. Thus, *declare* in English does not select an OC complement but *déclarer* in French does; the entire interrogative class is not represented in German, which lacks *wh*-infinitives; etc.

[3] For previous surveys on the topic of control, covering much of its history, see Davies and Dubinsky 2004, Stiebels 2007, 2015, Kirby et al. 2010, Landau 2013, Polinsky 2013 and Potsdam and Haddad 2017.

2. Finite control

Up until the mid-1980s it was commonly assumed that control is inherently linked to nonfinite clauses, so that PRO is excluded from finite contexts. This assumption was more or less stipulated within all major approaches to OC – from the Standard Theory through GB to Minimalism, within Predication theory and within LFG (for a detailed description of how nonfiniteness was encoded in all these approaches, see Landau 2013:80-87). However, work on control in languages without (productive) infinitives made it increasingly clear that finite control is a genuine possibility. This possibility has been first documented in the Balkan languages (Joseph 1983), and then much elsewhere (Persian, Kannada, Korean, Japanese, Arabic, Amharic, South Saami).[4]

Two examples of finite control are given below. (12a) shows finite control in Amharic, where the prospective aspectual marker *lɨ-* introduces an irrealis complement; the embedded verb is imperfective and fully inflected (Leung and Halefom 2017:13). (12b) shows finite control in Aromanian, where the complementizer *ta* introduces a complement hosting the subjunctive particle *s(i)* and an inflected verb (Manzini and Savoia 2018:239).

(12) a. käbbädä l-i-bärr-Ø märrät'ä-Ø. *Amharic*
Kebede CM-3S.MS-fly.IMP-3SG.M prefer.PERF-3SG.M
'Kebede preferred to fly.

b. am uʁitə ta s u vɛd. *Aromanian*
have.1SG started that PRT it see.1SG
'I began to see it.'

The classical view, reflecting an English bias, linked control to PRO and PRO to nonfiniteness. This was achieved by various means. In the 1970s, The Tensed-S Condition blocked any anaphoric relation across a finite clause boundary (Chomsky 1973, Chomsky and Lasnik 1977). Within GB Government and Case provided the link: Nonfinite Infl, by stipulation, could not govern, so PRO was ungoverned and Caseless (the only NP with that privilege). Similarly, nonfiniteness was stipulated as a feature of anaphoric control in LFG (Bresnan 1982). In the predicational theory of OC laid out by Chierchia (1984), properties must be mapped to a special kind of individual to function as arguments (e.g., as complements of OC verbs); by stipulation, [-Agr] is the functor in charge of this mapping and [+Agr] is not. Finally, in early minimalism PRO was restricted to positions receiving a special "null case", and these positions were restricted to the specifier of nonfinite T (Chomsky and Lasnik 1993), or [-Finite,+Tense] (Bošković 1997, Martin 2001).

The literature contains many theoretical objections to these proposals, but we can skirt all of these discussions for the simple reason that their very factual basis is false: OC is *not* restricted to nonfinite domains, as illustrated in (12) and extensively documented in the literature cited

[4] See Comorovski 1985, Farkas 1985, Dobrovie-Sorin 2001, Alboiu 2007 and Sevdali and Sheehan 2021 on Romanian; Zec 1987 and Nikolić 2020 on Serbo-Croatrian; Terzi 1992 on Albanian; Iatridou 1988, Terzi 1992, 1997, Varlokosta 1993, Philippaki-Warburton and Catsimali 1999, Roussou 2001, 2009, Sitaridou 2002, 2007, Spyropoulos 2007, Kapetangianni 2010 and Sevdali and Sheehan 2021 on Greek; Krapova and Petkov 1999 and Krapova 2001 on Bulgarian; Rivero 1994 and Landau 2004 on Balkan languages in general; Darzi 2008, Karimi 2008 and Darzi and Motavallian 2010 on Persian; Manzini and Savoia 2018 on Aromanian; ElSadek 2016 and Albaty 2019 on Arabic; Akuzawa and Kubota 2020 on Japanese; Vinka 2022 on South Saami.

in fn. 4. Instead of the arbitrary finiteness restriction , a leading idea has been that the crucial grammatical information responsible for imposing the control dependency is lodged on a clause-peripheral particle in the complement – complementizer and/or mood particles (Landau 2004, Roussou 2009, Manzini & Savoia 2018). This head may introduce a variable that must be locally bound or function as a linker inducing a predicative relation between the unsaturated complement and the controller.

The OC status of these constructions must be rigorously tested, using the familiar criteria which are incorporated in the OC Signature (2). Indeed, establishing the reality of finite OC has been a major concern of the literature. Nonetheless, occasionally corpus data overturn claims for finite OC. Thus, the allegedly OC verb classes in Romanian include modal, aspectual and implicative verbs. It turns out that implicative subjunctive complements do not force OC, while modal and aspectual complements can be given a satisfactory *raising* analysis. This leaves Romanian with no solid evidence for finite control (Coftas 2016). Hebrew has been described as licensing finite control (Borer 1989, Landau 2004), but later work unearthed data with non-local antecedence, suggesting that the null subject is better understood as some kind of topic-drop, with at most a strong preference for local resolution (Gutman 2004, Shlonsky 2009).

The status of finite control in Brazilian Portuguese (BP) has been the subject of vigorous debates. It is worth a careful assessment as it illustrates how delicate the task of establishing OC may be, especially in languages allowing *pro* drop alongside OC.

While Rodrigues (2004), Ferreira (2009) and Nunes (2010, 2019) advocate an OC analysis of null subjects in such complements, Modesto (2008, 2011) and Holmberg et al. (2009) argue against it: Modesto takes the null subject to be a null topic, forming a chain with the matrix topic, while Holmberg, Nayudu and Sheehan leave the construction unanalyzed, simply classifying it as *sui generis*, somewhere between OC and Non-obligatory Control (NOC). Much of the debate turns on whether *convince*-type verbs project their finite CP argument as a syntactic adjunct. This unusual assumption is required on the OC analysis, to explain why finite (but not infinitival) control in BP is restricted to *subject* control, even with *convince*-type verbs.

However, basic properties of the BP constructions set them apart from standard OC. First, the embedded null subject can take a salient discourse antecedent, disregarding the matrix subject (13a) (Modesto 2011:6). Second, the embedded null subject can take a remote subject antecedent across a local expletive subject (Holmberg, Nayudu and Sheehan 2009:82).

(13) a. A: Cadê a Maria$_i$? *Brazilian Portuguese*
where the Maria
'Where is Maria?'
B: Eu acho [que *ec*$_i$ saiu].
I think that left
'I think she has left.'

b. A Maria$_i$ disse que é verdade [que *ec*$_i$ entornou o copo].
DET Maria said that is true that knocked.over the glass
'Maria said it's true that she knocked over the glass.'

Neither possibility is attested in standard OC (with infinitives), suggesting that topic-drop is a robust grammatical process in BP, which may well subsume OC interpretations. The question remains whether *when* the antecedent is a local subject, it is interpreted by OC. Unfortunately,

the data are not entirely clear (e.g., see the conflicting judgments on the strict/sloppy reading test in Holmberg, Nayudu and Sheehan 2009:86 and Nunes 2019:3). We leave the matter open.[5]

Not so different is the status of control into inflected infinitives in BP, where conflicting evidence cited by different authors speaks in favor of or against an OC analysis. In Madeira 1994, Modesto 2010, 2016, Boeckx et al. 2010b and Sheehan 2012, 2014, certain types of (desiderative and propositional) inflected infinitival complements are classified under OC, yet Modesto (2010) already mentions that infinitival factive complements allow arbitrary readings for their subject, and Rodrigues and Hornstein (2013) further report that even desiderative complements allow non-control readings. More recent work, drawing on experimental and corpus data, reveals even more variation among speakers (Modesto and Maia 2017), which Modesto (2018) attributes to the coexistence of a native BP grammar (where OC obtains) and a normative, school grammar (where No Control obtains; henceforth, NC).

Focusing on European Portuguese data, Sheehan (2018a) concludes that there is a dialect split in EP between speakers whose grammar forces OC in inflected infinitival complements and speakers whose grammar does not. However, Barbosa (2021) challenges her findings and claims that EP (and in fact, BP too, although she does not focus on the latter) always allows NC readings for the subject of inflected infinitives, concluding it is *pro* rather than PRO. Finally, Santos (2023) shows that a split between OC and NC exists within the class of object control verbs in EP inflected infinitives (see below).

The complexity and non-uniformity of the Portuguese data makes it difficult to draw firm conclusions on the interaction of OC and inflected infinitives in the language. However, other languages present clear patterns. Inflected infinitives in Hungarian occur either in OC or NC environments (Tóth 2000). The OC environments consist of complements to (i) psychological/evaluative predicates (e.g., *unpleasant*, *easy*, *important*); (ii) directed deontic modals (e.g., *must*, *should*); (iii) nominal predicates with a Source argument (e.g., *impolite of X*, *vicious of X*); permissive predicates (e.g., *let*, *allow*) and *help*. As argued extensively by Landau (2004, 2006, 2013), these are all *untensed* complements, disallowing a temporal mismatch with the matrix clause (example from Landau 2004:853).

(14) *Hungarian*
* Tegnap, kellemetlen volt Jánosnak (*holnap) nézni**(e)** meg a filmet.
yesterday unpleasant was John.DAT tomorrow look.INF-(3sg) PERF the film
'Yesterday, it was unpleasant for John to see the film (*tomorrow)'

Landau's broader typological claim in these works is that the cooccurrence of semantic tense and morphological agreement in complement clauses blocks OC, resulting in NC. This generalization cuts across moods (indicative, subjunctive. infinitive) and ignores morphological tense marking. It is shown to operate further in Welsh inflected infinitives (Tallerman 1998), in inflected nominalized complements in Basque (San Martin 2004) and in Turkish (Słodowicz 2008), in subjunctive complements in Balkan languages (see the references in fn. 4) and in Persian (Hashemipour 1988, Ghomeshi 2001, Karimi 2008, Motallian 2014), and in Egyptian Arabic (ElSadek 2016). In Landau 2015, 2018, the notion of semantic tense is shown to be derivative from the more fundamental distinction between complements of attitude

[5] Similar to BP are other partial *pro*-drop languages like Finnish, Marathi and Hebrew. Embedded null subjects in these languages display a distinct empirical profile from both OC PRO and standard *pro* (in either full or radical *pro*-drop languages). See Holmberg, Nayudu and Sheehan 2009 for discussion.

predicates and complements of nonattitude predicates. The following generalization is then proposed.[6]

(15) *The OC-NC Generalization*
[+Agr] blocks OC in attitude complements but not in nonattitude complements.

Landau (2015) traces the clash between attitude OC and agreement to the necessary process of Feature Transmission involved in variable binding. When the target of transmission (PRO) is already valued because agreement has taken place in the complement, variable binding (and hence OC) fails.

To illustrate, consider a division within the class of object control verbs in European Portuguese taking inflected infinitives. Santos (2023) reports that verbs like *convencar* 'convince', *persuader* 'persuade' and *dizer* 'tell' display NC, whereas verbs like *obrigar/forçar* 'force', *impedir* 'prevent' and *ajudar* 'help' require OC. The cut is exactly aligned with (15) – the former are attitude verbs, the latter are implicative ones. This is confirmed in a variety of tests, e.g., tolerance to long-distance control, deictic control, control shift and partial control, as well as tolerance to lexical subjects. (16) shows that while both *convencar* 'convince' and *ajudar* 'help' allow a local antecedent for the subject of an inflected infinitive complement, only the former verb allows a long-distance antecedent (a sign of NC).

(16) *European Portuguese*
a. O Pedro convenceu/ajudou as crianças$_{i\ i}$ [a *ec*$_i$ irem para
the Pedro convinced/helped the children to go.INF.3PL to
a cama cedo].
the bed early
'Pedro convinced/helped the children to go to bed early.'
b. As crianças$_i$ disseram que o Pedro convenceu/*ajudou a Maria
the children said that the Pedro convinced/helped the Maria
[a *ec*$_i$ irem para a cama cedo].
to go.INF.3PL to the bed early
'Children said that Pedro convinced/*helped Maria to bring it about that they go to bed early.'

While the OC-NC generalization describes a systematic split in the distribution of finite control across many unrelated languages, recent work has challenged its universality: That is, genuine OC has been found with inflected attitude complements. Let us mention the major instances of this scenario. First, the Amharic irrealis OC construction, exemplified in (12a), displays agreement on the embedded verb (null in 3SG but otherwise overt). Second, finite control in South Saami is attested in complements of (attitude) directive and commissive verbs (17a) (Vinka 2022); the embedded future auxiliary (analyzed by Vinka as a subjunctive head) agrees with its pronominal subject, an overt PRO. Finally, Caucasian languages (Khuduts Darwa and Udi, Nakh Daghestanian; Georgian) evince OC into desiderative inflected complements. In Khuduts Darwa, the embedded verb carries gender agreement (obligatory on all verbs that allow it) and with one class of infinitives, person agreement too (17b) (Ganenkov 2019).

[6] Sevdali & Sheehan (2021) claim that [tense] rather than [attitude] is the critical determinant of OC on the basis of the modals *mporo* 'can' (Greek) and *putea* 'can' (Romanian): Both are claimed to take OC (and even PC) complements, despite being non-attitudinal. Yet both also allow embedded lexical subjects (with some coercion), casting doubt on their OC status. In any event, modal complements are not semantically tensed, and their irrealis interpretation is a by-product of quantification over worlds and not over tenses (Wurmbrand 2014a).

(17) a. Læjsa Piere-m$_i$ mujhtiehti [edtji dihte$_{i/*j}$ mielhke-m åestedh].
Lisa Piere-ACC reminded woll.PST.3SG he milk-ACC buy
'Lisa reminded Piere to buy milk.' *South Saami*

b. ʕu$_i$ q'ast b-arq'-ib-di-w [PRO$_i$ ħinc-bi d-iʕ-aː-aj].
you.SG(ERG) decision N.SG-do:PF-AOR-2SG-Q apple-PL(ABS) N.PL-steal:PF-2-INF
'Did you decide to steal apples?' *Khuduts Darwa*

This state of affairs presents a challenging question to typological studies of control: Why is the OC-NC generalization valid for some languages but not for all? What is common to the languages in each class? Notice that the generalization does capture a non-random pattern, even if not universal. As far as we know, there is no language in which [-Agr] *allows* NC and [+Agr] *forces* OC in attitude complements; only the reverse happens. Future research will have to address these issues.

3. Overt PRO

On the classic view of control, which prevailed up until the 1990s, the nullness of the controlled position was taken for granted; PRO was intrinsically null and that was it (Postal 1970, Williams 1980, Chomsky 1981, Bresnan 1982, Manzini 1983, Chierchia 1984, Chomsky and Lasnik 1993). To the extent that the issue was addressed at all, the nullness of PRO could only be guaranteed by some stipulation, involving Case or some equivalent feature, tailored to distinguish PRO from overt pronominal elements (see Landau 2013:116-117 for survey and critique of such proposals). That the nullness of PRO was not easily reducible to other grammatical principles suggested that it may not be a fundamental feature of PRO after all (see Borer 1989 for an early recognition of this point). Indeed, starting from the 1980s, evidence has amassed that PRO can be lexicalized as a reflexive or pronominal element in many languages. While the circumstances under which PRO surfaces overtly are still not fully systematized, the various cases reported in the literature fall into a few major categories: (i) obligatory pronoun; (ii) optional pronoun; (iii) optional reflexive.

Consider first controlled pronouns. In certain languages, (some) OC complements *only* occur with an overt subject, specifically a lexical pronoun. The unavailability of PRO in these languages presents an interesting challenge to all current approaches to control. Following are several examples.

The first four examples come from the Niger-Congo language family. In Gã (18a), irrealis complements of volitional and implicative verbs display OC with a pronominal subject, and the same is reported of Igbo, Ewe and Akan (Allotey 2021). The Anlo dialect of Ewe forms another OC construction (18b), where the subject of the irrealis complement is the logophoric pronoun *yè* (Satik 2019).[7] In Wolof (18c), object control complements (but not subject control ones) surface with an overt pronominal subject (Fong 2022). And in Bùlì (18d), both implicative and certain desiderative verbs select nonfinite complements with a controlled pronominal subject (Sulemena 2021, 2022). Importantly, in all these cases a null subject is excluded, and the authors show that the constructions indeed display the OC signature.

[7] Controlled logophoric pronouns are also attested in Gengbe (Grano and Lotven 2018). Such data from Ewe and Gengbe undermine Culy's (1994:1083) claim that control complements are never logophoric domains.

(18) a. Gbekebii$_i$ lɛ nye (ni) *(amei$_{i/*j}$) he shia. *Gã*
Children DET manged COMP 3.PL buy.INF home
'The children managed to buy a home.'

b. Agbe$_i$ susum be *(yè$_{i/*j}$)-a dzo. *Anlo Ewe*
Agbe intend COMP LOG-POT leave
'Agbe intends to leave.'

c. Dimbali-na-a a-b xale$_i$ ***(**mu$_{i/*j}$) jàng téere b-i. *Wolof*
help-NA-1SG INDEF-CM.SG child 3SG.SUBJ read book CM.SG-DEF
'I helped a child read the book.'

d. Núrmà$_i$ zèrì *(bà$_{i/*j}$) dā gbáŋ. *Bùlì*
people.DEF.PL refuse 3PL buy book
'The people refused to buy a book.'

The explanations offered for the overtness of PRO by these authors are all different. Allotey (2021) argues that PRO must be lexicalized in order to serve as a phonological host to the irrealis marker of Gã – a high tone. It is, however, unclear why implicative complements should be irrealis, and indeed, the embedded subject in (18a) does not bear a tone. Allotey and Paul (to appear) simply posit an EPP feature on [Spec,TP], requiring the pronoun to be overt. Satik (2019) proposes that the logophoric pronoun and PRO share a crucial configurational property: Both are bound by an operator at the left periphery of the clause, and this configuration is responsible for their common spellout in Ewe (though why *overtness* is typical of this spellout is not addressed). Fong (2022) maintains (using language-internal evidence) that object control complements are islands for movement. If OC reduces to A-movement, the complement subject in (18c) can be seen as a resumptive pronoun rescuing an island violation. Sulemana (2021) treats the controlled subject as a minimal pronoun, following Landau 2015, skirting the issue of overtness altogether. Notably, these proposals have yet to be fully developed in order for one to evaluate their merits and faults, both on language-internal grounds and crosslinguistically. Similarly, more data is needed to obtain a full empirical picture.

The next example of overt PRO comes from the Oto-Manguean language San Martín Peras Mixtec. OC in this language, and apparently in other languages from this family, occurs with irrealis complements of aspectual and implicative verbs; the controlled subject must be expressed as an overt pronoun (Ostrove 2018:128); Ostrove provides no explanation for this fact.

(19) Nàntŏso$_i$ ña Juana nakatsya *(ñá$_{i/*j}$) míí tsyàà. *San Martín Peras Mixtec*
forget.PST she Juana wash.IRR she the clothes
'Juana forgot to wash the clothes.'

In all of the above cases, overtness is a necessary feature of PRO. Let us turn to cases where it is optional, i.e., languages where an overt PRO alternates with a null one. Documentation of such cases has emerged in Romance languages and also in Hungarian (Torrego 1996, Belletti 2005, Cardinaletti 1999, Szabolcsi 2009, Livitz 2011, Herbeck 2015, 2018, Landau 2015, Barbosa 2018, 2022). Typically, the alternation is semantically significant: The controlled overt pronoun is associated with exhaustive or contrastive focus, and is often (but not always) accompanied by some focus-sensitive particle. Furthermore, it is demonstrably a postverbal subject rather than some emphatic adjunct. Examples from European Portuguese (Barbosa 2018:133) and Hungarian (Szabolcsi 2009) are given in (19a-b), respectively.

(20) a. *pro*$_i$ decidiu [ir só ele$_i$ ao mercado]. *European Portuguese*
decided to.go only he to.the market
'He decided for it to be the case that only he goes to the market.'

b. Nem felejtettem el [én is aláírni a levelet]. *Hungarian*
not forgot.1SG PFX I too to.sign the letter.ACC
'I didn't forget to bring it about that I too sign the letter.'

Controlled pronouns in Chirag Dargwa also require a focus particle, but in this language, the embedded subject may even surface as a conjunction, with the controlled pronoun (or long-distance reflexive) occurring as one conjunct, a rare case of *overt partial control* (Ganenkov 2023); see the next section.

Most accounts of these data invoke [+focus] as the feature responsible for PRO's overtness. This is implemented either as a PF effect (focus is expressed via pitch accent and null categories cannot bear such accent) or a syntactic effect (focus changes the boundaries of spellout domains, allowing PRO to be pronounced). However, the exhaustive focus interpretation need not indicate that PRO itself is overt, as discussed below.

Barbosa (2018) observes that only consistent null subject languages (NSLs) display the alternation between PRO and a postverbal (emphatic) subject. This immediately suggests a common source. Second, the idea that the overt pronoun is a "spelled out PRO" fails to explain related facts, where the postverbal subject surfaces as a partitive or collective DP, as originally observed in Torrego 1996. Crucially, these DPs can neither originate as pronouns or as copies of the controller (which is lexically distinct). Examples (21a-b), in Spanish and European Portuguese, are from Torrego 1996 and Barbosa 2018, respectively. Notice that these are OC constructions; the embedded subject must be understood as a subset of *we*.

(21) a. No sabemos si asistir algunos de nosotros. *Spanish*
not know.1PL if to.attend some of us
'We don't know whether to attend some of us.'

b. Nã sabemos como falar a turma toda com ela. *E. Portuguese*
not know.1PL how to.talk the class whole with her
'We don't know how the whole class will talk to her.'

Barbosa observes that the infinitival complement in these constructions replicates simple main clauses with postverbal subjects, which are either pronominal or DPs of the sort seen in (21) (e.g., *Chumbámos nós/a turma inteira* failed1.PL we/the class whole 'We (the whole class) flunked'). In neutral contexts, such postverbal subjects receive an exhaustive focus reading, which stems from "specificational" predication (the same is true of *preverbal* subjects in Hungrian). Briefly, the external argument is an interpretable D feature in T (the so-called pronominal agreement of NSLs) and the postverbal subject is type-shifted to a property (e.g., *λx.x=some of us*). The exhaustive reading emerges from an iota operator applied to the VP property by way of inference; e.g., 'The ones who attended were (identical to) some of us'. On this understanding, then, Romance "emphatic PRO" constructions are, strictly speaking, not instances of controlled pronouns. Rather, the controlled position is an intepretable feature bundle [D,ϕ:__] on T, while the overt embedded subject is a restriction on its reference.

This account is revised in Barbosa 2022, where the embedded overt (modified) pronoun is no longer considered a postverbal subject but rather, more traditionally, an emphatic doubling

adjunct. On the latter analysis, the Romance examples above involve a standard, unremarkable null PRO. However, controlled pronouns in Colombian Spanish adjuncts occur preverbally and thus may count as genuine subjects (Gómez et al. 2022).

(22) *Colombian Spanish*
Sólo María$_i$ hizo trampa [para PRO$_{i/*j}$/ella$_{i/*j}$ gamar el primer lugar].
only María made trap for she win.INF the first place
'Only María cheated in order (for herself) to win the first place.'

Gómez, Duguine and Demirdache point out that although PRO and a lexical pronoun in adjuncts (and complements too) display identical OC behavior with regard to the locality of their antecedent, they are interestingly different under association with focus as in (22): While both allow the sloppy reading, only the lexical pronoun allows a strict reading as well (namely, María was the only one who cheated in order for María to win the first place). On their proposal, this difference is orthogonal to OC and reflects the sensitivity of *semantic* binding (but not syntactic binding) to the overtness of the variable.

Controlled pronouns alternate with PRO in Chinese too. They may occur by themselves or in construction with a numeral (Hu et al. 2001, Zhang 2016).

(23) a. Naxie haizi$_i$ dasuan [(shuiguo) tamen$_{i/*j}$ zhi chi caomei]. *Chinese*
those child plan fruit they only eat strawberry
'Those children made the plan that (as for fruits) they would eat strawberries.'

a. Lili$_i$ shefa [jintian ta$_{i/*j}$ yi ge ren chi-fan].
Lili try today he one CL person eat-meal
'Lili tried to eat alone today.'

Hu, Pan and Xu maintain that such pronouns are acceptable only when separated from the edge of the complement by some constituent; this may suggest, as Grano (2015:147) proposes, that these are resumptive pronouns (see Erlewine 2020 for parallel anti-locality effects with resumptive pronouns in a number of languages). However, Zhang (2016) points out that this is not an absolute restriction, as *shuiguo* 'fruit' can be dropped in (23a).

Finally, consider controlled reflexives, as documented in East Asian languages. In Chinese, PRO is said to freely alternate with the reflexive *ziji* (Hu et al. 2001, Zhang 2016). In Japanese and Korean, controlled reflexives carry an exhaustive focus interpretation (Madigan 2008a), similarly to controlled pronouns in Romance. The examples in (24a-b) are from Lee 2009:65 and Madigan 2008:84, respectively.

(24) *Korean*
a. Mina$_i$-ka [PRO$_{i/*j}$ /caki$_{i/*j}$-ka ku mwuncey-lul phwul-leyko] sitoha-yess-ta.
Mina-NOM self-NOM the problem-ACC solve-C try-PST-DC
'Mina tried to solve the problem.'

b. Inho$_i$-ka Jwuhi$_j$-eykey [PRO$_{i/*j}$ / caki$_{i/*j}$-ka ppalli il-ul
Inho-NOM Jwuhi-DAT self-NOM quickly work-ACC
kkuthney-keyss-ta-ko] yaksok-ha-yess-ta.
finish-VOL-DC-C promise-do-PST-DC
'Inho promised Jwuhi to do the work quickly.'

Normally, these long-distance reflexive elements accept any c-commanding subject as their antecedent. In OC contexts, however, they must be bound by the local controller, and in attitude complements display the characteristic *de se* interpretation. Madigan (2008) took these properties as evidence that *caki* is nothing but a lexicalized version of OC PRO. However, Yang (1985), Lee (2009:180-184) and Park (2017) all point to restrictions that controlled *caki* is subject to and PRO is not. In general, *caki* requires a 3rd person subject binder, and these restrictions carry over to controlled *caki*: It rejects 1st and 2nd person controllers and any object controller.

This state of affairs has two important implications. First, *caki* is likely to be the embedded subject itself and not a doubling adjunct. A doubling adjunct would have no problem being bound by a subject PRO, but the resistance to object control implies that it is *caki* itself which is directly linked to the matrix antecedent.[8] Second, *caki* is not *just* a lexicalized PRO, but the standard Korean anaphor. Under OC, it displays an intersective set of properties: it is both like OC PRO in requiring a local antecedent and a *de se* reading, but it is still the same reflexive that requires a subject 3rd person antecedent.

Summing up, the phenomenon of overt PRO raises challenging questions to the theory of control and bears on the proper treatment of the syntax-PF interface. The key questions are: (i) Why is nullness the overwhelming default spellout of PRO?; (ii) What properties of "overt PRO"-languages override this default? Are these syntactic or morphological properties? (iii) Do these properties have, at some level, anything in common with focus, which licenses overt PRO in other languages, or are there two (or more) unrelated paths to overtness of PRO? (iv) How do controlled overt reflexives emerge? Clearly, these questions will continue to be important as we learn more of the different manifestations of overt PRO.

4. Partial control

OC is the successor of "Equi-NP Deletion", the transformation formulated by Rosenbaum (1967). Implicit in standard formulations of OC, and explicit in the Equi rule, is the assumption that the controller and controllee are *identical* in reference. However, already Wilkinson (1971) and Lawler (1972) pointed out that the referential dependency between the two nominals can be a *subset* relation, a type of OC dubbed *partial control* (PC) in Landau 2000, the first systematic study of PC.

PC is most easily observed when the controller is singular and the embedded predicate is collective, as in Williams' (1980) example (25a) (the "i+" subscript is the conventional mark of the PC reading); note that *meet* is incompatible with a singular subject (**I met at 6*), indicating that its subject is likewise *we*, partially controlled by the matrix subject *I*. PC can arise with any embedded predicate modified by *together*, as seen in (25b), given the right context (i.e., the other members in the reference of PRO$_{i+}$ are salient in the context). In

[8] Correspondingly, when a subject-oriented reflexive inside an infinitival complement *can* be linked to a matrix object, this must be due to the mediation of PRO (see Rappaport 1986, Landau 2013:75).

Wilkinson's example (25c), the modifier *the way we did* supports the redundant sentential relative reading, which requires strict identity between *we* and the local subject; this implies that PRO is understood as *we*, a superset of the controller *I*.

(25) a. I want [PRO$_{i+}$ to meet at 6].
b. The captain intended [PRO$_{i+}$ to win this game together].
c. I$_i$ regretted [PRO$_{i+}$ killing Sam the way we did] because he was such a nice guy.

Following Landau 2000, PC received rather limited attention in general discussions of control (see Wurmbrand 2002, Jackendoff and Culicover 2003, Barrie and Pittman 2004, Rodrigues 2007, Madigan 2008a, Witkoś and Snarska 2009, Boeckx, Hornstein & Nunes 2010, Modesto 2010). The main findings and insights of this literature are summarized in Landau 2013:155-172. The recent decade, however, has seen a flourishing of focused interest in PC on its own, producing much experimental as well as crosslinguistic work (Sheehan 2012, 2014, 2018a.b, White and Grano 2014, Landau 2016a,b, Pearson 2016, Grano 2017, Pitterofff et al. 2017, Pitteroff & Sheehan 2018, Authier and Reed 2018, 2020, Snarska 2019, 2021).

I will start by providing a succinct overview of the basics of PC, and continue to discuss the latest developments, highlighting the central findings and open challenges we still face.

The fundamental aspects of PC, outlined in Landau 2000, 2004, 2007, 2015, concern the distribution of PC complements and the interpretation of PC PRO. Starting with distribution, OC predicates divide into two broad categories: Those that impose Exhaustive Control (EC) of PRO in their complement and those that allow PC. It turns out that this distinction perfectly matches the distinction between nonattitude and attitude predicates in (10)-(11). That is, EC-complements are nonattitude predicates (implicative, modal, aspectual, evaluative), while PC-complements are attitude complements (factive, propositional, desiderative, interrogative).

Representative examples of these subclasses in PC environments are given below.

(26) *Exhaustive control*

We thought that…

a. * John$_i$ managed [PRO$_{i+}$ to gather at 6].
b. * The chair$_i$ began [PRO$_{i+}$ meeting without a concrete agenda].
c. * Mary$_i$ is able [PRO$_{i+}$ to apply together for the grant].
d. * It was rude of the chair$_i$ [PRO$_{i+}$ to disperse so abruptly].

(27) *Partial control*

We thought that...

a. The chair$_i$ preferred [PRO$_{i+}$ to gather at 6].
b. Bill$_i$ regretted [PRO$_{i+}$ meeting without a concrete agenda].
c. Mary$_i$ wondered [whether PRO$_{i+}$ to apply together for the grant].
d. It was humiliating to the chair$_i$ [PRO$_{i+}$ to disperse so abruptly].

As regards the interpretation of PC PRO, Landau pointed out that it patterns with collective nouns in inducing semantic but not syntactic plurality. Thus, we find the following parallels (restricting attention to languages and dialects where collective nouns do not license syntactic plurality).

(28) a. The team acted together / *competed with each other.
b. Bill refused to act together / *compete with each other.

While most accounts of PC capture this split between syntactic and semantic number (Landau 2000, 2004, 2016a, Rodrigues 2007, Pearson 2016, Authier and Reed 2020), some accounts explicitly deny it, as we shall see below (Sheehan 2012, 2014, 2018a,b). The specific proposal of Landau (2000, 2004) was that OC arises from an Agree dependency between the matrix T or v and an embedded target. In EC complements, the target of Agree is PRO, whereas in PC complements it is the embedded C. Landau suggested that while PRO bears both syntactic and semantic number features, C only bears the former. Consequently, an Agree relation with PRO includes semantic number but an Agree relation with C excludes it, allowing for a mismatch in this feature, as witnessed in PC.

From the outset, it was recognized that the phenomenon of PC manifests considerable inter-speaker variability. This fact has led some either to flatly deny the reality of PC (Smith 2005:112) or to relegate it entirely to pragmatic reasoning, specifically to metonymical usage of a noun to refer to a group it represents (Bowers 2008). On the latter view, there is no difference whatsoever between the tolerance of EC and PC predicates to PC. However, the empirical basis of PC is by now fairly solid. An experimental study with 68 English speakers has found that certain predicates are generally more tolerant to PC in their complement than other predicates, with verbs like *regret* and *love* being rated significantly higher than verbs like *try* and *manage* (White and Grano 2014). The study revealed a cline of acceptability, with conspicuous sensitivity to the attitudinal nature of the embedding predicate and the temporal properties of the complement, as Landau (2000, 2015) and Pearson (2013, 2016) in fact claim, as well as to other fine-grained factors, affecting even finer gradations. Other experimental studies of PC in German (102 speakers; Pitteroff et al. 2017) and French (38 speakers; Pitteroff & Sheehan 2018) have likewise found that the EC-PC distinction is robust and grammatical, although questions of variability remain open.[9]

Having presented the basic picture of PC, we now turn to more recent developments that call for a revised and more nuanced picture. We begin with the analysis of PC as arising from covert comitative phrases, and then proceed to discuss apparent evidence for featural mismatch between the controller and PC PRO, as well as the (non)availability of distributive readings.

On the original PC analysis, PRO can be semantically plural even under a singular controller. This basic tenet has been questioned in the main alternative to that analysis – the Covert Comitative Analysis (CCA), first hinted in Hornstein 2003: fn. 78, then proposed in Boeckx et al. 2010b:185, and later adopted by various authors (Słodowicz 2008, Sheehan 2012, 2014, 2018a, Pitteroff et al. 2017, Pitteroff and Sheehan 2018, Snarska 2019). The CCA is based on the observation that many collective predicates can appear either with a plural subject (29a), or with a singular subject and a comitative PP in the predicate (29b,c). The proposal, then, is that

[9] Jackendoff & Culicover (2003) propose that PC results from semantic coercion (of "joint intention"), triggered by the clash between a singular controller and an embedded collective predicate. See Landau (2013:171) and Pearson (2013:302) for evidence against coercion, with PC not being "triggered"; Landau also shows that "intention" is irrelevant to PC.

PC is nothing but the occurrence of an optional *covert* comitative PP inside a nonfinite complement (29d).

(29) a. Beth_i and George met on Monday.
b. Beth met with George on Monday.
c. George_j heard that Beth_i planned [PRO_i to meet with him_j on Monday].
d. George_j heard that Beth_i planned [PRO_i to meet pro_j on Monday].

An immediate concern is why a covert comitative cannot appear freely in (29b) (**Beth met on Monday*). Boeckx, Hornstein & Nunes (2010) stipulate that covert comitatives may only appear in tensed infinitivals or alternatively, following Rodrigues 2007, in the scope of a modal. However, modals cannot genuinely license PC (see Landau 2013:167-168 for a detailed critique), while the restriction of covert comitatives to tensed infinitivals simply restates the explanandum.

The CCA faces empirical challenges too. Landau (2007) pointed out that not all collective predicates license comitative PPs, and yet in many languages this is no hindrance to PC (30a-b) (see also Sheehan 2012). Furthermore, Landau (2016a) presented evidence that PC PRO genuinely denotes a semantic plurality, contra to what the CCA predicts (when the controller is singular): It cannot bind a singular reflexive (30c) or saturate a singular secondary predicate (30d). And although plural comitative phrases license the use of the adverb *separately*, PC does not, suggesting that no covert plural comitative phrase is present in the complement (30e).

(30) a. We dispersed / *The chair dispersed with the rest of us.
b. The chair voted/decided to disperse until next week.
c. Peter would like [PRO to meet on Thursday (*himself)].
d. Peter told Elaine that he expected [PRO to meet (*as a free man) the following day].
e. Mary told the chair and the dean that she prefered [PRO to meet (*separately) before Christmas].

Nevertheless, in a series of studies, Michelle Sheehan has argued that while the CCA is not adequate for English, it is well-supported in Romance languages like Spanish, Italian, French and European Portuguese (Sheehan 2012, 2014, 2018a,b, Pitteroff and Sheehan 2018). Pertinent evidence involves contrasts between embeddable and unembeddable predicates in PC. In French, for example, only a subset of collective predicates may alternately occur with a singular subject and a comitative phrase – the so-called symmetric reciprocal predicates (Dimitriadis 2004, 2008, Siloni 2008, 2012). Precisely these predicates and only they may occur in PC contexts, as shown in the two pairs below from Authier and Reed 2018.[10]

[10] Landau (2000:85) speculated that reflexive verbs in French cannot occur in PC complements. Sheehan (2014) observed that the true generalization is about the possibility of a comitative PP: The reflexive *se disputer* 'argue' patterns with the non-reflexive *correspondre* 'correspond' in taking a comitative PP and allowing PC, while the reflexive *se recontrer* 'meet' is non-comitative and rejects PC. Polish is like French in allowing PC only with symmetric reciprocal verbs (Snarska 2019, 2021). Snarska claims that even PC in English is so restricted, but this is false.

(31) *French*

a. Eric s'est réuni avec ses amis.
Eric SE-is met with his friends
'Eric met with his friends.'

b. Eric voulait [PRO se réunir dans la cuisine].
Eric wanted SE meet in the kitchen
'Eric wanted to meet in the kitchen.'

(32) *French*

a. * Eric s'est embrassé avec Nadine.
Eric SE-is kissed with Nadine
('Eric kissed with Nadine.')

b. * Eric voulait [PRO s'embrasser dans la cuisine].
Eric wanted SE-kiss in the kitchen
'Eric wanted to kiss in the kitchen.'

Interestingly, while Sheehan concludes from these facts that French (and other Romance languages) realizes PC via the CCA, Authier & Reed do not. Following Dimitriadis 2004, they point out a subtle semantic contrast between the collective and the comitative variants. The collective variant in (33a) implies a general quarreling event between the three members of the subject set, "with no specification as to who was in conflict with whom" (p. 381). The comitative variant (33b), however, is more specific: It implies that each a member of the subject set quarreled with the individual specified in the comitative phrase. Crucially, the PC variant (33c) is interpreted as the former and not as the latter. This is mysterious if it contains a covert comitative.

(33) a. Eric, Nadine, et quelqu'un d'autre se sont disputés.
Eric Nadine and someone else SE are argued
'Eric, Nadine, and someone else argued.'

b. Eric et Nadine se sont disputes avec quelqu'un d'autre.
Eric and Nadine SE are argued with someone else
'Eric and Nadine argued with someone else.'

c. [Eric et Nadine]$_i$ se rappellent [PRO$_{i+}$ s'être disputés].
Eric and Nadine SE remember SE-to.be argued
'Eric and Nadine remember arguing.'

At the same time, Authier & Reed point that PC PRO and group names also behave differently under tests of distibutivity, leaving the ultimate analysis of PC PRO open.

Perhaps the strongest argument for the CCA is that PC is not entirely restricted to tensed/attitude complements, as Landau originally proposed. Two experimental studies have put this claim to the test (Pitteroff et al. 2017, Pitteroff & Sheehan 2018). The main result is that both the classification of the matrix predicate (PC or EC) and that of the embedded predicate (comitative or not) affect the acceptability of PC. In French, the combination of [PC,+COM] was rated highest (mean 5.16 on a scale of 0-7), [EC,+COM] was rated second (mean 3.60), and combinations of [-COM] were judged ungrammatical (PC mean 1.02, EC mean 0.84). This indicates a major effect of the commitativity of the embedded predicate, which somewhat compensates for the reluctance of EC predicates to license PC in their

complement. An example of PC in the complement of the EC verb *arrêter* 'stop' is given below.

(34) Context: Pierre and his girlfriend very often argue about politics, like today:
Mais cette fois-ci, Pierre va arrêter de se disputer. *French*
but this time-here Pierre goes stop of SE-to.argue
'But this time, Pierre's going to stop arguing.' **(**mean: 4.03)

Because PC predicates in French do not license PC with non-comitative embedded predicates, Pitteroff & Sheehan conclude that the CCA is the *only* mechanism of deriving PC in the language. The situation is different in German, though, where both the CCA and genuine PC are operative. The combination of [PC,+COM] received a mean acceptability rate of 5.85 on a scale of 1-7, [EC,+COM] received a mean rate of 5.23, and [PC,-COM] received mean rate of 4.38 (Pitteroff et al. 2017). The only combination that was truly rejected was [EC,-COM], whose mean rate was 2.62. Both the nature of the embedding and the embedded predicate has a significant effect, suggesting two paths to PC in German: One based solely on the matrix predicate, as originally proposed in Landau 2000, where PRO is semantically plural; and the CCA, based solely on the embedded predicate, where PRO is singular.

(35) *German*
a. Hans befürchtet, sich den Ball zu oft zuzuspielen.
Hans fears REFL the ball too often to.pass.INF
'Hans is afraid to pass the ball to each other too often.'
([PC; -COM], mean: 4.07)
b. Karl versucht, sich bis Weihnachten wieder zu versöhnen.
Karl tries REFL until Christmas again to reconcile.INF
'Karl tries to reconcile by Christmas.' ([EC; +COM], mean: 5.81)

A similar language-internal split in the mechanism of PC has been proposed for European Portuguese (EP) (Sheehan 2012, 2018a,b). For Sheehan, EC is derived by movement, which leaves a trace as the subject of an *uninflected* infinitive. The CCA may then optionally produce a PC reading. Alternatively, PC may arise in *inflected* complements, which host a *pro* subject at their edge. This *pro* must be referentially nondistinct from the matrix controller, both being probed by the same functional head.[11] Modesto (2010, 2018) made parallel claims for OC (and PC) into inflected infinitives in Brazilian Portuguese (BP). The status of these claims, however, is more contested, as even these authors admit a great deal of variability in speakers' responses to inflected infinitives. While Modesto and Sheehan insist that at least some speakers adhere to an OC interpretation of inflected infinitives (specifically, of desiderative verbs like *prometer* '*promise'* and *persuadir* 'persuade'), Barbosa (2021) argues that careful contextual setting can unearth non-control readings for all speakers (e.g., long-distance or discourse control); perforce, if these are not OC constructions then the issue of PC does not arise.

To summarize, existing evidence suggests that PC cannot be wholly reduced to the CCA, since its distribution and possible interpretations go beyond the limits of the latter. Nevertheless, the CCA remains a viable alternative analysis insofar as it covers data undergenerated by the

[11] For similar dualistic treatments of control, where EC is assimilated to movement and PC to pronominal binding, see Cinque 2006, Constantini 2010 and Grano 2015.

standard analysis of PC, such as (35b). A lingering challenge to the CCA is to explain the peculiar restriction of covert comitatives to nonfinite domains only.

The final aspects of PC that need to be addressed are featural identity and distributivity. As noted above, Landau (2000) maintained that the controller and PRO must be featurally identical in the syntax. This is indeed the picture that emerges from English and many other languages. Consider [number] first. While the controller and PRO may be mismatched for *semantic* number, *syntactic* number must be matched (36a). That this requirement is purely formal is clearly seen in the Catalan example (36b), where the obligatory presence of syntactic plurality on *juntes* 'together' (otherwise a perfectly good modifier in PC complements) renders the sentence ungrammatical (Landau 2000:50).

(36) a. Bill told Sam that he$_i$ was willing [PRO$_{i+}$ to work together/*become partners].
b. *L'Anna li va dir a la Maria que prefereix treballar juntes. *Catalan*
the-Ann Cl told to the Mary that prefers to.work together.PL.F
('Ann told Mary that she prefers to work together')

Turning to [person], a PC PRO often includes the speaker or hearer, but unless the controller is 1st or 2nd person, PRO must bear the 3rd person specification of its controller (Landau 2016a). Note that (37a,b) involve predicate coordination (*to* is shared), so the complement contains a single PRO. This PRO is construed as 1PL but its morphological features are 3PL, which are "blindly" inherited from the controller.[12]

(37) a. They wanted [PRO to prepare themselves and then meet for debate].
Possible reading: *They$_i$ wanted that they$_i$ would prepare themselves and then **we** (= they and me/us) would meet for debate*.
b. *They wanted [PRO to prepare ourselves and then meet for debate].

Nonetheless, several exceptions to this generalization have been documented in the years following Landau 2000, so let us highlight them. In Korean, PC complements may contain modifiers and distributors that are *not* compatible with group names, hence require syntactic plurality (38a) (Madigan 2008a:121). In European and Brazilian Portuguese, inflected complements may display plural inflection under a singular controller (38b) (Modesto 2010, Gonçalves et al. 2014, Sheehan 2018a), and according to Modesto and Sheehan, even person mismatch is allowed, so long as the subset relation of PC is maintained.[13] In German, some speakers allow a singular 2nd person pronoun to control a plural 2nd person PRO (38c) (Pitteroff et al. 2017; note the bound plural reflexive). In Russian, PC complements may host plural-marked floating quantifiers (38d) (Landau 2008), and the same is true in Icelandic (38e) (although PC is only acceptable to a minority of speakers; Sheehan 2018b).[14]

[12] See Landau 2016, 2018 for evidence that ϕ-features on OC PRO are uninterpreted, similar to ϕ-features on bound pronouns (Heim 2008, Kratzer 2009).
[13] Recall, though, that whether or not these are genuine OC constructions is debatable (Barbosa 2021).
[14] (38d,e) display *case independence*, hence are also relevant to the discussion of case-marked PRO, on which there is rich literature; see Andrews 1971, 1976, 1982, 1990, Comrie 1974, Thráinsson 1979, Quicoli 1982, Greenberg 1983, 1989, Greenberg and Franks 1991, Franks 1990, 1995, 1998, Sigurðsson 1991, 2008, Franks and Hornstein 1992, Babby 1998, Babby and Franks 1998, Bondaruk 2004, 2011, Cecchetto and Oniga 2004, Przepiórkowski and Rosen 2005, Landau 2008, Bobaljik and Landau 2009, Boeckx et al. 2010a, Witkoś 2010, Sevdali 2013, Lindert 2016, Jakielaszek 2022.

(38) a. Chelswu$_i$-ka Inho-eykey [PRO$_{i+}$ selo moi-la-ko] mal-ha-yess-ta. *Korean*
Chelswu-NOM Inho-DAT each.other gather-IMP-C tell-do-PST-DC
Lit. 'Chelswu told Inho to (all) gather with each other.'

b. O presidente$_i$ preferiu [PRO$_{i+}$ se reunirem às 6]. *E. Portuguese*
the chair preferred self meet.INF.3PL at.the 6
'The chair preferred to gather at 6:00.'

c. Du$_i$ versprichst mir bitte [PRO$_{i+}$ euch heute abend zu küssen]. *German*
you.2SG.NOM promise.2SG.PRES me please you.2PL.ACC today evening to kiss
'Please promise me that you are going to kiss each other this evening.'

d. Predsedatel' predpočel [PRO$_{i+}$ sobrat'sja vsem v šest']. *Russian*
Chair.NOM preferred to.gather all.DAT.PL at six
'The chair preferred to all gather at six.'

e. Ólaf$_i$ langar [að PRO$_{i+}$ hittast einir]. *Icelandic*
Ólaf.ACC longs to meet alone.NOM.PL.M
Lit. 'Olaf longs to meet all by themselves.'

A particularly striking example of featural mismatch in PC has been documented in Chirag Dargwa (Ganenkov 2023), a language exhibiting finite control like other Nakh Daghestanian languages (see (17)). In this language, PC is expressed with an overt controlled subject, which may be a plural pronoun or a coordinated DP, with one conjunct controlled by the matrix subject.[15]

(39) *Chirag Dargwa*

a. χažat-le$_i$ q'ast barq'ib [nus:a$_{i+}$=cuna š:a d-ač'-i].
K.-ERG decision made 1PL.EXCL(ABS)=only home 1/2PL-come:PF-INF
'Khadijat decided that we (the group that minimally includes the speaker and Khadijat) would come back home *ourselves/alone*.'

b. di-c:e$_i$ q'ast barq'ib-da [du$_i$=ra χažat=ra š:a d-ač'-i].
1SG-ERG decision made-1 1SG(ABS)=ADD K.(ABS)=ADD home 1/2PL-come:PF-INF
'I decided that Khadijat and I would come back home.'

Notice that both the embedded subject and the embedded verb in (39a,b) are plural, mismatching the singular subject/agreement in the matrix clause. In addition, the embedded subject and verb are 1st person in (39a), mismatching the 3rd person matrix controller. Ganenkov argues that there is no genuine agreement in PC (or generally, in OC) between the matrix controller and the embedded subject. Rather, there is a semantic condition of control, namely identity or subset relation between the matrix and the embedded subjects' denotations. Morphological spellout then follows the standard resolution applying to coordination of conjuncts with different features (i.e., two singulars yield a plural, 1st person trumps 2nd/3rd person and 2nd person trumps 3rd person). An even closer analogue is split-bound pronouns (Rullman 2004, Heim 2008), where the ϕ-features of the bound part match those of the binder, the ϕ-features of the free part are inherent, reflecting its denotation, and the overall resolution follows the same procedure (i.e., *Every woman$_i$ I$_j$ date wants us$_{i+j}$ to get married*).

Why do some languages tolerate number mismatch in PC and others not? At the current state of knowledge, we have no systematic explanation. One possibility is that the mechanism

[15] PC with an overt controlled pronoun, displaying featural mismatch with the controller, is also attested in Gã (Allotey & Paul to appear), a language in which PRO is always overt (see (18a)).

expanding PRO's reference in PC feeds syntactic feature resolution in the cases under (39), similarly to its operation on split-bound pronouns, but not in English-type languages (see Landau 2016a for a proposal in this spirit). Another possibility is that feature resolution on PC PRO applies uniformly in all languages, but its point of application is parameterized: If it applies before Spellout, it feeds PF and produces overt featural mismatch with the controller. If it applies after Spellout, only semantic interpretation is affected. Other options surely exist.

Nonetheless, Ganenkov's (2023) that *no* formal ϕ-agreement is required between the controller and PRO, so that all apparent agreement effects are an indirect consequence of semantic resolution, is too strong and in conflict with evidence to the contrary (Rodrigues and Hornstein 2013, Landau 2018). Such evidence comes from epicene, imposter or hybrid nouns, evincing a split between their formal and semantic features. The imposter noun *the present authors* governs either 3rd person (formal) or 1st person (semantic) agreement (40a) (adapted from Collins and Postal 2012:19), and the German hybrid noun *Mädchen* governs either neuter gender (formal) or feminine gender (semantic) agreement (40b) (S. Wurmbrand, p.c.). The features of PRO are detectable on embedded, agreeing reflexives and pronouns, which must be locally bound by PRO.

(40) a. The present authors$_i$ plan [PRO$_i$ to devote themselves/ourselves to ecology].
b. Das Mädchen hat versprochen, [PRO$_i$ sein/ihr Bestes zu geben].
the girl has promised, its/her best to give
'The girl promised to do her best.'

The mere availability of formal, non-semantic agreement in OC complements is an insurmountable obstacle for any attempt to reduce agreement to semantic matching. For semantic matching must make reference to the denotational values of the observed ϕ-features of PRO. However, these values are sometimes uninterpretable, requiring resort to formal agreement.

Related to the issue of Number on PRO but distinct from it is the resistance of PC PRO to distributivity, first observed in Landau 2016a. Thus, the distributor *different* cannot "unpack" the group-denoting PRO in (41a) the way it does *them* in (41b).

(41) a. John$_i$ wanted [PRO$_{i+}$ to visit different sites].
b. John$_i$ wanted them$_{i+}$ to visit different sites.

It is also possible to interpret in these terms Authier & Reed's (2018) finding that only symmetric reciprocal predicates are allowed in PC complements (31)-(32). Precisely those predicates introduce atomic events, immune to distribution. Thus, the symmetric predication *Sue and Paul kissed three times* implies three events of mutual kissing, while the non-symmetric predication *Sue and Paul kissed each other three times* might describe six separate events of asymmetric kissing. The former predicate is allowed in PC complements (with a singular controller), the latter is not.[16] Authier & Reed (2020) argue that the plurality of PC

[16] Pearson (2013:312) and Authier & Reed (2018) claim that even in British English, where group names license distributive objects (i), PC rejects them (ii) (although see Landau 2000:50 for diverging judgments; the matter certainly deserves careful study). If true, this would suggest that the plurality of PC PRO is represented at an even more abstract level than the plurality of group names.

PRO is semantically inactive in other ways, suggesting it exists only on a notional or pragmatic level.

However, things are not that simple for the thesis that PC PRO cannot be distributed. The German examples of the [PC,-COM] type, like (35a), are judged acceptable, although the embedded predicate is non-symmetric. In general, the interaction of PC PRO with distributivity and other "plural properties" across languages is still shrouded in mystery and merits serious investigation.

Relatedly, the relation between syntactic number and distributivity holds in one direction only: Distributivity requires plurality, but not the other way round. (36b) does not involve a distributive reading of PC PRO and is still ruled out because of the number mismatch. While number matching is imposed in the syntax, the ban on distributivity is imposed in the semantics. Both are not universal, raising challenging questions for future studies of PC.

While PC can be modelled in many different ways – via syntactic agreement, lexical entailments or pragmatic implicatures – many of these ways remain descriptive. A true insight appeared in Matsuda 2019, 2021, where a link between PC and the associative semantics of indexical pronouns was proposed. Matsuda's account proceeds in two steps. First, it is noted that the standard semantics of [person] is associative; thus, *we* means "a group including the speaker" and *you*$_{\text{PL}}$ means "a group including the addressee" (rather than "speakers" and "addressees"); see Noyer 1992, Cysouw 2003, Bobaljik 2008, Wechsler 2010. Indeed, this is how indexical features are interpreted within the presuppositional approach to ϕ-features (Heim 2008, Kratzer 2009):

(42) a. $[\![[\text{AUTHOR}]]\!]^{g,c} = \lambda x_e{:}x$ includes the speaker/thinker in c.x
b. $[\![[\text{ADDRESSEE}]]\!]^{g,c} = \lambda x_e{:}x$ includes the addressee in c.x

Second, Matsuda adopts the Embedded Speech Act theory of OC. On this theory, OC PRO is (at some level of representation) an indexical pronoun – 1st person in subject control and 2nd person in object control.[17] Thus, the associative semantics is available *by default* to OC PRO in attitude contexts (reported speech or thought) and requires no special amendments. Problems remain in implementing this insight, as OC PRO displays a different morphosyntactic signature than (shifted) indexicals (see Landau to appear for discussion), but on the conceptual level, the reduction of PC to the associative semantics of indexicals appears to be more explanatory than the alternative accounts.

5. Proxy control

Consider the following two examples in Italian and German, taken from Doliana and Sundaresan 2022 (henceforth, D&S).

(i) The committee met each other in the new hall.
(ii) * The chair wanted to meet each other in the new hall.

[17] On the semantic reduction of OC to embedded speech acts, see Postal 1970, Kuno 1972, Bianchi 2003, Schlenker 2003, 2011, Anand and Nevins 2004, Anand 2006, Baker 2008, Stephenson 2010, Landau 2015, 2018 and Stegovec 2019. On applications of this approach to OC in East Asian languages, see Pak et al. 2008, Madigan 2008a, 2008b, Lee 2009, Seo and Hoe 2015, Sisovics 2018, Matsuda 2019, 2021 and Liao and Wang 2022.

(43) a. Scenario**:** *There is a donkey next to the elementary school. The kids would like to pet it. The teacher asks the farmer if they are allowed to do that.*

La maestra$_i$	ha	chiesto	al	contadino$_j$	[di PRO$_{proxy(i)}$	poter	*Italian*
the teacher	has	asked	to.the	farmer	C	may.INF	

accarezzare l'asino].
pet.INF the donkey
'The teacher asked the farmer for permission (for the kids) to pet the donkey.'

b. Scenario**:** *For an international school trip, the parents are expected to accompany their kids. The parents of one of the students are unable to accompany their child this time. They want their child to still be able to go on the school trip.*

Die	Eltern$_i$	haben	den	Rektor	gebeten, [PRO$_{proxi(i)}$	%(auch)	*German*
the	parents	have	the	principal	asked	also	

ohne	sie$_i$	ins	Ausland fahren	zu dürfen].
without them		in.the	abroad travel.INF	to may.INF

'The parents asked the principal for permission *(for their child)* to go abroad without themselves.'

The reading of interest here falls neither under exhaustive control nor under partial control. The subject of the infinitive in (43a) is understood as *the kids*, and that of the infinitive in (43b) is understood as *their child*. Neither one is a matrix argument, hence both sentences, prima facie, fall outside OC. Nonetheless, D&S argue that at least for some speakers, these are OC examples and not NOC (we return to their arguments shortly).

Descriptively speaking, these so-called *proxy control* cases display a number of characteristics. First and foremost, the controllee (PRO) is understood to be a proxy for the controller in the embedded eventuality, and the controller is understood to be a proxy for the controllee in the matrix eventuality. Second, the matrix eventuality must be one of asking for or granting permission. Thus, proxy control is available with *ask* and *promise* but not with *want* or *hope*. Finally, the embedded eventuality is understood as containing permission modality (*may*), often explicitly but sometimes implicitly. This has the consequence of triggering control shift in many instances of proxy control. Thus, the "controller" of *i*, the anchor for *proxy(i)*, is the subject of *ask* and the object of *promise*; these are the recipients of the permission granted by the canonical controller argument. Nevertheless, as D&S show, control shift is neither necessary nor sufficient for proxy control, and is merely an approximate index of embedded permission modality, the true feature on which proxy control depends.

A striking feature of proxy OC is its relative rarity. While found in Italian and German, it is not available in English. Moreover, the quantitative experiment conducted by D&S revealed no more than 14% proxy OC speakers in German; the rest either rejected proxy control altogether or allowed it only in NOC (see below). Nonetheless, D&S maintain that even as a marginal possibility, proxy OC is grammatically distinct from other varieties of OC. First, it is distinct from metonymic extension, where PRO is metonymically related to the controller (Postal 2004). Unlike proxy OC, metonymic extensions are widely available across languages and speakers, and importantly, are not restricted to permission contexts (44a). Second, it is distinct from partial control, the crucial difference being the possibility of *proxy(i)*$\neq i+$, namely, the proxy set need not include the controller. This has already been shown in (43b), where an embedded pronoun coindexed with the controller does not induce a condition B violation, indicating that the *proxi(i)* set excludes *i*. Standard partial control disallowed it (44b); moreover, standard partial control is not restricted to permission contexts.

(44) a. Sue$_i$ claims [PRO$_{met(i)}$ to be parked on Broad Street].
[PRO = Sue's car]
b. Sue$_i$ intended [PRO$_{i+}$ to meet tomorrow without her$_{j/*i}$].

The more fundamental concern is whether cases like (43) should even count as OC or as NOC. Given that the controller and the controllee can be totally disjoint under proxy control, what would be missed by simply classifying it under NOC? That this must be a real possibility is independently supported by D&S's data. It turns out that 43% of the speakers tested accepted genuine NOC-proxy readings under *ask* and *promise* in German, that is, readings where PRO is a proxy for a *non*-local controller. Nevertheless, D&S maintain that speakers break into four distinct classes as given by the two binary choices [OC/NOC] and [proxy/non-proxy].

Evidence for a distinct class of OC proxy control speakers comes from three sources: Rejection of long-distance control, of strict readings under VP ellipsis and of *de re* readings. Other speakers, classified as proxy NOC speakers, allowed all these interpretations. Yet D&S admit that some speakers had "mixed judgments" (p. 58), rejecting strict readings under VP ellipsis while still accepting non-local control. These puzzling findings might be expected in light of the subtlety of the interpretations being probed and the difficulty in teasing them apart.[18] Strikingly, D&S report that all speakers classified as proxy OC speakers also accepted proxy NOC once an overt morphological marker signaled that PRO's features are distinct from those of its controller. In the Italian example below, *the girls* is a non-local controller, identified as a proxy for the local *our teacher*. The embedded floating quantifier, inflected PL.F, agrees with PRO and indicates that this PRO is indeed coreferent with *the girls*.

(45) Quando noi **ragazz-e**$_{proxy(i)}$ della 4F andiamo in gita, *Italian*
when we girls-PL.F of.the 4F go.1PL in excursion
il nostro maestr-o$_i$ chiede alla receptionist [di PRO $_{proxy(i)}$ poter
the our teacher-SG.M asks to.the receptionist C may.INF
fare colazione **tutt-e** insieme].
do.INF breakfast all-PL.F together
Literal: 'When [we girls]$_{proxy(i)}$ go on a school trip, [our teacher]$_i$ asks the receptionist (for permission) [PRO$_{proxy(i)}$ to all have breakfast together].'

Why does a proxy OC grammar imply a proxy NOC grammar, but not vice versa? In fact, 67% of the German speakers in D&S's experiment were classified as NOC speakers. Perhaps the 14% proxy OC speakers are yet another subclass of the diverse category of NOC speakers, which contains internal pragmatic divisions but maintains a uniform syntax.

The question does not receive an obvious answer in D&S's analysis. In that analysis, OC and NOC complements differ in size; NOC complements project another layer to host a logophoric operator. Yet nothing in the selectional profile of permission-seeking/granting verbs implies the desired asymmetry (i.e., OC selection → NOC selection). A related question is why proxy OC speakers need an overt morphological signal to revert to a proxy NOC parse. D&S simply assume a

[18] To illustrate: Context may favor taking a set of students as a proxy for *i* (their teacher) rather than for *j* (the teacher's wife), but cannot rule out the latter option. Speakers' judgments may then reflect *either* a locality constraint (part of the grammar of OC) *or* the pragmatic flexibility of their PROXY relation.

preference principle to the OC parse. Note that economy cannot favor this choice as the OC and NOC interpretations are non-equivalent.[19]

At this stage, then, the status of proxy control with respect to the OC-NOC distinction remains unclear. If D&S are correct in subsuming (one type of) proxy control under OC, then the OC signature presented in section 2 should be extended along the following lines.

(46) *The OC signature (Proxy control included)*
In a bi-clausal structure [... X_i ... [$_S$ $pron_{f(i)}$ ...] ...], where *pron* is the null or overt subject of the clause S:
a. f = (i) identity; (ii) superset or (iii) proxy
b. X must be (a) co-dependent(s) of S.
c. *i* on *pron* must be interpreted as a bound variable.

(46a-i) corresponds to exhaustive control, (46a-ii) to partial control and (46a-iii) to proxy control. The choice among these options is determined by a complex of lexical, syntactic, semantic and pragmatic factors, and the two non-exhaustive options are further subject to considerable inter-speaker variation. However, for any given control predicate that allows more than one choice, an implicational hierarchy obtains: proxy → partial → exhaustive. That is, exhaustive control is the least marked while proxy control is the most marked.

D&S's syntactic analysis of proxy OC introduces an interpolated null clause between the matrix and the embedded clauses (shaded below), much in the spirit of Sag & Pollard's (1994) analysis of control shift via causative coercion.

(47) [$Marie_i$ asked [$C_{[+wh]}$ PRO_i to [$C_{permission}$ PRO_i leave early]]

While a sequence of Agree operations guarantees the featural identity of the controller and PRO, a postsyntactic rule of semantic extension converts PRO_i to $PRO_{proxy(i)}$.

The analysis in (47) raises two main concerns. First, the intermediate clause lacks a predicate. Consequently, the control relation between the higher and the lower PRO is not grounded in the standard grammar of complement control; it is not even clear what selects the lower clause. Second, the choice of a [+wh] complementizer is motivated by the paraphrase 'Mary asked whether Mary's proxy may leave early' (p. 83). Yet the homonymy of *ask*-as-request and *ask*-

[19] D&S present an additional argument for their postulated distinction between proxy OC and proxy NOC. The argument uses personal taste predicates, whose implicit judge is a perspective-holder. By probing the identity of that judge (for a personal taste predicate positioned inside an infinitive), D&S reason, it is possible to determine whether the judge coincides with the antecedent of PRO or not. If it does, that would be evidence for NOC, since only NOC is sensitive to logophoricity. However, the correlation is not solid. Elsewhere, resolution of the judge does not reliably track the OC/NOC distinction.

(i) That incident persuaded $Bill_i$ [PRO_i to avoid his $tactless_i$ boss as much as possible].
(ii) $Bill_i$ said to $Mary_j$ that [PRO_j to avoiding her $tactless_i$ boss as much as possible] is the best thing she could do.

In (i), both PRO and the judge of *tactless* are anteceded by *Bill*; hence an OC controller *can* be a perspective holder. In (ii), the antecedent of PRO and the judge are distinct; hence a NOC controller *need not* be the judge. Clearly, perspective interacts with control in intricate ways, but it cannot be used as a criterial test for the *type* of control displayed.

as-inquire is an incidental feature of the English vocabulary, absent from many languages. There seems to be no independent evidence, either syntactic or semantic, for the presence of an interrogative layer in proxy control utterances.

An alternative analysis, avoiding these issues while still capturing the fundamental insight that proxy control is linked to permission modality, might simply assume the presence of a null *permission* noun, which takes the infinitive as its complement (see Huang 1989, Landau 2007:295 and Landau 2013:216,fn.53 for suggestions in this spirit). The shifted, subject control reading of *ask*, then, would always involve this null noun; different degrees of "exhaustivity" would emerge from the different ways of resolving the reference of the internal argument of this noun, namely the permissee, which is the controller of PRO. If the implicit permissee is understood as a proxy for the subject, "proxy control" would emerge.

(48) John$_i$ asked me *for* [$_{NP}$ *permission*
a. "Exhaustive control": *to him*$_i$ [PRO$_i$ to leave early]]
b. "Partial control": *to them*$_{i+}$ [PRO$_{j+}$ to leave early]]
b. "Proxy control": *to them*$_{proxy(i)}$ [PRO$_{proxy(i)}$ to leave early]]

Note the scare quotes; on this analysis, all the interpretations reflect an underlying exhaustive control relation between an implicit permissee and PRO.[20]

In sum, proxy control presents a genuine challenge for current conceptions of OC, and merits careful crosslinguistic investigation. At present there are more open questions than answers. While it is understood that permission modality plays a central role in proxy control, it is not clear how it is expressed syntactically (e.g., by a designated C head, by a modal, or by a null noun). The very existence of proxy *OC* as opposed to proxy *NOC* has yet to be established beyond reasonable doubt. Finally, intriguing questions arise concerning the inventory of postsyntactic "semantic extensions" and whether any natural constraints apply to potential mismatches between the featural makeup of PRO and its ultimate referential import.

6. Crossed control

A peculiar construction that has been documented in many Austronesian languages (and *only* in them, so far), displays a crossing between thematic and syntactic positions: The matrix subject position hosts the embedded theme, while the matrix external argument (agent or experiencer) appears syntactically in the embedded clause. This construction, first named "funny" control in Gil 2002 and Nomoto 2008, has been christened as "crossed control" (CC) in Polinsky and Potsdam 2008, and goes by this name ever since. CC has been described and analyzed in Malay/Indonesian (Gil 2002, Nomoto 2008, 2021, Sato 2010, Polinsky and Potsdam 2008, Arka 2012, Berger 2019, Kroeger and Frazier 2020), Sundanese (Kurniawan 2013), Madurese (Davies 2014) and Balinese (Natarina 2018). Polinsky & Potsdam (2008) further cite CC examples in Javanese, Tagalog, Malagasy, Tukang Besi, Tongan and Samoan.

[20] D&S (p. 55) recognize that this analysis, which they label "fake proxy control", must be available for some speakers. Note that the null N analysis remains neutral on the syntactic status of the permissee controller, in line with its regular optionality:

(i) John asked me for permission (to them) to leave early.

A few illustrative examples follow (PV is Patient Voice, sometimes called "Object Voice"; AV is active Voice; note that *-ar-* in (49a) is an infix inside the stem *konci* 'lock').

(49) a. *Sundanese* (Kurniawan 2013: 295)
Panto lab poho teu di-k-ar-onci ku barudak.
door lab forget NEG PV-PL.lock by children
'The children forgot to lock the lab's doors.'

b. *Madurese* (Davies 2014: 371)
Koca rèya è-cacak è-pa-pessa bi' bu Yus ng-angghuy bâto.
glass this PV-try PV-CAUS-break by bu Yus AV-use rock
'Bu Yus tried to break the glass with a rock.'

c. *Indonesian* (Arka 2012: 29)
Dia di-coba di-bunuh (oleh) teman-nya.
he PASS-try PASS-kill by friend-3POSS
'His friends tried to kill him.' (Lit. He was tried to be killed by his friends)

Note that when the matrix subject is animate, the construction becomes ambiguous between CC and NC, in which the matrix subject is construed as the matrix agent/experiencer. In what follows I will ignore potential SC readings of CC examples.

(50) (*Indonesian*: Berger 2019: 62)
Kucing suka [aku ∅-pegang].
cat like I PV-touch
NC: 'The cat likes me touching it.'
CC: 'I like to touch the cat.'

Four analytic questions have been at the center of research on CC:

(51) a. What is the size/category of the CC complement?
b. How is the matrix subject associated with the embedded theme role?
c. How is the matrix external argument role associated with the embedded agent DP (whether bare or inside a *by*-phrase)?
d. How is the voice morphology on the two verbs determined?

While answers differ in details, it is possible to detect broad agreement on some issues – mostly on the answer to (51a), partly on the answer to (51b), and the least on the answer to (51c), the most difficult puzzle in the grammar of CC. Question (51d) has only received scant attention in recent literature, but as we will see, it is tightly connected to the other questions.

Starting with (51a), there is robust evidence that CC complements are reduced clauses, similar to restructuring complements; most proposals take them to be VP/vP/VoiceP projections, lacking any higher functional structure. First, CC complements are semantically untensed and must be construed as temporally simultaneous with the matrix eventuality; in other words, they are a subset of EC complements (see section 4). Second, they reject certain complementizers (Indonesian *untuk*, Sundanese *supaya/pikeun/yén*) that are normally allowed in Standard Control (SC). Third, they are transparent to PP-extraction, unlike SC complements (Davies 2014). Fourth, and now we move on to (51b), the embedded object is case-licensed by the matrix T, indicating that the embedded domain is deficient, lacking the features or structural positions in which direct objects are licensed.

That the embedded theme undergoes A-movement to the matrix subject position, and not Ā-movement to some left-periphery position, is supported by distributional facts. Polinsky & Potsdam (2008) show that like subjects in Indonesian and unlike topics, the fronted theme in CC can be quantificational or non-specific; that it follows polar question particles (topics precede them); that it is available to clefting and depictive modification, subject properties in the language; and that it may occur clause-finally in VOS sentences.

Other than providing an answer to question (51b), the movement analysis is supported by two further facts: (i) The embedded object position must remain empty and cannot host a pronoun; this is different both from SC and from Ā-movement (which presumably should allow resumption, see Cole and Hermon 2005). Thus, in contrast to (50), (52a) only displays NC; (ii) A reflexive contained in the matrix subject may be backward-bound by the embedded agent (52b) – presumably under reconstruction, a hallmark of movement dependencies.

(52) a. *Indonesian* (Berger 2019:63)
Anak$_i$ mau [kamu ∅-peluk dia$_i$].
child want [you.SG hug it]
NC: 'The child wants you to hug it'
CC: *'You want to hug the child'

b. *Sundanese* (Kurniawan 2013:293)
Adi-na sorangan$_{1/*2}$ poho teu di-pang-néanga-an-keun
brother-DEF self forget NEG PV-BEN-AV.seek-ITER-APPL
pa-gawé-an ku Asmawi$_1$.
NOML-work-NOML by Asmawi
'Asmaw$_1$ forgot to find a job for his$_1$ own brother.'

Backward binding in CC is also attested in Madurese (Davies 2014) and Balinese (Natarina 2018).

Concerning the precise category of the CC complement, recent work converges on the VoiceP analysis. Evidently, the embedded verb can carry Voice morphology (PV or PASS; we return below to relevant restrictions), and if this morphology is introduced by a designated head, then a VoiceP projection is implicated. In addition, there is Voice-dependent agreement in CC in certain languages. For example, the plural infix *-ar-* on the embedded verb in Sundanese (49a) tracks the embedded agent (within a *by*-phrase) and not the surface subject. Secondly, Voice-less complements are disallowed in CC. This is, presumably, why unaccusative predicates do not occur in these contexts. Unlike the Patient and Passive voice, in which the agent/causer is represented in VoiceP, unaccusative verbs imply no agent/causer, hence do not project a VoiceP. It is for this reason that they are excluded from CC (Paul et al. 2021).

The hard chestnut of CC studies is question (51c). While in SC the overt controller occurs in the matrix clause and a null controllee occurs in the complement, in CC this situation is reversed. One possibility is that CC is just sub-kind of Backward Control (BC), which displays a similar reversal (see fn. 1). Yet Polinsky & Potsdam (2008) argue that CC is quite different from BC, as analysed in their other works (e.g., Polinsky and Potsdam 2002, Potsdam 2009). Their main point is that there is no silent copy of the embedded agent in the matrix clause, which is why backward binding into the fronted embedded theme is impossible in Indonesian.

(53) surat-nya*i/j mau di-baca oleh semua-orangi. *Indonesian*
letter-3SG want PASS-read by all-person
'Each personi wants to read his*i/j letter.'

(53) appears to be in conflict with (52b), where backward binding was shown to be possible in Sundanese CC. Yet this conflict may be only apparent. Polinsky & Potsdam point out that even in simple clauses in Indonesian, backward binding by a passive agent is excluded (54a). Things are different in Sundanese (54b) (Kurniawan 2013:267), and presumably also in Balinese.

(54) a. surat-nya*i/j di-baca oleh semua-orangi *Indonesian*
letter-3SG PASS-read by all-person
'His*i/j letter was read by each personi.'

b. Adi-na sorangani/*j teu di-pang-néanga-an-keun *Sundanese*
brother-DEF self NEG PASS-BEN-AV.seek-ITER-KEUN
pa-gawé-an ku Asmawii.
NOML-work-NOML by Asmawi
'Asmawii did not find a job for hisi own brother.'
(Lit. Hisi own brother was not found a job for by Asmawii)

Whatever the source of this contrast is, it is directly mirrored by contrast between (53) and (52b). The embedded agent in (52b) can bind the reconstructed reflexive inside the fronted theme, but the embedded agent in (53) cannot bind the reconstructed pronoun inside the fronted theme. Polinsky & Potsdam reason that if CC were indeed modeled as Backward Control, there should have been yet a higher, additional silent copy of the embedded agent phrase, in the matrix [Spec,vP] of (53), to bind the embedded copy of the theme-internal pronoun.

If CC does not reduce to Backward Control, can it be reduced to Raising? This has been the core idea of Polinsky & Potsdam 2008, and more recently, of Jeoung 2020, both of which take CC verbs to be auxiliary verbs. In support of their raising analysis, Polinsky & Potsdam claimed that Indonesian CC verbs cannot be passivized, just as Raising verbs; the same observation has been made for Sundanese (Kurniawan 2013) and Balinese (Natarina 2018). Paul & Vander Klok (2021) and Paul et al. (2021), however, argue that appearances are misleading, and that some CC verbs can occur with passive voice morphology, as in (49c); the reason many CC verbs cannot is due to their morphological deficiency.[21]

However, the response is not fully satisfactory, because the resistance to passive morphology is specifically linked to the CC *construction*; the same verb may appear in the passive voice elsewhere, either in simple transitive clauses or in SC (see Kurniawan 2013:260-261, fn. 56 on Sundanese and Natarina 2018: 164-165 on Balinese). Nomoto (2021) further observes that passive *coba* 'try' is very rare and passive *mau* ''want' and *suka* 'like' are unattested. More importantly, Nomoto claims that double passives like (49c) are not CC at all, as they allow the matrix and embedded agents to be distinct.

Regardless of the unclear status of passivization test, the Raising analysis faces other difficulties. Raising verbs assign no external θ-role, and yet CC verbs like the Indonesian

[21] Kroeger & Frazier (2020) note that many CC verbs are derived intransitives, which do not participate in voice alternations, while others are "pseudo-transitives" that resist the Active and Passive Voice.

mau/ingin ‘want’ do impose selectional restrictions on their understood subject (realized as the embedded agent), as exemplified below (Polinsky & Potsdam 2008:1631).

(55) # kota ini mau/ingin di-hancurkan oleh api *Indonesian*
town this want PASS-destroy by fire
‘Fire wants to destroy this town.’

Polinsky & Potsdam propose that CC verbs are semantically akin to subject-oriented adverbs, which induce a thematic interpretation even without assigning a θ-role (e.g., *Madonna was willingly interviewed by Barbara*, where the willingness can be ascribed to either argument). This unusual treatment is forced by the conjunction of the Raising analysis and the presence of selectional restrictions as in (55).

A more radical solution, still within the Raising approach, is available if one denies the judgment in (55). This is the tack taken by Jeoung (2020). Jeoung shows that the Indonesian verbs *mau* ‘want’ and *suka* ‘like’ are ambiguous between a subject-experiencer reading and an auxiliary, purely temporal reading. She then argues (p. e166) that “CC” is a misnomer of the latter usage co-occurring with lexical verbs in the passive/patient voice.

(56) *Indonesian*
a. Siti mau di-cium oleh ibu.
Siti mau PASS-kiss by mother
‘Siti is about to be kissed by Mother.’ (Aux *mau* = ‘about to’)
b. Pemain Arema suka di-tonton oleh supporter-nya.
player Arema suka PASS-watch by supporter-POSS
‘Arema players are often watched by their supporters.’ (Aux *suka* = ‘often’)

Jeoung provides distributional data supporting the categorial ambiguity of these CC predicates, and further suggests that other CC predicates are amenable to a similar analysis (e.g., *coba* ’try’/‘can’).

However, Jeoung’s proposal has been critiqued as insufficient: Even if *some* CC constructions with *some* verbs are illusory and really reduce to Raising past auxiliaries, not all of them can be so analyzed (Nomoto 2021, Paul and Vander Klok 2021). Paul & Vander Klok report that most of their Indonesian informants reject the auxiliary (modal) sense of *coba* ‘try’ in CC. Furthermore, they cite ample CC data with inanimate matrix subjects, where the auxiliary reading is inaccessible and the result is semantically infelicitous (as in (55)). Finally, they question Jeoung’s distributional evidence, arguing that even in positions reserved for auxiliaries, on Jeoung’s account, a genuine CC reading persists.

At the theoretical level, CC generated a range of theoretical analyses; the heart of the disagreement is how to address the main puzzle, question (51c): The non-local association of an embedded DP with the matrix agent/experiencer θ-role. We have already mentioned the Raising analysis and its limitations. Let us briefly look at its main alternatives.

Sato (2010) proposed that the shared agent is represented as the passive prefix (in Passive Voice) or as the cliticized pronoun (in Patient Voice). Either one will be local to the matrix CC verb (hence, eligible to θ-assignment), if the embedded verb undergoes head-movement and adjoins to it. The trouble with this analysis, as Polinsky & Potsdam (2008) pointed out, is that

the two verbs are syntactically separable: One can be elided without the other, and negation can intervene between them, as seen in (57) (but see Kroeger & Frazier 2020 for sceptical remarks).

(57) anak-anak mau tidak di-belikan sepeda oleh ibu. *Indonesian*
children want NEG PASS-buy bicycle by mother
'The mother wants to not buy bicycles for the children.'

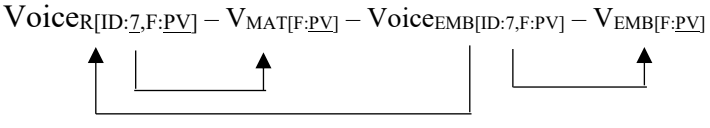
Like Sato, Nomoto (2008, 2011) and Nomoto and Wahab (2012) assume that arguments may be assigned multiple θ-roles. The embedded agent in [Spec,vP] is locally c-commanded by the matrix verb and thus can be assigned a second agent/experiencer role from the CC verb. Alternatively, the embedded theme, raised to the embedded [Spec,vP], may receive that role, resulting in the SC interpretation. A variant of this analysis is developed in Kurniawan 2013 and Natarina 2018: The matrix external θ-role is "passed down successively" (from the matrix v to the embedded Voice to the embedded v), and then assigned to the embedded agent (Kurniawan) or to the passive prefix (Natarina).

The leading analysis of CC in recent work, and the most promising one, takes it to be an instance of *Voice Restructuring*, VR (see Wurmbrand 2014b, Wurmbrand and Shimamura 2017 for the foundations of this approach), as represented in Berger 2019, Kroeger and Frazier 2020, Paul et al. 2021 and Bryant et al. 2023 (BKW). On the latter and most recent version of this analysis, CC is placed within the larger typology of restructuring constructions, together with Long Passive and Backward Control. What all these constructions have in common is a complementation structure of the form [$_{\text{VoiceP}}$ Voice$_1$ [$_{\text{vP}}$ v$_1$ [$_{\text{VP}}$ V$_1$ [$_{\text{VoiceP}}$ Voice$_2$ [$_{\text{vP}}$ v$_2$ [$_{\text{VP}}$ V$_2$]]]]]], where one of the Voice heads is valued with contentful grammatical features, affecting its shape and interpretation, and the other Voice head is initially unvalued, or defective, and acquires its content by VR, which is just an instance of Agree (Voice$_1$,Voice$_2$).

Specifically in CC, BKW assume that the embedded Voice head is specified [F:Passive/Patient Voice], while the matrix Voice is initially unvalued. Other than this feature, which spells out morphological voice, Voice heads bear an index feature [ID], whose numerical value tracks the reference of the external argument, and possibly (in some languages, like Sundanese and Chamorro) ϕ-features. Whereas active Voice associates its [ID] value with an overt agent, the agent in non-active voices is merely a free variable. Importantly, this property allows it to be shared under VR with the [ID] of a higher/lower Voice head.

The various manifestations of CC are derived as follows (underlined features are valued by Agree; directionality of arrows indicates valuation from valued to unvalued features). Note that Voice values are represented on Voice but exponed on V, via a separate Agree dependency.

(58) a. *Matching VR (Patient Voice; (49b))*

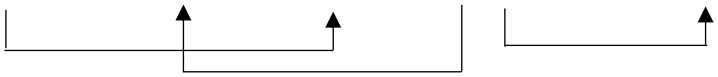


b. *Matching VR (Passive Voice; (49c))*

$\text{Voice}_{R[ID:\underline{7},F:\underline{PASS}]} - V_{MAT[F:\underline{PASS}]} - \text{Voice}_{EMB[ID:7,F:PASS]} - V_{EMB[F:\underline{PASS}]}$

c. *Mismatching VR (49a)*

$T/Asp_{[\alpha]} - \text{Voice}_{R[ID:\underline{7}]} - V_{MAT[F:\underline{\alpha}]} - \text{Voice}_{EMB[ID:7,F:PASS]} - V_{EMB[F:\underline{PASS}]}$



CC is derived by "backward" VR, which amounts to downward Agree between the Voice heads. The uniform result of agreement between the [ID] features is the sharing of the external arguments – that is, the "control" interpretation. This is how the VR analysis answers question (51c). Importantly, argument sharing here is achieved by the syntax and not through λ-binding.

In the matching cases (58a,b), morphology follows suit in that the Voice feature ([F] above) is also shared between the two Voice heads and valued on the matrix one. In the mismatching case, Voice_R is defective and bears no [F] feature. The result is that the [F] feature of V must probe higher to be valued, targeting Asp or Tense and acquiring their values. BKW stress that Austronesian mismatching CC does not arise by "default" Voice (which would be Active), nor by absence of Voice, which is not an option in finite clauses. So-called "bare" forms are really matching in the syntax but morphologically deficient. This, then, provides a preliminary answer to question (51d).[22]

In conclusion, CC is fundamentally different from the other noncanonical control constructions discussed in this survey in that it does not involve a referential dependency between two nominals. Rather, it involves a single nominal, occurring inside the complement, being shared by two predicates, as in other complex predicate constructions (restructuring, secondary predication, etc.). Nonetheless, it does involve a syntactic dependency between two functional heads (a high Voice_R and a low $\text{Voice}_{PASS/PV}$) that track the index of that nominal. Agreement between these two heads guarantees that their voice morphology is nondistinct (matching or "bare").

VR is currently the leading approach to CC. Its major appeal lies in the synthesis it offers between CC, Restructuring, Long Passive and possibly even Backward Control (see Pietraszko 2021 for such an analysis); differences among these constructions boil down to the featural makeup of the paired Voice heads and to the location of the deficient one (high or low).

Nonetheless, empirical and theoretical questions remain. First, is "Passive-under-Passive" a genuine option of realizing CC or is it a different construction altogether (as Nomoto (2021) maintains)? Second, how can we better distinguish between the lexical and the auxiliary variants of CC verbs, a matter that caused much confusion in the past? Third, why is it that

[22] The precise details of VR are somewhat different in related works. Berger (2019) assumes (problematically) that argument sharing is achieved by ϕ-Agree. Paul et al. (2021) propose that default Voice arises from spelling out VP before Voice is introduced, which is not possible in CC, because the embedded valued Voice would be inaccessible to VR inside a spelled-out VP.

many or most CC verbs cannot appear in the passive voice even on their non-auxiliary guise? Finally, is the mechanism of [ID]-agreement theoretically viable? Indices (unlike ϕ-features) are traditionally taken to be semantic entities with no morphological expression; allowing syntax to manipulate and value them might seem like entrusting it with the job of semantics. Might there be a way of executing VR that preserves the syntactic component of Voice agreement ([F]-valuation in (58)) but re-assigns the index-sharing to the semantics? These issues will have to be addressed by future research on CC.

7. Conclusion

The variety of OC constructions is greater than what previous research supposed, but not completely unconstrained. At their core, all OC constructions follow the same format. Setting aside radical restructuring (including crossed control), which does not involve a syntactic dependency between two *nominals*, any OC dependency displays the following signature.

(59) *The OC signature*
In a bi-clausal structure [... X_i ... [$_S$ $pron_{f(i)}$ ...] ...], where *pron* is the null or overt subject of the clause S:
a. f = (i) identity; (ii) superset or (iii) proxy
b. X must be (a) co-dependent(s) of S.
c. *i* on *pron* must be interpreted as a bound variable.

Reduced to its essence, OC is the grammar's method of highlighting the status of an embedded subject as a variable bound from the immediately higher clause. Only there is not just one method of doing so, as we have learned. First, the controller itself, X, may be implicit, producing so-called *implicit control*, a well-known possibility not discussed in this survey (see Landau 2007). Then the controllee may vary in form – PRO, overt pronoun, or possibly a full DP, as in Backward Control. Finally, the referential relation itself may vary between identity, subset and (possibly) a proxy relation.

On the empirical side, a number of challenging phenomena have drawn much attention in recent years: Finite control, controlled pronouns, partial control, proxy control and crossed control. It seems that, without exception, intensive research has done to each of these phenomena what it normally does: It showed them to be incredibly richer and more nuanced than initially suspected. This evolution is made evident by the fact that we no longer speak of *one* kind of partial control, or *one* kind of crossed control, or *one* kind of controlled pronouns, etc. The more we learn about these phenomena, the more we realize how they are integrated with other grammatical systems, a multiplicity that explains much of language variation.

In these concluding remarks, let me list the main challenges we still face in the study of control, in the hope that future research will focus its attention on their resolution.

(60) *Current challenges to the study of control*

a. **Finite control**: What determines whether a language allows or disallows finite OC? How central is the category *subjunctive* to characterizing finite OC? What is the ultimate status of the OC-NOC generalization? Why does agreement block OC in attitude complements, and why does this restriction apply in some languages but not in others?

b. **Overt PRO**: What demands the nullness of PRO in the general case and why is this demand lifted in certain languages? Why does the overtness of PRO depend on focus (or pitch accent) in some languages but not in others?

c. **Partial control**: What is the best analysis of PC? Is it registered in the syntax or only in the semantics? Why does PC PRO resist distributivity? If null comitatives are real, why are they restricted to certain contexts (control complements) and certain languages only?

d. **Proxy control**: What is the precise empirical scope of this phenomenon? Why is it restricted to modality of *permission*? What accounts for its rarity? Is it truly divided between OC and NOC or is it just one kind of NOC?

e. **Crossed control**: What is the range of permissible morphological mismatches between the Voice heads that undergo Voice Restructuring? Is the mechanism of argument sharing responsible for the OC construal encoded in syntax or in semantics?

No doubt, substantive answers to these questions will not only advance our understanding of control but introduce novel questions and challenges in their turn. This, however, is only for the better.

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