

# The anaphoric semantics of partial control

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Partial control (PC) is the phenomenon that instead of identity there is a subset relation between the controller and the controllee in a control construction, as in (1), where the embedded predicate *gather* requires a plural subject, but the controller is singular.<sup>1</sup>

- (1) a. The chair<sub>*i*</sub> wanted PRO<sub>*i+*</sub> to gather at six.  
b. The chair<sub>*i*</sub> preferred PRO<sub>*i+*</sub> to gather at six.  
c. The chair<sub>*i*</sub> agreed PRO<sub>*i+*</sub> to gather at six.

PC has received considerable interest, at first from a syntactic perspective (cf. in particular the work of Landau), more recently also in semantics [2, 7, 9]. PC touches on important theoretical questions such as how the controller-controllee relation is established and what the denotation of a control complement is. Moreover it raises new questions such as why there is no ‘superset control’ (controller  $\supset$  PRO) or why there is no partial raising [7].

The semantic analyses in [2, 7, 9] all make PC unexceptional and directly allowed by the semantics e.g. by having the control verb introduce an embedded subject which is existentially quantified and relates to the controller via a subset relation rather than equality [7]. Such approaches are at odds with the oft-made observation that PC is a marked, sometimes marginal option that requires contextual support. This paper offers a new analysis that accounts for this observation by assimilating PC to bridging in anaphoric resolution. The approach is formalized in an extended version of partial, compositional DRT (PCDRT) [3].

**Context-dependency of PC** PC requires a contextually salient plurality, such as the one primed by *chair* in (1), to be felicitous. For example, the second sentence of (2) can only mean ‘He wants to have lunch with me’, as the context does not provide other suitable ways of constructing the plural antecedent for PRO that the complement requires.

- (2) John is lonely. He wants PRO to have lunch together.

Here, PRO scopes over the attitude: the plurality denoted by PRO cannot exist only in John’s desire worlds (‘John wants that there is a plurality *y* such that John is part of *y* and *y* have lunch together’). On the other hand, this *can* happen whenever the context provides such an intensional plurality, as in modal subordination (3).

- (3) John is looking for a group of elves. He wants PRO to have lunch together.

On the most natural reading of (3), the elves only exist in John’s belief worlds and so PRO scopes under the attitude. On the specific reading of the first sentence (entailing the existence of elves), the second sentence must also get a specific reading. This shows that the resolution of PRO is context-dependent, contradicting theories such as [7] that introduce the embedded subject via existential quantification – such theories will have to fix the scope of the existential quantification relative to the attitude in the lexical entry of the control verb (or assume an otherwise unmotivated ambiguity).

**The antecedent of PRO.** Control theory states that PRO has a grammatically imposed antecedent. Which is this antecedent? There are two main candidates: the matrix controller itself, and the ‘center’ of the embedded attitude (in ‘centred world’ approaches). The latter option directly yields the obligatory *de se* reading of PRO and is adopted by many (e.g. PRO denotes the attitude center [8, 9]; PRO is anaphorically resolved to the attitude center [4]). However, this does not sit well with the fact that PRO’s  $\phi$ -features reflect the semantics of its matrix antecedent, not that of the attitude center, cf. (4) from [8].

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<sup>1</sup>Some predicates allow PC and others like *begin*, *manage*, *try* do not. I follow [1, 2] in assuming that verbs that disallow PC are restructuring predicates. Hence, all and only PC verbs instantiate true control structures.

(4) John hopes PRO to be a woman and he hopes to buy {himself/\*myself/\*herself} a new car.

PRO's  $\phi$ -features in fact reflect the matrix antecedent even when they contradict PRO's own plural semantics in PC.<sup>2</sup> Therefore PC PRO cannot license a plural anaphor (5).

(5) The chair preferred to meet (\*each other) at six.

Finally, (6) is problematic for theories that take PRO to be anaphorically dependent on (or directly refer to) the attitude center, as pointed out in [5].

(6) Molly wants PRO to accept a paper by herself.

PRO binds a reflexive that is interpreted (on the relevant, 'mistaken identity' scenario) *de re* and hence must scope out of the attitude, showing that its binder PRO also scopes out of the attitude. This means the antecedent is the matrix controller, not the embedded attitude center.

**The referential relationship between PRO and its antecedent** How can we reconcile PRO's fixed, grammatically imposed antecedent with its variable, context-dependent reference? We suggest that control theory fixes the antecedent but not the anaphoric relation: under certain conditions, PRO, like other pronouns, can relate to its antecedent through relations other than identity. For overt pronouns, these conditions are identified by [6] as 1. inferability 2. uniqueness 3. use of semantically available information only 4. support of discourse coherence by anaphoric link. These strong contextual conditions constrain PC too and directly predict that 'superset control' is impossible: controller  $\supset$  PRO would fail uniqueness.

**Formalization in PCDRT** Simplifying somewhat, PCDRT models anaphora via a function  $\mathcal{A}$  taking anaphoric drefs to antecedent drefs. For bridging we also need a function  $\mathcal{C}$  taking drefs and their antecedents to a coreference relation (by default, identity). These functions are inferred by non-monotonic reasoning over semantic representations with unresolved anaphora, but can also be specified grammatically e.g. in binding and control, yielding (7) for *want*.

(7)  $\lambda P.\lambda x.[|want_x([x_1|\mathcal{A}(x_1) = x]; P(x_1))|]$

$x_1$  is PRO's dref and  $want_x$  is the usual relation between an individual  $x$  and a proposition. The equation  $\mathcal{A}(x_1) = x$  achieves three things: 1. it fixes the antecedent of PRO; 2. by doing this inside the scope of the attitude, it forces *de se* in a similar way to the identity acquaintance relation used in [5]; 3. it disallows strict readings of PRO in ellipsis (details in the full paper). Since  $\mathcal{C}$  is left unspecified, we get exactly the context-dependent but constrained leeway in interpreting PRO that PC calls for. In sum, this analysis of PRO as a pronoun with a grammatically imposed antecedent correctly predicts the anaphoric semantics of partial control. Moreover, since raising does not involve a pronoun we predict there is no partial raising. Finally, the analysis vindicates Landau's claim that PC shows that control complements are propositions.

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<sup>2</sup>'Agreement trumps semantics' has an analogue in overt bound pronouns, cf. *We all sometimes think we are the only person in the world* (Sauerland apud [8]).