Two Mechanisms to Derive Partial Control — Evidence from German

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Abstract

In this paper, we discuss the results of the first large-scale experimental investigation of Partial Control (PC) in German. The results show that Partial Control is indeed available in the language, pace claims to the contrary in the literature. Moreover, they support the existence of two different mechanisms to derive Partial Control in German. While one mechanism is licensed by properties of the matrix predicate (True PC; Landau 2000, 2004, 2015, Pearson 2013, 2016, a.o.), the other mechanism is dependent on the ability of the embedded predicate to occur with a comitative PP. A PC-reading is obtained in the latter case when the comitative is not overtly expressed (Fake PC; Hornstein 2003, Sheehan 2012, 2014).

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Marcel Pitteroff, Artemis Alexiadou and Silke Fischer*

1 Introduction

The proper analysis of Partial Control, a subtype of obligatory control (OC; see, e.g., Landau 2000, 2013, Sheehan 2012, Pearson 2013), has been a matter of some debate since the original systematic investigation of this phenomenon in Landau 2000. Unlike Exhaustive Control (EC; (1a)), where the controller exhaustively determines the reference of the controllee, Partial Control (PC; (1b)) is characterized by the controller being a (proper) subset of the covert infinitival subject's denotation (indicated by the subscript *i+*). Wherever such a "mismatch" arises, we speak of a PC-reading (2).

(1) a. Peter_i tries [PRO_i to open the door]. (EC)
b. Peter_i hopes [PRO_{i+} to gather in the town hall]. (PC)

(2) **PC-Reading**
In an OC-context, the denotations of controller and controllee are in a subset relation.

A PC-reading can be forced in cases where the controller is semantically singular, while the embedded predicate is collective or reciprocal (as in (1b)); we restrict our discussion to these cases for the sake of clarity.

Analyses of the phenomenon in (1b) run the gamut from purely syntactic (e.g., Landau 2000 et seq.) to essentially pragmatic ones (e.g., Duffley 2014). Within the former class of approaches, differences exist with respect to the question of which factor it is that licenses a PC-reading. Landau (2000, 2004, 2013, 2015), as well as Pearson (2013, 2016), for example, argue that it is properties of the matrix predicate that determine the acceptability of PC. Alternatively, Hornstein (2003), Boeckx, Hornstein and Nunes (2010) see the embedded predicate as the decisive factor. This has led to two competing analyses of the phenomenon at hand.

The reason it has proven so difficult to arrive at firm conclusions in the domain of PC is due in part to its peripheral nature, and the correlated fact that the empirical picture is far from clear. Many speakers have been reported to reject PC altogether; furthermore, even amongst those who accept it, the patterns are more complex than has been previously assumed (see, e.g., White and Grano 2014).

In this paper, we provide the first large-scale experimental investigation of PC in German, where prior discussion of the phenomenon is sparse and characterized by conflicting empirical claims (see, e.g., the judgments provided in Wurmbrand 2003 and Stiebels 2007, 2015). We address the question of whether German has PC at all, and whether it is the matrix or the embedded predicate which licenses a PC-reading. In other words, we investigate and compare the adequacy of approaches such as Landau's and Hornstein's for German. We argue that our results support the view that both mechanisms of deriving a PC-reading exist in this language.

The paper is organized as follows: In Section 2, we outline the two analyses whose underlying assumptions are relevant for our study, i.e., Landau's (2000 et seq.) analysis within the Agree-model (C-control), and Hornstein's (2003) covert comitative analysis. Based on Sheehan (2012, 2014), we will also present prior evidence that both mechanisms are, in fact, available cross-linguistically — although in discrete environments — and we will sketch the situation for German as it has been discussed in the literature. Section 3 describes our experiment and its results. In Section 4, we discuss these results and provide a theoretical interpretation. Section 5 concludes.

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2 True and Fake Partial Control

2.1 The Relevance of the Matrix Predicate

Landau (2000) splits control predicates into Exhaustive Control (EC) and Partial Control (PC) predicates, with only the latter allowing a PC-reading. This is illustrated in (3), where the embedded collective predicate *meet* forces a PC interpretation.

(3) a. John$_i$ *hopes/plans/decides/wants* [PRO$_{i+}$ to meet at 5]. (PC predicates)
b. *John$_i$ *tries/manages/begins* [PRO$_{i+}$ to meet at 5]. (EC predicates)

He argues that this split correlates with the temporal independence of the infinitival clause. Thus, while PC predicates select (semantically) tensed infinitives, the infinitival complement of an EC predicate is temporally anaphoric, and independent temporal modification as in (4b) is therefore unacceptable.

(4) a. Yesterday, John hoped to go to the movies (the next day).
b. Yesterday, John tried to go to the movies (*the next day).

Broadly speaking, Landau argues that the control relation between controller and controllee is indirect in the case of PC predicates, as it is mediated via the embedded C-head (C-control). By contrast, control with EC matrix predicates involves a direct Agree-relation with PRO (PRO-Control). It is the indirect relationship of the former which allows a semantic plural/mereology feature to be inserted in cases of C-control only, thus giving rise to the PC-reading. Although his analysis is more complex than described here (see Landau 2000, 2004 for details), what is most relevant for our purposes is the proposal that characteristics of the matrix predicate determine whether or not a PC-reading is available (see also Pearson 2013, 2016, Landau 2015, where it is argued that the crucial property of the matrix predicate is whether it is a (canonical) attitude predicate). In (5), we provide a list of example PC and EC predicates, taken from Landau's work.

(5) a. **EC predicates** *dare, manage, make sure, bother, remember, avoid, forget, fail, force, begin, start, continue, have, need, may,…*
b. **PC predicates** *glad, regret, like, hate, surprised, believe, think, suppose, say, claim, deny, want, prefer, arrange, hope, afraid, plan, offer, decide, intend, promise, wonder, ask, know,…*

In the next section, we turn to an analysis that contrasts with Landau's perspective, in that it takes the embedded predicate to be the core factor in bringing about a PC-reading.

2.2 The Relevance of the Embedded Predicate

From the perspective of the movement theory of control (MTC; Hornstein 1999), the existence of PC is problematic: if the controller and the controllee are (distinct) links in one movement chain, they are not expected to differ. In other words, only exhaustive control should ever be possible. In order to capture sentences such as (3a), Hornstein (2003) and Boeckx, Hornstein and Nunes (BHN; 2010) propose that a PC-reading is the consequence of a covert comitative PP in the embedded clause (see Dimiatridis 2004, Siloni 2012 for a discussion of comitatives in the context of reciprocal sentences). Their evidence is drawn from the examples in (6) and (7) (BHN's (144) and (145)):

(6) a. The chair met/applied together for the grant *(with Bill).
b. The chair hoped to meet/apply together for the grant.
(7) a. *The chair sang alike/was mutually supporting with Bill.
b. *The chair hoped to sing alike/be mutually supporting.

These data are taken to illustrate a correlation between a predicate's ability to license comitative PPs (*meet* and *apply together* do, *sing alike* or *be mutually supporting* do not) and the availability of a PC-reading: only if the embedded predicate allows a comitative is a PC-reading possible.

Thus, Hornstein and BHN propose that PC is not a phenomenon dependent on the control relation per se, but is instead an epiphenomenon of the type of embedded predicate. This view allows them to maintain full referential identity between controller and controllee in a PC-sentence, since the apparent mismatch comes about via a comitative PP — which, however, remains covert. Their analysis is represented in (8) (we use PRO instead of traces/copies for the sake of consistency).

(8) **Covert Comitative Analysis**
[The chair$_i$ hoped [PRO$_i$ to meet pro$_{\text{COMITATIVE}}$ at 6.]]

Since the control relation in (8) is one of exhaustive control, we label this type of analysis *Fake PC* (see Sheehan 2012). This contrasts with the analysis of *True PC*, where there is a true mismatch between controller and controllee at some grammatical level (e.g., in the syntax as in Landau's work above, or in the semantics as in Pearson 2013, 2016).

The two analyses sketched in this and the preceding section were originally intended as competing analyses of the same phenomenon. Yet, Sheehan (2012) has shown that there is some evidence that both mechanisms are in fact necessary (i.e., both True and Fake PC exist), and that there is cross-linguistic as well as language-internal variation with respect to which of the two mechanisms is employed. We present this evidence in the next section.

2.3 Cross-Linguistic and Language Internal Variation

In the case of English, the analysis of PC as involving a covert comitative seems unlikely (see Landau 2007, 2016, and Sheehan 2012 for discussion). However, Sheehan (2012, 2014) shows that in many Romance languages, the correlation between a comitative-licensing embedded predicate and the acceptability of a PC-reading holds. In other words, while English has (only) True PC, e.g., European Portuguese or French seem to have Fake PC. This is illustrated in (9) and (10) for European Portuguese (EP; data taken from Sheehan 2014).[1]

(9) a. O Pedro reconciliou-se com a Maria.
the Pedro made.up-SE with the Mary
'Pedro made up with Maria.'
b. O Pedro está farto de dicutir com a Maria. Queria reconciliar-se.
the Pedro is sick of argue.INF with the Mary wants make.up-SE
'Pedro is sick of arguing with Maria. He wants to make up.'

(10) *A Maria tem saudades do filho. Queria escrever-se (com ele) todos os dias.
the Maria has missings of.the son wants write-SE with him all the days
'Maria is missing her son. She wants to write with him all the time.'

In (9), the predicate *reconciliar-se* can combine with a comitative PP (9a), and the corresponding PC-sentence in (9b) is acceptable. The predicate *escrever-se*, in contrast, is non-comitative, and PC as in (10) is blocked.

Crucially, this correlation between a comitative-licensing predicate and the acceptability of PC in EP is restricted to uninflected infinitives. With inflected infinitives, on the other hand, a PC-reading is possible even with a non-comitative embedded predicate like *kiss* (11b), in contrast to its uninflected counterpart in (11a) (the percentage sign indicates inter-speaker disagreement).

(11) a. *Adoro a Maria mas preferia não me beijar em público (com ela).
love the Maria but preferred not SE.1SG kiss.INF in public with her
b. %Adoro a Maria mas preferia não nos beijarmos em público.
love the Maria but preferred not SE.1PL kiss.INF.1PL in public
'I love Maria, but preferred not to kiss in public.' (Sheehan to appear: 29; (41))

The availability of PC with inflected infinitives is thus not dependent on the comitativity of

[1]See Landau (2016) for arguments that these are not in fact cases of Fake PC, i.e., a PC-reading mediated via a covert comitative.

the embedded predicate. Sheehan (2012) therefore takes the data above to suggest that EP has both True *and* Fake PC; however, the two mechanisms apply in distinct environments (see Sheehan's work for an account). We then arrive at the following cross-linguistic picture for PC.

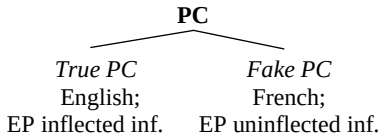

Figure 1: Subtypes of PC.

Thus, given this complexity, we cannot simply assume that the same analysis of PC should apply to even typologically related languages. Furthermore, it is also possible that a language disallows PC altogether. In previous literature, German has sometimes been classified as such a language.

2.4 Partial Control in German

PC in German is an understudied phenomenon. In the most detailed investigation of control phenomena in German (Stiebels 2007, 2015), it is argued that naturally occurring PC-examples are rare, and that the phenomenon is much more restricted than in English, if available at all. Thus, Stiebels (2007, 2015) claims that PC is only available with certain propositional attitude predicates (*befürworten* 'approve', *ablehnen* 'decline', etc.), and that even examples with such predicates are strongly degraded. If this is true, a question arises as to why German differs from English in the availability of PC. Yet, other researchers have reported that at least some of their informants do in fact accept PC-sentences like (12) (data and judgments taken from Wurmbrand 2003).

(12) a. Er_i beschloss/erwog/plante [PRO_{i+} sich im Schloss zu versammeln].
he decided/contemplated/planned REFL in-the castle to gather.INF
'He decided/contemplated/planned to gather in the castle.'

b. $Hans_i$ beschloss/erwog/plante [PRO_{i+} sich gemeinsam zu bewerben].
Hans decided/contemplated/planned REFL together to apply.INF
'Hans decided/contemplated/planned to apply together.'

Given this disagreement regarding the empirical situation, along with the complexity added by the potential existence of two forms of PC, we decided to conduct an experimental investigation of PC phenomena in German (see, e.g., Sorace and Keller 2005, den Dikken, Bernstein, Tortora and Zanutti 2007, Sprouse, Schütze and Almeida 2013 for the helpfulness of experimental methods in situations of such disagreement over peripheral phenomena). Our goal was to address the following three questions: (i) Does German allow PC in the first place? (ii) If German has PC, does it have True or Fake PC, i.e., does it pattern with English or French?, and (iii) Does German provide further evidence for the split into EC vs. PC predicates? In the following section, we report the details of our task and its results.

3 The Experiment

In order to investigate the availability and type of PC in German (i.e., whether it has True or Fake PC), we conducted an acceptability judgment task which assessed the effects of both the matrix and embedded predicate. Each of our two factors of interest (matrix vs. embedded predicate) had two possible levels: EC vs. PC matrix predicates, and comitative (+COM) vs. non-comitative (–COM) embedded predicates. Our test sentences were thus of four possible types: (i) [EC; +COM]; (ii) [EC; –COM]; (iii) [PC; +COM]; and (iv) [PC; –COM].

3.1 Stimuli

Our matrix predicates consisted of 11 PC and 4 EC predicates drawn from the list in Landau

(2000).[2] Our embedded predicates were primarily taken from Wiemer and Nedjalkov (2007), and comprised 10 predicates that allow a comitative construal, and 10 which do not. These predicates are listed in (13) and (14), respectively.

(13) **Factor #1: Matrix Predicate ([PC/EC])**
a. PC: *hassen* 'hate', *beabsichtigen* 'intend', *bedauern* 'regret', *vorhaben* 'plan', *behaupten* 'claim', *vorgeben* 'pretend', *vorschlagen* 'propose', *beschließen* 'decide', *bevorzugen* 'prefer', *hoffen* 'hope', *befürchten* 'be afraid'
b. EC: *zwingen* 'force', *versuchen* 'try', *anfangen* 'begin', *vermeiden* 'avoid'

(14) **Factor #2: Embedded Predicate ([±COM(itative)])**
a. [+COM]: *sich versöhnen* 'reconcile', *sich beraten* 'confer', *sich versammeln* 'gather', *gemeinsam singen* 'sing together', *gemeinsam erledigen* 'get sth. done together', *sich treffen* 'meet', sich vertragen 'make up', *sich verkrachen* 'quarrel with each other', *sich austauschen* 'to swap ideas', *zusammen vorbereiten* 'prepare together'
b. [–COM]: *sich begrüßen* 'greet', *sich anlächeln* 'smile at e.o.', *sich zuspielen* 'pass (the ball) to e.o.', *sich gegenseitig zuhören* 'listen to e.o.', *sich auseinanderleben* 'drift apart', *sich umarmen* 'hug', *sich gegenseitig verprügeln* 'beat e.o. up', *sich gegenseitig unterstützen* 'support e.o.', *sich küssen* 'kiss', *sich liebkosen* 'caress e.o.'

The embedded predicates are all collective/reciprocal and require a semantically plural subject in their non-comitative use. They thus force a PC-reading in the context of a singular controller.

Since it is well-known that the acceptability of a PC-reading also depends on the contextual saliency of a plurality that includes the controller (Landau 2000, 2013, 2015, White and Grano 2014, a.o.), all test items were preceded by a context which allowed the speaker to identify such a plurality. As most of our embedded predicates are inherently reflexive, we also constructed this context in such a way that it forced both the controller and the controllee to be interpreted as third person. This allowed us to avoid a potential person mismatch which would have had effects on the morphological form of the embedded reflexive pronoun (see Sheehan 2012, 2014 for examples of such a mismatch). Potential number mismatches, as discussed in Modesto 2010 for Brazilian Portuguese, are unproblematic here, as the 3rd person reflexive is syncretic for number in German.

Each of the 11 PC and 4 EC predicates from (13) was then combined with one +COM embedded predicate and one –COM embedded predicate, for a total of 30 test sentences in 4 combinations (Table 1). A sample sentence with context is provided in (15).

[PC; +COM]	**[PC; –COM]**	**[EC; +COM]**	**[EC; –COM]**
11 items	11 items	4 items	4 items

Table 1: Test stimuli divided into 4 groups.

(15) Kontext: Peter ist seit langem Single und hat keine guten Chancen bei Frauen. Gestern jedoch hatte er ein Date und seine Kollegen wollen wissen, was passiert ist. Da Peter nicht zugeben möchte, dass er der Frau nicht näher gekommen ist, behauptet er, sie hätten sich umarmt.
Context: Peter has been single for quite some time now, and his chances with women are not really good. Yesterday, however, he had a date, and his colleagues at work want to know what happened. Because Peter doesn't want to admit that nothing happened, he claims that they hugged.
Peter gibt vor, sich umarmt zu haben.
Peter pretends REFL hugged to have
'Peter pretends to have hugged.'

[2]The difference in number was due to the generally smaller number of (clear) EC predicates, especially in German. (See, e.g., Wurmbrand 1999 for the claim that some of Landau's EC predicates are actually raising predicates. We excluded those from our study.) Furthermore, our primary concern was the availability of (True) PC in German. This imbalance is unproblematic for the type of statistical analysis we employed (a linear mixed effects model).

The 30 test stimuli were divided into two groups of 15, and distributed across two questionnaire versions in a Latin Square design. All 15 matrix predicates occurred once in each questionnaire. The distribution was counterbalanced such that each questionnaire version contained each matrix or embedded predicate in only one of its combinations in (16). Because there were an odd number of PC predicates, Questionnaire 1 contained 4 [PC; –COM] predicates and 7 [PC; +COM], while Questionnaire 2 contained the reverse. In addition to the 15 test items, each questionnaire contained 25 fillers with varying degrees of (experimenter-judged) acceptability, for a total of 40 items to be judged in each questionnaire.

3.2 Participants and Procedure

The questionnaires were given to linguistic students at the University of Stuttgart and the University of Leipzig, as well as a number of non-linguists. All were self-reported native speakers of German. In total, 102 participants completed the task (49 for questionnaire version 1, and 53 for version 2). Each participant completed only one version of the questionnaire.

The questionnaire was administered in German, and performed online via Qualtrics (www.qualtrics.com). Participants were first asked for their native language, and then were instructed to rate each of the 40 sentences according to their degree of acceptability in the accompanying context. Participants were asked to treat the sentences as oral productions, in order to exclude a lower rating due to accidental spelling or punctuation mistakes. They were also asked to take the context preceding each sentence into consideration, and to rely on their own intuitions when making the judgments. After each context and sentence, a rating was made by sliding a marker along a continuous scale ranging from 1 to 7, with 1=unacceptable and 7=perfectly acceptable. Order of item presentation was randomized individually for each participant. 10 sentences were visible on each page and participants were only able to move on to the next page once they had rated all 10 sentences. Questionnaires were completed in 15–20 minutes on average.

3.3 Results[3]

Judgments for test items were analyzed via a two factor linear mixed effects model, implemented in R (version 3.2.3) using the *lme4* package (Bates, Maechler and Bolker 2012). The ratings from 1 to 7 were used as the dependent variable. Fixed effects were Matrix Predicate (EC vs. PC), Embedded Predicate (+COM vs. –COM), and their interaction, and levels of the fixed effects were sum coded using [+1/–1] coding. The random effects structure included only random intercepts for participants and items; random slopes were not included, as they did not significantly contribute to model fit (following Bates, Kliegl, Vasishth and Baayen 2015). P-values for the fixed effects were calculated via likelihood ratio tests comparing models with and without the relevant predictor. All means and standard errors (SEs) from these means are calculated based on the full set of unaveraged data points.

One [PC; –COM] item (*behaupten* ‘claim’ and *anlächeln* ‘smile at’) was excluded from further analysis, as the provided context did not force a reciprocal interpretation of the target sentence. For all other items, participants used the scale as expected: unacceptable fillers received a mean rating of 1.37 (standard error (SE): 0.04), fully acceptable fillers a mean rating of 6.53 (SE: 0.04), and fillers with intermediate acceptability elicited an average rating of 3.71 (SE: 0.07).

Least squares means from the linear mixed model and SEs from these least squares means are summarized in Table 2 and illustrated in Figure 2 (error bars correspond to the SEs in Table 2).

	+COM	**–COM**
EC	5.23 (0.40)	2.62 (0.40)
PC	5.86 (0.25)	4.38 (0.26)

Table 2: Mean acceptability of test stimuli by Matrix and Embedded Predicate (SE in parentheses).

[3]For space reasons, we only present the core results and their interpretation. For a fuller discussion of the study as well as the results, the reader is referred to Pitteroff, Alexiadou, Darby and Fischer to appear.

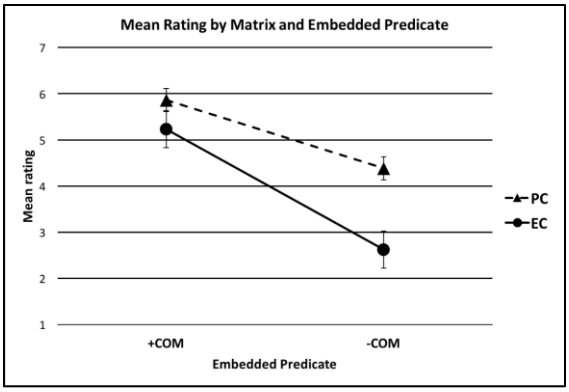

Figure 2: Mean acceptability by Matrix and Embedded Predicate.

The mixed effects model revealed a significant main effect of Matrix Predicate (Estimate: 0.60, SE: 0.16, t = 3.71, p < 0.001). Sentences with PC predicates received overall higher ratings than sentences with EC predicates. A significant main effect of Embedded Predicate also emerged (Estimate: –1.02, SE: 0.16, t = –6.36, p < 0.0001). Sentences involving an embedded comitative predicate (+COM) were thus judged more favorably than sentences where the embedded predicate did not license comitative PPs (–COM). Finally, the interaction between the two factors approached significance (Estimate: 0.28, SE: 0.16, t = 1.73, p = 0.07). In order to understand this trend, we conducted Tukey-adjusted pairwise comparisons of the least squares means of the four groups (from Table 2), comparing each group to each of the other groups. The results of these tests are reported in Table 3. Least squares means are ordered from most to least acceptable, and the means of groups assigned the same letter do not significantly differ from one another.

Group	Letter	Least Squares Mean (SE)
PC; +COM	A	5.86 (0.25)
EC; +COM	A B	5.23 (0.40)
PC; –COM	B	4.38 (0.26)
EC; –COM	C	2.62 (0.40)

Table 3: Results of Tukey-adjusted pairwise comparisons.

As in Figure 2, the comparisons reveal that sentences with both PC matrix predicates and [+COM] embedded predicates were judged to be the most acceptable overall. In contrast, we find that the [EC; –COM] group behaves markedly differently from the other three groups. Thus, items which contained EC predicates and an embedded non-comitative received the lowest ratings, and were found to be significantly less acceptable than the other three groups. Notably, when the sentences contained similar non-comitative predicates embedded under PC predicates (i.e., [PC; –COM]), they were rated significantly better. This is exemplified in (16).

(16) a. Harald hat angefangen, sich zu begrüßen. [EC; –COM]
Harald has begun REFL to greet.INF
'Harald has begun to greet each other.' (item mean: 1.73, SE: 0.16)

b. Hans versucht, sich den Ball zuzuspielen. [EC; –COM]
Hans tries REFL the ball to.pass.INF
'Hans tries to pass the ball to each other.' (item mean: 2.57, SE: 0.29)

c. Hans befürchtet, sich den Ball zu oft zuzuspielen. [PC; –COM]
Hans fears REFL the ball too often to.pass.INF
'Hans is afraid to pass the ball to each other too often.' (item mean: 4.07, SE: 0.33)

Thus, the general trend we find in the interaction is that while non-comitative [–COM] embedded predicates elicit decreased acceptability overall as compared to comitative [+COM] predicates,

this effect is somewhat stronger when the matrix predicate is of the EC type, with [PC; –COM] sentences judged to be more similar to their [+COM] counterparts in terms of acceptability.

4 Discussion

The results of our study suggest that PC in some form does indeed exist in German. At least three different types of sentences with a controller-controllee mismatch were judged to be much more acceptable than deviant fillers (arithmetic mean: 1.37), and were rated higher than the halfway point of our 1 to 7 scale. PC readings in German are thus neither limited to a handful of propositional attitude predicates, nor are they "hardly acceptable".

In terms of the mechanisms responsible for these PC readings in German, we find evidence for the availability of both True and Fake PC. Evidence for the former can be found in the ratings of sentences in the [PC; –COM] group, whose embedded predicates do not allow a comitative construal and thus cannot be analyzed as involving a covert comitative (i.e., Fake PC). Although it is true that sentences of this group generally elicited more intermediate ratings (Least squares mean: 4.38), and were significantly worse than corresponding PC sentences with an embedded comitative, they too were judged more favorably than both the unacceptable fillers and the corresponding sentences with EC matrix predicates ([EC; –COM]; least squares mean: 2.62). They thus pattern with sentences of more intermediate acceptability, e.g., certain filler sentences involving marked, but acceptable constructions like passives of reflexive verbs (Schäfer 2012), or long passives of restructuring predicates (Wurmbrand 2003). Along with the main effect of matrix predicate, the significantly higher ratings of this group as compared to similar sentences with EC predicates also supports the existence of a split between EC and PC predicates in German, such that only the former allow True PC.

In addition to potential cases of True PC, however, our study also revealed a high degree of acceptability for sentences containing an embedded comitative predicate ([PC; +COM], Least squares mean: 5.86; and [EC; +COM], Least squares mean: 5.23). These results support Hornstein's (2003) claim that the type of embedded predicate is also a relevant factor in the construal of a PC-reading. Furthermore, the relative acceptability of sentences with EC predicates when combined with an embedded comitative ([EC; +COM]) — in contrast to the [EC; –COM] group — strongly suggests that Fake PC is an available mechanism in German. Once the embedded predicate is changed into a non-comitative, acceptability decreases significantly:

(17) a. Der Trainer hat vermieden, sich zur 2. Nachbesprechung auf dem
the coach has avoided REFL to.the 2nd debriefing on the
Trainingsgelände zu versammeln. [EC; +COM]
training.ground to gather.INF (item mean 5.75, SE: 0.25)
'The coach avoided gathering on the training ground for the second debriefing.'

b. Hans versucht, sich den Ball zuzuspielen. [EC; –COM]
Hans tries REFL the ball to.pass.INF
'Hans tries to pass the ball to each other.' (item mean: 2.57, SE: 0.29)

Thus, whatever mechanism underlies the relative acceptability of PC with a non-comitative, its application is restricted to PC-type matrix predicates (Landau 2000, 2004, 2013, 2015, Sheehan 2012, 2014, Pearson 2013, 2016, a.o.); this therefore suggests that higher acceptability in the [EC; +COM] sentences is in fact due to the embedded comitative. This thus makes an even stronger argument for the existence of Fake PC than the data discussed in Sheehan (2012, 2014). Sheehan notes that Fake PC in EP or French is nevertheless restricted to PC-type matrix predicates (18).

(18) *O Pedro conseguiu reunir-se hoje de manhã.
the Pedro managed.3SG meet.INF-SE.3 today of morning
'Today, Pedro managed to meet in the morning.' (Sheehan 2012: 9, (17))

Due to the PC-type matrix predicate, instances of Fake PC in EP or French could still in principle be treated as cases of True PC, under the assumption that the underlying mechanism is somewhat more restricted than in English. The higher acceptability of the [EC; +COM] group as opposed to

non-comitative sentences with the same EC matrix predicates in our study blocks an analysis of the former in terms of True PC, leaving Fake PC as the only option (see Pitteroff, Alexiadou, Darby and Fischer to appear for more evidence that these cases cannot be treated as True PC).

We expect this pattern of results — in which both PC and +COM(itative) predicates increase acceptability — if we assume that German has two mechanisms to bring about a PC-reading: True PC, which involves a mechanism that applies in the context of PC-matrix predicates, and Fake PC, which builds on a mechanism restricted to comitative predicates. In the case of the [EC; –COM] sentences, neither mechanism can apply, whence the low acceptability of this class in our study.

If German does indeed have both mechanisms available, then it is important to note that sentences belonging to the [PC; +COM]-group are potentially ambiguous between True and Fake PC, since the context for the application of both mechanisms is met. Our study does not allow any firm conclusions with respect to which mechanism is involved in the derivation of these sentences; we therefore leave this to future research (see, e.g., Landau 2016 for tests that potentially distinguish True and Fake PC). It is interesting to note, however, that this group of sentences were found to elicit the highest overall ratings across the different types of PC sentences in our study. This suggests that the availability of multiple mechanisms for resolving the controller-controllee mismatch may have some kind of additive effect on acceptability.

The availability of True and Fake PC over the different types of target sentences is summarized below, along with the least squares mean of the ratings for each sentence type.

	+comitative	**Least squares mean**	**–comitative**	**Least squares mean**
EC predicate	✓Fake PC ×True PC	5.23	×Fake PC ×True PC	2.62
PC predicate	✓Fake PC ✓True PC	5.86	×Fake PC ✓True PC	4.38

Table 4: Subtypes of PC in German.

5 Conclusions

We provided the first large scale experimental investigation of Partial Control in German. This investigation was designed to address the following three questions: (i) Does German allow PC in the first place? (ii) If German has PC, does it have True or Fake PC, i.e., does it pattern with English or French?, and (iii) Does German provide further evidence for the split into EC/PC predicates? The results of our study suggest a positive answer to all three questions. Although PC-sentences were somewhat marked (rated lower than 7), they were significantly more acceptable than, e.g., fully unacceptable filler sentences. Furthermore, the significant main effect of matrix predicate supports the existence of a split in control verb type along the lines suggested in Landau (2000 et seq.), whereby the presence of a PC predicate improves the acceptability of a PC-reading. With respect to question (ii), our study strongly suggests the existence of two mechanisms to derive such readings: True and Fake PC. In that regard, our study provides striking evidence in favor of the latter mechanism, as sentences involving an EC-type matrix predicate were judged as acceptable only if the embedded predicate also allowed a comitative construal.

A number of open questions remain. For example, the nature of the actual mechanisms that underlie both True and Fake PC is still unclear. Is there a syntactic moment involved in the former (as suggested in Landau 2000, 2004, and Sheehan 2012), or is it purely semantic (as in Pearson 2013, 2016)? Is Fake PC mediated via a covert comitative as suggested by Hornstein (2003)? If so, what are the licensing conditions for such a covert comitative, as it is clearly unavailable in simple finite clauses? What decides which mechanism is available in a language? We should like to end with a call to arms: Our study has shown how experimental investigations can shed new light on grammatical phenomena whose language-internal and cross-linguistic status is unclear. Studies such as the one presented in this paper are therefore particularly suited to address questions such as the last one, and should be replicated to further our understanding of partial control.

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