Hierarchy effects in copular constructions: The PCC corner of German*

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1 Introduction

- *Empirical observation:*
  German copula constructions exhibit **hierarchy effects**:

(1) *Person hierarchy*

  a. Ich bin er.
     I   am he
     'I am him.'

  b. ?*Er ist ich.
     he is I
     cf. 'He is me.'

(2) *Number hierarchy*

  a. Sie sind er.
     they are he
     'They are him.'

  b. ?*Er ist sie.
     he is they
     cf. 'He is them.'

- *Proposal:*
  These effects arise in the same environments as other hierarchy phenomena, e.g.: PCC configurations (Romance), inverse constructions (Algonquian), Agent Focus (Mayan), and DAT–NOM patterns (Icelandic).

  ➡ What they have in common: **multiple accessible NPs in the domain of a single agreement probe**

  (see Béjar and Rezac 2003; Anagnostopoulou 2005; Adger and Harbour 2007; Nevins 2007; Preminger 2014)

- In this talk, we...

§2: Present the German data, and summarize experimental support for the existence of these effects.

- We show that these hierarchy effects are distinct from so-called "NP2 agreement" documented for German and other languages.

  (see e.g. Moro 1997; Den Dikken 1998; Heycock 2012; Béjar and Kahnemuyipour 2017)

  ➭ Under "assumed identity" readings (below), hierarchy-violating configurations like (1b) and (2b) are simply ineffable.

§3: Drawing on insights from the PCC literature, we propose an account of the German hierarchy effects.

- Hierarchy effects arise when an NP with an *unmarked* feature value intervenes between the probe (licenser) and a nominal with a *marked* feature, as in (4):

Hierarchy effect configurations:

(3) GOOD:
    [Probe^0 [NP$_{[+\mathcal{F}]}$ ... [... NP$_{[\pm\mathcal{F}]}$]]]

(4) BAD:
    [Probe^0 [NP$_{[-\mathcal{F}]}$ ... [... NP$_{[+\mathcal{F}]}$]]]

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§4: There is an important difference between PCC effects and German copular constructions:

　∗ While German shows both *person* and *number* effects, PCC is crucially only about *person*.

　∗ There is no "Num-CC" (Nevins 2011).

⇨ We propose a principled reason for this difference, which also explains the absence of Num-CC effects without resorting to ontological differences between person and number features.

§5: Cross-linguistic predictions of our account along with some preliminary results.

§6: Conclusion.

Plan: ☐ Hierarchy effects • ☐ PCC • ☐ Person vs. number • ☐ Predictions

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2 Hierarchy effects in copular constructions

2.1 Copula constructions background

- There is growing interest in agreement patterns in copula constructions—see Béjar and Kahnemuyipour 2017 for a recent overview.

- *Agreement:*
  German is one of a number of languages which exhibit "NP$_2$-agreement": in certain constructions, rather than agreeing with the superficial subject (NP$_1$), the copula agrees with the linearly second NP (NP$_2$).

(5)　*NP$_1$ agreement — Predicational construction*

　a.　Du　　　bist　　das Problem.
　　　you.NOM　be.2SG　the　problem
　　　'You are the problem.'

　b.　*Du　　　ist　　das Problem.
　　　you.NOM　be.3SG　the　problem

(6)　*NP$_2$ agreement — Specificational construction*

　a.　Das Problem bist　　du.
　　　the　problem　be.2SG　you.NOM
　　　'You are the problem.'

　b.　*Das Problem ist　　du.
　　　the　problem　be.3SG　you.NOM

- *Inversion:* Much existing work analyzes the German example in (6)—known as a *specificational* copula construction—as involving *inversion* (e.g. Heycock 2012), as in (7):

(7)　[T^0 [$_{\text{PredP}}$ *du* [Pred^0 *das Problem*]]]

- Inversion explains why NP$_2$ agreement is possible in (6a)...

- But in order to *exclude* agreement with NP$_1$ (6b), we also need to rule out the structure in (8), in which the base positions of the two NPs are reversed and T^0 agrees with *das Problem*.

(8)　*[T^0 [$_{\text{PredP}}$ *das Problem* [Pred^0 *du*]]]

- At least two possibilities have been articulated:

  1. *Semantic:*
     In sentences in which one NP is referential (*du*) and the other denotes a description (*das Problem*), the referential element must be construed as the specifier of PredP (Caroline Heycock p.c.; also Moro 1997);

  2. *"Maximize agreement"*:
     T^0 must agree with whichever NP is featurally more marked, regardless of its structural position, articulated for Persian and Eastern Armenian by Béjar and Kahnemuyipour (2017).

- **We propose a third possibility:** (8) incurs a *hierarchy violation* (here *3>2), akin to certain types of PCC constructions.

  – While our account does rule out (6b), and is independently needed to capture the hierarchy effects we describe below, other factors may still be at play (Appendix A).

2.2 Hierarchy effects in "assumed identity" configurations

- Here we investigate so-called "assumed identity" constructions (see Heycock 2012 and B&K), in which DP_1 is assigned the role or place of DP_2 (e.g. assigning roles in a play, a party game, or dream scenarios).

- These are useful because they are *sufficiently semantically asymmetric* to reveal the underlying subject–predicate relation.

  ⮡ While the sentences in (5) and (6) above (*You are the probem~The problem is you*) are truth-conditionally equivalent, the role assignment *I am him* is truth-conditionally different from *He is me*.

➠ *Key observation:*
In exactly these constructions, hierarchy effects appear.

  – [Part > 3] is grammatical (9a), but [3 > Part] is ungrammatical (9b).

    ⮡ German copula constructions thus exhibit hierarchy effects akin to the (weak) PCC.

  – We also observe a number hierarchy effect: [PL > SG] is possible (10a), whereas [SG > PL] is not (10b)

(9)　*Person hierarchy*

　a.　Ich bin er.
　　　I　am　he
　　　'I am him.'

　b.　?*Er ist ich.
　　　he is I
　　　cf. 'He is me.'

(10)　*Number hierarchy*

　a.　Sie sind er.
　　　they are　he
　　　'They are him.'

　b.　?*Er ist sie.
　　　he is they
　　　cf. 'He is them.'

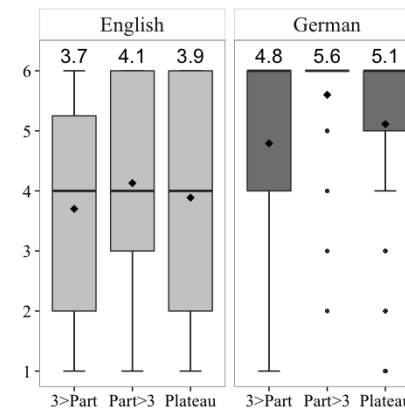## 2.3 Experimental evidence

2.3.1 Design

- *Materials:*
"Assumed identity sentences" like (11) with systematic manipulation of person/number of the two NPs. As a context, each item was preceded by a role-playing background.

(11)　a.　(*pointing at you, then at your friend John*)
　　　　　You are him.

　　　b.　(*zeigt auf dich, dann auf deinen Freund Karl*)
　　　　　Du bist er.

- *Controls:*
Uncontroversially ungrammatical copular clauses with agreement that matches neither NP (*You am him*).

- *Task:*
Sentence rating on 6-point Likert scale ('1': completely unacceptable; '6': completely acceptable)

- *Participants:*
English experiment: 23 participants
German experiment: 15 participants

2.3.2 Results

(12) *Effects of person hierarchy*　　(13) *Effects of number hierarchy*
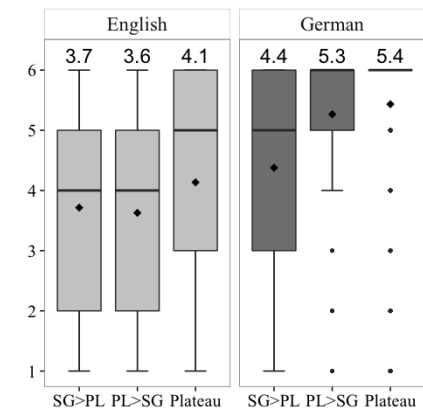
- *Analysis:*
Cumulative link mixed model with *Language, Person hierarchy, Number hierarchy* and their interactions as fixed effects; full random-effects structure; see Coon, Keine, and Wagner to appear.

- **Person hierarchy:**[1]
  - 'Participant > 3' significantly better than '3 > Participant'
    ($p < 0.001$)
  - This contrast was larger in German than in English ($p < 0.01$)

- **Number hierarchy:**
  - 'Plural > Singular' significantly better than 'Singular > Plural'
    ($p < 0.001$)
  - This contrast was larger in German than in English ($p < 0.001$)

2.3.3 Consequences

- Evidence for person and number hierarchy effects in German
  - ➲ *SG > PL
  - ➲ *3 > Participant

- No effect of '1 > 2' vs. '2 > 1'. This parallels the 'weak PCC'.

- However: Hierarchy violations are much better (mean: 4.4) than controls (mean: 1.4). This could be a grammaticality illusion (Wagers et al. 2009).

Plan: ☑ Hierarchy effects ● ☐ PCC ● ☐ Person vs. number ● ☐ Predictions

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3 A PCC account of copular constructions

Proposal:

hierarchy effects in German copula constructions arise due to the same factors proposed to cause hierarchy effects in a variety of other constructions cross-linguistically:

➽ *two accessible NPs in the domain of a single ϕ-probe*.

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[1]Interestingly, we also found that English shared with German the preference for Part > 3 over 3 > Part. Notably, however, this effect was significantly smaller than in German. This effect may reflect a pragmatic preference for encoding a participant argument rather than a 3rd person argument as the subject, given the inherent availability (and topicality) of the participants of the discourse. There was no effect of SG > PL vs. PL > SG in English.

- Following the work of Béjar and Rezac 2003, 2009; Anagnostopoulou 2005; Adger and Harbour 2007; Nevins 2007; Preminger 2014, and others, our account derives hierarchy effects from independent principles—
  - ➪ The hierarchy itself has no independent status in the grammar.

- We focus first on the German *person hierarchy* effects.

- These mirror conditions governing the combinations of direct and indirect object clitics in what is known as the "weak PCC" in languages like Catalan (see Bonet 1991, discussed in Nevins 2007).
  - Weak PCC bans 3rd person indirect object clitics on the presence of 1st or 2nd direct object clitics.
  - In other words, assuming that these clitic combinations reflect an underlying structure in which IO>DO: *3>1 and *3>2

(14) *Weak PCC in Catalan (Bonet 1991, 179)*

   a. * A en Josep, **me li**   va recomenar la Mireia.
        to the Josep, 1ACC 3DAT recommended   the Maria
        intended: 'She (Mireia) recommended me to him (Josep).'

   b. * A en Josep, **te li**   va recomenar la Mireia.
        to the Josep, 2ACC 3DAT recommended   the Maria
        intended: 'She (Mireia) recommended you to him (Josep).'

- Generalizing across PCC and copular environments:

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(15) *Generalized weak PCC*
      In a configuration in which $DP_1 > DP_2$, if DP_2 is $1^{ST}/2^{ND}$-person, then DP_1 must also be $1^{ST}/2^{ND}$-person.

- Putting it all together:

	DP_1	>	DP_2
PCC	indirect object	>	direct object
Copulas	subject	>	predicate
*	3RD-person	>	$1^{ST}/2^{ND}$-person

- Our account of German copula constructions draws on recent literature on PCC effects.

- *Ingredients:*

  1. **Features**
     1st and 2nd person DPs bear the feature [+Part(icipant)], whereas 3rd person DPs are [–Part(icipant)]. The feature [+Part] is marked (e.g. Harley and Ritter 2002).

  2. **Licensing**
     A version of the Person Licensing Condition (PLC) in (16) requires [+Part] to be licensed by entering into an Agree relationship with a probe (Preminger 2016, adapted from Béjar and Rezac 2003).

     > (16) *Person Licensing Condition*
     > A [+Part] feature on a DP <u>that is a viable agreement target (as far as case, etc. is concerned)</u>, <u>and for which there is a clausemate person probe</u>, must participate in a valuation relation.

     ➯ Underlined parts added from the simpler version in Béjar and Rezac 2003 by Preminger (2016), and relevant below!

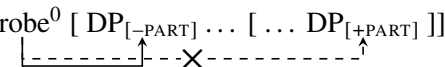 3. **Contiguous Agree**
     A single head may agree with more than one DP (*Multiple Agree*), as long as the resulting Agree dependency satisfies *Contiguous Agree* (17); see Hiraiwa 2001; Anagnostopoulou 2005; Nevins 2007.

     > (17) *Contiguous Agree*
     > Agree in a marked feature across an unmarked intervener is prohibited.

- *Consequence: Hierarchy-violating configurations:*
  Contiguous Agree prevents Agree in the feature [+Part] over a DP bearing [–Part], correctly ruling out hierarchy-violating structures like (1b) above (repeated in (18b)), shown in (18a).
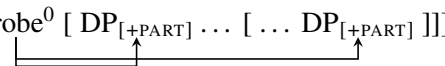
(18)   *3 > Participant:*[2]

    a.   *[Probe^0 [DP$_{[-\text{PART}]}$ … [… DP$_{[+\text{PART}]}$]]]

    b.   ?*Er ist ich.
        he is I
        intended: 'He is me.'

- *Plateau configurations:*
  In a grammatical "plateau" configuration with two [+Part] DPs, the agreeing probe can target features of both DPs without violating (17), as in (19).
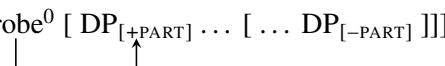
(19)   *Participant > Participant:*

    a.   [Probe^0 [DP$_{[+\text{PART}]}$ … [… DP$_{[+\text{PART}]}$]]]

    b.   Du bist ich.
        you are I
        'You are me.'

- *Hierarchy-obeying configurations:*
  Finally, in hierarchy-obeying configurations (i.e., Part > 3, in (20b)), the probe agrees with DP$_1$ in [+Part] and stops; but since [–Part] features require no licensing per (16), ungrammaticality does not arise.

(20)   *Participant > 3:*

    a.   [Probe^0 [DP$_{[+\text{PART}]}$ … [… DP$_{[-\text{PART}]}$]]]

    b.   Ich bin er.
        I   am you
        'I am you.'

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[2]We assume that both DPs in the German copula construction are generated internally to a small clause, and that the agreeing Probe schematized in (18)–(20) is finite T^0.

➼ This system accounts for both weak PCC effects and German copula constructions—both configurations in which two DPs are in the domain of a single agreeing probe.

- *German vs. English:*
  It also provides a rationale for why English does *not* show hierarchy effects:

  - In German, both DP_1 and DP_2 are *nominative*, and nominative DPs are accessible agreement targets in German.
  - In English, DP_2 (the predicate nominal) is marked with accusative case and hence invisible to the agreeing verbal head (Bobaljik 2008).
  - Because the PLC requires only *accessible* DPs to be licensed, no violation arises (see discussion in Preminger 2016).

Plan: ☑ Hierarchy effects • ☑ PCC • ☐ Person vs. number • ☐ Predictions

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4 Number features and the absence of "Num-CC"

4.1 Extending the account to number features

- The similarities between weak-PCC and German copula person hierarchy environments make it easy to extend any working PCC account to copulas—in this case, *Contiguous Agree + Person Licensing Condition*.

- We now turn to the effects of the *number hierarchy* from (2) above:
  - *SG > PL
  - (all other combinations acceptable)

- A similar account to the above is available if the feature calculus and licensing conditions above are extended to number features, as in (21).

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(21) *Feature Licensing Condition*
A marked feature $\mathcal{F}$ on a DP <u>that is a viable agreement target</u> <u>(as far as its case, etc. is concerned)</u>, <u>and for which there is a</u> <u>clausemate $\mathcal{F}$ probe</u>, must participate in a valuation relation.

- See also Baker 2011 for a variant of the PLC in which licensing is required for all marked features.

- *Consequence:*
  Under the assumption that [+PL] is marked, and the ɸ-probe may license number features, then SG > PL configurations are immediately ruled out as violations of FLC, just as in the person configurations above.

- As with person, this hierarchy effect is limited to copula constructions in German because it is only in these constructions that we find two nominative DPs, both visible to the agreeing probe.

4.2 Why is there no "Num-CC"?

- *An important question:*
  While person restrictions in ditransitive constructions are well-documented, there do not appear to be similar restrictions with respect to number features.

  - ⇨ There is no "Number Case Constraint" in double-object clitic configurations (Nevins 2011).
  - In light of the German facts and our account, it is not a priori clear why we find number effects in copulas but not in ditransitives.

➼ *Proposal:*
The crucial difference between German copula constructions and PCC-inducing ditransitive structures is that *only the latter induce clitic doubling*.

- Our account relies on three independently-motivated proposals.

  1. Person and number are separate probes (e.g., Béjar and Rezac 2003), π^0 and $\#^0$, respectively.

  2. $\#^0$ is universally located higher in the tree than π^0 so that π^0 will always probe first (Béjar and Rezac 2003; Preminger 2011).

  3. Finally, we adopt proposals of Anagnostopoulou (2003), Preminger (2009), and others that clitic doubling renders the doubled DP invisible to subsequent operations.

- *Ditransitive constructions:*
  Clitic doubling of an indirect object as a result of Agree with π^0 removes it as an intervener, clearing the way for subsequent Agree between $\#^0$ and the direct object.

  (22) $[_{vP}\ \#^0\ [\ \pi^0\ [_{ApplP}\ \boxed{DP_{IO}}\ [_{VP}\ \boxed{DP_{DO}}\ ]]]]$ = *Ditransitive PCC*
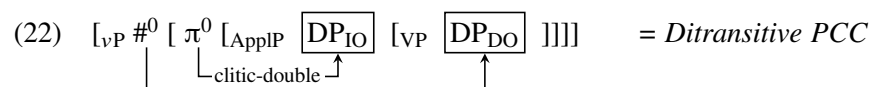
  clitic-double

  - PCC configurations always involve clitic doubling—PCC effects are crucially absent in ditransitives which involve only full DPs.
  - ⇨ The indirect object will thus never cause intervention for number agreement with the direct object, deriving the absence of "Number Case Constraint" effects.

- *Copula constructions:*
  Since German lacks clitic doubling, Agree between π^0 and DP_1 in copula constructions does not render DP_1 invisible for subsequent Agree.

- DP_1 therefore still incurs intervention for Agree between $\#^0$ and DP_2 if Contiguous Agree is violated (23).

  (23) $[_{TP}\ \#^0\ [\ \pi^0\ [_{PredP}\ \boxed{DP_{SUBJ}}\ [\ \boxed{DP_{PRED}}\ ]]]]$ = *German copula*
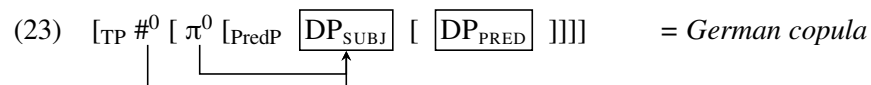
  - ⇨ Number is hence subject to the same intervention effects as person in German.

4.3 Consequences for features

- *Person vs. number features:*
  Nevins (2011) argues for an ontological difference between person and number features: person features are binary, while number features are privative. He uses this distinction to derive both:

  1. **Purported absence of "omnivorous person effects"**
     Such effects have been documented in Mayan (Preminger 2014) and Algonquian (Oxford to appear), as well as in copula constructions (e.g.

Béjar and Kahnemuyipour 2017 on Eastern Armenian); see also Béjar 2011 for further discussion of Nevins 2011.
  - ⇨ This raises serious doubts about whether a division between person and number is warranted here.

  2. **Absence of "Num-CC" effects**
     - While 3rd person contains a negative feature specification, singular number corresponds to the *absence* of a feature—singular DPs thus do not intervene for the agreeing probe.
     - Notice, however, that one of the key arguments Nevins (2007) makes for 3rd person bearing a person specification also applies to number:
       * In English, 3rd person singular verb agreement is expressed with -*s*, a vocabulary item that must consequently be specified for both 3rd person and singular number.
       * Nevins (2007) concludes from this that 3rd person cannot simply be the absence of a person feature.
     - ⇨ By the same reasoning, singular number cannot be the absence of a number feature either, contra Nevins (2011).

➡ Our account correctly derives the absence of number effects in ditransitive clitic constructions, but does so without resorting to an ontological difference between person and number features.
  - Rather, the difference is connected directly to the presence vs. absence of clitic doubling, a defining characteristic of PCC constructions.

Plan: ☑ Hierarchy effects • ☑ PCC • ☑ Person vs. number • ☐ Predictions

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5 Predictions

5.1 Clausemate condition on PLC/FLC

- One peculiar property of PCC effects is that they seem to disappear if the licensing probe in the DP are in separate clauses (see Preminger 2011, 2016).

(24)   *PCC clausemate condition in Basque (Laka 1993, 27; Preminger 2011, 929)*

    a.   *Finite clause: PCC*

       *Zuk   harakinari   ni   saldu
       you.ERG   butcher.DAT   me.ABS   sold
       n-(a)i-o-zu
       1.ABS-√-SG.ABS-3SG.DAT-3SG.ERG
       'You have sold me to the butcher.'   *3 > 1*

    b.   *Nonfinite clause: No PCC*

       Gaizki   iruditzen   Ø-zai-Ø-t   [zuk
       wrong   look-IMPF 3.ABS-√SG.ABS-1SG.DAT   you.ERG
       ni   harakinari   saltzea]
       me.ABS butcher-DAT sold-NMZ-ART.ABS
       'It seems wrong to me for you to sell me to the butcher.' ✓*3 > 1*

- *Clausemate condition:*
  Preminger's (2011, 2016) rendition of the Person Licensing Condition (adopted here as the Feature Licensing Condition (25)) captures such effects by imposing a clausemate condition on the licensing requirement:

(25)   *Feature Licensing Condition*
    A marked feature $\mathcal{F}$ on a DP that is a viable agreement target (as far as its case, etc. is concerned), **and for which there is a clausemate $\mathcal{F}$ probe**, must participate in a valuation relation.

- *Prediction:*
  We do not have an analysis to offer of this fact. *But:* If the German hierarchy effects have the same analytical source as PCC effects, then we expect to find clausemate effects as well. This is indeed the case (we owe this observation to discussions with David Adger):

(26)   *Clausemate effects: Person hierarchy*

    a.   ?*Er ist ich.
       he is I
       'He is me.'   *3 > 1*

    b.   Er scheint ich zu sein.
       he seems I   to be
       'He seems to be me.'   ✓*3 > 1*

(27)   *Clausemate effects: Number hierarchy*

    a.   ?*Er ist die Bäume.
       he is the trees
       'He is the trees.'   *SG > PL*

    b.   Er scheint die Bäume zu sein.
       he seems the trees   to be
       'He seems to be the trees.'   ✓*SG > PL*

5.2   Hierarchy effects cross-linguistically

- Our account makes predictions about where we expect to find hierarchy effects in other languages.

- All else being equal, the necessary ingredients for hierarchy effects are:

  1. Two *accessible* DPs (i.e. in terms of their case marking) in the relevant domain.

  2. A clausemate agreeing probe.

- We expect to find *both person and number effects* unless the higher DP is removed as an intervener (i.e. via clitic doubling).

➡ See Appendix B for some preliminary data.

Plan: ☑ Hierarchy effects • ☑ PCC • ☑ Person vs. number • ☑ Predictions

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6 Conclusion

- We have argued that the licensing restriction that underlies PCC effects can also be observed in copular constructions. This restriction can be observed for both person and number features.

  ⤷ *Feature* licensing instead of *person.* licensing

- On our proposal, the absence of Num-CC effects does not indicate an ontological difference between person and number features. Rather, clitic doubling induced by person agreement removes intervention effects and hence enables number agreement.

  ⤷ In the absence of clitic doubling, number hierarchy effects arise.

- In addition to hierarchy effects in assumed identity sentences, our account also offers a fresh look on agreement in specificational sentences.

(28)   Das Problem bist/*ist   du.
       the   problem   be.2SG/*be.3SG you.NOM
       'You are the problem.'

- Our analysis allows the base order in (29), but blocks the order in (30), as it would violate the person hierarchy.

- The agreement pattern in (28) then follows if agreement is invariably established with the subject of the prediction (i.e., *du*).

(29)   [T^0 [$_{PredP}$ *du* [$Pred^0$ *das Problem*]]]

(30)   *[T^0 [$_{PredP}$ *das Problem* [$Pred^0$ *du*]]]

- More on this in Appendix A.

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A Das Problem ist … was?

- We have at least two ways to rule out the ungrammatical sentence in (31) (=(6b) above).[3]

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[3]We are setting aside a "maximize agreement" account here.

(31) *Das Problem ist   du.
the problem be.3SG you.NOM

  i. *Semantic:*
In sentences in which one NP is referential (*du*) and the other denotes a description (*das Problem*), the referential element must be construed as the specifier of PredP (Caroline Heycock p.c.; also Moro 1997);

  ii. *Hierarchy effect/FLC violation*:
A marked feature $\mathcal{F}$ on a DP that is a viable agreement target (as far as its case, etc. is concerned), and for which there is a clausemate $\mathcal{F}$ probe, must participate in a valuation relation. (*3>[Part])

- There is reason to think that (ii) is not sufficient to explain (31)—rather, both (i) and (ii) may be needed.

- Recall from (26) that in *assumed identity* constructions, hierarchy violations are clausebound:

(32) a. ?*Er ist du
he is   you
intended: 'He is you.'   *3 > 2

    b. Er scheint du   zu sein
he seems   you to be
'He seems to be you.'   ✓3 > 2

- However, the configuration *das Problem>du* remains ungrammatical even when separated by a clause boundary:

(33) a. *Das Problem ist   du
he   is   you
'He is you.'   *3 > 2

    b. *Das Problem scheint du   zu sein
the problem seems you to be
intended: 'The problem seems to be you.'   *3 > 2

➭ Maybe *both* a semantic and hierarchy violation are at play.

- A hybrid approach might have other welcome consequences as well. One robust fact is that hierarchy violations in assumed identity sentences, while degraded, are significantly better than hierarchy violations in specificational sentences.

(34) a. ?*Er ist du.   *Assumed identity*
           he is you

      b. *Das Problem ist du.   *Specificational*
          the problem is you

- *Proposal:*
  (34a) is ruled out only as a PCC effect (i.e., a licensing violation). (34b) additionally violates the semantic condition in (i). It would then seem plausible that (34b) is worse than (34a).

B Preliminary cross-linguistic findings

B.1 Amazigh (Berber)

- Amazigh (Berber) languages present an interesting test case because they have both agreeing and non-agreeing copula constructions.

- The non-agreeing copular particle *d* is used in the present tense, and no hierarchy effects are found here:

(35) *Kabyle/Taqbaylit: Non-agreeing copula (Karim Achab, p.c.)*

      a. Kečč d   netta.
          you   COP   he
          'You are him.'   ✓*2 > 3*

      b. Netta d   kečč.
          he   COP   you
          'He is you.'   ✓*3 > 2*

- Constructions in the future require the morpheme *ad*, and the addition of an agreeing auxiliary *ili*.

- For one speaker consulted, a hierarchy effect emerges:

(36) *Kabyle/Taqbaylit: Agreeing copula (Karim Achab, p.c.)*

      a. Kečč ad t-ili-d   d   netta.
          you   FUT 2-AUX-2   COP   he
          'You will be him.'   ✓*2 > 3*

      b. *Netta ad y-ili   d   kečč.
          he   FUT 3-AUX   COP   you
          intended: 'He will be you.'   *3 > 2*

- Similar judgements for 1>3 (good) vs. 3>1 (bad).

- However, another speaker found no contrast—more work needed!

B.2 Northern Italian Dialects

- Recall that we predict that clitic-doubling of DP$_1$ should result in the absence of number effects, as in ditransitive PCC constructions.

- In Romance languages commonly referred to "Northern Italian dialects", *subjects* may undergo clitic-doubling, including in copula constructions.

- All else being equal, we thus expect to find *only person hierarchy effects*, just as in PCC environments.

(37) *Bellunese (Nicola Munaro, p.c.)*

      a. Ti   te   se   lu.
          you you.CL are he
          'You are him.'   ✓*2 > 3*

      b. ??Lu l'-é   ti.
          he   he.CL-is   you
          intended: 'He is you.'   *3 > 2*

(38) *Bellunese (Nicola Munaro, p.c.)*

    a. Ela la   é lori.
         she she.CL is them
         'She is them.'   ✓*SG > PL*

    b. Lori i   é ela.
         they they.CL are she
         'They are her.'   ✓*PL > SG*

- Though both examples in (38) were judged as slightly odd ("?"), Munaro offers that this is "probably due to a degradation in the pragmatic plausibility", and that there is a clear contrast between these and (37b).

- *However*, Cecilia Poletto (p.c.) finds slight effects of *both* in Venetian, a language which also has subject clitic doubling—more work needed!

B.3 Num-CC effects in German?

- While German is not normally thought to display PCC effects, Anagnostopoulou (2008) makes the intriguing observation that in certain pronominal orders, weak PCC effects emerge.

(39) *Weak PCC in German (Anagnostopoulou 2008, 26)*

    a. *weil dich   ihm   irgendwer   vorgestellt hat
         because you.ACC him.DAT someone.NOM introduced has
         'because someone has introduced you to him'   **3 > 2*

    b. ??weil mich   ihr   irgendwer   vorgestellt hat
         because me.ACC her.DAT someone.NOM introduced has
         'because someone has introduced me to her'   **3 > 1*

- *Prediction:*
German does not have clitic doubling. If the restriction in (39) is indeed an instance of the PCC, we expect hierarchy effects for number as well (because intervention by the IO is not lifted by clitic doubling). Initial investigation suggests that this might indeed be the case:

(40) *German Num-CC effects*

    a. weil   ihn   ihnen   irgendwer   vorgestellt hat
         because him.ACC them.DAT someone.NOM introduced has
         'because someone introduced him to them'   ✓*PL > SG*

    b. weil   sie   ihm   irgendwer
         because her.ACC/them.ACC him.DAT someone.NOM
         vorgestellt hat
         introduced has
         ✓'because someone introduced her to him'   ✓*SG > SG*
         *'because someone introduced them to him'   **SG > PL*

- If this is on the right track, it might indicate that the apparent absence of of Num-CC effects is indeed the result of clitic doubling.

↪ **No ontological difference between person and number features**