Syntax & Semantics At Santa Cruz

Edited by
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VOLUME V

SYNTAX & SEMANTICS

at

SANTA CRUZ

Volume V

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&
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2022

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Introduction

We are very pleased to release volume 5 of Syntax & Semantics at Santa Cruz (SASC), a set of papers which represent some of the work done over the past two years in the linguistics department of the University of California, Santa Cruz. SASC was revived with volume 4 in 2020 following a 19 year hiatus; we hope that this 5th volume will cement its status as a modern tradition of the department.

These four papers provide a window into compelling work at Santa Cruz on classic topics in syntax and its interface with semantics: binding and coreference (Arvindam & Hedding), movement and selection (Brodkin), nominal modification (Duff, Sichel & Toosarvandani), and subject-verb agreement (Meadows). Moreover, in classic Santa Cruz style, they make progress on these topics from a variety of different angles: probing novel exceptions to classic generalizations in the syntax of English (Arvindam & Hedding), widening our empirical understanding through fieldwork on Austronesian and Meso-American languages (Brodkin on Mandar; Duff et al. on Santiago Laxopa Zapotec), and using experimental methodologies to better understand psycholinguistic phenomena that have interested our department for decades (Meadows on agreement attraction). The result is a collection that is as recognizably Santa Cruz as a cluster of fog-soaked redwoods.

We are very grateful to everyone who contributed to this volume, particularly given the barriers to academic work since the onset of the coronavirus pandemic. Every step of the work detailed here came about in a time of great uncertainty, and yet the authors have managed in the face of this to make substantive and rich contributions to the field. We appreciate their dedication.

We would also like to express our gratitude to the editors of the previous volume, Andrew Hedding and Morwenna Hoeks, for laying the foundations for the continued publication of SASC, and finally to Maziar Toosarvandani, for his guidance and support throughout the compilation of this volume.

Lalitha Balachandran & John Duff
September 2022

Are Constraints on Partially Overlapping Reference Just Condition B?*

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Abstract In this squib, we consider whether the unacceptability that results when a pronoun partially overlaps in reference with an antecedent is reducible to a Condition B violation. Three pieces of evidence suggest that it can be: (1) the effect is ameliorated when the pronoun is sufficiently distant from the antecedent; (2) the effect is only present when the antecedent c-commands the pronoun; (3) the effect is significantly lessened in the presence of focus. However, there are two environments where Partially-Overlapping Reference is acceptable where fully overlapping reference is not: (1) in certain types of questions; (2) in certain types of adjuncts. These differences make it hard to argue that the effect is a simple Condition B violation. In addition, we discuss what the environments where partially overlapping reference is and is not acceptable can tell us about how Condition B should be formulated.

1 INTRODUCTION

A perennial question in linguistics concerns what facilitates (and what constrains) the reference of pronouns. Though pronouns can generally freely refer anaphorically and deictically, it is well known that their freedom of reference is not absolute. For instance, it is well known that pronouns cannot be co-referential with a c-commanding binder within the same domain, a constraint known as Condition B (e.g., Chomsky 1981: a.m.o.).

(1)   *Mary$_k$ likes her$_k$.

In this squib, we focus our attention on another, less explored constraint on pronoun reference: the restriction on Partially-Overlapping Reference (POR). As noted by many authors (e.g., Postal 1969, Chomsky 1973, Lasnik 1981), some pronouns which partially overlap in reference with their binder also trigger

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unacceptability, as in (2).[1]

(2)   a.   *We$_{i(u)(o)}$ voted for me$_i$.   Postal (1969): 416
      b.   *We$_{i(u)(o)}$ expect me$_i$ to visit them$_o$.   Chomsky (1973): 241
      c.   *We$_{i(u)(o)}$ like me$_i$.   Lasnik (1981): 48

(2) illustrates POR because the referent of the object pronoun is member of the set of individuals that the subject pronoun refers to, but the referents of the two pronouns are not completely identical. As a notational convention, we will use the subscript i when a local pronoun's reference includes the speaker, u when it includes the addressee, and o when it includes some other person. Because *we* is ambiguous between an inclusive and exclusive interpretation in English, we include both u and o in parentheses to indicate that both of these referential interpretations are optional (though, of course, *we* must refer to either the addressee or another person in addition to the speaker).

One clear question arises when considering sentences with POR: are the sentences in (2) unacceptable for the same reason as the sentence in (1)? Put differently: is POR also regulated by Condition B, in addition to co-reference? If so, then investigating sentences with POR will provide crucial evidence to help precisely define Condition B. For instance, if the unacceptability of POR is simply due to Condition B, then Condition B must be defined so that it also restricts pronouns from partially sharing a referent with their binder. If, however, unacceptable sentences with POR can be shown to have differing behavior from sentences with Condition B violations, then sentences with POR may provide evidence for another, distinct, constraint on pronoun reference.

In this squib we investigate whether the unacceptability of POR in English is reducible to a Condition B violation. In particular, we advance a series of arguments to demonstrate that POR violations have the same character as Condi-

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1 For the purposes of the squib, we will be focusing on sentences like (2) and amelioration of (2) in specific environments. However, it's been noted elsewhere in the literature (e.g., Reinhart and Reuland 1993, Lan 2016) that POR is improved when: (a) a singular subject binds a plural object (i); (b) when the predicate is interpreted collectively rather than distributively (ii).

(i)   I$_i$ voted for us$_{i(u)(o)}$.

(ii)   a.   *We$_{i(u)(o)}$ voted for me$_i$.
         b.   We$_{i(u)(o)}$ elected me$_i$.

This number asymmetry (i) in POR has been noted by much previous work (e.g., Hampe and Lehmann 2013, Lan 2016, Rooryck 2006), however no adequate analyses have been advanced to explain it, and we shall not offer any here. Similarly, while the predicate contrast has been demonstrated experimentally in Hebrew (see Lan 2016 for discussion), we don't experience a strong contrast between the acceptability of POR in sentences according to predicate type in English. Indeed, as noted by Reinhart and Reuland (1993) and others, there seems to be significant inter-speaker variation with respect to this contrast. While a larger scale investigation with more speakers to investigate the acceptability of both (i)-(ii) is certainly warranted, we set these cases aside in the present work.

tion B violations: namely, they are sensitive to distance, c-command, and focus. However, we also demonstrate two ways that POR violations appear distinct from Condition B. Specifically, we show that some unacceptable POR sentences are significantly improved in questions and in certain types of adjuncts. Additionally, we show that neither of these contexts improves classic Condition B violations, suggesting that there is something that distinguishes POR.

This paper is organized as follows. In §2, we present a more detailed discussion of POR violations, and show the ways that they are similar to Condition B violations. Then, in §3, we identify two ways of ameliorating POR violations which indicate that the unacceptability of POR is not identical to the unacceptability of other locally bound pronouns. Finally, in §4, we discuss the consequences that these facts could have on the question of what types of relations are constrained by the binding conditions. §5 concludes.

2 Evidence that POR constitutes a Binding violation

In Chomsky's Binding theory, Condition B says that a pronoun must be free in its binding domain.[2] One crucial prediction of this view is that co-reference between a subject and a pronoun that are co-arguments of the same predicate is blocked, while co-reference is allowed if the two are arguments of distinct predicates. Another prediction is that a pronoun should be able to co-refer with an antecedent that is in its binding domain but does not c-command it. Here, we will first show that both of these predictions are borne out in cases of POR. In addition, we will also present evidence from sentences with POR and focus that further suggests that POR exhibits the classic signatures of a Binding violation.

2.1 Distance

In the standard case, Condition B rules out co-reference in (3a) but allows it in (3b), where the pronoun and its antecedent are not co-arguments.

(3)   a. Eli_k voted for him_{*k}.
      b. Eli_k thinks that Sophia_j voted for $\text{him}_{k,*j}$.

If the unacceptability of POR is a Condition B violation, then we expect a similar increase in distance to improve acceptability. In fact, this is the case. For example, in a context where two friends are discussing an anonymous nomination that was made before a local election, it would be perfectly natural for one of them to utter the sentences in (4).

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2 For the purposes of this paper, we assume that the binding domain of a pronoun X is the minimal TP containing X (although see Truswell 2014 for a detailed discussion of this question).

(4)   a.   We$_{io}$ think that Rachel nominated me$_i$.
      b.   We$_{io}$ believe that Rachel voted for me$_i$.

Similarly, in a context where a couple are debating their friend's true attitudes toward them, they might express their conclusion to another friend with (5).

(5)   We$_{io}$ think that Scott likes me$_i$ but Josie doesn't.

Lastly, it would be perfectly natural for someone to say (6) to their sibling when considering how their parents might react to one of their recent accomplishments.

(6)   We$_{i(u)(o)}$ know that mom will be proud of me$_i$.

Like (3), the contrasts in (4)-(6) illustrate that POR is possible when the object pronoun is an argument of a distinct predicate from its antecedent, suggesting a similar signature to other personal pronouns regulated by Condition B.

2.2   C-command

Another key prediction of Condition B is that pronouns can co-refer with antecedents in their binding domain so long as they are not c-commanded by it, as illustrated by the contrast in (7).

(7)   a.   *Pablo$_k$ loves him$_k$.
      b.   Pablo$_k$'s father$_j$ loves him$_{k,*j}$

If POR constitutes a Condition B violation, then we expect a pronoun to be able to co-refer with a non-c-commanding antecedent in its domain that partially overlaps in reference. This, too, is borne out. POR is possible with a genitive first person plural pronoun (8a), and when the antecedent is contained in a relative clause (8b). Again, these facts illustrate that POR shows a similar signature to other personal pronouns regulated by Condition B.

(8)   a.   Our$_{i(u)(o)}$ mother loves me$_i$.
      b.   A woman who we$_{i(u)(o)}$ respect nominated me$_i$.

2.3   Amelioration under focus

It has long been observed that Binding Conditions are not absolute. In particular, early work on Binding Theory noted that the presence of focus can ameliorate structures that would otherwise be ruled out via these conditions. For instance, Condition C, which rules out binding of R-expressions, can be obviated when the binder is associated with a focus sensitive operator like *even*.

(9)   Everyone has finally realized that Oscar is incompetent. Even OSCAR$_k$ has

realized that Oscar$_k$ is incompetent.

<div align="right">Evans (1980): 357</div>

This amelioration of Condition C under focus is used by Reinhart (1983) to argue that the Binding Conditions only regulate syntactic binding, not co-reference. In particular, she argues that co-reference is possible when there are pragmatic reasons to avoid a bound anaphora interpretation. One way of viewing this amelioration is that the presence of a focus sensitive particle allows speakers to optionally violate condition C, if and only if this violation yields a distinct interpretation (Reinhart 1983, Grodzinsky and Reinhart 1993). For instance, (10a) which violates Condition C, unambiguously expresses the idea that Felix was the only individual that voted for Felix. (10b), which does not violate Condition C, has a different set of truth conditions. In particular, it expresses the idea that Felix was the only candidate that voted for his own candidacy.

(10)   a.   Only FELIX$_k$ voted for Felix$_k$. $\rightarrow$
Felix voted for Felix & $\neg$\{Martha, John, Sally\} voted for Felix

            b.   Only FELIX$_k$ voted for himself$_k$. $\rightarrow$
Felix voted for himself & $\neg$\{Martha, John, Sally\} voted for themselves.

<div align="right">Reinhart (1983): 78</div>

Concretely, in a scenario where Felix votes for himself and Sally votes for herself, (10a) is true but (10b) is false. Under Reinhart's view, the fact that these sentences have different truth conditions makes them both acceptable.

In some instances, Condition B can also be ameliorated by focus. For instance, McKillen (2016) points to several naturally occurring examples of acceptable Condition B violations when the binder is focused, either as the associate of a focus sensitive particle like *even* (11a) or as a corrective focus (11b).

(11)   a.   Even I$_i$ laughed at me$_i$ when I built this alien cross-species genetic analyzer.

            b.   *Sherlock:* You sat there watching me getting beaten to a pulp.
Mycroft: I got you out.
Sherlock: No, I$_i$ got me$_i$ out.   McKillen (2016): 160

However, as McKillen (2016) demonstrates experimentally, focus does not seem to ameliorate unacceptable binding of third person pronouns. Thus, examples like (12) are less acceptable than the examples in (11), leading Bruening (2021) to hypothesize that only local person pronouns can be bound in violation of Condition B under focus.

(12)   *Only SHE$_k$ hates her$_k$

Given that Condition B effects with local pronouns can be obviated via focus, a natural question arises: does focus ameliorate POR violations? Indeed, we argue that it does. Consider for instance, cases where the bound pronoun associates with a focus sensitive particle (14). In each case, we find the acceptability substantially improved from the baseline in (13).

(13)   *We nominated me.

(14)   a.   We$_{i(u)(o)}$ **only** nominated ME$_i$.
       b.   We$_{i(u)(o)}$ **even** nominated ME$_i$.
       c.   We$_{i(u)(o)}$ nominated ME$_i$, **too**.
       d.   We$_{i(u)(o)}$ **also** nominated ME$_i$.
       e.   We$_{i(u)(o)}$ nominated ME$_i$ **instead**.

Additionally, we find POR fully acceptable if the bound pronoun is a corrective focus (15) or an information focus (16).

(15)   *I thought we nominated Sally.*
       No, we$_{i(u)(o)}$ nominated ME$_i$.

(16)   *Who did we nominate?*
       We$_{i(u)(o)}$ nominated ME$_i$.

Thus, focus provides some additional suggestive evidence that unacceptable POR sentences are related to Condition B. In both cases, the presence of focus allows for a binding configuration that would be ungrammatical without focus.

However, there is one difference in the way that focus affects these two types of binding configurations. In POR sentences, focusing the bound pronoun leads to complete acceptability, as shown in (14)-(16). However, to our ears, focusing the antecedent does *not* lead to improved acceptability.

(17)   *POR unacceptable with focus on the antecedent*
       a.   ??Only WE nominated me.
       b.   *Even WE voted for me.
       c.   *Nobody is proud of you*
            *No, WE are proud of me.

Interestingly, this is different than Condition B violations, which *can* be ameliorated by focusing the antecedent (11). In fact, in some cases, focusing the antecedent is the only route to acceptable sentences with a Condition B violation; sentences with a focused bound pronoun often remain degraded (18).[3]

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3 There is likely some variability about this. For instance, while most examples of Condition B amelioration under focus in the literature involve focus on the antecedent, Horn (2008) identifies some naturally occurring examples of Condition B amelioration with focus on a bound pronoun.

(i)   a.   You$_u$ can't afford to pay YOU$_u$. How are you gonna to pay me?

(18)   a.   *I laugh at everyone's harebrained schemes.*
             ??I even laughed at ME when I built this alien cross-species genetic analyzer.

       b.   *You didn't get anyone out!*
             ??No, I got ME out.

So, while focus and POR are both ameliorated by focus, the position of focus required for amelioration is different. Condition B violations seem much improved when the antecedent is focused, while POR sentences are much improved when the bound pronoun is focused. While we remain agnostic here about the precise way that focus interacts with binding (though see Reinhart 1983, Grodzinsky and Reinhart 1993, and Bruening 2021, especially, for discussion), the fact that both phenomena are ameliorated by focus suggests a commonality. However, as we have shown, while both are ameliorated by focus, the position of focus in the ameliorated sentences tends to be different. This suggests that there are indeed differences between POR and classic Binding violations, an idea that we investigate more thoroughly in the next section.

3   A Wrinkle: other ways to ameliorate POR violations

The previous section provided evidence suggesting that POR can be reduced to a Condition B violation. Both distance and c-command influence the acceptability of POR, as would be expected if it was a Condition B violation. Moreover, like other violations of Binding Conditions, POR is significantly improved in sentences with focus. However, as noted above, while the presence of focus seems to improve both Condition B violations and POR violations, these two phenomena differ in where the focus must be positioned in order to improve acceptability.

In this section, we provide additional evidence suggesting that POR cannot be completely reduced to a violation of Condition B. Specifically, the evidence comes from two other ways that the acceptability of POR sentences can be improved; crucially, ways that do *not* improve the acceptability of Condition B violations. Consequently, these data suggest that POR is permissible in a wider range of sentences than completely overlapping reference between two arguments, suggesting that it cannot be regulated by Condition B alone.

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       b.   I believed in you. I always believed in you. I_i just didn't believe in ME_i.

<div align="right">Horn (2008): 174</div>

While we cannot fully explain this variability, it may be significant that the examples in (i) involve contrastive focus, while the examples in (18a) and (18b) involve focus sensitive particles and corrective focus, respectively.

3.1 QUESTIONS

Though plural over singular POR constructions are quite degraded in statements, we find them, on the whole, to be much more acceptable in questions. Consider, for instance, the contrast between (19a) and (19b).

(19) a. *We nominated me.
      b. Did we nominate me?

While (19a) is quite marked, (19b) is completely acceptable. In addition to polar questions (20), this amelioration also occurs in wh-questions, as in (21).

(20) a. Must we nominate me?
      b. Can we vote for me?

(21) a. Why did we nominate me?
      b. When did we elect me?

Crucially, classic Condition B violations (which involve a complete overlap in reference between the pronoun and its antecedent) are not ameliorated in questions. Consider, for instance, the examples in (22) and (23).

(22) a. *Did we$_{i(u)(o)}$ elect us$_{i(u)(o)}$?
      b. *Did Mary$_k$ vote for her$_k$?
      c. *Did you$_u$ nominate you$_u$?

(23) a. *Why did Mary$_k$ vote for her$_k$?
      b. *When did you$_u$ nominate you$_u$?

This fact demonstrates a clear difference between the unacceptability of POR sentence and sentences with classic Condition B violations, suggesting that we cannot simply say that POR is unacceptable due to Condition B. If it were, then we are left with no explanation of why POR sentences are acceptable in questions.[4]

It should be noted, however, that not all instances of POR are acceptable (according to our intuitions) in question contexts. Particularly, POR sentences with stative predicates remain degraded, even in questions.

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4 It is certainly suggestive that POR sentences are acceptable when the bound pronouns is focused (introducing alternatives) and in questions, which also introduce alternatives. In particular, we note that a natural interpretation of these questions suggests other possible people that could have been nominated.

(i) a. Did we nominate me (or someone else)?
     b. Can we nominate me (as opposed to someone else)?
     c. Why did we nominate me (rather than someone else)?

Thus, it seems likely to us that there is some connection between the fact that POR is ameliorated when the bound pronoun is focused, and that it is ameliorated in questions. However, we leave a more thorough exploration of this connection to future work.

(24)   a.   *We admire me.
       b.   *Do we admire me?

(25)   a.   *We are proud of me.
       b.   ??Are we proud of me?

(26)   a.   *We like me.
       b.   *Do we like me?

The precise explanation for this contrast remains to be explored in future work, as does a specific analysis of why some POR sentences are better as questions. However, this contrast suggests that there might be two distinct routes to unacceptability in POR sentences, only one of which can be avoided in questions.

To summarize: while POR with a plural antecedent is generally unacceptable in statements, some POR constructions are significantly improved when they are in questions. This fact has two important implications for our understanding of the underlying cause(s) of the unacceptability of POR. First, it suggests that POR violations cannot be simply reduced to a Condition B violation. Importantly, Condition B is operative in questions, so acceptable POR configurations in questions remains a puzzle. Second, the fact that only *some* POR sentences are ameliorated in questions suggests that not all unacceptable POR sentences are alike.

3.2   Adjuncts

It has previously been observed that pronouns inside locative adjuncts can be co-indexed with the subject. Consider, for example, (27):

(27)   a. Max_k saw a gun near him_k.
       b. Max_k put the book next to him_k.

                                        Reinhart and Reuland (1993): 661, 686

To explain these sentences, Reinhart and Reuland suggest that locative prepositions form their own predicate. Consequently, the pronominal complement of a locative preposition is not a co-argument with the subject, and thus it is in a different domain for the purposes of binding.

While certain adjunct PPs seem to form their own binding domain, others do not. Consider, for instance, benefactive PPs. A pronominal complement of a benefactive PP cannot be co-indexed with the subject, and instead the complement must be realized as an anaphor.

(28)   a. $*I_i$ built a house for me_i.
       b. I_i built a house for $myself_i$.

(29)   a. $*June_k$ cooked dinner for her_k.
       b. $June_k$ cooked dinner for $herself_k$.

If the constraint against POR was reducible to a Condition B violation, then we would expect POR sentences to be equally ungrammatical when a singular pronoun in a benefactive PP partially co-refers with the subject. In fact, this expectation seems to be incorrect. According to our intuitions, the sentences in (30) are fully grammatical.

(30) a. We built a house for me.
      b. We cooked dinner for me.

Indeed, the acceptability of POR with benefactives extends to sentences where the benefactive is not introduced with a preposition, as in (31).[5]

(31) a. We built me a house.
      b. We cooked me dinner.

Thus, sentences with pronominal benefactives are another place where POR and Condition B seem to come apart. The pronominal complement of a benefactive preposition cannot be completely co-referential with the subject, but POR is allowed. Once again, we take this to suggest that constraints on POR cannot be completely reduced to Condition B, as POR is generally more permissive than completely overlapping reference.

4 Consequences

To take stock, we have shown that the unacceptability of POR cannot be unambiguously reduced to a Condition B violation. On the one hand, §2 showed that POR exhibits all the classic signatures of a Binding violation: namely sensitivity to distance, c-command, and focus. On the other hand, §3 showed that amelioration of POR is possible in questions and certain adjuncts, a result that is unexpected if Condition B is implicated. A perennial question in discussions of Binding Theory is whether the distribution of pronouns is regulated by an independent Condition

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5 It should be noted that certain dialects of English also license what appear to be Condition B violations in a similar construction which Horn (2008) calls the "Personal Dative."

(i)   a. I built me a house.
      b. I cooked me some dinner.

This construction, which is most associated with Southern and Appalachian English, sometimes contributes a benefactive meaning, but not always, as can be seen from (iia) and (iib).

(ii) a.   I'm gonna catch me a freight train.
      b. *I'm gonna catch a freight train for me.

While more arguments are certainly needed to demonstrate that the examples in (31) are not this type of Personal Dative, our intuition is that they don't have the same "colloquial" feel of (i) and (iia) and represent a true benefactive.

B (e.g., Chomsky 1981, Reinhart and Reuland 1993, Bruening 2021: a.o) or whether it is derived by competition with other pronominal forms (e.g., Safir, 2004: a.o). This question remains and will not be settled here, but we argue that the data presented here pose problems for both sets of theories as currently formulated.

4.1 Challenges for Independent Condition B

In §3 we showed that POR unacceptability in ameliorated in certain polar questions, wh-questions, and adjuncts, repeated below in (32), (33), and (34), respectively.

(32)   *Polar questions*
       Did we nominate me?

(33)   *Wh-questions*
       a.   Why did we nominate me?
       b.   When did we nominate me?

(34)   *Benefactive Adjuncts*
       a.   We built a house for me.
       b.   We cooked dinner for me.

First, consider the challenges these data pose for proposals that attempt to explain the distribution of pronouns with an independent Condition B. There are three broad classes of an independent Condition B: those that reference DISTANCE between the pronoun and antecedent (e.g., Chomsky 1981), CO-ARGUMENTHOOD status of the pronoun (e.g., Reinhart and Reuland 1993), and PRESUPPOSITIONS carried by the pronoun (e.g., Bruening 2021). We take these up in turn.

DISTANCE based theories (e.g., Chomsky's Condition B) require that pronouns be free in their binding domain. On this view, co-reference between the object pronouns and their antecedents in (32)-(34) should be ruled out (given their containment in the same binding domain), however these are acceptable.

CO-ARGUMENTHOOD-based theories (e.g., Reinhart and Reuland's Condition B) require a reflexive semantic predicate be reflexively marked.[6] While this view fares better than DISTANCE based approaches in some instances, it still faces problems. For instance, the acceptability of POR involving locative adjuncts

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6 Three definitions are in order: namely, what it means to be reflexive, what is a semantic predicate and what it means to be reflexively marked. These are given in (ia), (ib), and (ic), respectively.

(i)   a.   A predicate is reflexive iff two of its arguments are coindexed
       b.   The semantic predicate formed of P is P and all its arguments at the relevant semantic level.
       c.   A predicate (formed of P) is reflexive-marked iff either P is lexically reflexive or one of P's arguments is a SELF anaphor.

Reinhart and Reuland (1993): 678

(27) is explained since the pronoun is not an argument of the predicate and Condition B is vacuously satisfied. However, the same cannot be said of POR involving benefactive adjuncts (34). If these are treated as non-core arguments, it is true that the POR data can be explained. However, this would incorrectly predict all pronouns in benefactive adjuncts to be good, contrary to fact (28)-(29). Furthermore, the acceptability of POR involving questions (32)-(33) remains unexpected under this approach. Given that these sentences involve a reflexive semantic predicate that is not reflexively marked, co-reference should be ruled out. However, co-reference is acceptable.

As we noted in fn.1, the semantics of the predicate modulate the (un)acceptability of POR, albeit with inter-speaker variation. Indeed, Reinhart and Reuland stipulate that POR with collective predicates (e.g., *nominate* (32)-(33)) does not violate Condition B (pg. 677). We grant that this could explain the acceptability of POR in questions with collective predicates, but then unacceptability of POR in declarative with collective predicates (32) remains unexplained.

Presupposition-based theories (most notably, Bruening's Presuppositional Condition B) state that "any NP N that is not a local anaphor is presupposed not to be covalued with an NP in an argument position that precedes and phase-commands[7] N within its local domain" (Bruening 2021: 21). Additionally, Bruening stipulates that first and second pronouns do not introduce any presupposition, due to the fact that they directly refer to an individual (35).

(35)   **Direct Reference:** An NP that is used to refer directly to an individual in the discourse has no presuppositions regarding covaluation in the syntax.

Bruening (2021): 32

(35) could account for the acceptability of (32)-(34). Specifically, if local person pronouns do not introduce presuppositions and Condition B is presuppositional, then Bruening correctly predicts that the object pronouns in (32)-(34) can be co-referential with the subject. However, this stipulation also seems to predict that local person pronouns will never be subject to Binding conditions. This, of course, is not correct, as local person pronouns are subject to Condition B, just like other pronouns (36).

(36)   a.   *I_i like me_i.
        b.   *You_u like you_u.
        c.   *$We_{i(u)(o)}$ like $us_{i(u)(o)}$.

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7 An NP X phase-commands Y iff there is no ZP, ZP a phasal node (CP, vP, and NP), such that ZP dominates X but does not dominate Y (Bruening 2021: 21).

4.2   CHALLENGES FOR COMPETITION THEORIES

Now consider the challenges these data pose for proposals that attempt to derive the distribution of pronouns via competition. Notable among such proposals is Safir (2004). On this view, all pronouns and reflexives are in competition since they serve the same purpose (that of serving as a bound-variable), and reflexives are generally preferable for this purpose. Since there is no rule regulating the distribution of pronouns, pronouns can only be used when reflexives are not permissible. Safir achieves this with a constellation of principles: namely, a rule that regulates the distribution of local anaphors (37), a competition principle (38), and a referential scale referenced by the competition principle (39).

(37)   **Local Antecedent Licensing (LAL):** An anaphor must be c-commanded in Domain D (the minimal domain that is a maximal projection containing the anaphor and a sister to it).

<div align="right">Safir (2004): 77</div>

(38)   **Form-to-Interpretation Principle (FTIP):** If x c-commands position y, and form z is not the most dependent form available in position y with respect to x, then y cannot be directly dependent on x (the value of the content of y cannot be a function of the value of x)

(39)   **Dependent Scale:** Reflexive » pronoun » R-expression

<div align="right">Safir (2004): 50</div>

In essence, the FTIP (38) asserts that for any given form-meaning pair, a comparison is made between different forms available to serve as bound variables given the syntactic context and intended meaning. Out of the available forms, the form that is highest (leftmost) on the dependent-scale (39) wins. Thus, non-locally bound pronouns are permitted in just those cases where reflexives are disallowed (via LAL) (37).

Returning to the data of interest (32)-(34), the FTIP predicts pronouns to be dispreferred to reflexives since they are lower on the dependent scale (39). However, as we've seen seen, bound pronouns are acceptable in these contexts. Strikingly, reflexives (the more dependent forms) are in fact severely degraded in the same contexts, as evidenced by the minimal contrasts in (40)-(42).

(40)   *Polar questions*
   a.   Did we nominate me?
   b.   *Did we nominate myself?

(41)   *Wh-questions*
   a.   Why did we nominate me?
   b.   *Why did we nominate myself?

(42)   *Benefactive Adjuncts*
    a.   We built a house for me.
    b.   *We built a house for myself.

Perhaps a competition-based account could explain the acceptability of pronouns in the contrasts above with some independent principle that rules out anaphors in cases of POR. Nevertheless, such competition-based theories (even with the added stipulation) would struggle to explain the acceptability contrast between POR in declaratives, on the one hand, and POR questions and adjuncts, on the other.

5   Conclusion

In this squib, we have focused our attention on the acceptability of bound pronouns which partially overlap in reference with their binder. In particular, we have asked the question: are unacceptable instances of POR reducible to Condition B?

In short, our answer is no. Though the unacceptability of POR shares several important characteristics with more familiar binding violations—e.g., it is sensitive to distance, c-command, and its unacceptability can be obviated in the presence of focus—it bears several additional characteristics which set it apart. In particular, we have argued that some POR effects are erased in questions and in benefactive adjuncts, two contexts where we do not see amelioration of Condition B. Finally, we have argued that these properties of POR are not straightforwardly captured using several competing understandings of the source of Condition B violations.

Though this squib represents a modest advance in our understanding of this phenomenon, many open questions remain. First and foremost, we have not advanced any proposal to explain what causes the unacceptability of POR, if it is not due to Condition B. If the unacceptability of POR is not due to binding, what causes it? Moreover, is it, in fact, a unified phenomenon at all, or are there multiple routes to the unacceptability of POR? We believe that further investigation of POR in questions, especially, might be illustrative, given that question formation ameliorates some, but not all, POR effects.

Another open question for which we have offered no explanation in this squib is: what, precisely, influences the amelioration of POR in questions and adjuncts? Answering this question will certainly be an important step toward understanding what POR violations are, and how they are distinct from Condition B violations. In particular, we believe that one potential direction for future work is a further exploration of the amelioration of POR effects under focus and in questions, two phenomena that can be connected via their interpretation using semantic alternatives.

Finally, we grant that many of the judgments that we report in this paper are subtle, and previous work has suggested that they may be subject to inter-speaker

variation. Consequently, we believe that further work, especially high quality experimental investigations, are necessary to firmly establish the contrasts that we report in this paper.

REFERENCES

Bruening, B. (2021). Generalizing the presuppositional approach to the binding conditions. *Syntax*, 24(4):417–461.

Chomsky, N. (1973). Conditions on transformations. In Anderson, S. R. and Kiparsky, P., editors, *A Festschrift for Morris Halle*, pages 232–285. Holt, Rinehart and Winston.

Chomsky, N. (1981). *Lectures on Government and Binding*. Foris.

Evans, G. (1980). Pronouns. *Linguistic Inquiry*, 11(2):337–362.

Grodzinsky, Y. and Reinhart, T. (1993). The innateness of binding and coreference. *Linguistic Inquiry*, 24(1):69–101.

Hampe, B. and Lehmann, C. (2013). Partial coreference. *Languages Across Boundaries: Studies in Memory of Anna Siewierska*, pages 171–208.

Horn, L. R. (2008). "I love me some him": The landscape of non-argument datives. In Bonami, O. and Cabredo Hofherr, P., editors, *Empirical Issues in Syntax and Semantics 7*, pages 169–192.

Lan, T. (2016). Overlapping reference and its implications for the binding theory. Master's thesis, The Hebrew University of Jerusalem.

Lasnik, H. (1981). On two recent treatments of disjoint reference. *Journal of Linguistic Research*, 1(4):48–58.

McKillen, A. (2016). *On the Interpretation of Reflexive Pronouns*. PhD thesis, McGill University.

Postal, P. M. (1969). Patterns of language. Papers in general, descriptive and applied linguistics.

Reinhart, T. (1983). Coreference and bound anaphora: A restatement of the anaphora questions. *Linguistics and Philosophy*, 6:47–88.

Reinhart, T. and Reuland, E. (1993). Reflexivity. *Linguistic Inquiry*, 24(4):657–720.

Rooryck, J. (2006). Binding into pronouns. *Lingua*, 116(10):1561–1579.

Safir, K. (2004). *The syntax of anaphora*. Oxford University Press.

Truswell, R. (2014). Binding theory. In *The Routledge handbook of syntax*, pages 232–256. Routledge.

Perception Verb Complements
in Mandar[*]

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Abstract This paper investigates the syntax of a string which surfaces beneath verbs of direct perception in Mandar, an Austronesian language of Indonesia. It is shown that a number of its properties follow from an analysis which takes it to involve clausal complementation followed by a step of *Raising to Object*.

Keywords: syntax, perception, raising

1   Introduction

This study investigates the syntax of a string that appears beneath verbs of perception in Mandar, an Austronesian language of Indonesia. I will refer to this string as the Perception Verb Complement (pvc). An example is given in (1).

(1) Ma'ita'a'   [**tau   mil-lamba** __].
     I'm watching   people INTR-go.by

     'I'm watching people go by.'   JT: 6.7, 21

The pvc shows two properties which can be read from its surface structure. First, it denotes a directly perceived event. Second, it contains two components: a nominal element and a relative clause-like constituent which follows. I refer to the first of these elements as the *antecedent* and the second as the *pseudorelative*. It is the task of this paper to understand the syntax which holds them together.

It is useful to note in this respect that the pvc resembles a construction which surfaces beneath perception verbs in many languages of Europe, including those of the Romance family (Kayne 1975; Cinque 1992). This structure is shown in (2).

(2) J'ai vu   [Mario qui __ courait   à tout vitesse].
     I have seen   NAME   was.running at full speed

     'I saw Mario running at full speed.'   French; Cinque 1992: 1

This construction resembles the PVC in several respects, and the similarities between the two will feature in the discussion which follows. The investigation of the string in (1), moreover, will lead to an analysis with history in work on the construction in (2). This is one which implicates a step of *Raising to Object* (3) and takes the pseudorelative to be a clausal complement of the matrix verb from which the antecedent raises to a position in the matrix vP.

(3)   *The Structure of the PVC*
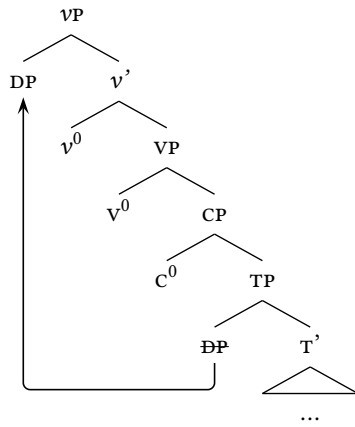
The remainder of this paper is structured as follows. Section 2 provides some background on Mandar and Section 3 lays out the basic facts of the PVC. Section 4 turns to its syntax and develops the analysis in (3). Finally, Section 5 brings up a final property of the PVC and connects it to an analogous constraint that holds over the Romance construction in (2).

2   Mandar Background

Mandar is an Austronesian language of the South Sulawesi subfamily. It is native to the south coast of the western peninsula of the island of Sulawesi, centered around the cities of Majene and Polewali. There are several dialects spoken in this area, and the present study will focus on the variety of Polewali Mandar.

The language shows several properties which are typical to the region, and two of these will play a role in the discussion to follow. The first of these involves word order. Mandar is a predicate-initial language, and across all clause types, verbal predicates precede their arguments. This pattern can be seen in the example below, which shows the word order of matrix and embedded clauses.[1]

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1 GLOSSING: ABS: absolutive, ADV: adversative, ANTIP: antipassive, ERG: ergative, FUT: future, GEN: genitive, INTR: intransitive, NEG: negation, NRR: non-restrictive relative clause, PASS: passive, PFV: perfective, PR: pseudorelative, RR: restrictive relative clause

(4) Sangga' **salili**=i iSitti mua' **lamba**=i muane-na.
    always lonely=3ABS NAME if go=3ABS husband-3GEN

    'Sitti gets lonely when her husband is away.' Sikki *et al.* 1987: 244

In this example, the matrix predicate *sangga' salili* 'always lonely' precedes the matrix absolutive argument *iSitti*. In the same vein, the embedded predicate *lamba* 'go' precedes the embedded absolutive argument *muanena* 'her husband.'

There are also constructions in which an absolutive argument precedes its predicate. The PVC is a construction of this type. Two others are shown below.

(5) **Innai** [mu-solangan __]?
    who 2ERG-accompany

    'Who did you go with?' Friberg & Jerniati 2000: 225

(6) Sa' masae=i **iKaco'** [mottong __ di aya di Ma'assar].
    Truly long=3ABS NAME stay in up in PLACE

    'It has been a long time for Kaco' to be in Makassar.' Sikki *et al.* 1987: 265

In the first of these constructions, an interrogative noun phrase surfaces in a clause-initial position. In the second, a noun phrase follows a non-thematic predicate and precedes a non-finite clause which contains a gap.

There are reasons to believe that the word order in each of these contexts arises from a process of movement that displaces an absolutive argument from a postverbal position. In the first case, this is a step of WH-movement (Brodkin 2020, 2021a). In the second, it is a process of *Raising to Subject* (Brodkin 2022).

For this reason, it seems reasonable to begin the investigation of the PVC with the assumption that its argument-initial word order is likely to arise through a step of movement as well. I will return to this stance and justify it in Section 4.

Beyond the facts of word order, there is a second property of the language which will be useful to understand. This is the voice system. Like other languages of the region, Mandar shows morphological alternations on the verb which track properties of argument structure. At the heart of this system is a diathesis between antipassive and transitive verbs. The basic contrast between these two categories is shown with the root *bawa* 'bring' below.

(7) **Mam**-bawa=di duriang pole di kappung?
    ANTIP-bring=JUST.3ABS durian from in village

    'Did he just bring durians back from the village? Sikki *et al.* 1987: 550

(8) **Na**-bawa=mi tama di boyang.
    3ERG-bring=PFV.3ABS into in house

    'He brought them into the house' Pelenkahu *et al.* 1983: 153

In the first of these examples, the verb *bawa* takes the antipassive prefix *maN-*. In the second, it takes the ergative prefix *na-*. I will refer to verbs with *maN-* as 'antipassive verbs' and those with ergative prefixes as 'transitive verbs.'

The alternation between antipassive and transitive forms correlates with several clause-level patterns in the language, and these have been laid out in previous work (Brodkin 2021a, 2022). What is relevant at present, however, is an interaction between this morphology and the argument structure of the verb.

In the set of contexts under investigation, there is a straightforward link between the definiteness of the object and the choice of verbal prefix. When the object is indefinite, the antipassive prefix must appear. In example (7), for instance, the object is an indefinite NP ("durians") and the verb takes *maN-*. When it is definite, in contrast, the ergative prefix must be used. Thus in example (8), where the object is definite (a null pronominal), the ergative prefix *na-* is required.

This pattern will provide us with the basic means to examine the relationship that holds between the antecedent of the PVC and the verb of perception which precedes it. As such, I will return to it in Section 4.

With this background in hand, let us begin our investigation of the PVC.

3   The Construction of Interest

The basic means to report direct perception in Mandar is through the use of the bracketed string in (9). As we have seen, this is built from two parts: a nominal (the antecedent) and a following clause-like element (the pseudorelative).

(9)   Ma'-ita'=a'   [tau   mil-lamba __].
      ANTIP-see=1ABS   person INTR-go.by

      'I'm watching people go by.'   JT: 6.7, 21

The main line of investigation in this paper will focus on the syntax of this string. Before turning to this topic, however, we can begin with an observation about its distribution. The PVC can surface beneath the range of verbs which express direct perception in the language. Some additional examples appear below.

(10)   Na-sa'ding=i   iKaco   [**iCicci'** mik-ke'de' __]
       3ERG-feel=3ABS NAME   NAME   INTR-stand

       'Kaco' felt Cicci' stand up.'   JT: 7.15, 260

(11)   Di-irrangi=i   [**iKaco'** na-pecawai __].
       PASS-hear=3ABS   NAME   3ERG-laugh.at

       'Kaco' was heard being laughed at.'   JT: 7.12, 58

(12)   Ka-lambiang=i   [**iKaco'** mac-coro' __].
       ADV-catch=3ABS   NAME   ANTIP-steal

       'Kaco' was caught stealing.'   JT: 7.12, 312

Note that the verbs which embed the PVC do not need to bear a specific type of prefix. They can host the antipassive prefix *maN-* (9), the ergative prefix (10), or other morphemes in complementary distribution with these (11)-(12).

Beyond the set of verbs which express direct perception, there are no other predicates which embed the PVC. Propositional attitude verbs, for instance, cannot embed this string (13). In the typical case, rather, they select for finite complement clauses that are headed by the overt complementizer *mua'* (14).

(13) *U-**issang**=i   [iKaco' ma'-botor   __]
      1ERG-know=3ABS   NAME INTR-gamble

      IM: 'I know that Kaco' gambles.'   JT: 7.12, 67

(14) Pura=i   na-**pipissang** [**mua'** na=na-ropo'=i   boyan-na,]
      Once=3ABS 3ERG-reveal   that   FUT=3ERG-sell=3ABS house-3GEN

      'Once he revealed that he would sell his house,'   Sikki *et al.* 1987: 291

From this distribution, it seems reasonable to conclude that that the PVC bears a special connection to the syntax of direct perception. In this vein, we can also observe that there is a link between the appearance of this string and the semantics of direct perception. In particular, it seems that the PVC represents the Mandar instantiation of a *direct perception report* in the sense of Barwise (1981).

There are several diagnostics which point toward this conclusion. The first of these concerns transparency. Direct perception reports are epistemically neutral in that they do not entail that the perceiver hold a belief that corresponds to their content. This is also true of the PVC. It is possible, for instance, for it to be followed with an assertion that the perceiver holds no such belief.

(15) Na-ita=i   [iKaco' s-um-angi' __], **tapi' na-sanga   mecawa=i**.
      3ERG-see=3ABS   NAME INTR-cry   but 3ERG-think laugh=3ABS

      'She saw Kaco' crying, but she thought he was laughing.'   JT: 7.15, 271

This pattern dovetails with a range of additional observations which suggest a meaningful and guiding parallel between the PVC and direct perception reports at large. For instance, this construction cannot host individual-level predicates (16) or statives (17). The same restriction holds over its analogue in English.

(16) *U-irrangi=i   [iKaco' **manarang**   __ ma'-ellong].
      1ERG-hear=3ABS   NAME   be.skilled   ANTIP-sing

      IM: 'I heard Kaco' be skilled at singing.'   JT: 7.15, 205

(17) *Na-ita=i   iCicci' [iKaco' **monge'** __ lao   ].
      3ERG-see=3ABS NAME   NAME   love   to her

      IM: 'Cicci' saw Kaco' love her.'   JT: 7.15, 206

In the same vein, the PVC requires tense-matching between the matrix and the embedded verb. When the matrix verb receives a future tense interpretation, for instance, a past tense reading of the embedded verb is ruled out (18).

(18) Na=ma'-irrangi=o   [sanaeke'   ma-ngino __ (**dionging**)]
     FUT=ANT-hear=2ABS   kid   INTR-play   yesterday
     'You'll hear kids playing (*yesterday).'   JT: 8.3, 17

In light of these facts, it seems reasonable to conclude that the PVC is a direct perception report. With this much in tow, we can now turn to its syntax.

4   THE SYNTAX OF THE PVC

Turning to the analysis of the PVC, we can begin by listing theoretical desiderata. The overarching analysis of this construction should capture the basic structural properties of the antecedent and pseudorelative, their relationship to the matrix verb, and the facts of surface constituency. To meet these goals, we might ask:

  i. What is the "pseudorelative" constituent which follows the antecedent?
 ii. What functions as the direct object of the matrix verb?
iii. What is the relationship between the antecedent and the pseudorelative?

These questions do not find obvious answers in the surface form of the PVC, and at first glance, it would appear plausible to analyze this string in any of several ways. As we investigate its syntax in finer detail, however, a body of evidence will accumulate that points to an analysis with the structure in (19), where the string that I term the PVC implicates a process of *Raising to Object*.

(19)   *The Raising to Object Analysis*
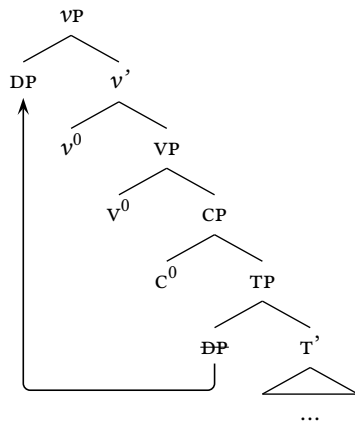
The defining properties of this analysis are the following.

    i. The pseudorelative is a clausal constituent: a non-finite CP.
   ii. The antecedent is a direct object of the matrix verb: it occupies SPEC,vP.
  iii. The antecedent raises to this position from a position in the pseudorelative.

The following subsections lay out the evidence for each of these claims.

4.1 The Internal Syntax

We can begin our investigation with an attempt to understand the properties of the pseudorelative. The Raising to Object analysis in (19) treats this constituent as a non-finite clause, but the advantages of this analysis are not immediately apparent from its surface form. Alongside the "clausal" analysis in (20), for instance, one could imagine a "reduced" alternative along the lines of (21).

(20) *The Clausal Analysis*   (21) *The Reduced Analysis*
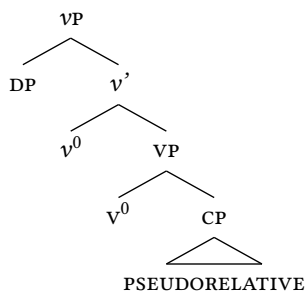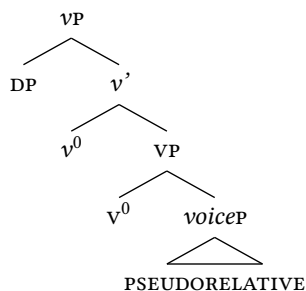
These analyses differ in the amount of structure which they ascribe to the pseudorelative. On the first analysis, in (20), this constituent is treated as a clause. On the second, in (21), it is treated as something smaller: for instance, a *voice*P.

The Reduced Analysis in (21) is not inherently implausible, and an approach along these lines would be well-poised to capture an key fact about the pseudorelative: it seems to lack the projections associated with the highest level of clausal structure. For instance, it cannot host the finite complementizer (22):

(22) Ma'-ita=a'   [tau   (***mua'**) mil-lamba].
      ANTIP-see=1ABS   person that   INTR-go.by

      'I'm watching people go by.'   JT: 6.7, 21

And in the same vein, it cannot host the mark of absolutive agreement (23).

(23) Ma'-ita=a'   [tau   mil-lamba(*=**i**)].
      ANTIP-see=1ABS   person INTR-go.by=3ABS

      'I'm watching people go by.'   JT: 6.7, 22

These patterns would seem to suggest that the pseudorelative does not form a full and finite CP. But before we bring this point to bear on the question of size, it is important to consider it in context. In Mandar, the same constraints hold over every construction which allows extraction of the absolutive argument. Relative clauses, for instance, lack overt complementizers and absolutive agreement:

(24) Maroa'=tend=i   [**tau**   [me-ita   __]].
      numerous=so=3ABS   person   ANTIP-watch
      'The people watching are so numerous!'   Sikki *et al.* 1987: 1003

As do clauses that launch WH-movement (25) or raising to absolutive (26):

(25) **Apa**   [na-sanga   [mu-bawa   __   ]]?
      what   3ERG-think   2ERG-bring
      'What does he think you brought?'   JT: 7.22, 188

(26) Mammis=i=tu'u   **lasse'-na**   **toTande**   [di-ande __   ].
      sweet=3ABS=really   langsat-3GEN PLACE   PASS-eat
      'The langsat from Tande is sweet to eat.'   Sikki *et al.* 1987: 598

The first of these patterns is a type of *that-trace effect*, and the second is an *anti-agreement effect*. They represent the morphosyntactic hallmarks of extraction in Mandar and the other languages of the South Sulawesi subfamily.

These patterns could be interpreted in several ways, and the literature has not proposed a common analysis of the two in other languages of the subfamily (Finer 1997; Baier 2018). But there is a way in which they can be unified, and my sense is that that this provides the best way to understand the system of extraction in the language and the properties of the pseudorelative as well. In the past, I have argued that these patterns both arise from a constraint on the sizes of clauses from which the absolutive argument may be extracted: they cannot be finite (Brodkin 2021a). In concrete terms, I propose that they are CPs that lack certain layers of clausal structure: for instance, $Force^0$ or Fin^0.

If this view is correct, it provides us with a way to understand the syntax of the PVC. We might assume that the pseudorelative is a non-finite CP from which the antecedent has been extracted. This is the analysis that is shown in (19). If adopted, it would allow us to explain three properties of the PVC: the absence of overt complementizers, the lack of absolutive agreement, and the non-canonical linear position of the antecedent with respect to the following predicate.

With this analysis in mind, let us return to the question of size. The patterns above suggest that the highest layers of clausal structure are missing from the pseudorelative and other constituents which allow extraction. But as we look further down in the clause, we will find that there is little evidence for the absence of other structure in the pseudorelative and other constituents of this type.

To make this point, it will be instructive to take a brief detour into the syntax of the middle field. In finite contexts, there are a number of elements which occur between the left edge of the clause and the verb. These include a class of proclitic adverbs, sentential negation, aspectual auxiliaries, and the future proclitic *na=*.

(27) **Andiap**=pa=a' **rua** lao di boyan-na.
NEG=yet=1ABS ever to at house-3GEN

'I haven't ever been to his house yet.' Friberg & Jerniati 2000: 146

(28) **Andiang**=o **na**=pole a?
NEG=2ABS FUT=come eh?

'You won't come, eh?' JT: 4.3, 71

These elements are rigidly ordered with respect to each other: negation precedes the auxiliaries (27) and the future proclitic strictly precedes the verb (28).

We can understand this rigid ordering on the assumption that negation, the aspectual auxiliaries, and the future prefix spell out a string of heads in the space between the verb and the finite complementizer (see also Brodkin 2021b). This type of analysis is sketched out, albeit in a simplified form, in (29) below.

(29) *The Middle Field*

```
                CP
              ⟋  ⟍
           C⁰    ···
                 NEGP
               ⟋    ⟍
           NEG⁰     AspP
                  ⟋    ⟍
              ASP⁰     FUTP
                     ⟋   ⟍
                 FUT⁰    ···
                        voiceP
```
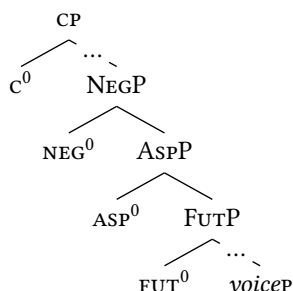
Should we adopt this view, we arrive at another means to pry into the size of the pseudorelative. If this element is roughly the size of a clause, we predict that it should be able to contain the middle-field elements above. And this is indeed what we find: it can host middle-field elements like negation (30).

(30) U-ita=i gena' [iKaco' **indang** ma'-jama __].
1ERG-see=3ABS earlier NAME NEG ANTIP-work

'I saw Kaco' not working earlier.' JT: 8.3, 173

A natural interpretation of these facts is that the pseudorelative contains the functional structure of the middle field. For this reason, I would like to suggest that it is essentially clausal in size: namely, that it is a non-finite CP.

4.2 THE EXTERNAL SYNTAX

With this much in place, we can now turn our attention to a second question about the syntax of the PVC. This concerns the manner in which the antecedent and the pseudorelative are integrated into the matrix clause. We can begin our investigation into this topic by laying out two logical possibilities:

(31) *The Non-Constituent Analysis*   (32) *The Constituent Analysis*
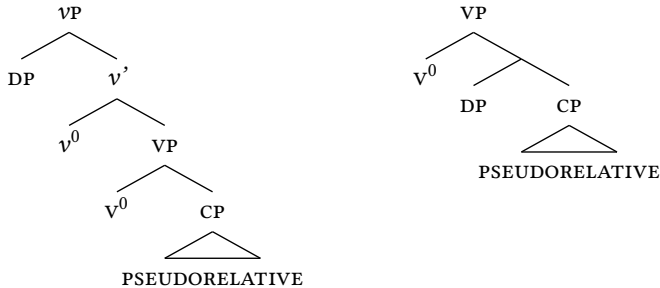
On the first of these analyses, in (31), the antecedent and pseudorelative do not form a surface constituent: rather, they occupy separate positions in the vP. I refer to this as the *Non-Constituent Analysis*. It contrasts with the *Constituent Analysis* in (32), which takes the two to form a constituent complement to v^0.

As a minimal addition, it is useful to consider three possible extensions to the Constituent Analysis in (32). The literature has historically favored this type of analysis for several types of pseudorelative-like strings, but it has reached little consensus on the question of the label that is to be assigned to them. On some views, they are CPs (Rizzi 2000; Casalicchio 2016); on others, TPs (Pearson 2018); and on yet others, DPs (Graffi 1980; Kayne 1981; Angelopoulos 2015). These three possibilities are schematized below.

(33) *Single CP*   (34) *Single TP*   (35) *Single DP*

In the face of this analytical diversity, it is useful to identify two points of divergence which will allow us to decide empirically between the possibilities at hand. The first of these lies in the relationship between the antecedent of the

PVC and the matrix verb. If it is possible to show that the antecedent behaves as a direct object of the matrix verb, then we would come to a reasonable argument against the Single-CP and Single-TP analyses which appear in (33)-(34).

The second point of divergence involves constituency. If it were possible to show that the antecedent and the pseudorelative do not form a surface constituent, we would have reason to abandon the suite of Constituent analyses above. In doing so, we would be left with the Non-Constituent Analysis in (31).

When we begin to look into these questions that surround the PVC, we will find that evidence accumulates rapidly in favor of the Non-Constituent Analysis.

As a first observation, we can note that the antecedent of the PVC triggers agreement in the matrix clause. When the matrix verb is transitive, the antecedent is coindexed with absolute agreement on the matrix T^0 (36).

(36) U-ita=**i**   [iKaco' bemme   __   naung di passauang].
     1ERG-see=3ABS   NAME fall   down in well
     'I saw Kaco' fall into the well.'   JT; 8.17, 63

This fact provides a clue that the antecedent is an object of the matrix verb.

There is a second pattern which provides further evidence for the same view. Recall that Mandar verbs show a morphological alternation which is linked to the definiteness of the object. Simplifying slightly, they take antipassive prefixes when the object is indefinite and ergative prefixes when it is definite (Section 2). While the syntactic correlates of this alternation are complex, its interaction with the PVC is straightforward: it treats the antecedent of the pseudorelative exactly like a canonical object. The following examples illustrate this fact.

(37) **Ma'**-irrangi=a'   [**tau**   bemme   __   naung di passauang].
     ANTIP-hear=1ABS   person fall   down in well
     'I heard someone fall into the well.'   JT; 8.17, 67

(38) U-irrangi=i   [**iKaco'** bemme   __   naung di passauang].
     1ERG-hear=3ABS   NAME fall   down in well
     'I heard Kaco' fall into the well.'   JT; 8.17, 64

In the first of these examples, the antecedent of the PVC is indefinite and the matrix verb is required to take the antipassive prefix *ma'-*. In the second, the antecedent is definite and the matrix verb is required to take an ergative prefix like *u-*. In other words, the antecedent conditions an alternation on the matrix verb which is canonically linked to the properties of the direct object (7-8).

This pattern holds in a systematic way beneath every verb which embeds the PVC. It is worthwhile to note, moreover, that it does not hold beneath predicates that embed other types of finite and non-finite clausal complements. In Mandar, there are a range of verbs that select complement clauses of different sizes, and these typically show idiosyncratic and invariant patterns of prefixation. For

instance, the verbs *uang* 'say' and *issang* 'know' both embed clauses headed by the finite complementizer *mua'*, but the former takes the antipassive prefix *maN-* (39) and the latter the ergative prefixes which mark the transitive voice (40).

(39) **Ma'**-uang=a'   [mua' pole=i   iKaco'].
     ANTIP-say=1ABS   that come=3ABS NAME
     'I said that Kaco' came.'   JT: 7.22, 156

(40) **U**-issang=i   [mua' pole=i   iKaco'].
     1ERG-know=3ABS   that come=3ABS NAME
     'I know that Kaco' came.'   JT: 7.26, 137

The force of these facts is to suggest that the verbs that embed the PVC do not simply embed complement clauses. Rather, they appear to treat the antecedents of the PVC as direct objects. This conclusion allows us to set aside the analyses which would reduce the syntax of the PVC to that of clausal complementation: for instance, the single TP" and single-CP analyses of (33)-(34).

4.3   THE ANALYSIS

In light of this analytical step forward, it is useful to pause and consider the analytical options which remain. In the possibility space above, there are two. The first is the Non-Constituent Analysis in (21). The second is the subclass of Constituent Analysis on which the pseudorelative is contained in a nominal constituent that corresponds to the antecedent. These possibilities are given below.

(41)   *The Non-Constituent Analysis*   (42)   *The Single-DP Analysis*
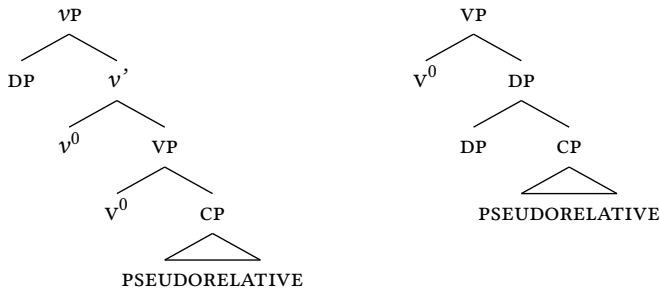
The Single-DP analysis in (42) has historically held currency in work on the complements of perception verbs in many languages of Europe for the reason that the pseudorelatives in these languages look much like relative clauses. It is interesting to note, then, that the same is true in Mandar. In this language, the pseudorelative bears the same surface shape as a restrictive relative clause (44).

(43) Ma'-ita=a'   buku [_{PR} **bemme** __].
      ANTIP-see=1ABS book   fall

      'I saw a book fall.'   JT: 8.3, 138

(44) U-baca=i   buku [_{RR} **bemme** __].
      1ERG-read=3ABS book   fall

      'I read the book that fell.'   JT: 8.3, 139

Given this fact, it is tempting to link the analysis of the pseudorelative to the syntax of relative clauses at large. For instance, we might assume that the pseudorelative is a clause inside of the antecedent DP and that it contains a gap which is linked to the surface position of the antecedent by movement or binding (Graffi 1980; Kayne 1981; Donati & Cecchetto 2011). This is shown in (45).

(45)   *The DP-Internal Clause Analysis*
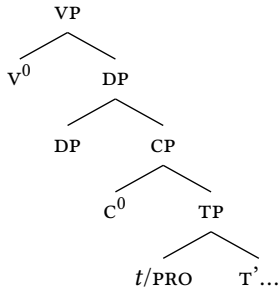
This analysis is useful in a respect, as it provides the means to capture the relationship that holds between the antecedent of the PVC and the embedding verb. Nevertheless, it it not without problems. Most notably, it fails to account for a suite of properties that separate the pseudorelative from other types of relativization structure in the language. These patterns are briefly enumerated below.

To begin, it is possible for the pseudorelative to be associated with a null antecedent (46). The same is impossible for restrictive relative clauses (47).

(46) U-ita=i   ***pro*** [_{PR} bemme __].
      1ERG-see=3ABS   3SG   fall

      'I saw him fall.'   JT: 7.15, 97

(47) *U-ala=i   ***pro*** [_{RR} bemme __].
      1ERG-take=3ABS   3SG   fall

      INT: 'I took what fell.'   JT: 7.15, 77

In the same vein, it is possible for the pseudorelative to follow nominals which cannot host restrictive relative clauses: for instance, proper names (48).

(48) U-ita=i   **iKaco'** [PR bemme __].
     1ERG-see=3ABS   NAME   fall

     'I saw Kaco' fall.'   JT: 7.12, 341

To these facts one might respond with the suggestion that the pseudorelative is a type of non-restrictive relative clause. Unfortunately, however, it is clear that this is not correct. In Mandar, non-restrictive relatives take a form which is distinct from that of the pseudorelatives and restrictive relatives above: they must be prosodically offset (marked with a comma) and overtly headed (49).

(49) U-ita=i   iKaco' , [NRR **iaro'o** ma'-balu' do'ayu   o].
     1ERG-see=3ABS   NAME   the.one ANTIP-sell vegetable there

     'I saw Kaco', the guy who sells vegetables.'   JT: 7.15, 52

Pseudorelatives do not (and cannot) show either of these properties.

(50) U-ita=i   iKaco' (*,) [PR (***iaro'o***) ma'-balu' do'ayu   o].
     1ERG-see=3ABS   NAME   the.one   ANTIP-sell vegetable there

     'I saw Kaco' selling vegetables.'   JT: 7.15, 53

These observations suggest that, from a syntactic standpoint, the pseudorelative cannot be equated with any type of relative clause in the language.

In broader perspective, this conclusion suggests a type of kinship between the pseudorelative and the predicative constituent that appears beneath verbs of perception in languages of the Romance family and Greek (Schwarze 1974; Kayne 1975; Angelopoulos 2015). Like its Mandar analogue, this string follows a nominal antecedent and resembles a restrictive relative clause:

(51) J'ai vu   Mario   [PR qui __ courait   à tout vitesse].
     I have seen NAME   was.running at full speed

     'I saw Mario running at full speed.'   French; Cinque 1992: 1

But it occurs alongside with a range of antecedents that cannot host canonical restrictive relative clauses: for instance, names (51) and clitic pronouns (52).

(52) Je **l'**ai vu   [PR qui __ sortait   du cinéma].
     I have seen him   was.leaving the cinema

     'I saw him leaving the cinema.'   French; Cinque 1992: 9a

The literature has long held that this constituent is not a relative clause. Despite this fact, there are cases across Romance in which it forms a constituent with the antecedent (Cinque 1992). This is the observation that has given rise to the range of analyses that take it to form part of a single complex DP (45).

What, then, of constituency in Mandar? This question is not trivial, as the PVC is not readily subjected to the diagnostics familiar from the literature on Romance. The absence of an overt relativizer makes it difficult to identify this construction with confidence in fragment contexts, and the flexibility of word order in the language raises separate challenges elsewhere. But there is one fact which is instructive in this domain. In Mandar, it is generally not possible for a matrix-clause adverbial to intercede between a relative clause and its head:

(53) *U-waca=i   buku **dionging**   [_RR mu-alli __].
      1ERG-read=3ABS book yesterday   2ERG-buy

      IM: 'Yesterday I read the book that you bought.'   JT; 7.15, 83

But it is possible for an adverb to split the antecedent and pseudorelative:

(54) U-irrangi=i   iCicci' **dionging**   [_PR ma'-ellong __].
      1ERG-hear=3ABS NAME   yesterday   ANTIP-sing

      'Yesterday I heard Cicci' singing.'   JT; 7.15, 91

This pattern forms a part of the generalization that the antecedent and pseudorelative can be split in ways that a nominal and a restrictive relative clause cannot. There are several other ways in which this can be seen. For instance, it is possible for the antecedent to undergo a type of A'-extraction which strands the pseudorelative (55). This is not possible for the head of a relative clause (56).

(55) Innai mu-ita   __   [_PR tanda __]?
      who   2ERG-see   arrive

      'Who did you see arrive?'   JT; 7.15, 89

(56) *Paket-mu   na-buai   __   [_RR tanda __].
      package-2GEN 3ERG-open   arrive

      IM: 'Your package, they opened that arrived.'   JT; 7.15, 92

There are several ways in which this pattern could be interpreted, and many of these have precedent in the literature on pseudorelatives. In the pages which remain, however, I would like to develop a particular analysis of these facts.

4.4   Perception Verbs and Raising to Object

In Mandar, I propose that the antecedent and pseudorelative do not form a surface constituent in the PVC. Rather, I would like to suggest that the antecedent invariably moves from a position inside of the pseudorelative to one in the matrix VP. I take this to be the canonical landing site of object shift: namely, SPEC,vP.

On this analysis, the verbs which embed the PVC are understood as a particular subset of those which allow a process of *raising to object*. The syntax of the clauses which involve this construction, then, can be treated on a par with (57).

(57) U-hara'=i   iKaco'   [pole   __   ].
      1ERG-hope=3ABS NAME   come

      'I hope Kaco' to come.'   JT: 7.26, 250

The structure in (57) is built from two components of some familiarity. Like the PVC, it contains a nominal and a non-finite clause that follows. Moreover, it can be shown that the nominal in this construction, as in the PVC, moves into the matrix clause and does not form a surface constituent with the following clause. For this reason, it seems reasonable to adopt an analysis along the lines of (58), on which the nominal undergoes a step of *Raising to Object* from the subject position of the embedded predicative constituent to one in the matrix VP.

(58)   *The Raising to Object Analysis*
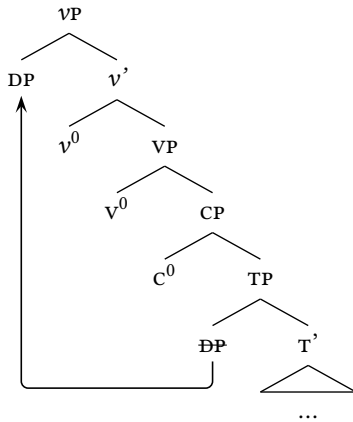
Should we adopt the same analysis for the PVC, a number of its properties will immediately fall into place. First, we reach an account that reflects the basic facts of constituency. Second, we receive an explanation for the word order of the construction: the antecedent precedes the predicate because it has undergone a step of movement into the matrix clause. And third, we capture the parallels which hold between the pseudorelative and the set of predicative constituents which launch extraction: both lack overt complementizers, both lack the mark of absolutive agreement, and both host a postverbal absolutive gap.

5   CONCLUSION

In light of these facts, it would seem that the Raising to Object analysis of the PVC in (3) is reasonably successful, and for this reason, I consider it a genuine empirical advance. But before concluding, I would like to point out an additional property of the construction that is of some note. In Mandar, there is a restriction

which holds over cross-clausal movement: it must target absolutive arguments. The process of Raising to Object, for instance, cannot target an ergative (59).

(59) *U-hara'=o   *pro*   [**mu**-waca __ iting buku].
     1ERG-hope=2ABS 2SG   2ERG-read   that book
     IM: 'I hope you read that book.'   JT: 8.17, 91

The same constraint holds over the PVC. When the verb in the pseudorelative is transitive, its internal argument (which is absolutive) can be the antecedent:

(60) U-ita'=o   *pro*   [_PR_ **na**-pelambi'i __ iCicci'].
     1ERG-see=2ABS 2SG   3ERG-visit   NAME
     'I saw you being visited by Cicci.'   JT: 8.17, 118

And it is impossible for the external argument (which is ergative) to do so:

(61) *U-ita'=o   *pro*   [_PR_ **mu**-pelambi'i __ iCicci'].
     1ERG-see=2ABS 2SG   2ERG-visit   NAME
     IM: 'I saw you visiting Cicci.'   JT: 8.17, 119

In previous work, I have argued that this asymmetry arises from a constraint on locality: in Mandar, the absolutive argument moves to a position above all other arguments in the clause, and as a result, it is closer to the landing site of any step of cross-clausal movement than a clausemate ergative argument (Brodkin 2022). On the analysis in (3), the same logic can be applied to the PVC.

In light of this fact, it is interesting to note that the same constraint holds over the analogous construction in Romance. In French, for instance, the antecedent of the pseudorelative can be nominative (2), but not accusative (62).

(62) *Je l'ai vu   [_PR_ qui Marie embrassait __].
     I him-have seen   Mary was.kissing
     IM: 'I saw him being kissed by Mary.'   French; Cinque 1992: 9b

It remains to be seen what further investigation of this parallel will reveal.

REFERENCES

Angelopoulos, Nikolaos. 2015. *Explorations of (Greek) pseudo-relatives*. MA thesis, UCLA.

Baier, Nicholas B. 2018. *Anti-agreement*. Ph.D. thesis, UC Berkeley.

Barwise, Jon. 1981. Scenes and other situations. *The journal of Philosophy*, **78**(7), 369–397.

Brodkin, Dan. 2020. Pseudoclefts and Parameters in the Pacific. *Syntax & Semantics at Santa Cruz, Volume IV*, 43.

Brodkin, Dan. 2021a. Agreement and Anti-Agreement in South Sulawesi. *Proceedings of NELS 51: The 51st Meeting of the North East Linguistics Society*.

Brodkin, Dan. 2021b. Second Position Clitics and Prosodic Recursion. *Page 12 of:* et al., Ryan Bennett (ed), *Supplemental Proceedings of the 2020 Annual Meeting on Phonology*. Washington, DC: Linguistic Society of America.

Brodkin, Dan. 2022. *Two Steps to High Absolutive Syntax*. MA thesis, UCSC.

Casalicchio, Jan. 2016. Pseudo-relatives and their left-periphery. *Romance Languages and Linguistic Theory. Selected Papers from'Going Romance*, **28**, 23–42.

Cinque, Guglielmo. 1992. The pseudo-relative and ACC-ing constructions after verbs of perception. *University of Venice Working Papers in Linguistics*, 1–31.

Donati, Caterina, & Cecchetto, Carlo. 2011. Relabeling heads: A unified account for relativization structures. *Linguistic inquiry*, **42**(4), 519–560.

Finer, Daniel L. 1997. Contrasting Ā-dependencies in Selayarese. *Natural Language & Linguistic Theory*, **15**(4), 677–728.

Friberg, Barbara, & Jerniati. 2000. *Mandar Conversations*. Unpublished; circulated by the Language Office of South Sulawesi (Balai Bahasa Sulawesi Selatan).

Graffi, Giorgio. 1980. Su alcune costruzioni" pseudorelative". *Rivista di Grammatica Generativa, vol. 5 (1980), P. 117-139*.

Kayne, Richard. 1975. *French syntax: The transformational cycle*. MIT press.

Kayne, Richard S. 1981. Binding, quantifiers, clitics and control. *Pages 87–102 of: Connectedness and binary branching*. De Gruyter Mouton.

Pearson, Matt. 2018. Predicate raising and perception verb complements in Malagasy. *Natural Language & Linguistic Theory*, **36**(3), 781–849.

Pelenkahu, RA, Muthalib, Abdul, & Sangi, M Zain. 1983. *Struktur Bahasa Mandar*. Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Rizzi, Luigi. 2000. Direct perception, government and thematic sharing. *In: Comparative Syntax and Language Acquisition*. Routledge.

Schwarze, Christoph. 1974. Les constructions du type "Je le vois qui arrive". *Pages 18–30 of:* Rohrer, Christian, & Ruwet, Nicolas (eds), *Actes du colloque franco-allemand de grammaire transformationnelle*. Niemeyer.

Sikki, Muhammad, Muthalib, Abdul, Mulya, Abdul Kadir, & Haddade, Muhammad Naim. 1987. *Kata Tugas Bahasa Mandar*. Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan dan Kebudayaan.

Redundancy and Restriction in the Derivation of Relative Clauses[*]

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Abstract The contrast between restrictive and appositive relative clauses is often analyzed as a structural difference between low and high modification of a DP. In this paper, we consider how this familiar analysis might explain novel constraints on the distribution of two relative clause constructions in Santiago Laxopa Zapotec. "Bare relative clauses" (BRCs) in the language cannot modify proper names or demonstrative descriptions. Taking BRCs to be restrictive, we derive their constrained distribution from a semantic constraint on DP-internal relative clauses, No Redundant Restriction. In contrast, the freer distribution of "complex relative clauses" (CRCs) comes from their status as nominal appositives, higher modifiers free from this constraint. We conclude with a puzzle for this classical division: CRCs can exhibit atypical restrictive interpretations without violating No Redundant Restriction, raising questions about the nature of this constraint and posing a problem for a tight connection between the position and interpretation of a modifier.

Keywords: relative clauses, restriction, appositives, redundancy, Zapotec, Oto-Manguean

1   Introduction

Relative clauses have long been known to be heterogenous, both structurally and interpretatively. One particularly important empirical division within this domain distinguishes **restrictive** relative clauses from **appositive** relative clauses. While restrictive relative clauses contribute information essential to determin-

ing the reference of a description, appositive relative clauses provide extra information about an independently identifiable referent. This interpretive contrast correlates with a number of syntactic properties, including what the head of a relative clause can be (proper name, definite description, quantified expression), which relative pronoun is allowed inside the relative clause, their ordering with respect to other modifiers as well as the head, and whether they permit stacking (Partee 1975; Jackendoff 1977; Bianchi 1999; Potts 2005; and others).

These differences have, in turn, suggested that restrictive and appositive relative clauses have distinct hierarchical arrangements, responsible for their interpretive differences. A widely adopted hypothesis in this vein, first advanced by Partee (1975) and extended by others, identifies the two relative clause types with distinct syntactic positions within the DP. Appositive relative clauses combine with the DP itself, and thus are located too high to contribute to determining its reference. Restrictive relative clauses instead attach lower, somewhere within the complement of D, further restricting reference by adding to the DP's descriptive content.

In this paper, we consider how tight the mapping between the syntax and semantics of relative clauses is, in light of data from Santiago Laxopa Zapotec (SLZ).[1] The language has two relative clause structures, and the difference between them seems easy to diagnose at first impression. **Bare relative clauses** (BRCs) are restrictive (1a), while **complex relative clauses** (CRCs), which contain an additional "classifier" element, are appositive (1b).

(1) a. **Bare relative clause (BRC)**
   Jano [beku'=nh shtahs ___ nha'] blull=e'nh.
   chase.COMP dog=DEF sleep.CONT there frog=DEF
   'The dog who is sleeping there chased the frog.' (RD, SLZ5088)

 b. **Complex relative clause (CRC)**
   Jano [beku'=nh bi'anh shtahs ___ nha'] blull=e'nh.
   chase.COMP dog=DEF CL.AN.DEF sleep.CONT there frog=DEF
   'The dog, who is sleeping there, chased the frog.' (RD, SLZ5088)

As restrictive relative clauses, BRCs should be unable to modify proper names. This is indeed the case, as shown in (2a), a restriction we will refer to as *NAME + BRC. CRCs, by contrast, can modify a proper name (2b).

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1 This Zapotec variety is spoken by about 1,200 people in the municipality of Santiago Laxopa, in Oaxaca's Sierra Norte region, as well as in diasporic communities in California. Data here comes from weekly elicitations in person and by Zoom with two speakers living in Santa Cruz. SLZ belongs to a group of Zapotec varieties which are classified as 'southeastern Sierra Zapotec' by the *Catálogo de las lenguas indígenas nacionales* (Instituto Nacional de Lenguas Indigenas 2008). We write SLZ using the community orthography, sometimes with additional diacritics to mark important tonal contrasts (e.g. *é* marks a high tone, while *è* marks a low tone).

(2)   a.   #Bxixe'   [Bedw='nh nhgu'u   kachuche'=nh].
            sneeze.COMP Pedro=DEF wear.STAT hat=DEF
            Intended: 'Pedro who is wearing a hat sneezed.'
      b.   Bxixe'   [Bedw='nh bi'nh   nhgu'u   kachuche'=nh].
            sneeze.COMP Pedro=DEF CL.HU.DEF wear.STAT hat=DEF
            'Pedro, who is wearing a hat, sneezed.'   (FSR, SLZ5079)

However, BRCs are also incompatible with demonstrative descriptions (3a). This
is surprising since they can, of course, modify definite descriptions (1a). If BRCs
are able to contribute additional descriptive content in the latter, they should
similarly be able to do so in the former. In what follows, we refer to this restriction
as *DEM + BRC.

(3)   a.   #[Beku' ki='nh   setahs   ] eso'o   yetgu'='nh.
             dog   these=DEF sleep.CONT.PL eat.POT.PL tamale=DEF
             Intended: 'These dogs that are sleeping will eat the tamales.'
                                                              (FSR, SLZ5085)
      b.   Esu'unh [bene' xyag ki='nh   be'nh   dzesekwell
           do.POT.PL person male these=DEF CL.EL.DEF play.CONT.PL
           trompeta='nh] yu'u=nh.
           trumpet=DEF   house=DEF
           'These men, who play trumpet, will build a house.' (FSR, SLZ5088)

Importantly, the modification of demonstrative descriptions is not ruled out in
general, as CRCs are perfectly compatible with them (3b).

We will argue that BRCs are restrictive relative clauses, though we do not at-
tribute the *NAME + BRC restriction to their syntax. We propose in Section 2 that
these restrictive relative clauses' incompatibility with proper names arises from
a constraint on semantic redundancy. When a relative clause provides no addi-
tional information beyond what is already provided by the DP description, it is
infelicitous (Bach 1974; Fabricius-Hansen 2012; cf. Schlenker 2005, 2021; Ingason
2016).

In Section 3, we show that, with a particular analysis of demonstratives, this
redundancy constraint can also be identified as the source of the *DEM + BRC re-
striction. Based on a comparison with English and Hebrew, we argue that demon-
stratives are adjectival in SLZ, not determiners (Ds). As adjectives, they form part
of the descriptive core of a DP, which is subject to the redundancy constraint
on restrictive modification. And, as demonstratives, they establish "pragmatic
uniqueness" (Löbner 1985), which always renders restrictive relative clauses re-
dundant.

We turn, in Section 4, to CRCs, which do not exhibit either of these restric-
tions. Instead, they can function as appositives, something that is only possible if
they are not subject to a redundancy constraint as BRCs are. We do not advance a

full account of why this might be, though we do show that CRCs have a different structure than BRCs. While a BRC is integrated into its host DP, a CRC is contained inside its own DP, which stands in some looser syntactic relation to the nominal it modifies.

This syntactic analysis raises a puzzle about CRCs, which we lay out in Section 5. While CRCs can clearly modify non-restrictively, they also pass the interpretive diagnostics for restrictive modification. We identify a parallel between CRCs in SLZ and *one*-appositives in English, which show a similar profile of restrictive modification despite superficial appositive syntax (Wang et al. 2005; Nouwen 2014; AnderBois et al. 2015; Koev 2018).

2   RESTRICTIVE MODIFICATION WITH BRCS

We begin by establishing that BRCs are restrictive relative clauses.[2] While a restrictive relative clause adds descriptive content to its **host**, typically narrowing its reference or quantificational domain, appositive (non-restrictive) relative clauses: (i) leave the denotation of their host to stand alone, (ii) require a host that establishes reference (e.g., names, definite or demonstrative descriptions, some quantifiers in some contexts), and (iii) introduce a property which holds of all individuals in the denotation of their host. These interpretive properties furnish a number of diagnostics, which we will use to establish that BRCs can modify restrictively. Since we have already seen that BRCs cannot modify proper names, this suggests that they can **only** function as restrictive relative clauses. We derive their incompatibility with proper names from a redundancy constraint, which prohibits a restrictive relative clause when it does not contribute any additional information beyond what is already found in a DP's **descriptive core** (the other descriptive content in the DP) (Bach 1974: 271-272; Fabricius-Hansen 2012).

2.1   DIAGNOSING RESTRICTIVE MODIFICATION

To start, when a definite description fails to be contextually unique, only a relative clause which is restrictive can successfully alter its denotation and satisfy uniqueness. In a context where there are multiple children, the use of *the child* is infelicitous, as no unique referent can be determined (4a). A restrictive relative clause can repair this infelicity (4b), but an appositive relative clause cannot (4c).

(4)   **Context:** You and your friend are in a room with the people below:

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2 We do not address here the syntactic derivation of BRCs. They pass movement diagnostics, certainly, but it is unknown whether they have a raising or matching structure (Bhatt 2002; Hulsey and Sauerland 2006). Kalivoda and Zyman (2015) argue that relative clauses in a Central Zapotec language only have a matching derivation, but we have not been able to replicate their results for SLZ.

You hear someone sneeze, and you are trying to figure out who did it. So you advance the following hypothesis:

a. #The child sneezed.
b. The child who is wearing the hat sneezed.
c. #The child, who is wearing the hat, sneezed.

In the same context, a BRC can also license the use of a definite description (5b), which is otherwise infelicitous (5a).

(5) **Context:** As in (4).

a. #Bxixe'   bi'i   xkwide'=nh.
   sneeze.COMP CL.HU young=DEF
   'The child sneezed.'

b. Bxixe'   bi'i   xkwide'=nh [nhgu'u kachuch=e'nh].
   sneeze.COMP CL.HU young=DEF   wear   hat=DEF
   'The child who is wearing the hat sneezed.'   (FSR, SLZ6078)

Similarly, if the host is a universal quantifier, only restrictive modification can narrow its domain. In a context like (6), where only a subset of the children are both wearing a hat and have a tamale, an appositive relative clause fails to restrict universal quantification to just those children wearing a hat, leading to falsity (6a). A restrictive relative clause is, by contrast, judged true in this context (6b).

(6) **Context:** You gave tamales to some children, resulting in this scene:

a. I gave all the children who are wearing hats a tamale.
b. #I gave all the children, who are wearing hats, a tamale.

A BRC is also judged to be true in this context (7), suggesting that it can compose restrictively with the universal quantifier.

(7) **Context:** As in (6).

Yuge' bi'i   xkwide'=nh [nhgu'u   lhape'] bnhelljw=a'   tu yetgu'.
all   CL.HU young=DEF wear.STAT hat   gave.COMP=1SG one tamale
'I gave all the children who are wearing hats a tamale.'   (FSR, SLZ5080)

Finally, a restrictive relative clause can modify a negative indefinite (8a), while an appositive cannot (8b), since the negative indefinite does not establish reference.

(8) **Context:** I have children, but none that eat tamales.
     a.   I don't have (any) children who eat tamales.
     b.   #I don't have (any) children, who eat tamales.

BRCs can felicitously modify a bare nominal in the scope of negation (9), again patterning with restrictive relative clauses.

(9) **Context:** I have children, but none that eat tamales.

Bitu de   bi'i   xkwide' tsi=a'   [dzo   yetgu'].
NEG EXIST CL.HU young   of=1SG eat.CONT tamale
'I don't have (any) children who eat tamales.'   (FSR, SLZ5083)

We conclude based on these diagnostics that BRCs can serve as restrictive relative clauses, narrowing their host's reference or quantificational domain.

2.2 DERIVING *NAME + BRC

BRCs, moreover, can **only** modify restrictively. Like restrictive relative clauses in English, BRCs cannot have a proper name as a host, a restriction we called the *NAME + BRC generalization.

(10) #Pierre Omidyar {who, that} studied at Berkeley is a billionaire.

(11) #Bxixe'   Bedw='nh [nhgu'u   kachuche'=nh].
      sneeze.COMP Pedro=DEF wear.STAT hat=DEF
      Intended: 'Pedro who is wearing a hat sneezed.'   (FSR, SLZ5079)

A syntactic explanation for *NAME + BRC is unlikely. While proper names in English might lack the internal structure necessary to host modification, they are internally complex in SLZ. Proper names always bear the definite clitic *=nh* in argument position (12).

(12) Ba   nhake Maziar=e'nh bene' xuanh.
      already be.STAT Maziar=DEF CL.EL elder
      'Maziar is an elder.'   (FSR, SLZ068)

If proper names in SLZ essentially have the structure of a definite description, it

is unlikely the unacceptability of (11) can be attributed to their not having the requisite structure to host a BRC in a position that would be sufficiently low for restrictive modification.

Instead, we adopt a semantic explanation for *NAME +BRC. We take it to arise for the same reason that restrictive relative clauses cannot modify a definite description like *the founder of eBay*, whose domain contains a unique individual (in this case, Pierre Omidyar).

(13)   #The founder of eBay {who, that} studied at Berkeley is a billionaire.

There is an old idea that this infelicity arises due to a constraint on redundancy. For the restrictive relative clause to contribute non-trivial information, its host's descriptive core must contain, in any given context, at least one individual who does **not** satisfy the relative clause description (Bach 1974: 271; Fabricius-Hansen 2012 *apud* Cabredo Hofherr 2013; Wiltschko 2013).

(14)   **No Redundant Restriction:**
For a DP with a descriptive core δ (i.e., the N and any adjectival modifiers) modified by a restrictive relative clause ρ, i.e.,

$$[_{DP} \ldots [_{\delta} \ldots N \ldots] \ldots [_{\rho} \ldots] \ldots]$$

δ must, in context, denote a set such that $[\![\delta]\!] \cap [\![\neg\rho]\!] \neq \varnothing$.

This accounts for the infelicity of (13), as there is only one founder of eBay (who either studied at Berkeley or did not). And, it derives *NAME + BRC for the same reason: in many contexts, a proper name picks out a unique individual, and No Redundant Restriction as a result can never be satisfied. This predicts that when a proper name does **not** refer uniquely, it can be modified by a BRC, which is in fact possible (15).

(15)   **Context:** There are several people named Pedro, only one of whom is wearing a hat.

Bxixe'   Bedw='nh [nhgu'u   kachuche'=nh].
sneeze.COMP Pedro=DEF wear.STAT hat=DEF
'The Pedro who is wearing a hat sneezed.'   (RD, SLZ5082)

In this context, where there are multiple individuals answering to the same name, No Redundant Restriction can be satisfied, and so the BRC is felicitous.

As stated above, No Redundant Restriction says nothing about how its requirement is imposed. Is it a semantic presupposition, a pragmatic presupposition, or something else? Is it associated with the restrictive relative clause itself, with restrictive modifiers in general, or is it somewhat an independent property of nominal structure? At issue here is what counts as part of the "descriptive core" for the purpose of evaluating the restrictive relative clause's redundancy.

Intuitively, this is all of the DP's descriptive content, minus the relative clause itself. While we welcome a general theory of redundancy, if one is possible (see Ingason 2016 and Schlenker 2021 for some recent efforts), we have stated No Redundant Restriction in more construction-specific terms in order to make our commitments clear.

In particular, in addition to the head noun, restrictive adjectives must count as part of a DP's descriptive core for the purposes of satisfying No Redundant Restriction. Evidence for this comes from languages which have more than one definite determiner. In standard and non-standard German varieties which distinguish "weak" and "strong" definite determiners, the weak determiner appears in DPs that refer to a situationally unique individual. The weak determiner, moreover, cannot occur with a restrictive relative clause, as shown in (16) for Austro-Bavarian, though it is compatible with a restrictive adjective (Wiltschko 2013 and the reference cited there).

(16)   a.   *'s   Bauch des (was) da   Chomsky gschriem hot
            the$_w$ book   that which the$_w$ Chomsky wrote   has
            Intended: 'the book that Chomsky wrote'
       b.   'n   stärksten Mann von   Los Feliz
            the$_w$ strongest man   from Los Feliz
            'the strongest man from Los Feliz'

<div align="right">(Brugger and Prinzhorn 1996: 14–15)</div>

The incompatibility of weak definite determiners with restrictive relative clauses receives a natural explanation in terms of some version of No Redundant Restriction (Fabricius-Hansen 2012 *apud* Cabredo Hofherr 2013; see also Wiltschko 2013, though she ultimately argues for a structural analysis). If weak definites require the descriptive core to denote a singleton set in context, then a restrictive relative clause will be impossible. By contrast, restrictive adjectives are possible because they constitute part of the DP's core and help to establish situational uniqueness.

Before moving on, a final caveat about No Redundant Restriction. It is stated as a local constraint, but its global consequences are hard to ignore. A DP containing a restrictive relative clause will always make a more informative contribution than if the relative clause were absent. This suggests an account of restrictive relative clauses' infelicity with proper names and uniquely-referring definite descriptions tied to Gricean pressures to minimize linguistic form or content. Indeed, Schlenker (2005) proposes a pragmatic constraint, Minimize Restrictors!, that does just this for restrictive modifiers.

(17)   **Minimize Restrictors!** (after Schlenker 2005: 391):
       A definite description containing a restrictive modifier *A* is deviant if *A* is redundant; that is, if:

(i) *A* can be dropped from the definite description without changing its denotation, and

(ii) *A* does not serve any other pragmatic purpose.

Minimize Restrictors! rules out definite descriptions in which a restrictive relative clause does not serve to narrow down the denotation of the host's core, just as No Redundant Restriction does.

While we acknowledge this connection, we adopt a grammatical principle, like No Redundant Restriction, for two reasons. First, we are interested here in how restrictive relative clauses modify not only definite descriptions, but also demonstrative descriptions. Minimize Restrictors!, however, is only relevant for definite descriptions, whose reference is determined entirely by their descriptive content; demonstrative descriptions, which are commonly assumed to establish reference through other means (e.g., a deictic or cognitive gesture), would not be subject to the pragmatic pressures of minimization in the same way. Second, No Redundant Restriction creates an interpretive asymmetry between restrictive modifiers, while Minimize Restrictors does not. It is the relative clause that must not be redundant relative to the information conveyed by the noun and other restrictive modifiers. This distinction is crucial for our account of the other restriction on BRCs, which involves demonstratives, to which we turn next.

3   The demonstrative puzzle

BRCs are incompatible not just with proper names, but also with demonstrative descriptions. This generalization, which we called *DEM + BRC, is illustrated again below.

(18)   *[Beku' ki='nh   setahs   ] eso'o   yetgu'=nh.
          dog   these=DEF sleep.CONT.PL eat.POT.PL tamale=DEF
          Intended: 'These dogs that are sleeping will eat the tamales.'

                                                                    (FSR, SLZ5085)

The incompatibility is surprising for at least two reasons. First, BRCs are acceptable in definite descriptions, and demonstrative marking is often of a subtype with definite marking. For example, English demonstrative descriptions can be restrictively modified by a relative clause.

(19)   Those books that you left on the stoop were my favorite.

In addition, in some languages with a definiteness split, a strong definite determiner is required with restrictive relative clauses, and this strong determiner can have the form and meaning of a demonstrative (Sichel in press).

We will argue that SLZ diverges from these patterns because its demonstratives are adjectival. This argument will be based on a close examination of the

language's nominal structure, in comparison with Hebrew. And this, in turn, will provide an explanation for *DEM + BRC. As adjectives, demonstratives in SLZ form part of the DP's descriptive core, and thus factor into the calculation for whether No Redundant Restriction is satisfied or not.

3.1   NOMINAL DEMONSTRATIVES ARE ADJECTIVAL IN SLZ

There are six demonstratives in SLZ, given in Table 1, which encode at least a two-way proximity distinction and singular vs. plural number. What differentiates the two pairs of proximate demonstratives (e.g., *nhi*/*ki* vs. *nhga*/*kinhga*) is, at this point, unknown.

	SG	**PL**
proximate	*nhi*	*ki*
	nhga	*kinhga*
distal	*nha'*	*ka'*

Table 1   Demonstratives in Santiago Laxopa Zapotec.

All three singular demonstratives can also be used as locatival adverbs: *nhi* or *nhga* 'here' (20a) and *nha'* 'there' (20b).

(20) a. Nhi ze   Maria='nh.
          here stand.STAT Maria=DEF
          'Here is Maria.'   (FSR, SLZ020)
      b. Ne'e dzi'i=ba'   nha'.
          still sit.CONT=3HU there
          'S/he is still sitting there.'   (FSR, SLZ5049)

Such formal overlap between adverbs and adjectives is found in many languages. Its presence for demonstratives in SLZ is perhaps a first indication that they are not determiners (Ds). There is further evidence that they are instead adjectival, based on demonstratives' linear position within the DP.

SLZ has no independent definite determiner. It has a definite enclitic, which appears after a possessor or any adjectival modifiers (21). Numerals only appear before the noun (21b).

(21) a. beku' gulhe=nh
          dog   old=DEF
          'the old dog'
      b. dzupe   beku' gache' xhenh tsi=a'=nh
          two.COLL dog   yellow large of=1SG=DEF
          'my two large yellow dogs'   (FSR, SLZ6079)

When no nominal modifiers are present, demonstratives immediately follow the noun and can host the definite enclitic, which is optional.

(22) Se'eyitj   gunhla'=nh lhenh bi'i   nhu'ulhe ka'.
      play.CONT.PL goblin=DEF with CL.HU female   those
      'The goblins played pranks on those girls.'   (FSR, SLZ014-8)

(23) Setahs   beku' ka'(=nh).
      sleep.CONT.PL dog   those=DEF
      'Those dogs are sleeping.'   (FSR, SLZ5085)

"Low" adjectives describing place of origin, color, and shape all reliably precede "high" adjectives, such as *la'ay* 'expensive', *xhi'a* 'mean', or *xhudzi'* 'beautiful', which express more evaluative properties. Adjectives from both classes always precede a demonstrative.

(24) a. xha   ga'a la'ay   ka'
          clothes green expensive those
          'those expensive green clothes'
      b. beku' Xhgulle' xhi'a ka'
          dog   Zoogocho mean those
          'those mean dogs from Zoogocho'
      c. beku' blhul xhudzi' ka'
          dog   round beautiful those
          'those beautiful round dogs'   (FSR, SLZ6078)

This linear order, which is depicted schematically in (25), inverts the cross-linguistically common ordering of evaluative adjectives before adjectives describing more objective properties (Sproat and Shih 1988).

(25) (Num) N (Low As) (High As) (Dem) (D)

Following Cinque (1994, 2010), however, we take evaluative adjectives universally to be located higher up in the nominal spine than other adjectives. In other words, the underlying structural configuration for DPs in SLZ, as in all languages, is what is shown in (26).

(26) D > Num > High As > Low Adjs > N

The mirror image ordering for adjectives is not rare cross-linguistically, and it can be understood if elements to the right are structurally higher in the nominal spine than elements that linearly precede them.

One way of deriving this configuration is through "roll-up" movement, as Sichel (2002) and Shlonsky (2004) propose for Hebrew and Arabic varieties. The derivation for (24a), under this view, would be the following:

(27)   [[[_N xha] [_A ga'a]] [_A la'ay]] ka']

The noun and its closest modifier together move to the specifier of the next highest modifier. The constituent containing these elements then undergoes another instance of phrasal movement, an operation that is iterated until, after the final step, the highest modifier's specifier hosts the noun and all its other modifiers.

We take the fact that demonstratives occur at the right edge of the DP to indicate that demonstratives are adjectives in slz, and in fact the highest adjectives in the nominal projection. If they were Ds, merged above Num, then we would expect either for them to appear to the left of Num, or for Num to occur in penultimate position with demonstratives following them (a full inversion of the nominal spine). But if instead demonstratives are the highest adjectives, merging below Num and above all other adjectives, their final position within the DP is expected. In derivational terms, demonstratives host a nominal constituent in their specifier, just like other adjectives.[3] The iterated phrasal movement that inverts low adjectives over high adjectives, then, also results in the inversion of all other adjectives over demonstratives, as illustrated in (27) above.

This account finds support in a comparison with Hebrew, which has the same mirror image ordering of adjectives and demonstratives.

(28)   ha-mexonit ha-amerika'it ha-nehederet   ha-zot
        DEF-car   DEF-American DEF-wonderful DEF-this
        'this wonderful American car'

Unlike in slz, however, the adjectival status of demonstratives in Hebrew is morphologically transparent. Just like any other adjective, they exhibit definiteness concord, in addition to gender and number concord.

3.2   Deriving *dem + brc

With this in place, we now turn to the relationship between demonstratives and restrictive relative clauses. brcs invariably follow all non-demonstrative adjectives and, thus, are located higher than them (29).[4]

(29)   beku' Xhgulle' xhi'a=nh [shtas=dzgwa   ]
        dog   Zoogocho mean=DEF sleep.CONT=INT
        'the mean dog from Zoogocho that sleeps a lot'

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3 The alternative, that demonstratives are Ds, would require a D also to be able to host a nominal constituent in its specifier, on a par with adjectives but distinct from numerals. This is possible, though it would require an explanation for why it is not only adjectives that allow movement of their complement into their specifier.

4 The definite enclitic generally appears in phrase final position, after non-clausal modifiers, e.g. adjectives and possessors. With brcs, however, the definite determiner occurs preceding the relative clause, as in (29). We take this to reflect relinearization of the definite enclitic, most likely for phonological or prosodic reasons.

When illustrating *DEM + BRC up until this point, the demonstrative has always preceded the relative clause, e.g., (18). However, it is not possible to tell, on general grounds, whether the demonstrative ought to precede or follow a BRC (see footnote 4). The incompatibility with a restrictive relative clause holds for both possible orders.

(30) a. *Beku' ki=('nh) [setahs   ] eso'o   yetgu='nh.
          dog   these=DEF sleep.CONT.PL eat.POT.PL tamale=DEF
          Intended: 'These dogs that are sleeping will eat the tamales.'
      b. *Beku'=nh [setahs   ] ki=('nh)   eso'o   yetgu='nh.
          dog=DEF   sleep.CONT.PL these=DEF eat.POT.PL tamale=DEF

<div align="right">(FSR, SLZ5085)</div>

If BRCs are located higher than all adjectives (Cinque 2010), then the impossibility of (30a) and (30b) can be traced to a redundancy constraint like No Redundant Restriction. Even if they are relatively high adjectives, demonstratives still attach below a relative clause. Thus, depending on what their semantic contribution was, they could induce redundancy.

In the literature, demonstrative determiners have been associated with "pragmatic uniqueness" (Löbner 1985, 2011). Following Wolter (2006), we assume that demonstratives introduce, or mark, supplemental information that, when combined with the material in their prejacent, generates a property that holds for a unique entity.[5] In languages in which this has been systematically studied, the source of this supplemental information is heterogeneous, including contextual information such as deixis or anaphora, and also content introduced higher in the nominal spine than the noun and its immediate modifiers. These higher modifiers, which count as supplementary information in the relevant sense, include restrictive relative clauses. Note, for example, how the English demonstrative *those*, with or without additional content provided by the head noun, is not interpreted deictically or anaphorically when associated with a restrictive relative clause (31). It simply means 'the ones', consistent with the idea that the demonstrative marks that uniqueness requires further indications beyond the lexical content provided by the noun, including relative clause modification.

(31) a. Those that you left on the stoop were my favorite.
      b. Those books that you left on the stoop were my favorite.

A complex nominal that includes demonstrative marking, then, is guaranteed to establish unique reference. If the noun composes directly with the demonstrative, uniqueness will be established contextually, via deixis or anaphora. If the noun

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5 More work is needed to determine exactly what kinds of contextual information SLZ demonstratives can introduce. Minimally, we are certain they may function deictically, but anaphoric uses may also be possible.

composes first with a restrictive relative clause and then a demonstrative, the demonstrative description is neither deictic nor anaphoric, but simply marks the addition of relative clause content to satisfy uniqueness. Importantly, in this case, No Redundant Restriction is satisfied because the descriptive core is not singleton denoting, and so the relative clause can make an informative contribution.

However, in SLZ, demonstratives are adjectival and, as we have argued, compose as part of a nominal's core. If they impose pragmatic uniqueness via a contextual route, such as deixis, then the addition of a restrictive relative clause will invariably violate No Redundant Restriction. More generally, we predict the same for all and only languages with adjectival demonstratives (or demonstratives which are merged low for any other reason). In Germanic and Romance, demonstratives (and other uniqueness-marking material) can co-occur with restrictive relative clauses because, as Ds, the syntax affords them a higher position. Hebrew, on the other hand, has adjectival demonstratives: these only have a deictic interpretation when modified by a relative clause, which, as a result, can only receive a non-restrictive reading.

(32) ha-sfarim ha-hem Se-heS'art ba-xuc   hayu me'od yekarim
      DEF-books DEF-those that-you.left at.the-outside were very   expensive
      'Those books, that you left outside, were very expensive.'

In sum, *DEM + BRC is also a product of No Redundant Restriction, like *NAME + BRC. Once an adjectival demonstrative composes with the noun, unique reference is guaranteed and no further restriction by a restrictive relative clause is possible.

4   THE DIFFERENCE WITH CRCS

Our account attributes both *NAME + BRC and *DEM + BRC to a redundancy constraint on restrictive relative clauses. Why are CRCs not subject to this restriction on modification? Recall that CRCs can modify a uniquely-referring proper name (33a) or a demonstrative description (33b).

(33)   a.   Bxixe'   [Bedw='nh bi'nh   nhgu'u   kachuche'=nh].
            sneeze.COMP Pedro=DEF CL.HU.DEF wear.STAT hat=DEF
            'Pedro, who is wearing a hat, sneezed.'   (FSR, SLZ5079)
       b.   Esu'unh [bene' xyag ki='nh   be'nh   dzesekwell
            do.POT.PL person male these=DEF CL.EL.DEF play.CONT.PL
            trompeta='nh] yu'u=nh.
            trumpet=DEF   house=DEF
            'These men, who play trumpet, will build a house.' (FSR, SLZ5088)

This non-restrictive modification is only possible if CRCs are free from No Redundant Restriction.

While we do not have a complete answer for why this is, we will identify a structural difference between BRCs and CRCs. The former are structurally integrated into their host DP, in a way that subjects them to No Redundant Restriction. By contrast, CRCs are contained inside their own DP, which is external to the DP containing their host nominal.

(34)   a. **Structure of BRCs**
$[_{\text{DP}} \dots \text{N(=DEF)} \dots [_{\text{RC}} \dots]]$

       b. **Structure of CRCs**
$[_{\text{DP}} \dots \text{N(=DEF)} \dots] \dots [_{\text{DP}} \dots \text{CL(=DEF)} \dots [_{\text{RC}} \dots]]$

This structural difference is motivated by the key surface difference between the two types of relative clauses: the presence of a nominal element between the relative clause and host noun in CRCs. We will argue that this element is a **nominal classifier**, which in turn suggests that the relative clause inside a CRC occurs inside its own DP.

4.1 Nominal classifiers in SLZ

Unlike the numeral classifiers found in Mandarin Chinese and many other languages, nominal classifiers do not occur obligatorily with a numeral. They contribute an animacy restriction to descriptions headed by an adjective—(35a), (35c)—or noun—(35b), (35d).

(35)   a. bene' gulhe nha'
         CL.EL old   that
         'that elder'

       b. (bi'i) bilh=a'
         CL.HU sister=1SG
         'my sister'

       c. tu bi'a wak
         one CL.AN adult
         'an adult animal'

       d. de'e gunlha'=nh
         CL.IN goblin=DEF
         'the goblin'

Not all nouns can occur with a classifier, and for some of the nouns that can, the classifier is optional (35b). When there is no nominal head (35a), the classifier is obligatory. The classifiers encode a four-way animacy distinction, as shown in Table 1. This only partially tracks the animacy system represented in the language's pronoun system (Foley and Toosarvandani 2022). In particular, not all nominals with *bene'* or *bi'i* necessarily describe an elder or non-elder human (respectively). For instance, in (36), the object in the first clause is first referred to using the non-elder human pronoun *leba'*, and then described using the "elder" classifier *bene'*.

(36)   Nhunhbi'a Maria='nh leba' nha' nha=ba'   bene' wenh=a'.
       know.STAT Maria=DEF 3HU and call.STAT=3HU CL.EL good=DEF
       'Maria knows him and calls him a good person.'   (FSR, SLZ022-029)

We will continue to refer to the "elder" human classifier as such, though this mismatch merits further investigation.

CATEGORY	CITATION	DEFINITE
Elder human (EL)	*bene'*	*bé'nh*
Non-elder human (HU)	*bi'i*	*bi'nh*
Animal (AN)	*bi'a ~ bè*[6]	*bi'anh ~ bè'nh*
Inanimate (IN)	*de'e*	*de'nh*

Table 2 Nominal classifiers in Santiago Laxopa Zapotec, with citation and definite forms.

The classifiers can also occur without any other descriptive material, in an indefinite (37a), definite (37b), or demonstrative (37c).

(37)   a.   **Context:** A man and his friend are herding mule.
        Ganhiz=e'   tu   bè   tse=e'.
        grab.COMP=3EL one cl.AN of=3EL
        'He grabbed one animal for himself.'   (IVJ, SLZ2004-t1-27)

        b.   Betw   Pablo='nh beku' tse be='nh.
        hit.COMP Pablo=DEF dog   of CL.EL=DEF
        'Pablo hit the person's dog.'   (FSR, SLZ1073-1)

        c.   Betw   Pablo='nh beku' tse be   nha'.
        hit.COMP Pablo=DEF dog   of CL.EL that
        'Pablo hit that person's dog.'   (FSR, SLZ1014-11)

When the elder classifier occurs with the definite determiner *=nh* or the demonstratives *nha'* 'that' or *nhi* 'this', it takes a reduced form, shown in Table 2. At first glance, the classifiers appear to be a type of "light noun" which contributes an animacy restriction to a description, further restricting its reference.[7] What is important for us here is simply that classifiers are nominal elements which occur inside a DP whether there is additional lexical material or not. Some preliminary evidence in favor of viewing the classifier as a functional, rather than lexical, nominal element comes from their contextual flexibility when they are not accompanied by further content provided by a noun or adjective. In such situations, its reference can be restricted by context. In (38), the classifier DP *de'e ka* is restricted to picking out avocados.

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6 There is some variation in the form of the animal classifier. For one elderly speaker, it is *bè*, while for two younger speakers, it is *bi'a*. The *bè* form is also used by one speaker from the nearby town of San Sebastián Guiloxi.

7 Royer (2019, to appear) argues that nominal classifiers in Chuj (a Mayan language) are weak definite determiners, which require the referent to be the unique individual satisfying the description. This analysis cannot be extended to SLZ, as its classifiers can appear in indefinite DPs.

(38) Nhku=a'   yixu   ki='nh   lhu mes=e'nh, nha' de'e ka'
      lay.COMP=1SG avocado these=DEF on table=DEF and CL.IN those
      ll=a'=nh   lu yesw='nh.
      put.CONT=1SG=3IN in pot=DEF
      'I laid these avocados on the table, and I'm putting those ones in the pot.'
                                                                (RD, SLZ5088)

We can understand the compatibility of classifiers with anaphora if, like other
pronouns, they are represented as functional heads or specifiers.

4.2 THE APPOSITIVE STRUCTURE OF CRCS

CRCs are distinguished from BRCs by the presence of a nominal element between
the relative clause and its host. There are several reasons to think that this ele-
ment is one of the nominal classifiers. First, it matches the definite form of the
classifiers exactly. Second, when a CRC appears in the pivot of an existential,
where definite marking is prohibited in SLZ, this element appears in the citation
form for a classifier, without a definite determiner.

(39) Bitu' de [bi'i   xkwide' tsi=a' bi'i/*bi'nh   dzo   yetgu'].
      NEG EXIST CL.HU small of=1SG CL.HU/CL.HU.DEF eat.CONT tamale
      'I don't have a child who eats tamales.'   (FSR, SLZ5083)

Finally, this element can itself host adjectival modification, as in (40), with the
adjective appearing between the classifier (in its citation form) and the definite
determiner.

(40) [Beku'=nh bi'a   blhul=e'nh shtahs] blag   blull=e'nh.
       dog=DEF CL.AN round=DEF sleep.CONT chase.COMP frog=DEF
      'The dog, the round one that's sleeping, chased the frog.'
                                                        (FSR, SLZ5085)

But if CRCs contain a classifier, what is the relationship between the classifier and
the relative clause, on the one hand? And, on the other hand, what is the relative
clause's relationship to the host of the CRC, that is, *beku'nh* 'the dog' in (40)?
    Starting with the first question, it seems reasonable to assume that the clas-
sifier itself serves as the host for a BRC. In other words, in CRCs, the classifier and
relative clause form a DP to the exclusion of the host nominal. An argument for
this structure comes from definite determiners and demonstratives. To start, the
classifier can come with its own definite enclitic, as in (40), which should only be
possible if it forms a DP on its own.[8] In addition, the classifier in a CRC **cannot**

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8 We assume that the definite enclitic only occurs once per DP. Importantly, its position on the classifier
  or its adjectival modifier, as in (40), is completely expected if it is in fact the head of a BRC, as we
  hypothesize.

be modified by a demonstrative, as shown in (41), though a classifier is otherwise possible in demonstrative descriptions (see (33b) above).

(41) *Esu'unh   bene' xyag=e'nh [bene' ki='nh   dzesekwell
      make.POT.PL CL.EL male=DEF   CL.EL these=DEF play.CONT.PL
      trompeta='nh] yu'u=nh.
      trumpet=DEF   house=DEF
      Intended: 'The men, these ones who play trumpet, will make a house.'
                                                              (RD, SLZ5088)

This is the *DEM + BRC restriction, which we analyzed in Section 3 in terms of how demonstratives attach below the relative clause. The fact that the same restriction holds for the classifier suggests strongly that it is the head of its own BRC.

The second question above is more difficult. It suffices for now just to say that the BRC headed by the classifier inside CRCs is external to its host, and in this sense, we can take it to be an appositive. For appositives in English and other languages, many syntactic analyses have been advanced, which make the appositive and its host a constituent through coordination, complementation, or adjunction; which treat the appositive as "orphaned" from the host through extraposition, discontinuous or constituency; or, which posit underlying constituency that is separated in the course of the derivation (see de Vries 2006 for a comprehensive survey of these approaches).

Whatever the structure of CRCs is, there is also the question of how this structure is mapped onto their interpretation. We have seen that a non-restrictive interpretation is possible, with both proper names and demonstrative descriptions. This requires that CRCs be free from No Redundant Restriction, though we have not formulated the specific sense in which this holds.

5   Restrictive readings for CRCs

Above, we have provided interpretive evidence that leads to the conclusion that BRCs are restrictive relative clauses, and we have shown how we might derive two generalizations about their distribution via a redundancy constraint, No Redundant Restriction. We have also examined how the apparent internal structure of CRCs and their distributional differences with BRCs suggest that CRCs are nominal appositives which compose non-restrictively.

However, this cannot quite be the entire story. While BRCs must compose restrictively, it is actually not the case that CRCs are always interpreted non-restrictively. In fact, they pass all the same diagnostics for restrictive modification as BRCs. First, CRCs can license definite descriptions which would otherwise fail to be contextually unique (42). And, they can restrict the domain of a universal quantifier (43), as well as modify a negative indefinite (44).

(42)   **Context:** You and your friend are in a room with the people below.

Bxixe'   bi'i xkwide'=nh [bi'=nh   nhgu'u   kachuche'=nh].
sneeze.COMP CL.HU child=DEF   CL.HU=DEF wear.STAT hat=DEF
'The child, the one who is wearing the hat, sneezed.'   (FSR, SLZ5079)

(43)   **Context:** You gave tamales to some children, resulting in this scene.

Yuge' bi'i xkwide'=nh [bi'=nh   nhgu'u   lhape'] bnhelljw=a'
all   CL.HU child=DEF   CL.HU=DEF wear.STAT hat   give.COMP=1SG
tu yetgu'.
a tamale
'I gave all the children, the ones who are wearing hats, a tamale.'

(FSR, SLZ5080)

(44)   **Context:** I have children, but none that eat tamales.

Bitu' de   bi'i xkwide' tsi=a' [bi'i dzo   yetgu].
NEG EXIST CL.HU child   of=1SG CL.HU eat.CONT tamale
'I don't have any children who eat tamales.'   (FSR, SLZ5083)

Following a suggestion by Morzycki (2008) for prenominal adjectives, we might consider whether there are actually two derivations for CRCs, though their results are string identical at the surface. One results in the appositive structure we have been considering, which has a non-restrictive interpretation. The other would be a restrictive derivation, in which the CRC composes around the same position as a BRC.

This possibility is not, however, tenable. If the restrictive CRCs in (42)–(44) share a derivation with BRCs, they should be sensitive to the same constraints, including both *NAME + BRC and *DEM + BRC. If correct, this would lead to the prediction that when CRCs modify a demonstrative nominal, only a non-restrictive interpretation should be possible, since, as we have seen above, restrictive read-

ings involving a BRC with a demonstrative are impossible. Surprisingly, this prediction is not borne out: restrictive interpretations for CRCs can arise even with a demonstrative.

(45)   **Context:** As in (43).

Yuge' bi'i   xkwide' ka'=nh   [bi'=nh   nhgu'u   lhape']
all   CL.HU child   those=DEF CL.HU=DEF wear.STAT hat
bnhelljw=a'   tu yetgu'.
give.COMP=1SG a   tamale
'I gave all those children, the ones who are wearing hats, a tamale.'

(FSR, SLZ6061)

Given our claim that demonstratives in SLZ are adjectival, which renders further restrictive modification redundant, we conclude that a derivation for (45) in which the CRC modifies restrictively like a BRC is impossible.

Recall that No Redundant Restriction is defined in terms of DP-internal modification. A simple way to explain the grammaticality of (45) would be to maintain that, despite their apparent restrictive interpretation, CRCs like those in (43) and (45) compose outside of the DP like we have considered for CRCs in general.

How else might a CRC restrict the reference or quantificational domain of its host, if not by composing as a restrictive modifier? We are not the first to observe restrictive readings for appositive content.[9] Wang et al. (2005) briefly describe a subset of English nominal appositives that exhibit restrictive readings (see also Nouwen 2014, AnderBois et al. 2015, and Koev 2018). While they focus on *one*-appositives (46), appositives with more lexical content can show the same readings (47), so long as the appositive entails the description contributed by its host (Schlenker 2021).

(46)   a.   If a professor, a famous one, publishes a book, he will make a lot of money.
        b.   John believes that a professor, a quite famous one, published a new book.
        c.   If no professor, no boring one, comes to the party, it will be good.

(47)   a.   If a professor, a famous professor, publishes a book, he will make a lot of money.
        b.   John believes that a professor, a quite famous professor, published a new book.
        c.   If no professor, no boring professor, comes to the party, it will be

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9 Besides the class of appositives that figure in the rest of this section, there is also a well-known class of restrictive appositives in English sometimes called "close" appositives (e.g. Burton-Roberts 1975): *my friend John*, *us linguists*, *Mary the baker*, etc. They seem amenable to an analysis as true restrictive modifiers, so we set them aside and focus on the constructions which more closely resemble CRCs.

good.

As Wang et al. note, these readings are available for only nominal appositives. Appositive relative clauses fail to provide the same interpretations. By contrast to (48), (49) only has the reading that all the professors in the context are linguists.

(48)   The dean will be happy if all the professors, the ones in the linguistics department, publish a book next year.

(49)   #The dean will be happy if all the professors, who are in the linguistics department, publish a book next year.

Intuitively, *one*-appositives seem to provide a suitable appositive paraphrase at least for the restrictive CRCs in (42)-(43), as shown by their translations.[10]

It would seem, then, that CRCs might have restrictive readings for the same reason that one-appositives in English do. The right theory of this unexpected interpretation pattern is still very much an open question. While some authors (e.g. Nouwen 2014) suggest that restrictively-read *one*-appositives have the syntax of restrictive modifiers, a possibility we reject for CRCs above, others have considered that their special properties come from an ability to serve as corrections to the semantic content of their host (e.g. AnderBois et al. 2015). This latter analysis may be possible for CRCs and deserves further investigation.

Whatever their ultimate analysis, CRCs in SLZ add to the growing list of cases which blur a one-to-one mapping between syntactic apposition and non-restrictive interpretation. Above, we have motivated an analysis of the syntactic differences between the two relative clauses of SLZ which is very similar to Partee's (1975) distinction of attachment height. With No Redundant Restriction, the distributional restrictions on BRCs are explained if they compose within the DP, and the contrasting freedom of CRCs is explained if they compose outside of the DP. What we have complicated, however, is the idea that these syntactic positions—in particular the external position of appositives—fully determine the interpretation of a relative clause.

6   Summary

We have shown that SLZ has two relative clause constructions, a BRC (bare relative clause) and a CRC (complex relative clause). The BRC is a restrictive relative clause, whereas the CRC is a nominal appositive which contains a light noun and a restrictive relative clause (i.e., a BRC). These two kinds of relative clauses map onto different structures: BRCs are always DP-internal restrictive modifiers, whereas CRCs are appositive to their hosts.

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10 For reasons we do not fully understand, a one-appositive translation for (44), which involves a negative indefinite host, is not obviously good in English: ?*I don't have any children, ones who eat tamales.*

This distinction derives two generalizations about their distributions, *name + brc and *dem + brc. Proper names and demonstratives are both associated with unique reference. A redundancy constraint, No Redundant Restriction, dictates that brcs cannot compose with constituents which already denote a unique entity. But crcs are not subject to this constraint by virtue of their syntax, allowing them to modify proper names and demonstrative descriptions.

Along the way, we have detected an apparent "restrictive" reading for crcs, suggesting that the syntax of apposition and non-restrictive modification do not necessarily go hand in hand. This restrictive reading cannot have the same source as the restrictive modification associated with brcs: crcs can modify demonstrative descriptions, and thus are not subject to No Redundant Restriction. This points to a new pathway for restrictive modification by relative clauses, though it raises questions for how the mandate expressed by No Redundant Restriction is imposed. Why are only the relative clauses that are more tightly integrated with their host sensitive to it? And, more generally, what mechanisms precisely underlie this restriction? These questions remain open for future study.

References

AnderBois, S., Brasoveanu, A., and Henderson, R. (2015). At-issue proposals and appositive impositions in discourse. *Journal of Semantics*, 32:93–138.

Bach, E. (1974). *Syntactic Theory*. Holt, Rinehart and Winston.

Bhatt, R. (2002). The raising analysis of relative clauses: Evidence from adjectival modification. *Natural Language Semantics*, 10:43–90.

Bianchi, V. (1999). *Consequences of Antisymmetry: Headed relative clauses*. Mouton de Gruyter.

Brugger, G. and Prinzhorn, M. (1996). Some properties of German definite articles. Manuscript, University of Vienna.

Burton-Roberts, N. (1975). Nominal apposition. *Foundations of Language*, 13(3):391–419.

Cabredo Hofherr, P. (2013). Reduced definite articles and restrictive relative clauses. Handout, Forschergruppe Relativsätze, Frankfurt.

Cinque, G. (1994). On the evidence for partial N-movement in the Romance DP. In Cinque, G., Koster, J., Pollock, J.-Y., Rizzi, L., and Zanuttini, R., editors, *Paths towards universal grammar: Studies in honor of Richard S. Kayne*, pages 85–110. Georgetown University Press.

Cinque, G. (2010). *The syntax of adjectives*. MIT Press.

de Vries, M. (2006). The syntax of appositive relativization: On specifying coordination, false free relatives, and promotion. *Linguistic Inquiry*, 37(2):229–270.

Fabricius-Hansen, C. (2012). (Non-)Restrictivity from a discourse perspective. Handout, Semantic and Pragmatic Properties of (Non)Restrictivity, Stuttgart.

Foley, S. and Toosarvandani, M. (2022). Extending the Person–Case Constraint to gender: Agreement, locality, and the syntax of pronouns. *Linguistic Inquiry*, 53(1):1–40.

Hulsey, S. and Sauerland, U. (2006). Sorting out relative clauses. *Natural Language Semantics*, 14(2):111–137.

Ingason, A. K. (2016). Context updates are hierarchical. *Glossa*, 1(1):37.

Instituto Nacional de Lenguas Indigenas (2008). Catálogo de las lenguas indigenas nacionales. *Diario Oficial de la Federación*, January 14, pages 31-112.

Jackendoff, R. (1977). *X-Bar Syntax: A Study of Phrase Structure*. MIT Press.

Kalivoda, N. and Zyman, E. (2015). On the derivation of relative clauses in Teotitlán del Valle Zapotec. In *Proceedings of BLS 41*, pages 219–243.

Koev, T. (2018). Appositive projection and its exceptions. Manuscript, University of Konstanz.

Löbner, S. (1985). Definites. *Journal of Semantics*, 4:279–326.

Löbner, S. (2011). Concept types and determination. *Journal of Semantics*, 28:279–333.

Morzycki, M. (2008). Nonrestrictive modifiers in non-parenthetical positions. In Kennedy, C. and McNally, L., editors, *Adjectives and adverbs*. Oxford University Press.

Nouwen, R. (2014). A note on the projection of appositives. In McCready, E., Yabushita, K., and Yoshimoto, K., editors, *Formal approaches to semantics and pragmatics*, pages 205–222. Springer.

Partee, B. (1975). Montague Grammar and Transformational Grammar. *Linguistic Inquiry*, 6(2):203–300.

Potts, C. (2005). *The Logic of Conventional Implicatures*. Oxford University Press.

Royer, J. (2019). Domain restriction and noun classifiers in Chuj (Mayan). In *Proceedings of NELS 49*, volume 3, pages 87–97.

Royer, J. (2022). Decomposing definiteness: Evidence from Chuj. *Canadian Journal of Linguistics*, 67:383–418.

Schlenker, P. (2005). Minimize restrictors! (Notes on definite descriptions, Condition C and epithets). In *Proceedings of SuB 9*, pages 385–416.

Schlenker, P. (2021). The semantics and pragmatics of appositives. In Gutzmann, D., Matthewson, L., Meier, C., Rullman, H., and Zimmerman, T. E., editors, *The Wiley Blackwell Companion to Semantics*. Wiley-Blackwell.

Shlonsky, U. (2004). The form of Semitic noun phrases. *Lingua*, 114(12):1465–1526.

Sichel, I. (2002). Phrasal movement in Hebrew adjectives and possessives. In Alexiadou, A., Anagnostopoulou, E., Barbiers, S., and Gärtner, H.-M., editors, *Dimensions of movement*, pages 297–339. John Benjamins.

Sichel, I. (In press). Weak and strong articles, diversity, and uniformity. In Armoskaite, S. and Wiltschko, M., editors, *The Handbook of Determiners*. Oxford University Press.

Sproat, R. and Shih, C. (1988). Prenominal adjective ordering in English and Mandarin. In *Proceedings of NELS 18*, pages 465–489.

Wang, L., Reese, B., and McCready, E. (2005). The projection problem of nominal appositives. *Snippets*, 10:13–14.

Wiltschko, M. (2013). Descriptive relative clauses in Austro-Bavarian German. *Canadian Journal of Linguistics*, 58(2):157–189.

Wolter, L. (2006). *That's that: The semantics and pragmatics of demonstrative noun phrases*. Dissertation, UC Santa Cruz.

The Effect of RC Type on Agreement Production*

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Abstract Subject-Verb Agreement (SVA) is a cross-linguistically common phenomenon in which the verb (and/or other kind of predicate) agrees morphologically with some feature(s) of its syntactic subject. However, in actual production of language, speakers may commit agreement attraction errors (AAEs) when the verb agrees with a linearly-closer noun which is not the syntactic subject. The occurrence of such errors, and the syntactic and morphological factors which make them more or less likely to occur, help us understand how SVA is calculated during the grammatical encoding stage of language production. In this study we compare AAEs from attractors within reduced relative clauses versus in full relative clauses to investigate whether optional omission of function words influences the likelihood of making an AAE. Based on the findings, we conclude that SVA is controlled by underlying syntactic structure, not by the order or number of words in the surface structure.

Keywords: Syntax, Psycholinguistics, Agreement

1   Introduction

Morphological agreement is a very common feature of languages that occurs when the morphological form of a word depends on some grammatical feature(s) of another word. For example, English verbs in the present have a different form for 3SG subjects compared to plural and other person subjects.

(1) a. The kitten $\boxed{\text{sleeps}}$ on the sofa.

b. *The kitten $\boxed{\text{sleep}}$ on the sofa.

For the verb *be*, number agreement persists in the past tense as well.

(2)   a. The kitten $\boxed{\text{is}}$ asleep on the sofa.
      b. *The kitten $\boxed{\text{are}}$ asleep on the sofa.
      c. The kitten $\boxed{\text{was}}$ asleep on the sofa.
      d. *The kitten $\boxed{\text{were}}$ asleep on the sofa.

Subject-Verb Agreement (SVA) of this kind is so instinctive to native speakers that it may seem simple on the surface, but functionally it is quite complex. We can start to see this when we consider the steps that must take place during language production. Translating a thought into language starts with *conceptualization* (i.e. the formation of the message), after which comes *grammatical encoding*, the stage in which words are accessed in their abstract forms, called *lemmas*, and organized into a sentence structure to convey the thought (Warren 2012). Grammatical encoding itself has multiple parts, mainly *functional processing*, which involves accessing lemmas and giving them thematic roles (e.g. Agent, Theme) and grammatical roles (e.g. Subject, Object); and *positional processing*, which involves creating a sentence frame and fitting lemmas into the appropriate slots. Functional and positional processing overlap in time, but functional processing begins sooner, and function assignment especially takes priority, in the sense that speakers assign grammatical roles (e.g. Subject, Object) before they assign linear order in the sentence (Do et al. 2018).

Among grammatical roles, the subject has special privilege: it is the first concept to be encoded in production (Do et al. 2018), and in many languages it controls features of other words in the sentence—i.e. it triggers agreement (Bock 1995). However, a lemma does not trigger number agreement on its own, because lemmas do not have inherent number (i.e. both singular *cat* and plural *cats* come from a single lemma {cat}) (Vigliocco & Franck 1999: 457). Rather, the desired number feature must be retrieved from the speaker's conceptualization of their message and assigned to the lemma (Vigliocco & Franck 1999: 457). Once the correct features are assigned, agreement is essentially the copying of properties of a noun lemma onto an appropriate verb or adjective lemma (Vigliocco & Franck 1999: 457); and since the subject controls agreement regardless of where it appears in the surface structure, SVA must occur during grammatical encoding after the assignment of grammatical roles but before the assignment of linear order (Vigliocco & Franck 1999: 457). If linear order determined the form of the verb, we would expect the verb in (3a) below to agree with the pre-verbal fronted WH-phrase, but instead the verb agrees with its subject that follows it.

(3)   a. *Which party* $\boxed{\textbf{are}}$ the **students** going to __*WH* ?

b. *Which party $\boxed{is}$ the **students** going to __WH ?

However, sometimes speakers make production errors in which the form of the verb appears to be controlled by a linearly-closer, non-subject noun, as in (4) below.

(4) *The **key** to the *cabinets* $\boxed{were}$ missing.   Bock (1995)

This may look like a simple fluke at best or plain laziness at worst, but actually it is an error that occurs quite reliably (albeit in small proportions) when a subject noun (called a *head noun*) is separated from the verb by a non-subject noun (called a *local noun* or *attractor*) with a different number feature (Bock 1995). In fact, this error is so reliable that it has a name: *agreement attraction*. Not only is this error reliable, but it tells us something about the nature of SVA in language production. As discussed previously, grammatical SVA is controlled hierarchically by the subject; for our purposes, we shall say that the subject is the highest node in the specifier of TP. Thus, in Figure 1, the verb agrees with the number of DP1, which receives its number from the feature assigned to the head noun key. But in an agreement attraction error (AAE), the verb agrees with the number of the linearly-preceding DP2, which receives its number from the local noun cabinets. This shows that while subject-verb agreement is assigned hierarchically, it is susceptible to linear control, as in Figure 2.
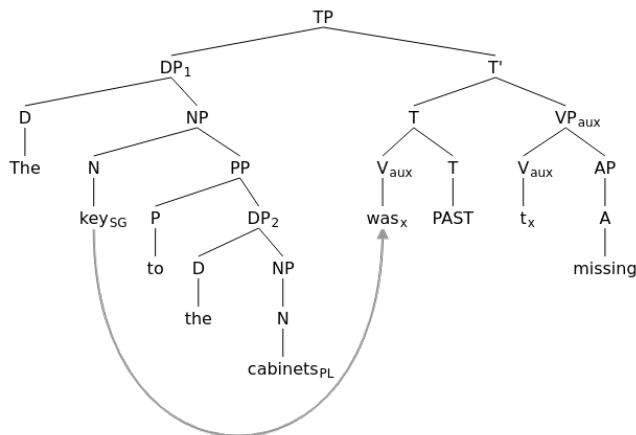

Figure 1   Grammatical agreement. Note that the arrow indicates which noun shares its number feature with the verb, not movement.

Interestingly, however, just how susceptible a verb is to agreement attraction
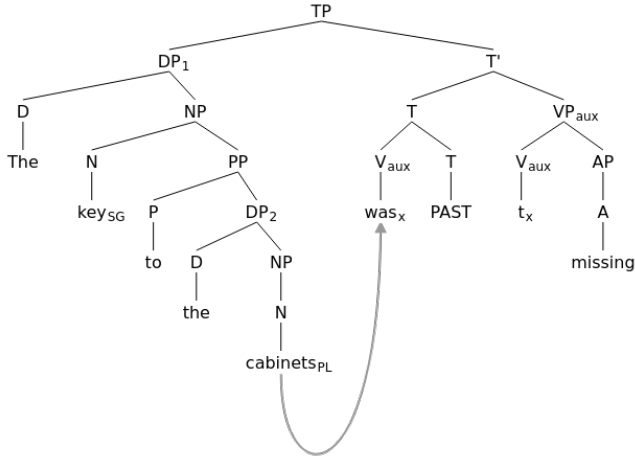
Figure 2 Ungrammatical agreement. Note that the arrow indicates which noun shares its number feature with the verb, not movement.

is determined by a number of factors. For example, there is an asymmetry in agreement attraction such that a plural local noun is far more likely to attract verb agreement away from a singular head noun than a singular local noun is likely to attract to attract verb agreement away from a plural head noun. This is because plurality is a marked feature in English while singular number is default, such that "the mental representation of a plural word carries a plural value, whereas the mental representation of a singular word carries no value at all [...]. The underlying marking of the plural makes grammatical plurality a strong force in attraction" (Bock 1995: 58). This asymmetry holds equally regardless of whether the local noun is a regular plural (ending in -*s*) or an irregular plural (e.g. *children*). Other factors that influence agreement attraction include whether the local noun is within a prepositional phrase or a relative clause; Bock & Cutting (1992) found that agreement attraction was more likely to occur after PPs than after RCs. Bock & Cutting (1992) also found that longer PP interruptions were more likely to induce agreement errors than shorter PPs, but that longer RCs were just as likely to induce agreement errors as shorter RCs. Factors that do not influence agreement attraction include whether the local noun is animate or inanimate, whether the local noun is conceptually plural[1], and whether a local noun is homophonous with a plural[2] (Bock 1995).

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1 E.g. The word *army*, which is notionally plural but grammatically singular, produces the same amount of agreement attraction as *soldier*, which is both notionally and grammatically singular.

2 E.g. The word *rose*, which is grammatically singular but homophonous with plural *rows*, does not

#	Manipulation	Effect	Sample contrasts
1	Grammatical PL	Strong	*The key to the cabinets were > The key to the cabinet were*
2	Grammatical SG	Very weak	*The keys to the cabinet was ≈ The keys to the cabinets was*
3	Animacy	None	*The island of the kings were = The king of the islands were*
4	Notional PL	None	*The strength of the army were = The strength of the soldier were < The strength of the soldiers were*
5	Sham PL	None	*The appearance of the rose were = The appearance of the row were*
6	Irregular grammatical PL	Same as #1	*The trap for the mice were = The trap for the rats were > The trap for the mouse were = The trap for the rat were*
7	Phrase vs. clause interruption	Stronger after phrases	*The report of the destructive fires were > The report that they controlled the fires were*
8	Short vs. long interruption	After clauses, none	*The report that they controlled the forest fires were = The report that they controlled the fires were*
		After phrases, stronger for long than short interruption	*The report of the destructive forest fires were > The report of the destructive fires were*

Table 1 Local-noun features that do and do not attract spurious agreement. Adapted from Table 3 of Bock (1995).

These asymmetries in agreement attraction are accounted for by the Marking and Morphing Model, a theory about agreement production in which all nouns within a DP contribute to the number of the highest DP (Bock et al. 2001; Eberhard et al. 2005). In this model, when nouns are assigned number features during functional processing (i.e. when grammatical function is assigned), those features have a mechanism for percolating up to the highest DP, and the strongest feature that rises, or the one with the most *weight*, becomes the feature of the entire DP. It is then the feature of this DP in SpecTP that copies onto the verb. The weight of a number feature is determined by a combination of two factors: how close the noun is to the highest DP, and how marked the feature is (Eberhard et al. 2005). The higher a noun is in the DP, the more weight its feature has—as a result, the head noun usually has the most weight and therefore wins. The more deeply embedded a local noun is, the less weight it has and the less likely it is to interfere. But because plural is marked and singular is unmarked, plurality has more weight than singularity (Bock 1995; Bock et al. 2001). So when the plurality of a lower noun outweighs the closeness of the head noun, the subject DP takes the wrong number and agreement attraction occurs. In addition, the weight of a

induce any more agreement attraction than singular *row*.

number can influence the subject DP at two points during the production process: first during the assignment of number features and their percolation up to the DP (this is the *marking* part of the Marking and Morphing Model), and later during *phonological encoding* (Warren 2012) when the appropriate phonological representations of morphemes (called *lexemes*) are accessed and inserted into the sentence frame (this is the *morphing* part of the Marking and Morphing Model) (Bock et al. 2001; Eberhard et al. 2005). The competition between noun height and number markedness explains why, when a subject DP has two embedded nouns, the higher one being plural is more likely to cause an AAE than the lower one being plural, i.e. the AAE in (6a) is more likely than the one in (6b).

(5) a. *The **helicopter** for the *flights* over the canyon $\boxed{are}$ low.
     b. *The **helicopter** for the flight over the *canyons* $\boxed{are}$ low.

<div align="right">Franck et al. (2002)</div>

(6) a. *The **helicopter** for the *flights* over the canyon $\boxed{are}$ low.
     b. *The **helicopter** for the flight over the *canyons* $\boxed{are}$ low.

<div align="right">Franck et al. (2002)</div>

However, there still remain some questions regarding how the Marking and Morphing Model applies to Bock & Cutting (1992) and Bock (1995)'s findings. For example, if greater embedding lessens the likelihood of agreement attraction, why are attractors in longer PPs more likely to cause an AAE than in shorter PPs? Furthermore, in her investigation of agreement attraction in RCs, Bock only looks at full, active-voice RCs, including the word *that*. But there are more forms that RCs can come in. For instance, when a relative clause includes a passive construction (e.g. *The mango that was stolen by the bandits was ripe*) or a progressive construction (e.g. *The bandit who was stealing the mangos was mean*), it is quite common for the complementizer and the auxiliary verb(s) to be omitted, as shown in (7a) and (7b) below.

(7) Full RC → Reduced RC
     a. *Passive*
         The mango $\boxed{that\ was}$ stolen by the bandits → The mango __ stolen by the bandits
     b. *Progressive*
         The bandit $\boxed{who\ was}$ stealing the mangos → The bandit __ stealing the mangos

Does omitting words in reduced RCs create a length effect compared to full RCs? And if so, do reduced RCs cause fewer AAEs, in parallel with the length effect found for PP-embedded attractors? Or, because local nouns are less deeply

embedded in reduced RCs and may therefore have more weight according to the Marking and Morphing Model, do reduced RCs actually cause more AAEs?

In order to better understand the relationship between depth of embedding and agreement attraction, the experiment in this paper investigates AAE differences in reduced RCs compared to full RCs using a 2×2 factorial design in a Cloze completion task. The first factor is the type of RC used (full or reduced), and the second is the number feature of the local noun (singular or plural). The head noun is always in the unmarked singular; since it has already been well established that a local noun whose number is the same as the head noun does not induce attraction (Bock 1995), the conditions with singular local nouns provide controls with which to compare the agreement attraction rates in the conditions with mismatching number.

Based on Bock & Cutting (1992) and Bock (1995), we might expect full RCs and reduced RCs to have the same agreement attraction rates, because they found that the length of RCs had no effect on agreement attraction. We will call this Prediction A. Bock & Cutting (1992) explain the difference between RC-interruptions and phrase-interruptions by proposing that agreement is clause-bounded, such that verbs are not much influenced by attractors in clauses other than their own. In other words, under this hypothesis, it does not matter whether an RC is full or reduced; as long as it puts the attractor in a different clause than the main verb, no RC-internal factors such as length or the presence or absence of an overt complementizer will make a difference to the main verb. However, if RC type *does* influence agreement attraction, there are two possibilities: Prediction B, full RCs cause more AAEs, similar to how longer PPs cause more AAEs than shorter PPs (Bock & Cutting 1992; Bock 1995); or Prediction C, reduced RCs cause more AAEs than full RCs because the local noun being closer to the start of the DP makes it more likely to influence the number of the head DP.

The structure of this paper is as follows. §2 below expands on the experiment's materials and methods, and §3 summarizes the results. In §4 we discuss the results and their implications regarding the Marking and Morphing Model, and in §5 we conclude by summing up our findings.

2   Materials and Methods

2.1   Participants

This experiment had 46 participants, 13 of whom were personally recruited through family and friends and 33 of whom were UCSC students recruited through the UCSC Linguistics Experiments Participant Sign-Up (SONA).[3] Among the participants, 19 were male (40.4%), 26 were female (55.3%), one was non-binary

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3 Unfortunately, one personally-recruited potential-participant's responses were never received although their demographic information was counted. As a result, we have 46 participants but 47 individuals recorded in our demographics; since no identifying information of participants' was

(2.1%), and one declined to state their gender (2.1%). The participants ranged in age between 14 and 64, with an average age of 23 and a median age of 20. Most participants were native English speakers, but several were ESL speakers of varying proficiencies. For the personally-recruited participants, neither monetary nor other incentives were offered; they took part in the experiment out of familial or friendly duty. SONA participants were compensated with class credit for experiment requirements. All of our participants gave their informed consent before starting the experiment.

2.2 Stimuli

This experiment used a 2 × 2 factorial design, crossing the type of RC (full or reduced) with the number of the local noun (singular or plural). For each set of stimuli, then, there were four conditions which could possibly be presented. We created 24 sets of target stimuli, all with passive RCs, and balanced the target stimuli with 23 filler items. We also had two constraints on our stimuli. The first was that there could not be a number-marked auxiliary verb within the full RC, as demonstrated in (8), since this could potentially interfere with agreement attraction. To avoid number-marked auxiliaries, the stimuli employ the past perfect tense, as shown in (9).

(8) a. The mango that $\boxed{\text{was}}$ stolen by the bandits...
     b. The mangos that $\boxed{\text{were}}$ stolen by the bandits...

(9) a. The mango that $\boxed{\text{had been}}$ stolen by the bandits...
     b. The mangos that $\boxed{\text{had been}}$ stolen by the bandits...

The second constraint was that the stimuli had to be as unambiguous as possible to prevent a garden path interpretation from potentially influencing agreement attraction. Note that there is potential for reduced passive RCs to be temporarily ambiguous due to the fact that the participle forms of most verbs are the same as their simple past forms. For example, the sentence start in (10) can be interpreted either as a main clause or as a reduced relative clause.

(10) The cat mauled...
      Main clause: ...the dog.
      Reduced RC: ...by the dog was still alive.

This ambiguity, however, can be greatly reduced when the subject is inanimate, because inanimate participants are far more likely to be Themes than Agents of transitive verbs (Trueswell et al. 1994). Thus, to control for temporary

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recorded, we could not identify which individual was not an actual participant to remove them from the count. Therefore there is a very minor distortion in the following participant statistics.

ambiguity, all of the stimuli in our experiment contain inanimate subjects which are more semantically likely to be Themes than Agents, both for unambiguous irregular participles and for ambiguous regular participles. Irregular participles are present in 10 stimuli sets, while the other 14 contain regular and temporarily ambiguous participles; participle type was not intended to be a factor of analysis, but it turned out to be an analyzable factor. (11) and (12) below show two itemset examples, one with an unambiguous irregular participle and one with a temporarily ambiguous regular participle.

(11) **Unambiguous participle example**
      Condition A
      The pencil <u>that had been</u> broken by the *student* {was dull / were dull}
      Condition B
      The pencil <u>that had been</u> broken by the *students* {was dull / were dull}
      Condition C
      The pencil ____ broken by the *student* {was dull / were dull}
      Condition D
      The pencil ____ broken by the *students* {was dull / were dull}

(12) **Ambiguous participle example**
      Condition A
      The cheese <u>that had been</u> placed on the *plate* {was smelly / were smelly}
      Condition B
      The cheese <u>that had been</u> placed on the *plates* {was smelly / were smelly}
      Condition C
      The cheese ____ placed on the *plate* {was smelly / were smelly}
      Condition D
      The cheese ____ placed on the *plates* {was smelly / were smelly}

To summarize, we used 24 stimuli sets, 10 with unambiguous participles, 14 with temporarily ambiguous participles, and all with inanimate subjects and passive RCs in the past perfect.

2.3   Procedure

The experiment used a Cloze completion task, in which participants are shown the first part of a sentence (called a *preamble*) and then given two options for how to complete the sentence. The experiment was designed in and run on *Ibex Farm*, a software for creating psycholinguistic experiments online (Drummond 2020). Participants took the experiment on a computer or similar electronic device, and their progress was self-paced.

Each trial started with a fixation cross displayed for 1000ms, followed by the preamble, which was shown automatically one word at a time; each word

appeared on the screen for 300ms, and there was a pause time of 150ms between words. After the final word in the preamble disappeared, participants were shown two boxes on the screen, one with a singular-verb completion and one with a plural-verb completion; the left-to-right order in which the completions appeared on the screen was randomized so that each number-response appeared equally as often on the left as on the right. Participants selected their chosen completion by clicking on it, which began the next trial. If a participant did not respond within 10000ms, the next trial began automatically, with the message "Timed out. Please respond more quickly," shown for 1000ms in place of a fixation cross.

The experiment began with a welcome page containing information about the experiment and a checkbox to indicate consent. Upon clicking the continue button, a second welcome page was shown with detailed task instructions, which participants read at the their own pace. To continue past the instructions, the participant had to answer three simple multiple-choice comprehension questions to show that they had read and understood the instructions. Next came a practice item, after which a message informed the participant of the correct response. When the participant clicked the screen to continue, they were given three more practice items, these ones without answers provided afterward. After the last practice item, participants were told to hit any key to begin the experiment, which consisted of 47 trials, 23 of which were fillers and 24 of which were randomly-selected conditions from the targeted stimuli itemsets, balanced so that 6 trials of each condition appeared. Participants were given a self-timed break every 13 trials, which they could end by pressing any key. After the last trial, participants were shown an exit screen with three debriefing question boxes in which they could type their answers and a drop-down selection for the device used to complete the experiment. Clicking on the continue button at the bottom of the screen ended the experiment and sent the results to Ibex. Overall the experiment took approximately five minutes to complete, plus however long the participant spent on the instructions and the debriefing.

3   Results

3.1   Agreement Attraction Errors

The experiment collected 1104 judgments of the target stimuli (46 participants $\times$ 24 stimuli sets), with 276 judgments per condition (46 participants $\times$ 24 stimuli sets $\div$ 4 conditions). The numbers of correct completions and AAE completions are shown in Table 2. The odds of making an error (# of errors / # of correct completions) are 0.04 in condition A (full RC, singular local noun), 0.24 in condition B (full RC, plural local noun), 0.04 in condition C (reduced RC, singular local noun), and 0.20 in condition D (reduced RC, plural local noun). The log odds ratio (LOR) of making an AAE after a plural local noun compared to after a singular local noun

RC	Num	Cond.	Corr.	Err.	Odds	LOR	SE	CI (95%)
Full	SG	A	264	11	0.04	1.75	0.34	1.07−2.42
	PL	B	222	53	0.24			
Rdc.	SG	C	264	11	0.04	1.57	0.35	0.89−2.25
	PL	D	229	46	0.20			

	LOR	LOR Diff	SE pooled	z	p
Full RCs	1.75	0.17	0.49	0.35	0.72
Reduced RCs	1.57				

Table 2   Attraction effects of plural local nouns in both RC types; difference between RC types is not significant

UNAMBIGUOUS PARTICIPLES								
RC	Num	Cond.	Corr.	Err.	Odds	LOR	SE	CI (95%)
Full	SG	A	126	6	0.05	1.58	0.47	0.65−2.51
	PL	B	108	25	0.23			
Rdc.	SG	C	88	5	0.06	1.60	0.52	0.58−2.62
	PL	D	78	22	0.28			

	LOR	LOR Diff	SE pooled	z	p
Full RCs	1.58	-0.02	0.70	-0.03	1.02
Reduced RCs	1.60				

Table 3   Attraction effects of plural local nouns in both RC types with unambiguous participles; difference between RC types is not significant

(ln(odds of error after singular attractor / odds of error after plural attractor)) is 1.75 with a standard error of 0.34 in full RCs and 1.57 with a standard error of 0.35 in reduced RCs.   The confidence intervals of these LORs are both above 0[4], which means that the likelihood of obtaining the observed outcome is quite small (<0.05) if there were no underlying plural markedness effect. We conclude that we succeeded in generating typical AAEs in this experiment. However, when we translate the difference between the LORs of each RC type into a z-score (z=0.35) and p-value (p=0.72), we find that p is far above the threshold of 0.05, meaning that there is no significant difference between full RCs and reduced RCs. Similarly, when we separate the data by participle type, as shown in Tables 3 and 4, we find the expected effect of more errors after plural local nouns, with all confidence

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4 If the odds of making an error after the singular local noun were equal to the odds of making an error after the plural local noun, the odds ratio would be 1, and the natural log of that would be 0.

RC	Num	Cond.	AMBIGUOUS PARTICIPLES			LOR	SE	CI (95%)
			Corr.	Err.	Odds			
Full	SG	A	138	5	0.04	1.91	0.50	0.93−2.90
	PL	B	114	28	0.24			
Rdc.	SG	C	176	6	0.04	1.54	0.47	0.62−2.46
	PL	D	151	24	0.20			

	LOR	LOR Diff	SE pooled	z	p
Full RCs	1.91	0.37	0.69	0.54	0.59
Reduced RCs	1.54				

Table 4 Attraction effects of plural local nouns in both RC types with temporarily ambiguous participles; difference between RC types is not significant

intervals over 0, but no significant differences between RC types, with $p>0.05$. This means that RC type is never a significant factor of agreement attraction.

3.2   Reaction Times

Although response times do not tell us about the likelihood of making an AAE, they generally inform us of when certain stimuli are more difficult for the participants to process than others. The RT results of this experiment are not entirely reliable because (i) selecting a sentence continuation is a complex decision task with a long RT, and (ii) motions like using a computer mouse that require complex motor processes add even more to the RT. Since the RTs are long and include multiple complex processes, we cannot be confident that any differences we find are truly due to our events of interest, RC type and local noun number. The following results, therefore, are tentative at best. Table 5 shows participants' average RT for correct and erroneous completions in each condition; because of the small sample size of the errors, the RT data for error responses are not

RC	Num	Cond.	Avg. Corr. RT	SE	Avg. Err. RT	SE
Full	SG	A	1525 ms	46 ms	2444 ms	406 ms
	PL	B	1787 ms	78 ms	2449 ms	224 ms
Rdc.	SG	C	1675 ms	66 ms	1847 ms	229 ms
	PL	D	1946 ms	78 ms	2148 ms	149 ms

Table 5 Average correct and incorrect response times and standard errors per condition

RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
Full	SG	A	1525 ms	262 ms	90 ms	2.90	484	<0.01*
	PL	B	1787 ms					
Rdc.	SG	C	1675 ms	271 ms	102 ms	2.62	491	0.01*
	PL	D	1946 ms					

RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
Full	SG	A	1525 ms	150 ms	80 ms	1.87	526	0.06
Rdc.		C	1675 ms					
Full	PL	B	1787 ms	160 ms	110 ms	1.45	449	0.15
Rdc.		D	1946 ms					

Table 6   RT differences between RC types (upper table) and between local noun number levels (lower table); * marks a significant difference

reliable, as reflected by their large standard errors. Therefore RT comparisons between conditions and factors can only be performed with correct response RTs.

Average correct responses were 1525 ms with a standard error of 46 ms for condition A (full RC, singular local noun), 1787 ms with a standard error of 78 ms for condition B (full RC, plural local noun), 1675 ms with a standard error of 66 ms for condition C (reduced RC, singular local noun), and 1946 ms with a standard error of 78 ms for condition D (reduced RC, plural local noun). In other words, participants took longer to respond to the plural local noun condition within an RC type compared to the singular condition, and they took longer to respond to a reduced RC than a full RC with the same local noun level. Comparing singular and plural conditions within RC type, as shown in Table 6, we find a difference of 262 ms with a significance of $p<0.01$ (t=2.90, df=484) for full RCs, and a difference of 271 ms with a significance of p=0.01 (t=2.62, df=491) for reduced RCs. This means that the effect mismatching noun number on RT was significant for both RC types. Comparing RC types within local noun levels, also shown in Table 6, we find a difference of 150 ms with a significance of p=0.06 (t=1.87, df=526) for singular local nouns, and a difference of 160 ms with a significance of p=0.15 (t=1.45, df=449) for plural local nouns. Although the difference between RC types within the singular local noun level is insignificant, it is far closer to the threshold of significance than the difference between RC types within the plural local noun level.

When we separate the data by participle type, we do not find a significant difference between unambiguous and temporarily ambiguous participles within any single condition, as shown in Table 7. Furthermore, when we look at the

Cond.	Prt.	Corr. RT	Diff	SE	t	df	p
A	Unambig	1524 ms	1 ms	90 ms	0.01	262	0.99
	Ambig	1525 ms					
B	Unambig	1778 ms	16 ms	156 ms	0.10	220	0.92
	Ambig	1794 ms					
C	Unambig	1565 ms	165 ms	130 ms	1.27	262	0.21
	Ambig	1730 ms					
D	Unambig	2032 ms	-130 ms	177 ms	0.74	227	0.46
	Ambig	1902 ms					

Table 7   Average correct and incorrect response times and standard errors per condition

effects of local noun number and RC type within the separated data, we find that the unambiguous participles mostly match the overall pattern: there is a significant effect of local noun number within RC type (*diff*=254 ms, *t*=2.13, *df*=232, *p*=0.03 for full RCs; *diff*=467 ms, *t*=2.57, *df*=164, *p*=0.01 for reduced RCs) and no effect of RC type within local noun levels (*diff*=41 ms, *t*=0.36, *df*=526, *p*=0.72 for singular local nouns; *diff*=253 ms, *t*=1.37, *df*=449, *p*=0.17 for reduced RCs), as shown in Table 8.

UNAMBIGUOUS PARTICIPLES								
RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
Full	SG	A	1524 ms	254 ms	119 ms	2.13	232	0.03*
	PL	B	1778 ms					
Rdc.	SG	C	1565 ms	467 ms	182 ms	2.57	164	0.01*
	PL	D	2032 ms					

RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
Full	SG	A	1524 ms	41 ms	113 ms	0.36	526	0.72
Rdc.		C	1565 ms					
Full	PL	B	1778 ms	253 ms	186 ms	1.37	449	0.17
Rdc.		D	2032 ms					

Table 8   RT differences between RC types and between local noun number levels of unambiguous participles; * marks a significant difference

But when we look at the temporarily ambiguous participles, although there is an effect of local noun number in full RCs (*diff*=269 ms, *t*=2.00, *df*=250, *p*=0.05), the number effect disappears in reduced RCs (*diff*=172 ms, *t*=1.40, *df*=325, *p*=0.16); there is still no effect of RC type within local noun levels, but the difference in the

RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
AMBIGUOUS PARTICIPLES								
Full	SG	A	1525 ms	269 ms	135 ms	2.00	250	0.05*
	PL	B	1794 ms					
Rdc.	SG	C	1730 ms	172 ms	123 ms	1.40	325	0.16
	PL	D	1902 ms					

RC	Num	Cond.	Corr. RT	Diff	SE	t	df	p
Full	SG	A	1525 ms	205 ms	111 ms	1.85	312	0.07
Rdc.		C	1730 ms					
Full	PL	B	1794 ms	108 ms	145 ms	0.74	263	0.46
Rdc.		D	1902 ms					

Table 9   RT differences between RC types and between local noun number levels of temporarily ambiguous participles; * marks a significant difference

singular level is closer to significant (*diff*=205 ms, *t*=1.85, *df*=312, *p*=0.07) than in the plural level (*diff*=108 ms, *t*=0.74, *df*=263, *p*=0.46), similar to the overall data in Table 6. This suggests that when the participle is temporarily ambiguous, processing of the ambiguous reduced RCs slows down enough to mask any effect of local noun type, while slightly exaggerating the difference between RC types when the local noun is singular. When the local noun is plural, the time lag in processing the number incongruence masks any processing difference between the full RC and the reduced RC.

4   Discussion

Full RCs and reduced RCs produced the same amount of agreement attraction in our experiment, such that Prediction A appears to have been the most accurate guess. These results align with Bock & Cutting (1992) and Bock (1995)'s findings that RC length does not affect agreement attraction. This seems to support the hypothesis that agreement is clause-bounded and suggests that feature percolation is impeded by having to cross a clause boundary, regardless of whether or not the complementizer is overtly pronounced. When we consider what this means for the Marking and Morphing Model, we must conclude that the depth of embedding which matters to feature weight and feature percolation is only the underlying hierarchical structure, not the distance of the local noun from the start of the subject or the existence of an overt complementizer at surface structure.

In retrospect, this is not so surprising. Consider the first opportunity for the number of a local noun to affect the DP, marking, which occurs when grammatical

roles have been assigned and lemmas inserted into a structure, but before the retrieval of lexemes. Assuming that optional omission, the removal of phonological representations of underlyingly present constituents, only occurs after lexemes have been selected, then at the stage that marking takes place, full RCs and to-be-reduced RCs have the same structure. In other words, during the first opportunity for agreement attraction, there is no difference between full RCs and future-reduced RCs, and therefore no reason for them to be treated differently by feature percolation. Furthermore, if the process of omission occurs only after lexemes have first been selected, the second opportunity for agreement attraction, morphing, also takes place before full RCs and future-reduced RCs diverge. Marking and possibly also morphing occurring before reduced RCs are created would be a reasonable explanation for the lack of effect of RC type on agreement attraction. Whether the complementizer is omitted or not cannot be a factor of agreement attraction because (i) the complementizer is not omitted when agreement attraction occurs, and (ii) the percolation of the attractor's number feature always passes through the clause boundary, whether or not the clause reduces later on. Similarly, there could not be a length effect between full and reduced RCs when both are the same length at the time that agreement attraction occurs.

Unfortunately, this does not answer the question of why the length effect that Bock & Cutting (1992) and Bock (1995) found for PP complements seems to go against the Marking and Morphing Model. Additionally, it is not clear whether the length effect for PP complements occurs because they are phrases as opposed to clauses, or because they are complements as opposed to adjuncts. Regarding the second question, one possibility may be that feature percolation is affected by the type of embedding, such that varying length is a factor for complement-embedded attractors like (13a) below, but not for adjunct-embedded attractors like (13b) below.

(13)   a. The drawing $\boxed{\text{of}}$ the *flowers*

      b. The drawing $\boxed{\text{with}}$ the *flowers*   Solomon & Pearlmutter 2004

There is already evidence that complements and adjuncts behave differently in agreement attraction: Solomon & Pearlmutter (2004) find that "more semantically integrated" PP-complements like (13a) produce more AAEs than "less semantically integrated" PP-adjuncts like (13b). To compare length effects between complements and adjuncts, then, a subsequent study could add a length contrast to the equation.

(14)   a. The drawing $\boxed{\text{of}}$ the *flowers*

      b. The drawing $\boxed{\text{of}}$ the *begonia flowers*

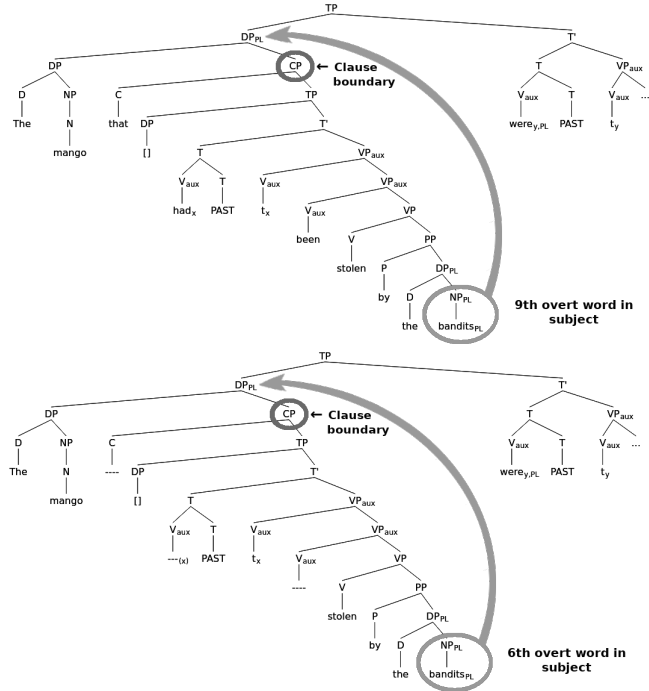   c. The drawing $\boxed{\text{with}}$ the *flowers*

Figure 3　Tree examples of full RC (upper) and reduced RC (lower). Gray arrows show feature percolation of plural attractor to head DP.

    d. The drawing ⟦ with ⟧ the *begonia flowers* [5]

If no length effect is found for adjunct PPs or if longer adjunct PPs lead to more agreement attraction, rather than less attraction as found for PP complements in Bock & Cutting (1992), it would suggest that length has a different effect in complements than in adjuncts. But if PP adjuncts have the same length effect as complements, it would suggest that length has a different effect in phrases than in clauses.

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5 Although not included in (14), for each preamble here, there would have to be a corresponding preamble with a singular local noun in order to calculate the odds ratios of agreement attraction. In other words, the study would have to be a $2 \times 2 \times 2$ factorial design.

5   Conclusion

The purpose of this study was to investigate whether a length effect could be found for RCs when grammatical words including the complementizer were omitted. We found that there is no length effect between full RCs and reduced RCs, which means that the likelihood of a plural attractor affecting agreement is determined by depth and type of embedding at deep structure, not by the number of words at surface structure. This makes sense within the Marking and Morphing Model because when marking (and possibly also morphing) occurs during production, omission has not yet taken place, such that full RCs and future-reduced RCs are the same when agreement is calculated.

References

Bock, K. (1995). Producing agreement. *Current Directions in Psychological Science*, 4(2):56–61.

Bock, K. and Cutting, J. (1992). Regulating mental energy: Performance units in language production. *Journal of Memory and Language*, 31(1):99–127.

Bock, K., Eberhard, K. M., Cutting, J., Meyer, A. S., and Schriefers, H. (2001). Some attractions of verb agreement. *Cognitive Psychology*, 43(2):83–128.

Do, M., Kaiser, E., and Zhao, P. (2018). What can wh-questions tell us about real-time language production: Evidence from english and mandarin. *Proceedings of the Linguistic Society of America*, 3(1):46–1–12.

Drummond, A. D. (2020). Ibex farm (0.3.7).

Eberhard, K., Cutting, J., and Bock, K. (2005). Making syntax of sense: Number agreement in sentence production. *Psychological Review*, 112:531–59.

Franck, J., Vigliocco, G., and Nicol, J. (2002). Attraction in sentence production: The role of syntactic structure. *Language and Cognitive Processes*, 17(4):371–404.

Solomon, E. S. and Pearlmutter, N. J. (2004). Semantic integration and syntactic planning in language production. *Cognitive Psychology*, 49(1):1–46.

Vigliocco, G. and Franck, J. (1999). When sex and syntax go hand in hand: Gender agreement in language production. *Journal of Memory and Language*, 40(4):455–478.

Warren, P. (2012). *Introducing Psycholinguistics*. Cambridge Introductions to Language and Linguistics. Cambridge University Press.