Object raising, binding, and coreference in Chuj*

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1. Introduction

Given standard views on binding (Reinhart 1983; Chomsky 1986), the realization of coindexed nominals depends in part on c-command. Assuming that subjects c-command objects, this means that in VOS configurations like (1), where the subject and possessor of the object are coindexed, the subject should be realized as an R-expression and the possessor as a pronoun. Surface word order should be irrelevant.

(1) verb $[_{\text{OBJ}} \ldots [_{\text{POSS}}$ pronoun$_1$ $]]$ $[_{\text{SUBJ}}$ R-expression$_1$ $]$

In this paper, I show that while some VOS Mayan languages (Ch'ol) exhibit the pattern in (1), others (Chuj) do not. In particular, though the Ch'ol and Chuj sentences in (2) and (3) exhibit the same word order on the surface, there is compelling evidence that it is the possessor, and not the subject, that is realized as the R-expression in (3). In other words, the correct parse for the Chuj sentence in (3) is (4), in apparent violation of Condition C.

(2) Tyi i-choñ-o i-wakax aj-Ana.
PFV A3-sell-TV A3-cow NC-Ana
'Ana$_1$ sold her$_1$ cow.' (Ch'ol)

(3) Ix-s-chonh s-wakax ix Ana.
PFV-A3-sell A3-cow CLF Ana
Lit: 'She$_1$ sold Ana$_1$'s cow.' (Chuj)

(4) verb $[_{\text{OBJ}} \ldots [_{\text{POSS}}$ R-expression$_1$ $]]$ $[_{\text{SUBJ}}$ pronoun$_1$ $]$

I argue that these surprising patterns of binding and coreference in Chuj can be largely explained if we adopt an independent proposal on the nature of syntactic ergativity in a subset of Mayan languages. Coon, Mateo Pedro, and Preminger (2014) (among others) have proposed that in languages like Chuj, but not languages like Ch'ol, objects systematically

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raise to a position above the subject. I propose that this leads to the absence of c-command relations between certain coindexed DPs, in which case the binding conditions are inoperative. I then propose that when no c-command relationship holds between two coindexed expressions in the same clause, a PF constraint against cataphora forces the full realization of the linearly first expression, and the pronominalization of the linearly second expression.

The proposal contrasts with previous proposals on comparable data in closely-related Popti' (Craig 1977; Hoekstra 1989; Trechsel 1995; Aissen 2000), which suggest that the binding conditions may not apply in the same way across languages. If this is correct, these proposals challenge the universality of the binding conditions (Grodzinsky and Reinhart 1993; Reuland 2010, 2011). By contrast, the current paper shows that it is possible to derive the surprising patterns of binding and coreference in Mayan languages like Chuj (and Popti'), while simultaneously maintaining the universality of the binding conditions.

The paper is structured as follows. In section 2, I provide original data that show that linear precedence plays a central role for the realization of coindexed nominals in Chuj—often in apparent violation of Condition C—and that the same cannot be claimed for Ch'ol. In section 3, I provide the proposal. In section 4, I argue that binding under c-command is still needed in Chuj, namely to account for the distribution of reflexive objects, lending further support to the claim that the binding conditions are universal. In section 5, I discuss some consequences of the proposal, one of them being that indices are needed in syntax.

2. The puzzle from Chuj: Linear precedence matters

Chuj belongs to the Q'anjob'alan branch of Mayan languages and is spoken by approximately 70,000 speakers in Guatemala and Mexico (Buenrostro 2013). The dialect under study in this work (San Mateo Ixtatán) exhibits basic VOS word order (5a) and postnominal possessors (5b). As can be seen in both examples below, transitive subjects and possessors trigger identical "Set A" agreement prefixes (bold) on the verb and noun respectively.

(5) a. Ix-**y**-il [$_{\text{OBJ}}$ winh winak] [$_{\text{SUBJ}}$ ix ix].
PFV-**A3**-see CLF man CLF woman
'The woman saw the man.'

b. **y**-unin [$_{\text{POSS}}$ ix ix].
A3-child CLF woman
'the woman's child'

Chuj also features a set of noun classifiers, which appear as determiners before nouns (6), and function as third person pronouns ("classifier pronouns") when used alone (7) (Buenrostro et al. 1989; Royer 2019). Classifier pronouns alternate with null pronouns in certain environments, a fact that will become relevant in the next two subsections.

(6) Ix-w-il [**ix** unin].
PFV-A1S-see **CLF** girl
'I saw the girl.'

(7) Ix-w-il [**ix**].
PFV-A1S-see **PRON**
'I saw her.'

Finally—and crucially for the discussion below—Chuj shows surprising patterns of nominal coreference, often in apparent violation of Condition C. Building on Aissen 2000 (§3) for Popti', the generalization can be stated as in (8), assuming that the "clause" corresponds to minimal CPs including relative clauses (and excluding CP complements and topics).

(8) *Generalization about coindexed expressions in Chuj* (to be modified)
If coindexed expressions co-occur within the same clause, the linearly first is pronounced as an R-expression, and the rest are null.

In the next two subsections, I present evidence in favour of this generalization from the behaviour of possessors (§2.1) and relative clauses (§2.2).

2.1 Evidence for the role of linear precedence from possessors

First consider the transitive sentence with a possessed object in (9a), where the subject and possessor have obligatory disjoint reference. Given what we know about basic constituent order (see (5) above), the syntax is transparently (9b). The classifier pronoun *ix* realizes the possessor of the object, and the R-expression *ix Ana* the subject. As indicated in the translation, the sentence has obligatory disjoint reference.

(9) a. Ix-s-chonh [$_{\text{OBJ}}$ s-wakax [$_{\text{POSS}}$ **ix**]] [$_{\text{SUBJ}}$ ix Ana].
PFV-A3-sell A3-cow PRON CLF Ana
'Ana$_1$ sold her$_{2/*1}$ cow.'

b. sold [$_{\text{OBJ}}$ cow [$_{\text{POSS}}$ her$_2$]] [$_{\text{SUBJ}}$ Ana$_1$]

Consider now the minimal pair in (10), where the subject and possessor are coindexed:

(10) Ix-s-chonh s-wakax ix Ana.
PFV-A3-sell A3-cow CLF Ana
'Ana$_1$ sold her$_{1/*2}$ cow.'

(10) forms a minimal pair with (9a), differing only in the absence of the pronoun *ix*. Since Chuj is VOS and has postnominal possessors, the structure is not immediately clear from the surface order. Either *ix Ana* realizes the subject position and the possessor of the object is null, as in (11a), or *ix Ana* realizes the possessor and the subject is null, as in (11b).

(11) a. sold [$_{\text{OBJ}}$ cow [$_{\text{POSS}}$ Ø$_1$]] [$_{\text{SUBJ}}$ Ana$_1$] (lit: Ana$_1$ sold her$_1$ cow)

b. sold [$_{\text{OBJ}}$ cow [$_{\text{POSS}}$ Ana$_1$]] [$_{\text{SUBJ}}$ Ø$_1$] (lit: She$_1$ sold Ana$_1$'s cow)

Given basic assumptions about binding and clause structure, (11b) should be ungrammatical simply on the basis of Condition C. Nevertheless, there is evidence that the right parse is (11b), or that only *linear precedence* matters and the binding conditions are not operative.

One piece of evidence comes from adverb placement options. First note that in regular transitive clauses, Chuj adverbs can optionally appear either between the object and the subject, or after the subject. This is illustrated in (12) (see also (14a) below).

(12) Ix-s-b'o' tek {junelxo} waj Xun {junelxo}.
PFV-A3-make meal again CLF Xun again
'Xun made the meal again.'

In minimal pairs in which the object is possessed, and the possessor is coindexed with the subject, adverb placement options change:

(13) Ix-s-b'o' [S]-tek {*junelxo} waj Xun {junelxo}.
PFV-A3-make A3-meal again CLF Xun again
'Xun$_1$ made his$_1$ meal again.'

Assuming adverb placement options remain constant, the restricted adverb placement options in (13) suggest that the possessor is overt and the subject is null, since adverbs should not be able to appear inside possessive DPs. In other words, there is evidence that (13) literally translates as *He$_1$ made Xun$_1$'s meal again*, as schematized in (14b).

(14) a. made [$_{OBJ}$ meal] {again} [$_{SUBJ}$ Xun] {again} = (12)

b. made [$_{OBJ}$ meal [$_{POSS}$ Xun$_1$]] {again} [$_{SUBJ}$ Ø$_1$] {again} = (13)

In Ch'ol, in contrast, adverbs can still intervene between subjects and coindexed possessors, a fact that will be attributed to a deep syntactic difference between Chuj and Ch'ol in section 3. In such cases, it is clear that the subject is realized as an R-expression:

(15) Tyi i-chok-o [$_{OBJ}$ i-tyuñ [$_{POSS}$ Ø]] **abi** [$_{SUBJ}$ jiñi alob].
PFV A3-throw-TV A3-stone his yesterday DET boy
'The boy$_1$ threw his$_1$ stone yesterday.' Ch'ol

A second piece of evidence favouring the role of linear precedence for the realization of coindexed expressions in Chuj, but not in Ch'ol, comes from cases of object A'-extraction, as in the focus example in (16) (see Aissen 1992 on movement-based accounts of foci in Mayan, and Coon et al. to appear who report similar facts in other Mayan languages). In such cases, surface word order shows us that the possessor is overt and the coindexed subject null, since the verb now intervenes between the possessor and subject position.

(16) [$_{OBJ}$ Ha s-mam [$_{POSS}$ waj Xun]]$_i$ ix-y-il-a' t_i [$_{SUBJ}$ Ø].
FOC A3-father CLF Xun PFV-A3-see-TV PRON
'Xun$_1$ saw *his$_1$ father*.' — Lit: 'He$_1$ saw *Xun$_1$'s father*.'

Strikingly, the opposite configuration, in which the R-expression is realized in subject position and the possessor is pronominalized, is ungrammatical in Chuj:

(17) *[$_{OBJ}$ Ha s-mam [$_{POSS}$ Ø]]$_i$ ix-y-il t_i [$_{SUBJ}$ waj Xun].
FOC A3-father PFV-A3-see CLF Xun
Intended: 'Xun$_1$ saw his$_1$ father.'

And again, the opposite configuration is observed in Ch'ol. In equivalent constructions, the R-expression must be realized in subject position and the possessor must be null:

(18) [$_{OBJ}$ I-wakax [$_{POSS}$ Ø]]$_i$ tyi i-choñ-o t_i [$_{SUBJ}$ aj-Ana].
A3-COW PRON PFV A3-sell-TV NC-Ana
'Ana$_1$ sold *her$_{1/*2}$ cow*.' (Ch'ol)

2.2 Evidence for linear precedence from relative clauses

Relative clauses provide further evidence for the claim that precedence governs the distribution of coindexed nominals in Chuj. Again, before considering examples with joint reference, first consider a sentence with non-coreferential expressions:

(19) Man y-ojtak-ok laj [$_{OBJ}$ ni unin [ix-il-an **ix** t'a parke]] [$_{SUBJ}$ **ix Ana**].
NEG A3-know-IRR NEG CLF boy PFV-see-AF PRON in park CLF Ana
'Ana$_1$ doesn't know the boy who saw her$_{2/*1}$ in the park.'

In (19), the presence of the pronoun *ix* in the relative clause forces a disjoint reading: Ana is not the person that the boy saw. Now consider a minimal pair, in which the subject is coindexed with the object of the relative clause (where Ana *is* the person that boy saw):

(20) Man y-ojtak-ok laj [$_{OBJ}$ ni unin [ix-il-an **ix** **Ana** t'a parke]] [$_{SUBJ}$ Ø].
NEG A3-know-IRR NEG CLF boy PFV-see-AF CLF Ana in park PRON
Lit: 'She$_1$ doesn't know the boy who saw Ana$_1$ in the park.'

Remarkably, in (20), the R-expression is realized inside the object relative clause and the subject is pronominalized. The opposite configuration is again impossible:

(21) *Man y-ojtak-ok laj [$_{OBJ}$ ni unin [$_{RC}$ ix-il-an Ø$_1$ t'a parke]] [$_{SUBJ}$ **ix Ana**$_1$]

This is in line with the generalization in (8): linear precedence governs the distribution of coindexed expressions in Chuj, sometimes in apparent violation of Condition C.

2.3 Summary: Linear precedence matters

We have seen evidence from possessors and relative clauses that linear precedence governs the distribution of coindexed nominals in Chuj, as previously proposed for closely-related

Popti' (Craig 1977, Hoekstra 1989, Aissen 2000). From a crosslinguistic perspective, these facts are surprising: given the data seen so far, Chuj seems to consistently violate Condition C, which is unexpected if the binding conditions are universal (Grodzinsky and Reinhart 1993, Reuland 2010, 2011). The data are even more surprising considering the fact that other Mayan languages, like Ch'ol, do behave as expected in terms of the binding conditions.

We are therefore at a crossroads. Either (i) the binding conditions are not universal, or (ii) the binding conditions are universal, but there is something special about the syntax of Mayan languages like Chuj and Popti' that conditions the surprising patterns of binding and coreference. Previous work on Popti' took the first route. For instance, Aissen (2000), building on Craig (1977), proposed that the distribution of null pronouns in Popti' is solely conditioned by prosodic factors. In what follows, we explore the second route. I argue that Mayan languages for which *linear precedence* seems to matter (like Chuj) exhibit a different syntax than languages where only *structure* seems to matter (like Ch'ol), and that it is the Chuj syntax that causes the binding conditions to become inoperative.

3. Analysis: Object raising bleeds c-command relations

In addition to the differences in pronoun patterns seen above, Mayan languages like Chuj and Ch'ol differ on another, better-known syntactic level. While Chuj does not allow transitive subjects from A'-extracting out of regular transitive clauses, a phenomenon known as the "Ergative Extraction Constraint" (EEC, Aissen 2017, Coon et al. to appear), Ch'ol does:[1]

(22) Chuj → EEC

a. Ix-ach-y-il ix ix.
PFV-B2S-A3-see CLF woman
'The woman saw you.'

b. *Mach$_j$ ix-ach-y-il-a' t_j?
who PFV-B2S-A3-see-TV
'Who saw you?'

(23) Ch'ol → no EEC

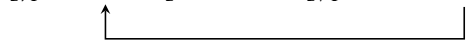
a. Tyi y-il-ä-yety x-ixik.
PFV A3-see-DTV-B2 CLF-woman
'The woman saw you?'

b. Maxki tyi y-il-ä-yety?
who PFV A3-see-DTV-B2
'Who saw you?'

Coon et al. (2014), Assmann et al. (2015), and Coon et al. (to appear) propose that the presence or not of the EEC maps to a deep syntactic difference among two types of Mayan languages, so-called LOW-ABS languages, like Ch'ol, and HIGH-ABS languages, like Chuj. In HIGH-ABS Mayan languages like Chuj, the object consistently raises to a position above the subject, as in (24). No such object raising is proposed to occur in Ch'ol.

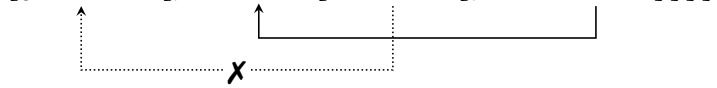
[1]Note that the literature on the EEC across Mayan is rich, and cannot be discussed further here. For relevant overview and list of references, see Aissen 2017 and Coon et al. to appear.

(24) Objects raise in HIGH-ABS languages like Chuj



According to these works, object raising in HIGH-ABS languages creates an *intervention problem* for transitive subject extraction, a fact that is taken to be at the source of the EEC (formalized differently in different works). This is schematized below:

(25) Raising of object in HIGH-ABS languages blocks subject extraction



Before moving on to the proposal in sections 3.1 and 3.2, a few notes are in order. First, object raising is proposed to be driven by an EPP feature on *v* in Coon et al. to appear. For reasons discussed below, I take this to be an instance of A-movement. Second, object raising generally correlates with the position of Set B absolutive agreement inside the verb stem: in HIGH-ABS languages, the Set B agreement is usually prefixed to the verb stem, whereas in LOW-ABS languages, it is suffixed. This can be seen, for instance, in examples (22) and (23) above. Finally, object raising in HIGH-ABS languages does not necessarily correlate with VOS word order. I will intentionally ignore word order for purposes of illustration in this paper, but see Aissen 1992, Coon 2010, Clemens and Coon 2018, and Little 2020 for relevant work.

3.1 Proposal: Object raising bleeds c-command relations

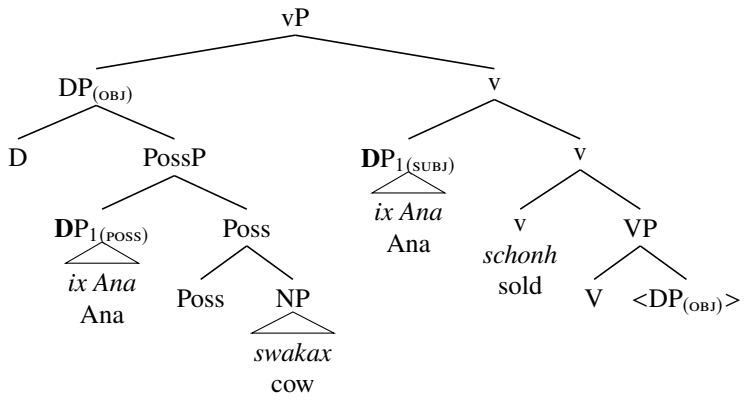
Let us first consider LOW-ABS languages like Ch'ol, where the object does *not* raise. Since the object remains in its base position, the subject will necessarily c-command coindexed expressions inside the object, and so Condition C should force the R-expression to appear in subject position. An example sentence for *Ana*$_1$ *sold her*$_1$ *cow* is provided below.

(26) $[_{vP}\ [_{\text{DP}_{\text{SUBJ}}}\ \text{Ana}_1\ ]\ [\ \text{sold}\ [_{\text{DP}_{\text{OBJ}}}\ \text{cow}\ [_{\text{DP}_{\text{POSS}}}\ \text{her}_1\ ]]]]$

In HIGH-ABS languages, on the other hand, object raising will have a crucial consequence for binding: object raising will bleed c-command relations between subjects and coindexed DPs inside the object. This is schematized in (27) on the next page.

As shown in (27), once the object raises to a position above the subject, the subject does not c-command the possessor of the object, and vice-versa. In the absence of c-command, the binding conditions should not prevent the R-expression from being generated in possessor position. That is, the structure in (27) is comparable to an English sentence like *Zelda*$_1$*'s mother loves her*$_1$, in which *Zelda* and *her* only accidentally corefer (Reinhart 1983). Crucially, I assume that A-movement does not reconstruct for Condition C in (27), following Chomsky 1995 and Lasnik 1999 (see Takahashi 2010 for an overview). If the object could reconstruct, then (27) would trigger a Condition C violation, contrary to fact.

(27) Tree for 'Ana$_1$ sold her cow$_1$' in Chuj :



The proposal just put forth has a clear theoretical benefit: once we adopt the independently-motivated view that objects consistently raise over subjects in Mayan languages like Chuj, the apparent absence of Condition C effects observed in section 2 is no longer mysterious. We do not have to deny the universality of binding conditions. They are inoperative in sentences like (27), because neither the possessor nor the subject c-command each other.

What we still need to understand, however, is why, in the absence of c-command, linear precedence matters. We turn to this question in the next subsection. Though I only provide a preliminary sketch of an analysis, the main hypothesis is that without c-command relations between coindexed DPs, a constraint against cataphora comes into effect.

3.2 Linear precedence: A constraint against cataphora

One way to formalize a constraint on cataphora is with a phonological rule that distinguishes between bound and (accidentally) coreferential expressions, and that only targets the latter. Distinguishing bound from coreferential DPs is common practice in semantics (e.g. Reinhart 1983), and to some extent in the literature on the morphosyntax of pronouns (Déchaine and Wiltschko 2002). Assuming, following Reinhart (1983), that there is a pragmatic pressure to interpret DPs as bound variables whenever possible, a coindexed Ø will only corefer with another nominal expression in the absence of c-command relations. In LOW-ABS languages like Ch'ol, where the object does not raise, it follows that DPs contained inside the object that are coindexed with the subject will necessarily be interpreted as bound variables:

(28) $[\ DP_{SUBJ}\ [\ \lambda 1 \ldots\ [_{DP_{OBJ}}\ \ldots\ [\ \text{Ø}_1\ ]\ldots\ ]]]$ (Ø = bound variable)

In Chuj, on the other hand, the object systematically raises above the subject. This means that subject DPs will merely corefer with—and not bind—coindexed DPs contained inside the object. I propose that in such cases, two identical R-expressions are generated and one of them is elided in the phonological component (PF).

(29) $[[_{DP_{OBJ}}\ \ldots\ [\ DP_1\ ]\ldots\ ]\ldots\ [_{DP_{SUBJ}}\ \text{Ø}_1\ ]]$ (Ø = referring pronoun)

I would like to suggest that the distinction between coreferential expressions and bound variables is visible to PF, and that only the former is subject to the constraint in (30).[2] As in (8), a 'clause' is defined as minimal CPs including relative clauses (see Aissen 2000, §3):

(30) *PF constraint against cataphora between coreferential expressions:*
If DPs *accidentally corefer* within the same clause, realize the linearly first DP as an R-expression, and elide the other coindexed DPs. (compare with (8))

The rule in (30), which builds on Aissen 2000, will essentially guarantee that the possessor gets overtly realized in (27), and that the subject gets pronominalized (which in this case means that it will be fully elided). Moreover, the PF rule will not apply to Ch'ol configurations like (28), since it does not target bound variables. The picture that emerges is that the null pronominals "Ø" in the Ch'ol and Chuj examples we have seen are fundamentally different. In Ch'ol, Ø is a bound variable. In Chuj, on the other hand, Ø is an elided nominal expression that is free (in the examples seen so far). In section 4, we will see that there is reason to think that binding under c-command in Chuj is sometimes necessary, and that in such cases Ø is best construed as a bound variable.

Before moving on, a note on the PF rule in (30) is in order. Coming from English, this constraint is perhaps surprising, since *accidental coreference* is usually reported as *the* environment that allows cataphora (e.g. Ross 1967; Kayne 2002). For instance, both (31a) and (31b) are widely reported as acceptable, despite the fact that *Felipe* and *him* refer to the same person. The reason is that neither *Felipe* nor *him* c-command each other.

(31) a. [The woman that saw Felipe$_1$] scolded him$_1$.

b. [The woman that saw him$_1$] scolded Felipe$_1$.

Chuj and English appear to exhibit opposite patterns. In English, accidental coreference feeds the possibility of cataphora, whereas in Chuj, accidental coreference bans it.

When we take a closer look at a wider range of languages, however, the Chuj pattern becomes less puzzling. As Kayne (2002) points out, the availability of cataphora is subject to much crosslinguistic variation, and it has been reported that some languages impose much more restrictions on cataphora (see e.g. Huang 1982 (§5.5.2) on Chinese and Japanese).

Finally, even in cases of indisputable accidental coreference (when it is clear that two coindexed DPs cannot c-command each other), the anti-cataphora constraint triumphs in Chuj. In (32), with or without object raising, it is difficult to imagine how the two coindexed expressions could ever c-command each other, since both are embedded inside subject and object DPs. As seen in (32b), cataphora remains illicit in such cases.

[2]Under this view, the coreferential subject and possessor DPs are both externally-merged—they are "repetitions" in the sense of Chomsky 2013. In Ch'ol, on the other hand, the coindexed possessor could be conceived as a copy of a DP which had undergone internal merge to the subject position (if variable binding = movement, as some have proposed (Hornstein 2001)). If PF can distinguish repetitions from copies, then we can start making sense of a PF constraint like (30).

(32) a. Tz-s-chamk'ol-ej s-tz'i' **ix Ana** ix ix ix-lolon y-et'ok Ø.
IPFV-A3-love-DTV A3-dog CLF Ana CLF woman PFV-speak A3-with PRON
'The woman that spoke with Malin$_1$ likes her$_1$ dog.'

b. *Tzschamk'olej stz'i' Ø ix ix ixlolon yet' **ix Ana**.

A PF constraint like (30) is therefore clearly warranted in Chuj, and potentially other languages. In fact, Chung (1989: (31)), describes a similar generalization in Chamorro (Austronesian). In the absence of c-command relations between coindexed expressions in this language, linear precedence also governs the realization of coreferential expressions.

4. C-command matters for binding, even in Chuj

Above, I argued that the surprising patterns of binding and coreference in Chuj involve a special syntax in which object raising bleeds c-command relations and a PF deletion rule subsequently applies. But the question of whether binding under c-command ever matters in Chuj lingers. Here, I argue that binding under c-command does sometimes matter in Chuj, in which case the binding conditions prevail and precedence becomes irrelevant.

Let us first consider what would need to happen in order for binding under c-command to take place in Chuj (at least between subjects and objects). There are two possibilities: either (i) the object exceptionally does not raise (in which case it can be c-commanded by the subject), or (ii) A-movement reconstruction is exceptionally possible. Coon et al. (to appear, §4.3) independently argue for (ii) in the domain of A'-extraction of agents in special EEC-circumventing environments. Below, I argue for (i) by showing that reflexive objects need to be bound (they abide by Condition A), and that for this reason, they do not raise.

Reflexives across Mayan pattern like possessed nouns in appearing with Set A agreement and serving as the thematic object of transitive verbs (Aissen 2017). Consider (33) and (34); the only surface difference is in the choice of the noun:

(33) Ix-y-il s-**b'a** waj Xun.
PFV-A3-see A3-self CLF Xun
'Xun$_1$ saw himself$_1$.'

(34) Ix-y-il s-**tz'i'** waj Xun.
PFV-A3-see A3-dog CLF Xun
'Xun$_1$ saw his$_1$ dog.'

Despite their surface similarity, there is reason to think that the sentences in (33) and (34) are structurally distinct. Recall from section 2.1 that adverbs can normally intervene between subjects and objects in Chuj, but that this exceptionally does not hold when the subject is coindexed with the possessor of the object. These kinds of data were taken as evidence that in such cases the R-expression realizes the possessor, and not the subject. A new example is provided below for illustration:

(35) Ix-y-il s-**tz'i'** {*junelxo} waj Xun {junelxo}.
A3-see A3-dog again CLF Xun again
'Xun$_1$ saw his$_1$ dog again.' (see also 13 above)

Consider now an example with a reflexive object, as in (36). Reflexives pattern differently in allowing identical adverb placement options as regular transitive clauses:

(36) Ix-y-il s-**b'a** {junelxo} waj Xun {junelxo}.
A3-see A3-self again CLF Xun again
'Xun$_1$ saw himself$_1$ again.'

This suggests that the possessor is null and subject overt in reflexive sentences like (36), as shown in (37b), to be contrasted with (37a). Especially striking is the fact that linear precedence becomes irrelevant with reflexives, since there is evidence (i.e. (37b)) that the linearly second of two coindexed DPs gets realized as an R-expression. The constraint on linear precedence in (30) is thus clearly inoperative in sentences like (36).

(37) a. saw [$_{OBJ}$ dog [$_{POSS}$ Xun$_i$]] {again} [$_{SUBJ}$ Ø$_i$] {again} = (35)
b. saw [$_{OBJ}$ self [$_{POSS}$ Ø]] {again} [$_{SUBJ}$ Xun] {again} = (36)

The irrelevance of linear precedence in (37b) follows from the current proposal if reflexives are universally subject to Condition A. Specifically, I propose that in order for Condition A to apply, reflexive objects exceptionally do not raise. This means that binding under c-command will be possible, and so the anti-cataphora rule in (30) is predicted not to apply.

In fact, there is independent evidence that reflexive objects do not raise, as already noted in previous work on the EEC (see Aissen 2017). Recall that transitive subjects are usually blocked from A'-extracting in HIGH-ABS languages. As noted in previous work (see e.g. Coon et al. to appear), this constraint is exceptionally circumvented with reflexive objects:[3]

(38) Mach ix-y-il s-**b'a**?
who PFV-A3-see A3-self
'Who saw themself?' (compare with (22) above)

The absence of the EEC in (38) can be explained if object raising fails to occur: no intervention effect will arise, and the transitive subject should be free to extract.

A second piece of evidence comes from rigidly *VSO* HIGH-ABS Mayan languages, like Q'anjob'al, another close relative of Chuj. In these languages, reflexives exceptionally trigger *VOS* word order (see also Craig 1977: 217, on Popti'). This supports the existence of an important structural distinction between reflexive and non-reflexive objects. The relevant Q'anjob'al data are provided below:

(39) Max y-il s-**b'a** ix ix.
PFV A3-see A3-self CLF woman
'The woman$_1$ saw herself$_1$.' (Q'anjob'al: Coon et al. 2014, (77b)).

[3] In some HIGH-ABS Mayan languages, including Chuj and Popti', "extended reflexives" (sentences in which the object possessor and subject are coindexed) can also optionally circumvent the EEC. Coon et al. (to appear) argue that in such cases the object does raise, but that it subsequently reconstructs to get bound. According to them, reconstruction feeds subject extraction.

(40) Max y-il [$_{SUBJ}$ ix ix] [$_{OBJ}$ naq winaq].
PFV A3-see CLF woman CLF man
'The woman saw the man.' (Q'anjob'al)

To summarize, we saw that there is evidence that binding under c-command is sometimes necessary in HIGH-ABS languages, namely to satisfy Condition A. Strikingly, in such cases, linear precedence becomes irrelevant in determining the realization of coindexed nominals, as predicted by the current proposal.

5. Conclusion and consequences

In Mayan languages like Chuj, we find surprising patterns of binding and coreference. On the surface, structure seems to be ignored and only linear precedence seems to matter. In this paper, I argued that the role of precedence is conditioned by a syntactic configuration. In a subset of Mayan languages, so-called HIGH-ABS languages, objects raise above subjects, with pervasive effects on grammar. One effect is already well-known in the literature: object raising bleeds the A'-extraction of transitive subjects (Coon et al. 2014, a.o.). Here, I argued that there is a second effect of object raising: it bleeds the possibility of binding under c-command, in which case the binding conditions become inoperative. The fact that there is a second, independent syntactic effect of object raising, thus strongly supports the works that tie patterns of syntactic ergativity in Mayan to HIGH-ABS syntax (Coon et al. 2014; Assmann et al. 2015; Coon et al. to appear). The proposal is also conceptually appealing, since it maintains the universality of binding conditions (Grodzinsky and Reinhart 1993; Reuland 2010; 2011), contrary to previous accounts. In the remaining discussion, I point to two consequences of the current proposal, one typological and one theoretical.

First, since the proposal is tied to object raising and the LOW-/HIGH-ABS parameter, the current proposal makes a typological prediction: we predict that HIGH-ABS languages might behave like Chuj regarding binding and coreference, and vice-versa for Ch'ol. In other words, surprising patterns of binding and coreference should be found in Mayan languages that feature the EEC, but not in Mayan languages that do not feature the EEC. Preliminary evidence from a few Mayan languages (Kaqchikel, Q'anjob'al, Mam, Tojol-ab'al, Tseltal) seem to show that this prediction is borne out (see also discussion in Coon et al. to appear, §4.3). Though space prevents me from expanding on these findings, this typological consequence should ideally be assessed across different Mayan languages.

Second, the patterns of binding and coreference in HIGH-ABS Mayan languages have important ramifications for the status of indices in grammar, as was already noted by Aissen (2000). In particular, generalizations like (30) require PF to have access to information about how nominal expressions are to be contextually interpreted, or in other words, PF needs access to information about "indices". Otherwise, it would be impossible for PF to determine that a linearly second coreferential expression needs to be pronominalized. And if PF sees indices, then indices must be syntactically-represented, in violation of Chomsky's (1995, 2001) Inclusiveness condition, an assumption that has played a major role in recent theories on syntactic binding (Rooryck and vanden Wyngaerd 2011; Reuland 2011):

(41) *Inclusiveness* (Chomsky 2001, 2-3) (cited from Collins and Groat 2018).
[Inclusiveness] bars introduction of new elements (features) in the course of computation: **indices**, traces, syntactic categories or bar levels, and so on.

The Chuj patterns of binding and coreference provide an interesting challenge for Inclusiveness. It is exactly, and perhaps surprisingly, in cases of *accidental* coreference (and in languages that disallow cataphora) that the existence of indices in syntax becomes critical. The Chuj data therefore support recent work that rely or argue for the existence of syntactically-represented indices (see e.g. Jenks 2020 and reference therein).

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