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Free relative clauses in Yucatec Maya[*]

Abstract

This paper presents an analysis and description of the syntax of free relative clauses in Yucatec Maya, the Mayan language spoken in the Yucatán Peninsula in Mexico. The description and analysis focus on two structural properties of these free relative clauses; a) the internal nature of the relative pronoun, and, b) the absence of matching effects observed in Yucatec free relatives when a prepositional phrase is relativized. I show that these two phenomena receive a unified description in an analysis where Yucatec, in contrast with a language like English, allows the head of the noun phrase to be null.

1. Introduction

The typology of restrictive relative clauses has been amply studied, but descriptive and typological studies of free relative clauses (FRs) are thus far less common. In this context, this paper provides a description and a structural analysis of free relative clauses in Yucatec Maya, the Mayan language spoken in the Yucatán Peninsula, Mexico. The description and analysis revolve around two structural properties of FRs that have been the source of great debate in the formal literature, namely; a) whether the relative pronoun of FRs is internal or external to the relative clause itself, and b) the presence (or absence) of *matching effects*, i.e. the requirement that the relative pronoun of the FR simultaneously meet the selection requirements of the verb of the relative clause and those of the matrix verb. I conclude that the Yucatec data relating to these two phenomena receive a straightforward account in an analysis where FRs in Yucatec are taken to be pronominal relative clauses embedded in an NP headed by a null nominal head.

The paper is structured as follows. In section 2, I present a brief description of restrictive relative clauses as an introduction to the FRs to be discussed later in the paper. In section 3, I present a brief description of the different kinds of FRs observed in Yucatec. In section 4, I provide an analysis of the structure of these FRs. In this analysis I conclude that, a) the relative pronoun of FRs is internal to the relative clause, and b) that FRs in Yucatec are in fact introduced by a null nominal head. The data supporting these conclusions is found in two properties observed in Yucatec FRs: *pied-piping with inversion* and the absence of matching effects in FRs where an oblique is relativized. Section 5 concludes the paper.

2. Preliminary description

2.1 Basic syntactic considerations

Yucatec Maya is a language that displays mostly nominative-accusative syntax, but it has an ergative-absolutive cross-referencing system that is split on the basis of aspect. It is a strictly head-marking language. The verb agrees with the object through a set of pronominal suffixes (glossed ABS in what follows), whereas the transitive subject is cross-referenced by a series of proclitics (glossed ERG in what follows) that may attach prosodically to either the verb or to a number of different preverbal elements, most often auxiliary particles that precede the ergative clitic. The ergative proclitics are also used to cross-reference the possessor of the head of a noun phrase. The basic structure of the clause in Yucatec (in brackets in the example below) thus consists of the main verb, the ergative proclitic cross-referencing the subject, and an auxiliary particle that precedes it. Full argument and adjunct phrases in turn appear to either the right or the left of this basic structure, as in (1).[1]

(1) *U   y-íicham*ᵢ [*yaan u*ᵢ   *taa-s-ø*ⱼ]   *jun p'íit   centabo*ⱼ.
     ERG.3 EP-husband COMP ERG.3 come-CAUS-ABS.3SG one bit   money
     'Her husband must bring a little bit of money.'[2]   (MDG-B: 189)[3]

For the most part, this basic clause structure is observed in most kinds of clauses in Yucatec, both matrix and subordinate. The one exception that is relevant for the purposes of this paper is the *agent focus* form of the verb. In many Mayan languages, the canonical form of the verb or the clause is altered when a transitive

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subject is focused, *wh*-questioned, or relativized (see STIEBELS (2006) for a recent survey). Syntactically, the agent focus form in Yucatec differs from the canonical form in (1) in that; a) no aspectual auxiliary is ever expressed, and; b) the transitive agent can no longer be realized by an ergative clitic and must be realized instead by means of a full lexical phrase or pronoun (BRICKER (1978); see also BOHNEMEYER (2002)).

(2) ***Leti'***   *kíin-s-ej-ø*.
   3.SG   die-CAUS-IRR-ABS.3SG
   'HE killed him.'   (MDG-B: 29)

The occurrence of the *agent focus* form of the verb in Yucatec is quite systematic when a transitive subject is focused. However, this is not the case in *wh*-interrogatives and (especially) in relative clauses, where the *agent focus* form alternates with the canonical form (BRICKER (1978), VERHOEVEN (2007:141-142), GUTIÉRREZ-BRAVO & MONFORTE (2009), NORCLIFFE (2009)). For ease of exposition, though, whenever transitive subject FRs are illustrated, I present mostly cases where the *agent focus* form is observed.

2.2 Restrictive relative clauses

Having made a basic description of the clause structure of Yucatec, I now make a brief description of restrictive relative clauses in this language. This description is presented as a background for the discussion of free relative clauses. There are two structural properties that are relevant for the description of restrictive relatives that follows, but which I will just assume here, as these properties have been discussed in earlier work. First, relative clauses in Yucatec are fully clausal in nature and they are structurally embedded as part of a noun phrase (GUTIÉRREZ-BRAVO & MONFORTE (2009)). They are not introduced by any complementizer or subordinator and hence they are akin to English contact relatives such as *the book I bought*. Secondly, the head of relative clause is external to the relative clause itself, as argued in GUTIÉRREZ-BRAVO & MONFORTE (2009), and GUTIÉRREZ-BRAVO (2009).[4] Further details about the structure of restrictive relatives in Yucatec can be found in these works.

Typologically, languages and the relative clauses they display are standardly classified according to the *relativization strategies* observed in them. Following the typologies developed in COMRIE (1989), COMRIE (1998), COMRIE & KUTEVA (2005), ANDREWS (2007), and numerous other works, there are four major strategies for constructing restrictive relative clauses, depending on the formal realization of the relativized constituent: (a) the *non-reduction* strategy, where the relativized element shows no pronominal or phonological reduction; (b) the *resumptive pronoun* strategy, where the relativized constituent is realized in its base position as a referential/personal pronoun; (c) the *relative pronoun strategy*, where the relativized element is realized as a non-referential/indefinite pronominal

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[4] See TONHAUSER (2003a) for an alternative analysis.

phrase that is preposed to the front of the relative clause, and; (d) the *gap* (or *omission*) strategy, where the relativized element has no overt reference whatsoever (i.e. the most extreme form of reduction). Relative clauses in Yucatec display two of these relativization strategies, the gap strategy and the relative pronoun strategy. In section §2.2.1, I provide a brief description of gap relatives. In the section §2.2.2 I describe pronominal relatives, which are more closely related to FRs.

2.2.1 Gap relative clauses

Gap relatives in Yucatec are observed for subjects, objects, datives, prepositional phrase adjuncts (where the latter two show "stranded" prepositions) temporal expressions and possessors. Examples of these kinds of gap relatives are presented below. For ease of exposition, from here on relative clauses (either restrictive or free) are enclosed in brackets. The head of the relative is further underlined for clarity and the underscore indicates the canonical position of the relativized constituent. Example (6) is from BOHNEMEYER (2002).[5]

(3) *Jmeen, jaaj, jun túul <u>jmeen</u>* [RC ____ *ku*
    priest   true   one NUMC priest   HAB-ERG.3
    meen-t-ik-ø   *waajil kool*].
    make-TRNS-IND-ABS.3SG   cornfield.ceremony
    'He was a priest, it's true, a priest that made the cornfield ceremony.'

                                                                        (MDG-B: 61)

(4) *Mina'an-ø*   *u*   *chan <u>p'óok</u>* [RC *k-u*   *p'at-ik-ø*   ____
    NEG.EX-ABS.3SG ERG.3 little hat   HAB-ERG.3 leave-IND-ABS.3SG
    t-u   *yáanal u*   *k'áan*]-*o'*.
    PREP-ERG.3 under   ERG.3 hammock-CL
    'His little hat he used to leave under his hammock was not there.'

                                                                        (MDG-B: 48)

(5) *Yaan-ø*   *kex óox túul <u>ko'olel</u>* [RC *k-u*   *ts'a-ik-ø*
    EX-ABS.3SG even three NUMC woman   HAB-ERG.3   give-IND-ABS.3SG
    *ti'*____]-*e'*.
    PREP-CL
    'They were even three women that he gave it (his money) to.'   (MDG-B: 32)

(6) *Juan-e'*   *le <u>máak</u>* [RC *taak in   meyaj yéetel* ____]-*o'*.
    Juan-TOP DM person   DES   ERG.1SG work with-CL

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[5] Comrie (1998) distinguishes two different kinds of languages that display gap relatives: those like English where the gap involves "extraction" in the sense used in formal grammar, and those like Japanese, where it does not. Determining to which of these two kinds the gap relatives of Yucatec belong is an important issue, but one that is tangential to the problem addressed in this paper.

'Juan is the person that I want to work with.'

(7) *Le <u>día</u>* [_{RC} *ken-o'on   k   wa'alkun-t-ø* ____]*-o'…*
      DM day   AUX-ABS.1p ERG.1p erect-TRNS-ABS.3SG-CL
      'The day on which we erect them (the cross bars).'   (BOHNEMEYER 2002: 258)

(8) *Ti'   a   <u>nal</u>* [_{RC} *tun   jóok'-ol   u   yi'ij-o'ob* ____]*-o'.*
      PREP ERG.2 corn   DUR+ERG.3 come.out-IND ERG.3 tip-PL-CL
      'To the corn whose tips are just sprouting.'   (MDG-B: 13)

Since all relative clauses are thoroughly sentential in Yucatec, the wide range of syntactic functions that are relativizable in this language confirms the tendency first observed in LEHMANN (1986), where a large number of functions available for relativization correlates with sentential (vs. nominalized) relative clauses. I now briefly describe pronominal restrictive relative clauses, which are more closely related to FRs since they are characterized by the presence of a relative pronoun.

2.2.2 Pronominal relative clauses

Yucatec also has pronominal relative clauses. Following the typological descriptions in COMRIE (1989), COMRIE (1998), COMRIE & KUTEVA (2005), ANDREWS (2007), I take a *pronominal relative clause* to be a headed, restrictive relative clause where the relativized argument is realized as a pronoun.[6] Yucatec is typologically unusual in that in displays fully productive use of the relative pronoun strategy for relative clause formation, a strategy seldom found outside European languages (COMRIE (1998), COMRIE & KUTEVA (2005)). Yucatec is further typologically unusual in that relative pronouns are for the most part identical to their interrogative counterparts (see MITHUN (2009)).[7] Pronominal relative clauses are observed for subjects, objects, oblique arguments and locations. The general structure of pronominal relatives is illustrated with the dative, oblique

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[6] It is important to note that, following this definition, the mere presence of a relative pronoun is a necessary but not a sufficient condition for classifying a given relative clause as a *pronominal relative*. Specifically, free relative clauses do have relative pronouns, but they are not considered to be pronominal relative clauses because: (a) they are not restrictive relatives, and; (b) they lack a referential nominal head (or any referential element external to the relative clause that can function as the head of the relative construction: see CITKO 2004 and GUTIÉRREZ-BRAVO 2009). Hence at no point should it be understood that free relatives are a kind of pronominal restrictive relative clause. Alternatively, following the terminology in LEHMANN (1986), one could use the term 'pronominal *relative construction*' to refer to pronominal restrictive relatives; since Lehmann's definition of *relative construction* (i.e. a head plus a relative clause) implies the existence of a head, free relatives do not meet this definition and thus they remain adequately classified in a different category altogether. I am thankful to an anonymous reviewer for bringing this terminological issue to my attention.

[7] The exception is the manner relative pronoun *je'e(l)bix*, 'how', whose interrogative counterpart is simply *bix*, 'how'. The relative/interrogative pronouns *máax*, 'who, whom' and *ba'ax*, 'what, which' are in turn lexically related to *máak* 'person' and *ba'al*, 'thing'.

adjunct, and location relatives in (9), (10), and (11). In each case, the head of the relative clause is underlined for clarity.[8]

(9) *Jach raro <u>persona</u>* [_{RC} *máax ti' k-u si'ib-il*].
　　very rare person 　　who PREP HAB-ERG.3 grant+PASS-IND
　　'He's unusual, a person to whom (this power) is granted to.' 　(MDG-B: 62)

(10) *leti' le <u>x-ch'úupal</u>* [_{RC} *máax yéetel taak in tsikbal*]-*o'*.
　　3SG DM FEM-girl 　　who with DES ERG.1SG chat-CL
　　'That is the girl with whom I want to chat.'

(11) *Le <u>lu'um</u>* [_{RC} *tu'ux ken a pak'-ø xan*]-*o'*.
　　DM soil 　　where AUX ERG.2 sow-ABS.3SG also-CL
　　'The soil where you're going to sow it too.' 　(MDG-B: 224)

　In Yucatec, however, it is not possible to have a subject or object restrictive pronominal relative in which the head of the relative is overt (GUTIÉRREZ-BRAVO & MONFORTE (2009), GUTIÉRREZ-BRAVO (2009)). Simultaneous occurrence of an overt head and a relative pronoun in subject and object pronominal relatives results in robust agrammaticality, as illustrated in (13) and (15).

(12) *T-in kax-t-ik-ø le* [*ba'ax k-u*
　　DUR-ERG.1SG look.for-TRNS-IND-ABS.3SG DM what HAB-ERG.3
　　y-ok-ol t-in kool]-*o'*.
　　EP-enter-IND PREP-ERG.1SG cornfield-CL
　　'I'm looking for the (thing) which goes into my cornfield.'

(13) **T-in kax-t-ik-ø le kitam* [*ba'ax k-u*
　　DUR-ERG.1SG look.for-TRNS-IND- ABS.3SG DM boar what HAB-ERG.3
　　y-ok-ol t-in kool]-*o'*.
　　EP-enter-IND PREP-ERG.1SG cornfield-CL
　　('I'm looking for the boar which goes into my cornfield.')

(14) *T-in kax-t-ik-ø le* [*máax ts'-a*
　　DUR-ERG.1SG look.for-TRNS-IND-ABS.3 DM who TRM-ERG.2
　　bi-s-ik-ø]-*o'*.
　　go-CAUS-IND-ABS.3SG-CL
　　'I'm looking for the (person) whom you have already taken.'

(15) **T-in kax-t-ik-ø le ko'olel* [*máax ts'-a*
　　DUR-ERG.1SG look.for-TRNS-IND-ABS.3SG DM woman who TRM-ERG.2

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[8] Example (9) further illustrates an inversion in the order of the preposition and its nominal complement, a process known in the literature as *pied-piping with inversion*. I return to this phenomenon in section 4.1.

bi-s-ik-ø]-*o'*.
go-CAUS-IND- ABS.3SG-CL
('I'm looking for the woman whom you have already taken.')

In spite of the fact that they lack an overt nominal head, the relative clauses in (12) and (14), however, should still be considered restrictive (and not free) relative clauses because; (a) they restrict the referential interpretation of the material outside the relative, and; (b) they are introduced by a referential element external to the relative clause, the demonstrative determiner *le* (see fn. 6).[9] Having presented this basic description of the typology of restrictive relative clauses in Yucatec, I now turn to free relative clauses. In connection with the brief description just presented, the most important point to keep in mind is that the free relative constructions that I describe in this paper are similar to the pronominal restrictive relatives in (9), (10), (11), (12) and (14) except for the fact that they are not introduced by either an overt nominal head, or by a determiner or any other kind of nominal modifier.

3. Free relative clauses

In this section I provide a preliminary definition of the FRs that will be analyzed later in the paper. The following example is from (RIEMSDIJK 2006: 340), where the FR is presented in italics.

(16)   You should return *what you have finished reading* to the library.

What is characteristic of constructions like (16) is that the head of the relative, which can otherwise be observed in constructions like (9), (10) and (11), is now absent. The resulting relative construction can be thought of as being headless, but here an important terminological issue arises. While it is not unusual for the terms *free relative* and *headless* relative to be used interchangeably (see for instance ANDREWS (2007)), in what follows I assume that they do not correspond to the exact same phenomenon. Rather I assume that *free relatives* are a subtype of *headless relative*, specifically, a headless relative with a relative pronoun. To illustrate this difference, consider the following construction from Yucatec.

(17)   *Yaan-ø*   [_RC_ ___ *k-u*   *púut-ik-ø-o'ob*   *le   fibra*]]-*o'*…
        EX-ABS.3SG   HAB-ERG.3 carry-IND-ABS.3SG-3PLDM fiber-CL
        'There were those that carried the fiber…'   (MDG-B:101)

Both the English FR in (16) and the Yucatec relative in (17) are "headless" in that they lack an overt nominal head. However, there is an important difference between them. The relative in (16) has a relative pronoun (i.e. it is a "headless"

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[9] In contrast, as we shall see in what follows, free relatives do not have a restrictive function and (pretheoretically, at least) they are not introduced by any referential constituent outside the relative clause that could function as the structural head of the relative.

relative with a relative pronoun), whereas the relative in (17) does not (i.e. it is a "headless" gap relative). Yucatec in fact has headless relatives with relative pronouns which are akin to the English headless relative in (16). This is illustrated by (18), which displays the agent focus form first presented in (2).

(18) *Yaan* [*máax k'am-ik-ø*].
     EX   who receive-IND-ABS.3SG
     'There were those who received it.'   (MDG-B: 108)

Accordingly, I use the term *free relative* to refer exclusively to headless relatives with relative pronouns like (16) and (18). In contrast, I use the term *headless relative* exclusively for gap relatives that lack both an overt head and a relative pronoun.[10] Based on this distinction it is possible to arrive at a typology where some languages have *free relatives* but not *headless relatives* (i.e. English), others which have *headless relatives* but not *free relatives* (prototypically, when a language has no relative pronouns to begin with), languages that have both *free* and *headless relatives* (i.e. Yucatec, and also Spanish) and languages that have neither *headless* nor *free* relatives.[11] Further developing the details of this typology, however, is beyond the scope of this paper, and so the description and analysis that follows is related exclusively to *free relatives* as defined above.

3.1 A description of free relatives

FRs are widely observed in Yucatec. Examples are presented below. In (19) a transitive subject is relativized, and so the agent focus form of the verb is observed. Example (20) is an object FR; the FR as a whole in turn functions as the direct object of the matrix verb *il*, 'see'. In (21) an indirect object is relativized, and (22) is an instance where an adjunct PP is relativized. In (23) an FR is presented where a locative expression is relativized.

(19) *Yaan* [*máax k'am-ik-ø*].
     EX   who receive-IND-ABS.3SG
     'There were those who received it.'   (MDG-B: 108)

(20) *K-o'on-e'ex*   *il-ik-ø*   [*ba'ax kan*   *u*   *beet-ej-ø*].
     go-ABS.1PL-ABS.2PL see-IND-ABS.3SG what AUX   ERG.3 do-IRR-ABS.3SG
     'Let's go see what it (the rain) is going to do.'   (MDG-B: 273)

(21) *T-in*   *kax-t-ik-ø*   [*máax ti'*   *k-a*   *láaj*
     DUR-ERG.1SG look.for-TRNS-IND-ABS.3SG who PREP HAB-ERG.2 all
     ts'a-ik-ø   *a*   *taak'in-o'*.

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[10] For a detailed description and analysis of this kind of relative clause in Yucatec, see GUTIÉRREZ-BRAVO (2009).

[11] Tok Pisin, in the analysis developed in VOGEL (2001) might turn out to be a language of this kind, although clearly more research is needed to clarify this point.

give-IND-ABS.3SG ERG.2 money-CL
'I'm searching (for) whom you give all your money to.'

(22) *Chéen* [*máax yéetel k-in   t'aan-e'*] *yéetel maestra.*
only   who with   HAB-ERG.1SG speak-TOP   with teacher
'The only (person) with whom I used to speak was with the teacher.'

(MDG-B: 94)

(23) *Tak*   [*tu'ux jach ma'alob le   lu'um-o'*]...
even   where very   good   DM   soil-CL
'Even where the soil is very good.'   (MDG-B: 102)

There are two kinds of constructions related to the free relatives above, but which will not be analyzed in this paper. The first kind corresponds to relative clauses very much like the free relatives described above but which are further introduced by a determiner or a quantifier, as in (24). The second kind corresponds to FRs introduced by the quantifier *je'e(l)* 'any', and which correspond roughly to the FRs in English introduced by *–ever* relative pronouns (*whoever*, *whatever*, etc.).

(24) *Le* [*ba'ax k-in   tsikbal-t-ik-ø   te'ex*]-*a'.*
DM   what HAB-ERG.1SG   chat-TRNS-IND-ABS.3SG 2PL-CL
'This (thing) which I'm telling you about.'   (MDG-B: 108)

(25) [*Je'elba'ax   k-a   kon-ik-ø-e'*]   *yaan in*
whatever   HAB-ERG.2 sell-IND-ABS.3SG-CL   COMP ERG.1SG
man-ik-ø.
buy-IND-ABS.3SG
'I will buy whatever you sell.'

(26) *Je'   u   béeytal   a   t'aan yéetel* [*je'emáax-ak   a*
ASV   ERG.3 be.possible ERG.2 talk   with   whoever-IRR   ERG.2
k'áat-e'].
want-CL
'It will be possible for you to talk with whoever you want.'   (MDG-B: 178)

Constructions like (24) are not free relatives, but rather correspond to the kind of restrictive relative illustrated in (12) and (14). This kind of relative is analyzed in GUTIÉRREZ-BRAVO (2009), to which I refer the reader for further details.[12] Constructions like (25) and (26) are more closely related to clefts and can be considerably more complex in their structure, which can be seen in the fact that they sometimes bear irrealis mood inflection, as in (26). Hence they require a more detailed analysis than what can be undertaken here.

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[12] Ultimately, the analysis of constructions like (24) developed in GUTIÉRREZ-BRAVO (2009) is also that these constructions are headed by a null N. Hence their analysis is entirely compatible with the analysis of Yucatec FRs that I develop later in this paper.

4. The structure of free relatives in Yucatec Maya

In this section I argue that two facts point to the conclusion that in Yucatec FRs the relative pronoun is internal to the relative clause. These two facts are inversion with *pied-piping* and the absence of matching effects. I argue that both phenomena are accounted for by an analysis where FRs in Yucatec are headed by a null nominal head.

4.1 Internal nature of the relative pronoun

In terms of syntactic analysis, a fundamental question that has been addressed in the formal literature on relative clauses is whether the relative pronoun in free relative constructions is internal or external to the relative clause (see RIEMSDIJK (2006) for a recent survey of this theoretical debate). In the formal literature on this topic, the analysis where the relative pronoun is internal to the relative is known as the *Comp account* (GROOS & RIEMSDIJK (1981); see also RIEMSDIJK (2006) and GRAČANIN-YUKSEK (2008)). The free relative of (16) in this account is analyzed as follows:

(27) You should return [$_{RC}$ *what you have finished reading*].

In contrast, the analysis where the relative pronoun is external to the relative clause is known as the *head account* (BRESNAN & GRIMSHAW (1978); see also CITKO (2002)). This name is due to the fact that in the *head account* the relative pronoun is taken to be the external nominal head of the relative, thus being structurally equivalent to *book* in a headed restrictive relative like *the book you have finished reading*.[13] Crucially, in this analysis, the FR is actually a gap relative in which the gap is coreferential with the relative pronoun that is external to the FR.

(28) You should return [$_{NP}$ *what*$_i$ [$_{RC}$ *you have finished reading* ___$_i$]].

In other words, in analyses like BRESNAN & GRIMSHAW (1978) and CITKO (2002) (i.e. the head analysis), the fact that relative pronouns are clause-internal in headed pronominal relatives like *the book which you have finished reading* is quite independent of the analysis of the position of the relative pronoun in a free relative like (28). In what follows, I argue that it is the *Comp* account of (27) that is correct for Yucatec. The crucial evidence is found in a phenomenon common in Yucatec and other Mayan languages known as *pied-piping with inversion*.

In the formal literature, *pied-piping* refers to the phenomenon in which an interrogative or relative pronoun moves to the left edge of the clause, and where it further "carries along" with it a larger constituent in which the interrogative pronoun is embedded. Hence in the interrogative complement clause in (29), it is

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[13] BRESNAN & GRIMSHAW (1978: 338) refer to their own analysis as *the base hypothesis*, but it is the name *head analysis* that is most often used to refer to it in the literature that followed their proposal.

not only the interrogative pronoun *whom* that is fronted to the left edge of the embedded clause. Rather, the interrogative pronoun carries along with it the whole PP that it is originally embedded in. Observe that English also has the (more common) option of fronting the interrogative pronoun only, in which case the preposition is stranded in its canonical position,

(29)   They asked [[PP to whom] he was referring].
(30)   They asked [who he was referring [PP to ___]].   (RADFORD 2004: 211)

Pied-piping is observed in Yucatec interrogative and relative clauses, but with a further word order perturbation. Concretely, Yucatec is a head-initial language, and thus it shows prepositions and not postpositions, as in (31). However, when a prepositional phrase is questioned or relativized, the order of the preposition and its nominal complement inverts, as in the interrogatives in (32) and (33). This phenomenon is known in the literature on Mayan and other Mesoamerican languages as *pied-piping with inversion* (SMITH-STARK (1988), AISSEN (1996), amongst others).

(31)   [PP *Ti'* [NP *le   iik-a'*]].
             PREP   DM pepper-CL
        'For the peppers.'   (MDG-B: 13)

(32)   [PP *Máax   ti'*]   *k-u*   *t'a'an-al?*
             who   PREP HAB-ERG.3   speak+PASS-IND
          'To whom is this (prayer) spoken?'   (MDG-B: 279)

(33)   [PP *Máax   yéetel*] *u   páajtal   in   w-óok'ot-e'?*
             who   with   ERG.3 be.possible ERG.1s EP-dance-CL
        'Who can I dance with?'

    Now, *pied-piping* with inversion is also observed in relative clauses (GUTIÉRREZ-BRAVO 2009) and this includes FRs, as in (34).

(34)   *Chéen* [FR [PP *máax yéetel*] *k-in   t'aan-e'*] *yéetel maestra.*
        only   who   with   HAB-ERG.1SG speak-TOP   with   teacher
        'The only (person) with whom I used to speak was with the teacher.'
                                                              (MDG-B: 94)

    The inversion of the preposition and the relative pronoun is optional in Yucatec, though (see also TONHAUSER (2003b)). Hence, alongside examples displaying inversion such as (35), speakers accept elicited examples where the canonical order *preposition+NP* is maintained, as in (36).

(35)   *Carlos-e'   ma'   t-u   kax-t-ik-ø*   [*máax yéetel*
        Carlos-TOP   NEG   DUR-ERG.3 find-TRNS-IND-ABS.3SG   who   with
        u   y-óok'ot].

ERG.3   EP-dance
'Carlos can't find whom to dance with.'

(36)   *Carlos-e'   ma'   t-u   kax-t-ik-ø*   [*yéetel máax*
        Carlos-TOP   NEG   DUR-ERG.3 find-TRNS-IND-ABS.3SG   with   who
        u   y-óok'ot].
        ERG.3   EP-dance
        'Carlos can't find whom to dance with.'

It is notable, however, that there are no examples of *pied piping* without inversion in my corpus. Given the absence of *pied piping* without inversion in natural corpus data, I assume that *pied piping with inversion* represents, at the very least, the unmarked option in Yucatec.[14] Now, one of the crucial observations necessary to argue that the relative pronoun in FRs is internal to the FR itself is that *pied piping with inversion* is an exclusively clause-internal phenomenon (further dependent on fronting, as will also be discussed below). Hence, when a PP is an argument of the matrix verb, and the preposition of this PP takes an FR as its complement, inversion is not possible. This is because the preposition is part of the matrix clause, but the relative pronoun of the FR isn't. This is illustrated by the contrast between (37) and (38).

(37)   *T-in   ts'-aj-ø   in   najil* [PP *ti'* [FR *máax t-u*
        CP-ERG.1SG give-PRF-ABS.3SG ERG.1SG house   PREP   who   CP-ERG.3
        taa-s-aj-ø   mas   ya'ab taak'in]].
        come-CAUS-PRF-ABS.3SG more   many   money
        'I gave my house to (the person) who brought the most money.'

(38)   **T-in   ts'-aj-ø   in   najil máax ti'   t-u*
        CP- ERG.1SG give-PRF-ABS.3SG ERG.1SG house who   PREP   CP-ERG.3
        taa-s-aj-ø   mas   ya'ab taak'in .
        come-CAUS-ABS.3SG more   many   money
        (I gave my house to (the person) who brought the most money.)

The examples above should in turn be compared with the pair of examples in (35) and (36). The crucial difference is that in (35) and (36) the prepositional phrase as a whole is internal to the relative clause (i.e. it is an adjunct of the verb *óok'ot*, 'dance'), whereas in (37) and (38) the prepositional phrase headed by *ti'* 'to', is the dative argument of the matrix verb *ts'aaj* 'give'.

The main point is that, to the extent that *pied-piping* with inversion is a clause-internal phenomenon, it indicates that the relative pronoun is internal to the FR. Specifically, example (38) indicates that the order *relative/interrogative pronoun + preposition* only takes place if both the pronoun and the preposition originate in the

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[14] It should be mentioned, though, that (in contrast with Yucatec) the absence of inversion after *pied piping* is robustly ungrammatical in Tzotzil (AISSEN 1996) and Chol (COON 2009), the two other Mayan languages where *Pied-piping with inversion* has been studied in detail.

same clause. Hence, we can conclude that in (34) and (35), where the order *relative/interrogative pronoun + preposition* is indeed observed, both the pronoun and the preposition must have originated in the same clause, namely the embedded FR, and in this way we conclude the relative pronoun is internal to the FR.

Another argument in favor of the analysis in which the relative pronoun of FRs is internal to the FR has to do with the fact that *Pied-piping with inversion* is further dependent on a relative or interrogative pronoun being fronted to the left edge of the clause. This is most clearly observed in matrix pronominal interrogatives such as (32) and (33), where the interrogative pronoun ends up being the leftmost element of the clause. In other words, there are no instances in Yucatec where the inversion order *relative/interrogative pronoun + preposition* is observed in the canonical, base position of these constituents. Now, recall that in the Head Analysis of FRs there is no movement or displacement of the relative pronoun to begin with: the base position of the relative pronoun is the head of the noun phrase where the relative is embedded and it is simply coreferential with a gap inside the relative, as in (28). Consequently, free relatives displaying *pied-piping with inversion*, which is only observed when movement/displacement is observed, are evidence against the head analysis of Yucatec FRs. This is because in these cases the fronted relative pronoun must have moved from its base position inside the relative clause, just like the interrogative pronouns of (32) and (33) must have moved from their canonical, base position in the interrogative clause.

Lastly, FRs displaying *Pied-piping with inversion* provide one further argument against the Head Analysis and in favor of the analysis where the relative pronoun in Yucatec FRs is internal to the FR. Observe that in the Head Analysis in (28) the relative pronoun is the head of the NP and it is followed by a gap relative, not by a pronominal relative. Now observe that in Yucatec gap relatives where a prepositional phrase is relativized, the preposition is left "stranded" as in (5) and (6). But this is not what is observed in examples like (34) and (35) (or even (36)). In these FRs the preposition is not "stranded", but is instead immediately adjacent to the relative pronoun. This indicates that the constituent that follows the relative pronoun is not a gap relative, as is required in the Head Analysis (28).

On the basis of this data I conclude that the relative pronoun in Yucatec FRs is internal to the relative clause. As such, the relative pronoun itself cannot be the structural head of the FR. The question now is whether free relatives in Yucatec simply lack a structural head altogether, or whether there is some other element not considered so far that is functioning as the head of the relative. I propose that the latter is actually the case, and that FRs in Yucatec have an external null nominal head. In the following section I provide evidence in favor of this proposal. The central part of the argumentation in favor of this proposal is found in the fact that FRs where an oblique is relativized do not show the matching effects observed in the FRs of other languages such as English.

4.2 Absence of matching effects

The second phenomenon observed in FRs which has attracted great attention in the formal literature has to do with presence (or absence) of *matching effects* in

FRs. The term *matching effect* refers to the requirement observed in some languages whereby the relativized element must have the same syntactic category (or morphological case) as the complement of the matrix verb. Consider what this situation is for the English FR in (16), repeated here as (39).

(39)   You should return [FR what you have finished reading] to the library.

Return is a verb that takes an NP complement. This is fairly clear when *return* precedes a headed restrictive relative in cases like *you should return the book which you have finished reading*. In (39) the relative pronoun *what* is an NP, by virtue of being the direct object of the embedded verb *read*. Hence the relative pronoun of the free relatives "matches" the category requirements of both the verb inside the relative and the matrix verb.

Now, a potential conflict arises when the relativized constituent in the FR does *not* correspond to the category that the matrix verb selects as its complement. English does not tolerate this kind of mismatch (BRESNAN & GRIMSHAW (1978), VOGEL (2001)), as illustrated in the examples below, adapted from RIEMSDIJK (2006: 343).

(40)   *We should interview [FR with whom he goes out].
(41)   We should interview the woman [RC with whom he goes out].

The matrix verb *interview* in (40) takes an NP complement, as is apparent in an example like (41) with a full restrictive relative. However, the embedded verb *go out* takes a PP complement, not an NP complement. This complement corresponds to the PP *with whom*, which contains the relative pronoun. As such, there is a mismatch between the requirements of the matrix verb and those of the embedded verb and the resulting construction is ungrammatical. Observe that the matching effects in (40) are syntactic category effects (i.e. NP vs. PP). In languages that further have morphological case, matching effects (or their absence) further extend to the specific case-form of the relative pronoun, that is, NOM vs. ACC vs. DAT, etc. (see VOGEL (2001) and RIEMSDIJK (2006) for surveys of this phenomenon). Since Yucatec does not have any form of morphological case, matching or mismatching effects henceforth refer to syntactic category exclusively.

Now, in contrast with what is observed in English in (40), Yucatec does allow mismatches between the syntactic category of the relativized constituent in the FR and the syntactic category that the matrix verb requires of its complement. This is illustrated in the following examples, where, just as in English (40), the FR is introduced by a PP, but where the matrix verb requires an NP and not a PP complement. Hence there is a mismatch, but in contrast with what is observed in English, the mismatch does not result in ungrammaticality.[15] Observe from

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[15] The absence of matching effects in languages that have morphological case is a well-know phenomenon (see for instance VOGEL (2001) and RIEMSDIJK (2006)). In contrast, matching-mismatching effects concerning syntactic category, such as those of English and Yucatec, have not received as much attention in the literature.

examples (35) and (36), repeated here as (43) and (44), that this is independent of whether *pied piping with inversion* takes place or not.[16]

(42) *Táan in   kax-t-ik-ø*   [FR [PP *máax yéetel*] *in   bin*
     DUR   ERG.1SG search-TRNS-IND-ABS.3SG who   with   ERG.1SG go
     ts'oon   k'áax].
     shoot+INTRNS jungle
     'I'm searching whom to go hunting with in the jungle.'

(43) *Carlos-e'   ma'   t-u   kax-t-ik-ø*   [FR [PP *máax yéetel*]
     Carlos-TOP NEG   DUR-ERG.3 find-TRNS-IND-ABS.3SG   who   with
     u   y-óok'ot].
     ERG.3 EP-dance
     'Carlos can't find whom to dance with.'

(44) *Carlos-e'   ma'   t-u   kax-t-ik-ø*   [FR [PP *yéetel máax*]
     Carlos-TOP NEG   DUR-ERG.3 find-TRNS-IND-ABS.3SG   with   who
     u   y-óok'ot].
     ERG.3 EP-dance
     'Carlos can't find whom to dance with.'

Building on the typological observation by LEHMANN (1984, 1986) that the heads of restrictive relative clauses can be null in some languages, my proposal is that both the RC-internal nature of the relative pronoun in Yucatec and the absence of matching effects are simultaneously accounted for if we assume that the head of the noun phrase in Yucatec can be null. This has in fact been argued to be the case for other nominal constructions in Yucatec, including some restrictive relative clauses, in GUTIÉRREZ-BRAVO (2002), GUTIÉRREZ-BRAVO & MONFORTE (2009) and GUTIÉRREZ-BRAVO (2009). The most important observation here is that NPs in Yucatec (irrespective of whether or not they contain a relative of some kind) can show the exact same kind and number of modifiers irrespective of whether or not an overt nominal head for the NP is observed (GUTIÉRREZ-BRAVO 2009), as in (45) and (46). This fact is accounted for by an analysis where the NP in (46) is headed by a null N.

(45) *Le nojoch nal-o'.*
    DM big   corncob-CL
    'The/that big corncob.'

(46) *Le nojoch-o'.*
    DM big-CL
    'The/that big (one).'

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[16] Yucatec has a single verb for both English 'search' and 'find', namely *kax*. In all instances this verb takes an NP complement exclusively.

As such, the null N analysis is not specific to free relatives, but applies to different phenomena in the domain of the nominal syntax of Yucatec. Under this analysis, the structure of free relatives in this language would be as in (47) and (48):

(47) *Yaan* [$_{NP}$ ø [$_{FR}$ *máax k'am-ik-ø*]].
    EX   who receive-IND-ABS.3SG
    'There were those who received it.'   (MDG-B: 108)

(48) *K-o'on-e'ex*   *il-ik-ø* [$_{NP}$ ø [$_{FR}$ *ba'ax kan   u   beet-ej-ø*]].
    go-ABS.1PL-ABS.2PL see-IND-ABS.3SG   what AUX ERG.3 do-IRR-ABS.3SG
    'Let's go see what it (the rain) is going to do.'   (MDG-B: 273)

It is important to observe that the null head analysis of FR maintains (as desired) an important difference between restrictive pronominal relative clauses (§2.2.2) and FRs. Specifically, what is characteristic of all FRs in Yucatec is the presence of a null nominal head, whereas the null head requirement in restrictive pronominal relatives is observed only for subject and object relatives (i.e. (12) and (14)), but not for PP or location relatives (i.e. (9), (10) and (11)). Furthermore, subject and object restrictive pronominal relatives, just like all other headed relatives in Yucatec, can be introduced by external modifiers even if they do not have an overt nominal head, as is again illustrated in (12) and (14).

Consider now how the null head analysis of (47) and (48) accounts for the syntactic properties observed in (42-44). Predicates that take NP arguments can equally take FRs as arguments because, in this analysis, FRs in Yucatec are embedded in an NP with a null head. As such, the selection requirements of the matrix verb are met by the null nominal head, and not by the FR as a whole. When the relativized element in the FR is an NP to begin with, as in (47) and (48), the null nominal head proposal would appear to be adding nothing necessary to the analysis. But when we turn to cases like (42-44), where a PP is relativized, the null nominal head analysis shows its advantages. Specifically, this analysis accounts for the absence of matching effects observed in Yucatec. As illustrated in (49), Yucatec FRs where a PP is relativized are still headed by a null nominal head. It is this nominal head, and not the relativized PP, that satisfies the complement requirements of the matrix verb.[17] Consequently, there is no mismatch like the one observed in English (40). In other words, in Yucatec this category mismatch (i.e. NP vs. PP) in FRs is only apparent, in contrast with other true mismatches reported in the literature.

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[17] We know that some element in this construction must be meeting the selection requirements of the matrix verb because the transitivity of a verb or verbal stem is always signaled in the verbal morphology of Yucatec (as it is in many other Mayan languages). Specifically, the transitivity of the matrix verb in (42-44) (and hence the presence of a constituent that can function as the direct object that meets the selection requirements of this transitive verb) is independently confirmed by the indicative suffix *–ik*, which is only observed in transitive constructions.

(49) *Táan in   kaxtik   [_{NP} ø [_{FR} [_{PP} *máax yéetel*] *in   bin*
     DUR ERG.1SG search-TRNS-IND-ABS.3SG   who   with   ERG.1SG go
     ts'oon   k'áax]]].
     shoot+INTRNS jungle
     'I'm searching whom to go hunting with in the jungle.'

The null N analysis of free relatives is often dismissed on the basis that it derives an incorrect result in English. This can be illustrated with examples (40) and (41), repeated here as (50) and (51). Example (50) is now analyzed as in the null N analysis I have proposed for Yucatec.

(50)   *We should interview [_{NP} ø [_{FR} with whom he goes out].
(51)   We should interview [_{NP} the woman [_{RC} with whom he goes out].

Once the FR of (50) is analyzed in this way, then (50) and (51) are structurally identical. But clearly this is an undesirable result, since the latter is a grammatical construction but the former is not. More so, the ungrammaticality of (50) becomes a mystery. Concretely, in an analysis like (50) the selection requirements of both the matrix and the embedded verb are satisfied; the PP *with whom* satisfies the requirements of the verb *go out*, and, more importantly, the null nominal head ø satisfies the requirements of the matrix verb *interview*. It is then concluded (i.e., in RIEMSDIJK 2006) that (50) cannot be a correct analysis of English FRs.

While this argument seems solid for English, there seems to be no reason to extend it to every language. In fact, English and Yucatec seem to be at opposite ends of a continuum: whereas FRs in English are always subject to the matching requirement (Vogel 2001), FRs in Yucatec superficially appear to be able to freely violate it. In the analysis I propose here, this difference can be reduced to the typological possibility of having a null head for NP (Yucatec) vs. the absence of this possibility (English).

5. Conclusions

In this paper I have provided a description and analysis of free relatives in Yucatec Maya. The description and analysis have focused on two structural aspects of FRs in this language; the internal or external nature of the relative pronoun that introduces FRs, and the absence of matching effects that are observed when a prepositional phrase is relativized in a context where the matrix predicate requires a nominal complement. With respect to the internal/external nature of the relative pronoun, I have concluded that relative pronouns are internal to the free relative (i.e. the *Comp account*). The relevant evidence comes from the phenomenon known as *pied-piping with inversion*, which I have argued is a strictly clause-internal phenomenon. With respect to the absence of matching effects, I have proposed that these can be understood as the result of the free relative being in fact headed by a null nominal head. This is in turn consistent with the analysis of relative pronouns in Yucatec free relatives as being clause-internal: the structure that I have proposed for free relatives in this language is that they are embedded in

an NP which has a null head. I have concluded by suggesting that the presence of matching effects (English) vs. its absence (Yucatec) can be reduced in this case to the typological possibility of having a null head for NP inYucatec, vs. the absence of this possibility in English.

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