Unifying definite and indefinite free relatives: Evidence from Mayan*

Hadas Kotek & Michael Yoshitaka Erlewine

McGill University & National University of Singapore

1. Introduction

Free (or headless) relatives (FRs) refer to clauses with an initial *wh*-word (in **bold** throughout the paper), which semantically denote arguments:

(1) *English free relative:*
I'll buy [$_{FR}$ **what** you're selling].
≈ 'I'll buy the thing(s) that you are selling.'

Free relatives as in the English (1) and similar structures in other languages have been described as having definite or universal interpretation (Jacobson 1995, a.o.). They act as DPs and are islands for extraction. We will refer to this type of free relative as *definite FRs*.

In addition to this cross-linguistically common definite FR construction, some languages also have a second free-relative construction that we will refer to as *indefinite FRs* (Pesetsky 1982, Izvorski 1998, Grosu & Landman 1998, Caponigro 2003, 2004, Grosu 2004, Šimík 2011, a.o.). Examples (1–1) exemplify definite and indefinite FRs in Hebrew:

(2) *Hebrew definite FR:*
Ahav-ti et [$_{FR}$ **ma** she-kara-ti].
liked-1sg ACC what that-read-1sg
'I liked the thing I read.'

(3) *Hebrew indefinite FR:*
Yesh l-i [$_{FR}$ **ma** li-kro].
EXIST to-1sg what INF-read
'I have something to read.'

The free relatives in (1–1) differ not only in interpretation but also in their syntax. Compared to definite FRs, such indefinite FRs are nonfinite, lack an independent subject, and have a modal interpretation, which has led to their being called *modal existential wh-constructions* (MECs) in some previous literature. For example, the example in (1) can be paraphrased as meaning 'I have something available to me to read.' These and other properties of definite and indefinite FRs in Hebrew are summarized in (1):

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(4) *Properties of definite and indefinite free relatives (in Hebrew):*

	Definite FR	*Indefinite FR = MEC*
interpretation	definite	indefinite
nonfinite/subjunctive	×	◯
modal interpretation	×	◯
no referentially independent subject	×	◯
transparent for extraction (not shown)	×	◯

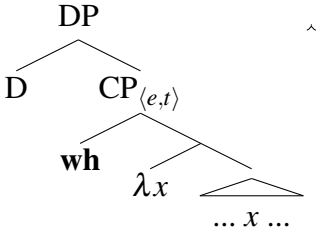
The correlation between interpretive and structural properties of free relatives summarized in (1) holds in many languages, with few exceptions for some of the properties. We refer to indefinite FRs with properties substantially similar to that of Hebrew (1) as MECs. A common approach to such MECs is to say that they are *structurally smaller* than definite FRs—either bare CPs (Izvorski 1998, Grosu & Landman 1998, Caponigro 2003, 2004, Grosu 2004) or even sub-CP in size (Šimík 2011). The lack of a DP layer explains their transparency for extraction and limited distribution. The sub-CP size or restriction to nonfinite clauses explains the lack of independent subject and obligatory modal interpretation.

In this paper we describe indefinite FRs in Chuj, a Mayan language of Guatemala, which exemplifies a very different pattern from that of MECs summarized in (1) above. Indefinite FRs in Chuj are full CPs, allowing independent subjects and all tense/aspects and lacking the modal interpretation characteristic of MECs. Indefinite FRs in Chuj nonetheless have a limited distribution and are not islands for extraction.

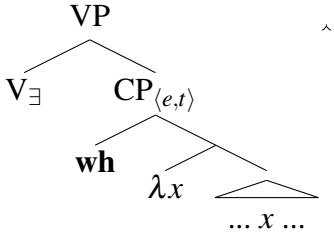
We show that the properties of Chuj FRs follow straightforwardly from the analysis of Caponigro (2003, 2004), where definite and indefinite FRs share a common core syntax, consisting of a CP with a *wh*-pronoun fronted to the edge of the clause. This CP is interpreted as a derived predicate of type $\langle e,t\rangle$. To construct a definite FR, a DP layer is added, yielding an argument of type e or $\langle\langle e,t\rangle,t\rangle$ (1a). Indefinite FRs arise because certain verbs in the language with existential semantics are able to take predicate CP complements as their arguments (1b). This accounts for their meaning and limited distribution. See also Izvorski (1998) and Grosu & Landman (1998) for precursors to this idea.

(5) *Proposed structures for Chuj FRs, following Caponigro (2003, 2004):*

a. Definite FR:



b. Indefinite FR:



In section 2 we provide some background on relevant properties of Chuj. We then provide data on free relatives in section 3 and present our proposal based on Caponigro (2003, 2004) in section 4. We provide further support for our analysis from extraction facts and from the behavior of *jun*-free relatives. Finally, in section 5 we discuss parallel constructions in other Mayan languages.

2. Background on Chuj

Chuj is an understudied language of the Q'anjob'alan branch of the Mayan family. It is spoken by approximately 40,000 people in the department of Huehuetenango in Guatemala and an additional 10,000 people in Mexico. We study the San Mateo Ixtatán variety here.[1] Chuj is verb-initial, with verbs exhibiting maximally two agreement markers with ergative/absolutive alignment. Following Mayanist tradition, we refer to the ergative agreement marker as Set A and absolutive as Set B.

(6) *Simple intransitive and transitive sentences:*

a. Ol-∅-wa ix Malin.
PROSP-B3-eat CL Maria
'Maria will eat.'

b. Ix-∅-in-wa ixim wa'il.
PRFV-B3-A1s-eat CL tortilla
'I ate the tortilla.'

$\overline{\text{A}}$-operators must move to a pre-verbal position, as exemplified through the *wh*-questions in (2). $\overline{\text{A}}$-movement of transitive subjects is marked on the verb with the *Agent Focus* (AF) morpheme and loss of Set A agreement, as in (2c) (see e.g. Stiebels 2006). Note also that verbs show a transitivity suffix when they are final in their phonological phrase.

(7) *Simple wh-questions:*

a. Intransitive subject:
Mach ix-∅-ulek'-i?
who PRFV-B3-come-ITV
'Who came?'

b. Transitive object:
Tas ix-∅-a-man-a'?
what PRFV-B3-A2s-buy-TV
'What did you buy?'

c. Transitive subject:
Mach ix-in-il-**an**-i?
who PRFV-B1s-see-AF-ITV
'Who saw me?'

Headed RCs are gapped clauses preceded by the nominal head they modify, which is underlined here. There is no overt complementizer akin to English *that* and *wh*-words cannot be used as relative pronouns.[2]

(8) *Headed relative clauses:*

a. ix unin [$_{\text{RC}}$ (***mach**) ix-∅-ulek'-i]
CL child who PRFV-B3-come-ITV
'the girl who came'

b. jun (ch'anh) libro [$_{\text{RC}}$ (***tas**) ix-∅-w-awtej]
one CL book what PRFV-B3-A1S-read
'the book that I read'

[1]The following abbreviations are used: A = Set A (ergative), AF = Agent Focus, B = Set B (absolutive), CL = classifier, DEF = definite determiner, IMPF = imperfective, ITV = intransitive verb, NML = nominal suffix, PSV = passive, POSS = possession, PRFV = perfective, PROG = progressive, PROSP = prospective, STAT = stative, SUB = subordinate, TOP = topic, TV = transitive verb. See Domingo Pascual (2007) on Chuj orthographic conventions. All uncredited data is from the authors' notes.

[2]Similar facts are presented for the San Sebastián dialect of Chuj in Maxwell (1976).

3. Free relatives in Chuj

The two kinds of free relatives in Chuj—definite and indefinite—are exemplified in (3–3). We will show that both types of FRs have the same structural size and lack the modal interpretation of MECs, but differ in their distribution. We begin by discussing definite FRs and then discuss indefinite FRs.

(9) *Chuj definite FR:*
Ix-∅-in-mak' [$_{FR}$ **mach** ix-∅-ulek'-i].
PRFV-B3-A1s-hit who PRFV-B3-come-ITV
✓ 'I hit the person who came.'
* 'I hit someone who came.'

(10) *Chuj indefinite FR:*
Ay [$_{FR}$ **mach** ix-∅-ulek'-i].
EXIST who PRFV-B3-come-ITV
* 'The person came.'
✓ 'Someone came.'

3.1 Definite free relatives

Definite FRs are full, indicative clauses. They allow an independent disjoint subject as in (3.1) and allow all tense/aspect specifications. Example (3.1) shows a FR in the progressive, which has been argued to be syntactically larger than other aspects (**?**).

(11) *Definite FR with an independent DP subject:*
Ko-gana [$_{FR}$ **tas** ix-∅-s-man waj Xun].
A1p-like what PRFV-B3-A3-buy CL Juan
'We like [what Juan bought].'

(12) *Definite FR with progressive tense:*
A ix Malin$_i$ s-∅-gana ix$_i$ s-∅-il-a [$_{FR}$ **tas** lan hin-k'ul-an-i].
TOP CL Maria IMPF-B3-want CL IMPF-B3-see-TV what PROG A1s-do-SUB-ITV
'Maria wants to see [what I am doing].'

Definite FRs may occupy any argument position. Example (3.1a–b) show a post-verbal object and subject, respectively, which are disambiguated by agreement on the verb. Example (3.1c) shows a pre-verbal subject topic.

(13) *Definite FR in object and subject positions:*

a. Ix-∅-in-mak' [$_{FR}$ **mach** ix-∅-ulek'-i].
PRFV-B3-A1s-hit who PRFV-B3-come-ITV
'I hit [the person who came].' (=3)

b. Ix-in-s-mak' [$_{FR}$ **mach** ix-∅-ulek'-i].
PRFV-B1s-A3-hit who PRFV-B3-come-ITV
'[The person who came] hit me.'

c. A [$_{FR}$ **mach** ix-∅-ulek'-i] ix-in-s-mag-a'.
TOP who PRFV-B3-come-ITV PRFV-B1s-A3-hit-TV
'[The person who came]$_i$, they$_i$ hit me.'

Finally, definite FRs may be used as the domains of quantifiers. Here we show examples with *jantak* 'many.' Notice that the FR can again appear pre- or post-verbally. Example (3.1a) has *jantak* with a definite FR domain in post-verbal position. This quantificational DP is topicalized in (3.1b) with no change in meaning.

(14) *Quantifiers taking definite FRs:*

a. Ix-∅-w-il [jantak [$_{FR}$ **mach** ix-∅-ulek'-i]].
PRFV-B3-A1s-see many who PRFV-B3-come-ITV

b. [Jantak [$_{FR}$ **mach** ix-∅-ulek'-i]] ix-∅-w-il-a'.
many who PRFV-B3-come-ITV PRFV-B3-A1s-see-TV
'I saw the many people who came.'

3.2 Indefinite free relatives

We now turn to indefinite FRs in Chuj. Recall that indefinite FRs in many languages have been described as *modal existential wh-constructions (MECs)*, described as interpreted with an existential modal and analyzed as structurally smaller than definite FRs. We will show that indefinite FRs in Chuj lack these properties entirely and instead are structurally much more like their definite counterparts. We begin by observing that Chuj indefinite FRs can have an independent subject (3.2) and allow all tense/aspects (3.2).[3]

(15) *Indefinite FR with an independent DP subject (cf 3.1):*
Ay [$_{FR}$ **tas** ix-∅-s-man waj Xun].
EXIST what PRFV-B3-A3-buy CL Juan
'Juan bought something.' literally 'There exists [what Juan bought].'

(16) *Indefinite FRs with prospective and progressive aspect (cf 3.1):*

a. Ay [$_{FR}$ **tas** ol-∅-k-aplej].
EXIST what PROSP-B3-A1p-try
'We will eat something.' literally 'There exists [what we will eat].'

b. Ay [$_{FR}$ **mach** lan-in y-il-an-i].
EXIST who PROG-B1s A3-see-SUB-ITV
'Someone is watching me.' literally 'There exists [who is watching me].'

Notice that these free relatives lack the modal semantics associated with MECs, as in the Hebrew (1). Instead, they pattern with definite FRs: they are full indicative finite clauses with independent subjects and tense/aspect specifications.

However, unlike definite FRs, indefinite FRs have a limited distribution. An indefinite FR must be the complement of one of a small set of predicates with existential force:

[3]Evidence from second position clitics suggests that an alternative hypothesis whereby the *wh*-word forms a constituent with *ay* is unsustainable.

(17) *Existential predicates in Chuj:*[4]

a. Ay jun uum sat te' mexa.
EXIST one book on CL table
'There is a book on the table.'

b. Malaj ch'anh uum sat te' mexa.
NOT.EXIST CL book on CL table
'There is no book on the table.'

c. Ch'ok ch'anh uum sat te' mexa.
OTHER CL book on CL table
'There is a different book on the table.'

(18) *Indefinite FR with existential pred.:*

a. Ay [$_{FR}$ **mach** ix-∅-ulek'-i].
EXIST who PRFV-B3-come-ITV
'Someone came.' (=3)

b. Malaj [$_{FR}$ **mach** ix-∅-ulek'-i].
NOT.EXIST who PRFV-B3-come-ITV
'No one came.'

c. Ch'ok [$_{FR}$ **mach** ix-∅-ulek'-i].
OTHER who PRFV-B3-come-ITV
'Others came.'

In addition to these basic existential predicates, some other verbs that express the existence of their internal argument can also license indefinite FRs:

(19) *Indefinite FRs with predicates with existential semantics:*

a. Aj-nak [$_{FR}$ **mach** famoso].
born-STAT who famous
'Someone famous was born.' (e.g. 30 years ago)

b. Ko-say-an [$_{FR}$ **tas** ∅-ko-k'ulej].
A1p-look.for-SUB what B3-A1p-do
'We are looking for something to do' (Hopkins 1967, p. 158)

3.3 Summary

We have seen that indefinite and definite FRs in Chuj contain full, indicative clauses of equal size and lack the modal interpretation of modal existential *wh*-constructions (MECs). In particular, the behavior of Chuj indefinite FRs is incompatible with a view where indefinite FRs are necessarily structurally reduced clauses, as proposed for example in Šimík (2011). Our findings are summarized in the table below.

(20) *Comparing Chuj indefinite FRs with definite FRs and MECs:* (cf 1)

	Def FR	*MEC*	*Chuj indef FR*
interpretation	def	indef	indef
nonfinite/subjunctive	×	◯	×
modal interpretation	×	◯	×
no independent subject	×	◯	×
narrow-scope indefinite	N/A	◯	◯
must be argument of existential verb	N/A	◯	◯

[4]The noun *sat* is used to introduce surfaces and can also mean 'face' (Hopkins 2012). In examples such as (3.2), *sat* is underlyingly the possessed *s-sat*, which undergoes a productive simplification into *sat* (Buenrostro 2009). *Sat te' mexa* is thus literally "[on] the surface of the table."

4. Proposal

The properties of FRs in Chuj are consistent with the idea that definite and indefinite FRs have a common CP core, with movement of a *wh*-pronoun to the edge of the clause (Izvorski 1998, Grosu & Landman 1998, Caponigro 2003, 2004). Abstraction triggered by the movement of the *wh*-pronoun generates a predicate denotation of type $\langle e,t\rangle$ (4).[5]

(21) $\left[\!\left[[_{\text{CP}}\ \textbf{\textit{mach}}_i\ [_{\text{TP}}\ \textit{ixulek'i}\ \ t_i]] \right]\!\right] = \lambda x : x \text{ animate} \,.\, x \text{ came}$

Indefinite FRs are the complement of existential verbs, which take a complement of type $\langle e,t\rangle$ and assert its existence. An example denotation for the basic existential verb, *ay*, is given in (4), based on the analysis of English *there* constructions as in Milsark (1974), McNally (1998), and others. The computation in (4) successfully derives the truth-conditions of the basic indefinite FR example in (3). Few verbs can take CP complements of type $\langle e,t\rangle$, explaining the limited distribution of indefinite FRs.

(22) $[\![\text{EXIST}(ay)]\!] = \lambda P_{\langle e,t\rangle} \,.\, \exists x\, P(x)$

(23) $[\![ay\ mach\ ixulek'i\ (3)]\!] = [\![ay]\!]\,([\![mach\ ixulek'i]\!])$
$= \left(\lambda P_{\langle e,t\rangle} \,.\, \exists x\, P(x)\right)(\lambda x\ :\ x \text{ animate} \,.\, x \text{ came})$
$= \exists x \,.\, x \text{ animate and came}$

Definite FRs are formed by adding a D-layer to the FR (see also Izvorski 1998, Grosu & Landman 1998, Caponigro 2003, 2004, Citko 2004). The addition of a definite (ι) D forms a definite FR of type e, while other determiners yield $\langle et,t\rangle$ DPs. In Chuj, this determiner is null.[6] The DP layer makes definite FRs available in any argument position, explaining their free distribution.

(24) Ix-in-s-mak' [$_{\text{DP}}$ ι [$_{\text{CP}}$ **mach** ix-∅-ulek'-i]].
PRFV-B1s-A3-hit who PRFV-B3-come-ITV
'[The person who came] hit me.' (=3.1)

(25) [$_{\text{DP}}$ tzijtum [$_{\text{CP}}$ **tas** tz-∅-chonh-nax]]
many what IMPF-B3-sell-PASS
'many things that are sold' (Buenrostro 2009, see also (3.1))

[5]Note that the choice of *wh*-word restricts the domain of the derived predicate—for example, here, *mach* 'who' limits the domain to animate individuals. Here we stay agnostic as to how this restriction is introduced compositionally. One approach is to model *wh*-words as a modifier of the derived predicate (here, $\lambda x \,.\, x$ came). See Caponigro (2003) for an explicit implementation. Another is to ignore the pronounced *wh*-word for interpretational purposes—as in the discussion of relative pronouns in Heim & Kratzer (1998)—but allow an interpreted copy of the restrictor in the base position of movement to restrict the domain of the variable, using the Copy Theory of movement.

[6]We note that Caponigro (2003, 2004) argues that the iota (delta) operator in his system is *not* a D, since it takes a CP complement and can't compete with a pronounced definite. As we will see in section 5, however, Mayan languages that have overt definite determiners use them in definite free relatives.

Although Chuj does not have an overt definite article, support comes from the fact that definite FRs can co-occur with a demonstrative *tik* 'this,' as shown in example (4).[7]

(26) *Definite FR with demonstrative:*
Ix-∅-w-il [$_{DP}$ [$_{CP}$ **mach** ix-∅-ulek'] tik].
PRFV-B3-A1s-see who PRFV-B3-come this
'I saw [this person who came].' literally 'I saw [this [who came]].'

This analysis straightforwardly captures the identical internal syntax of definite and indefinite FRs—including the availability of independent subjects, all tense/aspects, and no modal interpretation—and their different external distributions.

4.1 Extraction

Further support for the above analysis of Chuj indefinite free relatives comes from extraction. First, we note that headed relative clauses in Chuj are islands for extraction. Example (4.1) is a baseline with a relative clause headed by 'book'; example (4.1b) shows the attempted extraction.[8]

(27) *Headed relative clauses are islands for extraction:*
a. Ix-∅-y-awtej waj Xun [jun libro ix-∅-s-tz'ib'ej jun anima].
PRFV-B3-A3s-read CL Juan one book PRFV-B3-A3s-write one person
'Juan read a/one book that someone wrote.'

b. * *Mach* [$_{TP}$ ix-∅-y-awtej waj Xun
who PRFV-B3-A3s-read CL Juan
[$_{DP}$ jun libro [$_{RC}$ {ix-∅-s-tz'ib'ej, ix-∅-tz'ib'-an(-i)} __]]]?
one book {PRFV-B3-A3s-write, PRFV-B3-write-AF-ITV}
Intended: 'Who$_i$ did Juan read a/one book that they$_i$ wrote?'

Turning our attention to extraction out of free relatives, we observe that it is possible to extract out of indefinites FRs but not out of definite FRs. In (4.1–4.1), the (a) examples provide a baseline, and the (b) examples provide the test case.

(28) *Extraction out of indefinite FRs is possible:*
a. Ay [$_{FR}$ **tas** ix-∅-s-man waj Xun].
EXIST what PRFV-B3-A3s-buy CL Juan
'Juan bought something.' lit.: 'There exists [what Juan bought].' (=3.2)

b. *Mach* [$_{TP}$ ay [$_{FR}$ **tas** ix-∅-s-man-a' ___]]?
who EXIST what PRFV-B3-A3s-buy-TV
'Who bought something?' literally: 'Who [there exists [what bought]]?'

[7]Definite FRs in Chuj such as in (3.1), (3.1), and (4) are then *light-headed relatives* in the terminology of Citko (2004): FRs which are introduced by semantically-light D elements such as a definite article or demonstrative.

[8]Example (4.1b) is ungrammatical regardless of whether or not the embedded verb is in the Agent Focus form and whether or not a transitivity suffix is added.

(29) *Extraction out of definite FRs is impossible:*

a. Ix-∅-y-il waj Xun [$_{FR}$ **mach** ix-∅-mak'-an-poj te' mexa].
PRFV-B3-A3-see CL Juan who PRFV-B3-hit-AF-break CL table
'Juan saw [the person who broke the table].'

b. * *Tas* ix-∅-y-il waj Xun [$_{FR}$ **mach** ix-∅-mak'-an-(poj) __].
what PRFV-B3-A3-see CL Juan who PRFV-B3-hit-AF-break
Intended: 'What$_i$ did Juan see [the person who broke it$_i$]?'

This finding is in line with Šimík's (2011) findings cross-linguistically: extraction is possible out of indefinite FRs but not out of definite FRs. We argue here that this is because indefinite FRs are a (special kind of) CP complement with no DP layer—following Izvorski (1998), Grosu & Landman (1998), Caponigro (2003, 2004), Grosu (2004)—and therefore not an island for extraction.

4.2 An alternative explanation and *jun* free relatives

We now consider an alternative hypothesis for the extraction facts in the previous section:

(30) *Potential alternative explanation: indefinites are easier to extract from*
Extraction out of a relative clause is easier if the relative clause modifies an indefinite nominal than if it modifies a definite nominal.
(ultimately wrong for the Chuj contrast in (4.1–4.1))

Such an effect has been well established for Scandinavian languages. This is exemplified by the Dutch contrast in (4.2) below—see also Engdahl (1997) and references there and Kush et al. (2013) for recent discussion. Kuno (1976), McCawley (1981), and Chung & McCloskey (1983) document similar effects on English.

(31) *Extraction out of Danish definite vs indefinite relative clauses:*
Peter kender jeg [{*manden, ✓en mand} der kan lide __].
Peter know I man.DEF a man who likes
'Peter$_i$, I know [{*the, ✓a} man who likes him$_i$].' (Erteschik-Shir 1973, p. 66)

If the hypothesis in (4.2) is correct for Chuj, the grammatical extraction out of indefinite FRs above in (4.1) would be explained, without assuming any particular structural differences between the indefinite FRs in (4.1) and the definite FRs in (4.1).

In this section we show that this alternative hypothesis in (4.2) is incorrect for Chuj. That is, extraction out of free relatives is not made grammatical simply by virtue of the argument being indefinite. Our evidence comes from a third FR construction in Chuj, with an indefinite interpretation but a freer distribution akin to that of definite FRs:

(32) *A jun free relative:*
[**jun** [$_{FR}$ **mach** ix-∅-ulek'-i]]
one who PRFV-B3-come-ITV
'one/a person who came'

We will refer to this construction as *the indefinite jun free relative* (*jun*-FR).[9] This *jun*-FR can be the argument of existential predicates, as seen in (4.2). This example minimally contrasts with (3) above, which lacks *jun*. The two examples differ in their interpretations: (4.2) claims that one person came, whereas (3), without *jun*, is unspecified for number.

(33) *A jun free relative, as the argument of ay:*
Ay [**jun** [$_{FR}$ **mach** ix-∅-ulek'-i]].
EXIST one who PRFV-B3-come-ITV
'One/a person came.'

Unlike the indefinite FRs as in (3), described in section 3.2, *jun*-FRs can be the argument of any verb. Example (4.2) shows an indefinite *jun*-FR in the object position of the verb 'see.' Example (4.2) below shows that the verb 'see' does not license indefinite FRs without *jun*. In other words, 'see' is not one of the limited set of verbs—see (3.2–3.2) above—which can take a predicative CP argument and assert its existence. The existential interpretation of *jun*-FRs in example (4.2) thus must be due to the addition of *jun*.

(34) *Jun-FR as object of 'see' is indefinite:*
Ix-∅-w-il [**jun** [$_{FR}$ **mach** ix-∅-ulek'-i]].
PRFV-B3-A1s-see one who PRFV-B3-come-ITV
'I saw one/a person who came.'

(35) *FR without jun as the object of 'see' must be definite:*
Ix-∅-w-il [$_{FR}$ **mach** ix-∅-ulek'-i].
PRFV-B3-A1s-see who PRFV-B3-come-ITV
'I saw the person/people who came.'

We propose that *jun* free relatives have a DP structure as definite FRs do, but are headed by an indefinite determiner *jun*. *Jun*-FRs are then predicted to be indefinite but without the distributional limitations of the *jun*-less indefinite FRs discussed in section 3.2.

This indefinite FR with DP structure can now serve to test our alternative hypothesis in (4.2) that extraction out of indefinite FRs is possible because extraction is generally easier when out of relative clause on a semantically indefinite argument. We observe that it is not possible to extract out of *jun* FRs, which are indefinite:

(36) *Extraction out of jun FRs is impossible:*

a. * *Tas* [$_{TP}$ ay [**jun** [$_{FR}$ **mach** ix-∅-awt-an(-i) ___]]]?
what EXIST one who PRFV-B3-read-AF
Intended: 'What did someone read?' (cf 4.1b)

b. * *Mach* [$_{TP}$ ix-∅-y-awtej waj Xun [**jun** [$_{FR}$ **tas** ix-∅-tz'ib-an(-i) ___]]]?
who PRFV-B3-A3-read CL Juan one what PRFV-B3-write-AF-ITV
Intended: 'Who$_i$ did Juan read [something that they$_i$ wrote]?' (cf 4.1b)

[9]Both *jun* and *jantak* above in (3.1) are able to combine with regular nominals and are hence standard quantificational determiners, not special forms that occur only with free relatives.

We see, then, that extraction does not simply correlate with definiteness as hypothesized in (4.2). In contrast, the extraction transparency of indefinite FRs—but not indefinite *jun* FRs—is explained by our proposal here, that indefinite FRs are exceptional in being bare CPs without a DP layer, whereas other FRs including indefinite *jun* FRs include a DP layer.

5. Definite and indefinite free relatives across Mayan

In this section we show that definite and indefinite free relatives parallel to those in Chuj are observed in several other Mayan languages and their behavior further supports our unified analysis.[10] Example (5) shows data from Yucatec Maya; notice that the indefinite FR is an indicative clause with perfective aspect (see also Gutiérrez-Bravo & Monforte 2009, Gutiérrez-Bravo 2012, 2013):[11]

(37) *Indefinite free relative in Yucatec Maya:* (AnderBois 2012, p. 361)
Yan [$_{FR}$ **máax** t-u yuk'-aj-∅ le sa'-o'].
EXIST who PRFV-A3 drink-STATUS-B3s the atole-DISTAL
'Someone drank the atole.' literally 'There exists [who drank the atole]'

Just as in the Chuj example (3.2) above, the indefinite free relative in Yucatec Maya can also include a full independent subject:

(38) *Indefinite free relative with postverbal subject in Yucatec Maya:*
(Andrade & Máas Collí 1999, p. 37)
Yaan [$_{FR}$ **ba'ax** t-u beet-aj-∅ j-lu'um kaab].
EXIST what PRFV-A3 do-STATUS-B3s MASC-dirt earth
'The earth man did something.' literally 'There exists [what the earth man did]'

Indefinite free relatives are also found in Kaqchikel (Erlewine 2016, Torrence & Duncan 2016), with a minor complication. Examples both with and without overt *wh*-words at the clause edge are attested (5–5). We hypothesize that the structures in (5) and (5) are both indefinite FRs with the structure we propose here for Chuj. Deletion of the *wh*-word is unavailable when the *wh*-word pied-pipes additional material as in example (5).

(39) *Indefinite FR without wh in Kaqchikel:* (Erlewine 2016, p. 434)
K'o [$_{FR}$ x-oj-tz'et-ö roj].
EXISTS PRFV-B1p-see-AF 1pl
'Someone saw us.' literally 'There exists [~~who~~ saw us]'

(40) *Indefinite FR with wh in Kaqchikel*: (Torrence & Duncan 2016, p. 13)
K'o [$_{FR}$ **achike'** x-∅-sik'i-n ri sik'iwuj].
EXIST who PRFV-B3-read-AF the book
'There is someone who read the book.' lit. 'There exists [who read the book]'

[10]We thank Scott AnderBois and Robert Henderson for discussion of Yucatec Maya and Kaqchikel facts.

[11]In particular, Gutiérrez-Bravo (2012) proposes an analysis of Yucatec Maya FRs as relative clauses modifying a null nominal head. We believe the analysis here is compatible with the data presented there.

(41) *Indefinite FR with wh-pronoun pied-piping in Kaqchikel:*[12] (Erlewine notes)
K'o [$_{FR}$ [**achoj** che] x-∅-in-ya wi ri pastel].
EXISTS whose to PRFV-B3s-A1s-give WI the cake
'I gave the cake to someone.' lit. 'There exists [[to whom] I gave the cake]'

Erlewine (2016) shows that these indefinite FRs in Kaqchikel are not islands for extraction, echoing the Chuj data presented in (4.1) above.

(42) *Kaqchikel indefinite FR is not an island:* (Erlewine 2016, p. 441)
Achike [k'o [$_{FR}$ x-∅-tz'et-ö ___]]?
who EXISTS PRFV-B3s-see-AF
'Who did someone see?' literally 'Who [there exists [~~wh~~ saw]]'

Yucatec Maya and Kaqchikel also allows for the construction of definite FRs. Unlike Chuj, these languages have overt definite determiners *le* and *ri*, respectively. As predicted by our analysis of definite FRs (see (4)), the definite determiners introduce definite FRs.

(43) *Definite free relative in Yucatec Maya:* (Gutiérrez-Bravo 2013, p. 29)
[$_{DP}$ Le [$_{CP}$ **ba'ax** k-in tsikbal-t-ik-∅ te'ex] -a']
DEF what HAB-A1s chat-TV-STATUS-B3s to you -PROXIMAL
'this thing which I'm telling you about' lit. '[the [what I'm saying to you]]'

(44) *Definite free relative in Kaqchikel:* (from "Tio conejo, Tio coyote" (Comalapa), collected by Ryan Bennett and Robert Henderson)
N-∅-aw-ajo' [$_{DP}$ ri [$_{CP}$ x-∅-in-b'ij chawe']]?
IMPF-B3-A2s-want DEF PRFV-B3-A1s-say to you
'Do you want what I told you?' lit. 'Do you want [the [~~wh~~ I said to you]]'

6. Discussion and conclusion

In this paper we investigated indefinite free relatives in Chuj and showed that they have a subset of the properties previously thought to hold for modal existential *wh*-constructions (MECs), which have been claimed by Šimík (2011) to be comprise most indefinite FRs cross-linguistically. The Chuj data presented here demonstrates the existence of indefinite FRs which are clearly full clauses in size and cannot be described as MECs. Parallel behavior was also presented from two other Mayan languages, Yucatec Maya and Kaqchikel.

(45)

	Def FR	*Chuj indef FR*	*MEC*
interpretation	def	indef	indef
nonfinite/subjunctive	×	×	◯
modal interpretation	×	×	◯
no independent subject	×	×	◯
narrow-scope indefinite	N/A	◯	◯
must be argument of existential verb	N/A	◯	◯
transparent for extraction	×	◯	◯

[12]The marker *wi* appears when certain adjuncts and non-DP arguments are extracted; see Henderson (2008).

Unifying definite and indefinite free relatives

We adopt a proposal for Mayan FRs where definite and indefinite FRs share a common core syntax. Both are full CPs, with an independent subject and full tense/aspect. The CP is interpreted as a derived predicate of type $\langle e,t \rangle$. Definite FRs are formed by the addition of a DP layer to CP, leading to their free distribution and the meaning of these FRs. Indefinite FRs are the complements of existential predicates, explaining their limited distribution (Izvorski 1998, Grosu & Landman 1998, Caponigro 2003, 2004). We furthermore showed that it is the lack of the DP layer that allows extraction, and extraction is blocked in the case of the Chuj indefinite *jun*-FRs.

Hadas Kotek, Michael Yoshitaka Erlewine
hadas.kotek@mcgill.ca, mitcho@nus.edu.sg

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