# Unifying definite and indefinite free relatives: Evidence from Mayan

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## Free relatives

Many languages have free (or headless) relatives, with an initial wh-word:

(1) English definite free relative:

I'll buy [FR what you're selling].

 $\approx$  I'll buy the thing(s) that you are selling.

Such free relatives have definite or universal interpretation (Jacobson, 1995, a.o.), are DPs, and islands for extraction. Call these *definite FRs*.

## Definite and indefinite free relatives

Some languages also have *indefinite free relatives*: (Pesetsky, 1982; Izvorski, 1998; Grosu and Landman, 1998; Grosu, 2004; Šimík, 2011, a.o.)

#### (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 (available for me) to read.'

- Compared to the definite FR (2), the indefinite FR (3) is nonfinite and disallows an independent subject.
- The indefinite FR has a modal flavor and has also been called modal existential wh-constructions (MECs).
- The indefinite FR is not an island for extraction.

## Definite and indefinite free relatives

Šimík (2011) presents primary evidence from 16 languages (7 Balto-Slavic, 6 Romance, Greek, Hebrew, Hungarian) and concludes that **indefinite FRs** are fundamentally different from definite FRs.

#### (4) Šimík's Conjecture:

Indefinite FRs are all modal existential wh-constructions (MECs).

- a. Smaller structural size: explains nonfinite/subjunctive verb, no independent subject
- b. Argument of a verb with existential semantics
- c. No DP layer: explains free extraction

(A counterexample may be Italian (Caponigro, 2003), discussed by Šimík.)

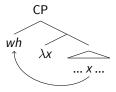
# **Today: Chuj indefinite FRs**

**Today:** Indefinite FRs that are more like definite FRs, in **Chuj** (Mayan; Guatemala).

- Chuj indefinite FRs are the same size as definite FRs, allowing subjects and all tense/aspects. They lack modal semantics of MECs.
- But they still have limited distribution and are not islands for extraction.

## In a nutshell

Definite and indefinite FRs share a common core syntax:



The CP is interpreted as a derived predicate of type  $\langle e, t \rangle$ .

- Definite FRs: add a DP layer  $\Rightarrow$  type e or  $\langle\langle e, t \rangle, t \rangle$  argument
- Indefinite FRs: certain verbs can take predicate CP complements

# Roadmap

- §1 Background on Chuj
- §2 Free relatives in Chuj
- §3 Proposal
- §4 Conclusion

# Roadmap

- §1 Background on Chuj
  - Declaratives
  - Questions
  - · Headed relative clauses
- §2 Free relatives in Chuj
- §3 Proposal
- §4 Conclusion

# Chuj basics

Chuj is a verb-initial language.

#### (5) Simple declarative sentences:

- a. Ol-∅-wa ix. PROSP-B3-eat CL.FEM
  - 'She will eat.' intransitive
- b. Ix-Ø-in-wa ixim wa'il. PRFV-B3-A1s-eat CL.GRAIN tortilla

'I ate the tortilla.' transitive

(Verbs show ergative/absolutive agreement alignment: Set A = ergative, Set B = absolutive.

# A-movement: wh-questions

☞ Ā-operators move to pre-verbal position.

#### (6) Simple wh-questions:

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

intransitive subject

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

transitive object

(Verbs show a transitivity suffix when final in their phonological phrase.)

# A-movement: wh-questions

### (6) Simple wh-questions:

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

transitive subject

 $\sqrt{\text{A}}$ -movement of transitive subjects is marked on the verb with the  $\sqrt{\text{Agent Focus}}$  (AF) morpheme and loss of Set A agreement.

## **A-movement:** headed relatives

Headed relative clauses in Chuj are gapped clauses preceded by the nominal head that they modify.

#### (7) Headed relative clauses:

- a. Ix <u>unin</u> [<sub>RC</sub> (\*mach) ix-∅-ulek'-i] CL.FEM child who PRFV-B3-come-ITV 'the girl who came'
- b. Jun (ch'anh) <u>libro</u> [<sub>RC</sub> (\*tas) ix-∅-w-awtej] one CL.BOOK book what PRFV-B3-A1s-read 'the book that I read'

RCs show no overt complementizer akin to English *that*. *Wh*-words cannot be used as relative pronouns.

## **A**-movement: headed relatives

As with question formation, transitive subject relativization triggers Agent Focus on the embedded verb:

## (8) Transitive subject relative clause triggers Agent Focus:

```
Winh unin [RC ix-Ø-man-an ixim pastel] CL.MASC child PRFV-B3-buy-AF CL.GRAIN cake
```

'the boy who bought the cake'

# Roadmap

- §1 Background on Chuj
- §2 Free relatives in Chuj
  - · Definite free relatives
  - · Indefinite free relatives
- §3 Proposal
- §4 Conclusion

# Definite and indefinite free relatives in Chuj

Chuj has two kinds of free relatives:

Both FRs have the same syntactic size and no modal meaning.

## The size of definite FRs

Definite FRs are full clauses:

#### (11) Independent DP subject in the definite FR:

```
Ko-gana [FR tas ix-Ø-s-man waj Xun].
A1p-like what PRFV-B3-A3-buy CL.NAME Juan
```

'We like [what Juan bought].'

#### (12) Definite FR with progressive:

A ix Malin s-∅-gana ix s-∅-il-a TOP CL.FEM Maria IMPF-B3-want CL.FEM IMPF-B3-see-tv

'Maria wants to see [what I am doing].'

(Progressive is larger than other aspects; Coon and Carolan 2015.)

# **Definite FRs are arguments**

Definite FR can be in any argument position:

#### (13) Definite FR in object and subject position:

- a.  $Ix-\emptyset-in-mak = [FR \ mach \ ix-\emptyset-ulek'-i].$  PRFV-B3-A1s-hit who PRFV-B3-come-ITV 'I hit [the person who came].'
- b. Ix-in-s-mak [FR mach ix-Ø-ulek'-i].
   PRFV-B1s-A3-hit who PRFV-B3-come-ITV
   '[The person who came] hit me.'

#### (14) Preverbal topic position is ok too:

A  $[_{FR}$  mach ix- $\emptyset$ -ulek'-i] ix-in-s-mag-a'. TOP who PRFV-B3-come-ITV PRFV-B1s-A3-hit-TV

'[The person who came]<sub>i</sub>, they<sub>i</sub> hit me.'

(=9)

# **Definite FRs with quantifiers**

Definite FRs may be used as the domains of quantifiers:

- (15) Quantifiers taking definite FRs:
  - a. [Jantak [ $_{FR}$  mach ix- $\emptyset$ -ulek'-i]] ix- $\emptyset$ -w-il-a'. many who prfv-B3-come-ITV prfv-B3-A1s-see-TV
  - b. Ix-Ø-w-il [jantak [FR mach ix-Ø-ulek'-i]].

    PRFV-B3-A1s-see many who PRFV-B3-come-ITV

    'I saw the many people who came.'
- (16) a. [Juntzan [FR mach ix-∅-ulek'-i]] ix-∅-w-il-a'. certain who PRFV-B3-come-ITV PRFV-B3-A1s-see-TV
  - b.  $Ix-\emptyset-w-il$  [juntzan [FR mach ix- $\emptyset$ -ulek'-i]]. PRFV-B3-A1s-see certain who PRFV-B3-come-ITV 'I saw these people who came.'

## Indefinite free relatives

Recall the properties of indefinite FRs discussed in the literature:

#### (17) Properties of indefinite FRs, cross-linguistically:

- a. narrow-scope indefinite
- b. must be argument of verb with existential force
- c. nonfinite/subjunctive
- d. interpreted w/ existential modal of availability
- e. no independent subject
- f. transparent for extraction

These properties should go together, if Šimík's Conjecture is true: indefinite FRs are all modal existential *wh*-constructions (MECs) and structurally smaller than definite FRs.

# The structure of free relatives in Chuj

Against this prediction, **Chuj indefinite FRs are not nonfinite**; for example, they show full tense/aspect contrasts:

### (18) Indefinite FRs with prospective and progressive aspect:

- a. Ay  $[_{FR}$  tas  $ol \emptyset$ -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 watching me].'

# The structure of free relatives in Chuj

### (19) Indefinite FR with subject:

Ay 
$$[_{FR}$$
 tas ix- $\emptyset$ -s-man waj Xun]. EXIST what PRFV-B3-A3-buy CL.NAME Juan

'Juan bought something.' literally 'There exists [what Juan bought].'

Their interpretations **lack the modal semantics** associated with modal existential *wh*-constructions.

Indefinite FRs are full clauses—full tense/aspect, independent subject—and have no modal meaning, just like definite FRs.

## **Existential verbs**

An indefinite FR must be the complement of a small set of predicates, with existential force.

#### (20) Existential predicates in Chuj:

- a. Ay jun uum sat te' mexa. EXIST one book surface CL table 'There is a book on the table.'
- b. Malaj ch'anh uum sat te' mexa.

  NOT.EXIST CL book surface CL table

  'There is no book on the table.'
- c. Ch'ok ch'anh uum sat te' mexa.

  OTHER CL book surface CL table

  'There is a different book on the table.'

## **Existential verbs**

An indefinite FR must be the complement of a small set of predicates, with existential force.

#### (21) Indefinite FR with existential predicates:

- a.  $\underline{Ay}$  [FR mach ix- $\emptyset$ -ulek'-i]. EXIST who PRFV-B3-come-ITV 'Someone came.' (= 10)
- b. Malaj [FR mach ix-∅-ulek'-i].

  NOT.EXIST who PRFV-B3-come-ITV

  'No one came.'
- c. Ch'ok [FR mach ix-Ø-ulek'-i].

  OTHER who PRFV-B3-come-ITV

  'Others came.'

## Other existential verbs

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

#### (22) Indefinite FRs with predicates with an existential component:

- a. Aj-nak [FR mach famoso].
   born-STAT who famous
   'Someone famous was born.' (e.g. 30 years ago)
- b.  $\underline{\text{Ix-}\emptyset\text{-chash}}_{\text{PRVF-B3-find}}$  [FR mach ol- $\emptyset$ -po-an ke'n hin-carro]. PRVF-B3-find who PROSP-B3-fix-AF CL.METAL A1s-car 'Someone was found who will fix my car.'
- c. 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, 158)

# **Summary**

Indefinite and definite FRs in Chuj have equal clause size, against the Šimík (2011) claim that indefinite FRs are always modal existential wh constructions (MECs).

	Def FR	MEC	Chuj indef FR
interpretation	def	indef	indef
nonfinite/subjunctive	×	0	×
modal interpretation	×	$\bigcirc$	×
no independent subject	×	$\bigcirc$	×
narrow-scope indefinite	N/A		
must be argument of existential verb	N/A		

# Roadmap

- §1 Background on Chuj
- §2 Free relatives in Chuj
- §3 Proposal
  - Accounting for the distribution of definite and indefinite FRs
  - Evidence from extraction and jun free relatives
- §4 Conclusion

# **Proposal**

Definite and indefinite FRs have a common CP core:

Abstraction over movement of the wh pronoun generates a predicate denotation, type  $\langle e,t\rangle$ .

# Proposal: indefinite FR

Indefinite FRs are the complement of existential verbs, e.g.:

(24) [EXIST 
$$(ay)$$
] =  $\lambda P_{\langle e,t\rangle}$ .  $\exists x \ P(x)$  (cf analyses of English *there is*; Milsark, 1974; McNally, 1998; a.o.)

This explains the limited distribution of indefinite FRs.

# Proposal: definite FRs

**Definite FRs** are formed by adding a D-layer to the FR.

The addition of a  $\iota$  D forms a definite FR of type e:

(25) Ix-in-s-mak [ $_{DP}\ \iota$  [ $_{CP}$  mach ix- $\emptyset$ -ulek'-i]]. PRFV-B1s-A3-hit who PRFV-B3-come-ITV '[The person who came] hit me.' (=13b)

Other nominal material forms  $\langle et, t \rangle$  DPs:

(26)  $[_{DP}$  tzijtum  $[_{CP}$  tas tz- $\emptyset$ -chonh-nax]] many what IMPF-B3-sell-PASS 'many things that are sold' (Buenrostro, 2009)

The DP layer makes definite FRs available in any argument position.

## The structure of indefinite FRs

**Alternative hypothesis: mach** forms a constituent with *ay*, which is the argument of the verb:

(27) [Ay mach] ix-∅-ulek'-i.
EXIST who PRFV-B3-come-ITV
'Someone came.'

#### Similarly for definite FRs:

(28) [tzijtum tas] tz-∅-chonh-nax many what IMPF-B3-sell-PASS 'many things that are sold'

## The structure of indefinite FRs

(29) Ay may be separated from wh by sentential material:

```
Ay pax [FR mach chanh y-iko']. EXIST also who four A3-POSS
```

'There are also those who have four.' (Williams and Williams, 1971, 332)

(30) Agent Focus marking in sister of ay when subject 'who' fronts:

```
Ay [FR mach ix-0-man-an ch'anh uum tik]. EXIST who PRFV-B3-buy-AF CL.BOOK book DEM
```

'Someone bought this book.'

# **Proposal**

Definite and indefinite FRs are similar internally but different externally:

- A subject is always possible, because these are CPs.
- No tense/aspect restrictions.
- No modal component to indefinite FRs.
- Different licensing environments lead to differences in distribution.

## **Extraction islands**

Support for this proposal comes from extraction.

Relative clauses in Chuj are islands for extraction:

```
[_{DP} jun libro [_{RC} {ix-\emptyset-s-tz'ib'ej, ix-\emptyset-tz'ib'-an(-i)} __]]]? one book {_{PRFV}-B3-A3s-write, _{PRFV}-B3-write-_{AF}-ITV}
```

Intended: 'Who did Juan read a/one book that wrote?'

## **Extraction from indefinite FRs**

It is possible to extract out of indefinites FRs:

(32)  $\underline{Ay}$  [FR tas ix- $\emptyset$ -s-man waj Xun]. EXIST what PRFV-B3-A3s-buy CL.MASC Juan 'Juan bought something.'

baseline

(33)  $Mach [_{TP} \underline{ay} [_{FR} \mathbf{tas} ix-\emptyset-s-man-a']]?$  who EXIST what PRFV-B3-A3s-buy-TV 'Who bought something?'

## **Extraction from definite FRs**

However, it is not possible to extract out of definite FRs:

- (34)  $Ix-\emptyset-y-il$  waj Xun  $[_{FR}$  mach  $ix-\emptyset-mak-an-poj$  te' mexa]. PRFV-B3-A3-see CL Juan who PRFV-B3-hit-AF-break CL table 'Juan saw [the person who broke the table].' baseline
- (35) \* Tas ix- $\emptyset$ -y-il waj Xun [ $_{FR}$  mach ix- $\emptyset$ -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 $_i$ ]?'

# **Summary**

It is possible to extract out of indefinite free relatives but not out of definite free relatives.

This is in line with Šimík's (2011) findings for free relatives cross-linguistically.

**Our explanation:** An indefinite FR is a (special kind of) CP complement with no DP layer, therefore not an island.

## An alternative

**Possible alternative explanation:** Extraction out RC is generally easier if the DP is indefinite than if definite.

Much literature on Scandinavian languages—see Engdahl (1997) and references there and Sprouse and Hornstein (2013) for recent discussion.

(36) Swedish: (Allwood 1976, reproduced in Engdahl 1997)

De blommorna känner jag [en man som säljer \_\_\_\_\_].
those flowers know I a man that sells

'Those flowers<sub>i</sub>, I know [a man that sells them<sub>i</sub>].'

See also Kuno (1976); McCawley (1981); Chung and McCloskey (1983) on English.

Chuj has a hybrid FR construction, with an indefinite meaning but definite-like distribution: the indefinite *jun* free relative.

### (37) A jun free relative:

```
[jun [FR mach ix-Ø-ulek'-i]] one who PRFV-B3-come-ITV
```

'one/a person who came'

The *jun-FR* can be the argument of existential predicates:

### (38) Indefinite free relative, repeated:

```
Ay [FR mach ix-Ø-ulek'-i].
EXIST who PREV-B3-come-ITV
```

'Someone came.' (possibly plural)

(=10)

### (39) A jun free relative, as the argument of ay:

```
Ay jun [_{FR} mach ix-\emptyset-ulek'-i]. EXIST one who PRFV-B3-come-ITV
```

'One/a person came.'

Jun-FR can appear in any argument position:

### (40) Jun FR as object of 'see':

```
Ix-\emptyset-w-il [jun [_{FR} mach ix-\emptyset-ulek'-i]]. PRFV-B3-A1s-see one who PRFV-B3-come-ITV
```

'I saw one/a person who came.'

### (41) Jun FR as pre-verbal subject topic:

```
 [ \textbf{Jun} [_{\textit{FR}} \ \textbf{mach} \ ix-\emptyset-ulek'-i] ] \qquad ix-\emptyset-w-il-a'.  one  \qquad \text{who} \quad \text{prfv-B3-come-itv prfv-B3-A1s-see-tv}
```

'[One/a person that came], I saw them,'

Jun creates indefinite DP free relatives.

The addition of *jun* is crucial. Without it, the FR is interpreted as definite:

### (40) Jun FR as object of 'see':

```
Ix-\emptyset-w-il [jun [_{FR} mach ix-\emptyset-ulek'-i]]. PRFV-B3-A1s-see one who PRFV-B3-come-ITV
```

'I saw one/a person who came.'

## (42) FR without *jun* as the object of 'see' must be definite:

```
Ix-Ø-w-il [FR mach ix-Ø-ulek'-i].
PRFV-B3-A1s-see who PRFV-B3-come-ITV
```

'I saw the person/people who came.'

# Extraction out of jun free relatives

It is not possible to extract out of *jun*-FRs:

```
(43) * Tas [TP ay [jun [FR mach ix-0]-awt-an(-i) ____]]]? what EXIST one who PRFV-B3-read-AF Intended: 'What did someone read?'
```

(44) \* Mach [<sub>TP</sub> ix-∅-y-awtej waj Xun who PRFV-B3-A3-read CL.MASC Juan

```
[jun [FR tas ix-Ø-tz'ib-an(-i) ____]]]? one what PRFV-B3-write-AF-ITV
```

Intended: 'Who<sub>i</sub> did Juan read [something that \_\_\_\_\_ wrote]?'

# Extraction out of jun free relatives

Recall our earlier observation: indefinite FRs  $(w/o\ jun)$  allow extraction. Two hypotheses:

- Indefinite FRs lack the DP layer of other FRs.
- 2 It's easier to extract out of RCs on indefinites.
- Extraction correlates with syntactic structure:
  It is possible to extract out of a FR only if they do not have a D layer; it is not indefiniteness that allows exceptional extraction.

# Roadmap

- §1 Background on Chuj
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- §3 Proposal
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## FRs vs MECs

Today we investigated indefinite free relatives in Chuj, which have a subset of the properties previously thought to hold for indefinite FRs cross-linguistically.

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

Not all indefinite FRs are modal existential wh-constructions (MECs), contra Šimík's Conjecture.

## **Nominal domains**

An additional difference: Definite FRs may include overt nominal domains.

### (45) Nominal domains are possible with definite FR:

```
Ix-\emptyset-w-ilelta [_{FR} mach winh unin ix-\emptyset-ulek'-i]. PRFV-B3-A1s-meet who CL.MASC boy PRFV-B3-come-ITV 'I met the boy who came.'
```

In contrast, indefinite FRs (including *jun*-FRs) may not include domains.

#### (46) No nominal domain with indefinite FR:

```
* Ay (jun) [FR mach winh unin ix-0-ulek'-i]. one EXIST who CL.MASC boy PRFV-B3-come-ITV Intended: 'Some boy came.'
```

This seems to track indefiniteness, not syntactic size, and remains an open question. (See more in the Appendix.)

46

# **Indefinite FRs across Mayan**

A similar construction is observed in Yucatec (AnderBois, 2012; Guttiérrez-Bravo, 2013, a.o.):

(47) Indefinite free relative in Yucatec: (AnderBois, 2012, 361)

Yan [FR máax t-u yuk'-aj le sa'-o']. exists who PRFV-A3 drink-STATUS the atole-DISTAL

'Someone drank the atole.'

# **Indefinite FRs across Mayan**

And similarly in Kaqchikel (Erlewine, to appear):

### (48) Indefinite FR in Kaqchikel:

$$\underline{\text{K'o}}$$
 [FR x-oj-tz'et-ö roj]. EXISTS COM-B1p-see-AF 1pl

'Someone saw us.'

### (49) Not an island for extraction:

```
Achike [_{TP} \underline{k'o} [_{FR} x-\emptyset-tz'et-\ddot{o} ]] who EXISTS COM-B3s-see-AF
```

'Who did someone see?'

But this construction is not clearly a FR. There is no wh-word at the edge.

# **Indefinite FRs across Mayan**

A wh appears when it pied-pipes material (here, a relational noun):

(50) K'o [FR [achoj che] x-∅-in-ya-wï ri pastel].

EXISTS whose RN COM-B3s-A1s-give-wi the cake

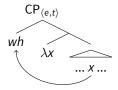
'I gave the cake to someone.'

literally 'There exists [[to whom] I gave the cake].'

We hypothesize that these existential constructions in Kaqchikel are also indefinite FRs, but in most cases with no pronounced *wh*-word.

# A simple proposal

Definite and indefinite FRs share a common core syntax:



- Both are full CPs, with subject and full tense/aspect.
  - Definite FRs: add a DP layer
  - <u>Indefinite FRs:</u> complement of existential predicates

An open question: Why doesn't this happen more frequently, given how simple the analysis is?

50

# Thank you!

# Thank you! Questions?

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Handouts and slides at http://hkotek.com&http://mitcho.com. See also Kotek and Erlewine (2015) for this and other data.

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# **Echo questions**

Non-fronted questions exist, but they are interpreted as echo questions.

### (51) Non-fronting questions are echo questions; can't be embedded:

- a. Ix-Ø-ulek' mach?

  PRFV-B3-come who

  'Who came?' (echo question) (cf 6a)
- b. \* K-ojtak [ix-∅-ulek' mach].
   A1p-know PRFV-B3-come who
   Intended: 'We know who came.'
- c. K-ojtak [mach ix-∅-ulek'-i].
  A1p-know who PRFV-B3-come-ITV
  'We know who came.'