

# Non-interrogative *wh*-constructions in Chuj (Mayan)\*

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**Abstract:** This paper investigates non-interrogative uses of *wh*-words in Chuj, an understudied Mayan language of Guatemala. Cross-linguistically, *wh*-words are commonly used not only for question-formation but also in a range of other constructions, including in quantification and in the formation of relative clauses. We show that Chuj uses *wh*-words to form indefinites in certain limited environments, and that it can additionally use *wh*-words to form free choice items and a universal quantifier. In addition, Chuj uses *wh*-words to form two kinds of free relatives, including definite free relatives but also typologically rarer indefinite free relatives. We discuss the distribution and licensing conditions of each of these uses of *wh*-expressions.

**Keywords:** *Wh*-constructions, *wh*-indefinites, free choice, *wh*-quantification, free relatives, Chuj, Mayan

## 1 Introduction

Cross-linguistically, *wh*-words are used for a variety of functions, in addition to their canonical interrogative use. In English, we find uses of *wh*-words as relative pronouns (*the man who came to class*), in free relatives (*what I ate yesterday*) and in Polarity and Free Choice Items (*anywhere, whoever*). In addition, *wh*-words may be used as indefinites (e.g. Japanese *wh-ka*) and universal quantifiers (e.g. Japanese *wh-mo*).

In this paper we present a comprehensive survey of non-interrogative uses of *wh*-words in Chuj (Mayan: Q'anjob'alan; Guatemala). Chuj *wh*-words can be used as bare *wh*-indefinites, as complex *wh*-quantifiers in both free choice and universal uses, and to form two kinds of free relatives, definite and indefinite. We suggest that this versatility of *wh*-words stems from the fact that they denote alternatives (Hamblin 1973) and that they are good targets for  $\bar{A}$ -extraction. Each use of *wh*-words that we will describe takes advantage of one of these distinguishing characteristics of *wh*-words.

In what follows, we will briefly present relevant aspects of the Chuj language, before moving on to the description of the various uses of *wh*-words.

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## 2 Background on Chuj

Chuj is a verb-initial language. Verbs show ergative/absolutive agreement alignment using the Set A (ergative) and Set B (absolutive) markers.<sup>1,2</sup>

- |                            |                                    |
|----------------------------|------------------------------------|
| (1) a. <b>Intransitive</b> | b. <b>Transitive</b>               |
| Ol- $\emptyset$ -wa ix.    | Ix- $\emptyset$ -in-wa ixim wa'il. |
| PROSP-B3-eat CL.FEM        | PRFV-B3-A1s-eat CL.GRAIN tortilla  |
| 'She will eat.'            | 'I ate the tortilla.'              |

Interrogative *wh*-phrases move to pre-verbal position, as in (2). Verbs show a transitivity suffix when final in their phonological phrase. The movement of transitive subjects is marked on the verb with the *Agent Focus* (AF) morpheme and loss of Set A agreement, as in (2c). AF is orthogonal to the discussion in this paper, but see Stiebels (2006) for an overview of the Mayan AF construction.

- |  |                      |
|--|----------------------|
| (2) a. <b>Mach</b> ix- $\emptyset$ -ulek'-i? | intransitive subject |
| who PRFV-B3-come-ITV                         |                      |
| 'Who came?'                                  |                      |
| b. <b>Tas</b> ix- $\emptyset$ -a-man-a'?     | transitive object    |
| what PRFV-B3-A2s-buy-TV                      |                      |
| 'What did you buy?'                          |                      |
| c. <b>Mach</b> ix-in-il-an-i?                | transitive subject   |
| who PRFV-B1s-see-AF-ITV                      |                      |
| 'Who saw me?'                                |                      |

Nominal domains can be added to simplex *wh*-words to form *which*-phrases:

- |   |
|---|
| (3) <b>Tas</b> libro-al ix- $\emptyset$ -awtej? |
| what book-NML PRFV-B3-A2S-read                  |
| 'Which book did you read?'                      |

Headed relative clauses in Chuj are gapped clauses preceded by the nominal head that they modify. They show no overt complementizer akin to English *that* and *wh*-words cannot be used as relative pronouns.<sup>3</sup>

<sup>1</sup>The following abbreviations are used in this presentation: A = Set A (ergative), AF = Agent Focus, B = Set B (absolutive), CL = classifier, 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. Unless noted otherwise, all data reported in this paper was elicited from a native speaker of Chuj from San Mateo Ixtatán, living in Montreal.

<sup>2</sup>The bare classifier in (1a) acts as a feminine singular pronoun; the subject is simply pro-dropped in (1b), where agreement on the verb makes clear that the subject is the speaker.

<sup>3</sup>Similar facts are presented for the San Sebastián dialect of Chuj in Maxwell (1976).

(4) **Headed relative clauses**

- a. Ix unin [RC (\***mach**) ix- $\emptyset$ -ulek'-i]  
CL.FEM child who PRFV-B3-come-ITV  
'the girl who came'
- b. Jun (ch'anh) libro [RC (\***tas**) ix- $\emptyset$ -w-awtej]  
one CL.BOOK book what PRFV-B3-A1S-read  
'the one book that I read'

**3 Bare *wh*-indefinites in Chuj**

*Wh*-words are often used cross-linguistically to form indefinites, either as bare *wh*-words or together with additional morphology (see e.g. Bhat 2000; Cheng 1991; Gärtner 2009; Haspelmath 1997; Postma 1994; and references therein). In Chuj, *wh*-words can be used as bare *wh*-indefinites in several contexts.

First, certain postverbal bare *wh*-words can be interpreted as indefinites.

- (5) a. **Post-verbal 'what'**  
Ix- $\emptyset$ -k-il **tas**  
PRFV-B3-A1P-see what  
'We saw something.'  
'We saw what?' (echo question)
- b. **Cf. preverbal 'what'**  
**Tas** ix- $\emptyset$ - $\emptyset$ -il-a'  
what PRFV-B3-A2S-see-TV  
\* 'You saw something.'  
'What did you see?'

This use of *wh*-indefinites is highly restricted, in ways that reflect similar constraints in other languages. For example, *wh*-indefinites must be simple *wh*-words, and cannot be *which*-phrases (see (3)).

(6) **Indefinite *tas* cannot take a nominal domain**

- Ix- $\emptyset$ -k-il **tas** libro(-al)  
PRFV-B3-A1P-see what book-NML  
\* 'We saw some book.' (cf 5a)  
'We saw which book?' (echo question)

Furthermore, in simple affirmative perfective contexts like (5)–(6), only *tas* 'what' but not *mach* 'who' can be an indefinite. We note that such idiosyncrasies between different *wh*-words are attested in other languages as well: for example, Dutch *wat* 'what' but not *wie* 'who' has an indefinite use (Postma 1994).

(7) **Post-verbal 'what' but not 'who' as *wh*-indefinite**

- a. Ix- $\emptyset$ -k-il **tas**  
PRFV-B3-A1P-see what  
'We saw something.' (=5a)  
'We saw what?' (echo question)
- b. Ix- $\emptyset$ -k-il **mach**  
PRFV-B3-A1P-see who  
\* 'We saw someone.'  
'We saw who?' (echo question)

However, under certain circumstances—in the presence of certain *licensors*—postverbal *mach* ‘who’ can also be used as an indefinite. Three licensing environments available in Chuj: (a) negation, (b) prospective and progressive aspects, and (c) the antecedent of conditionals, as shown in (8)–(10)

(8) **Negation licenses bare *mach*-indefinites**

- |  |  |
|--|--|
| a. Maj 0-k-il            laj <b>mach/tas.</b><br>NEG B3-A1P-see NEG who/what<br>‘We didn’t see anyone/anything.’ | b. Maj 0-ulek’ laj <b>mach.</b><br>NEG B3-come NEG who<br>‘No one came.’ |
|--|--|

(9) **Prospective and progressive aspects license *mach*-indefinite**

- |  |  |
|--|--|
| a. Ol-0-w-il <b>mach</b><br>PROSP-B3-A1S-see who<br>‘I will see someone.’<br>‘I will see who?’ (echo question) | b. Lan k-il-an <b>mach</b><br>PROG A1P-see-SUB who<br>‘We are seeing someone.’<br>‘We are seeing who?’ (echo question) |
|--|--|

(10) **Conditional licenses bare *mach*-indefinites**

- Tato tz-0-0-il                    **mach/tas, 0-0-al**            t’a    hin.  
if    IMPF-B3-A2S-see who/what B3-A2-say PREP B1S  
‘If you see someone/something, let me know.’ (literally: say it to me)

However, like perfective aspect, imperfective aspect also does not license an indefinite interpretation of *mach* ‘who.’

(11) **Imperfective aspect does not licenses bare *mach*-indefinites**

- Tz-0-0-il                    **mach**  
IMPF-B3-A2S-see who  
\* ‘You see someone.’  
‘You see who?’ (echo question) (cf 7b, 9)

Such NPI-like licensing requirements on bare *wh*-indefinites are cross-linguistically well attested. For example, see Li (1992) and Lin (1998) on *wh*-indefinites in Mandarin Chinese, which are also licensed by negation, conditionals, and future (akin to the prospective aspect shown here).

In summary, three types of restrictions on bare *wh*-indefinites were documented, which are all independently well attested in the distribution of bare *wh*-indefinites cross-linguistically. First, we saw that different *wh*-phrases differ in the availability of indefinite interpretation: *tas* ‘what’ can be an indefinite rather freely, *mach* ‘who’ requires an explicit licensor, and complex *wh*-phrases with nominal domains cannot be used as indefinites. Second, we showed that bare *wh*-words are required to be in post-verbal position for their intended indefinite readings. Such a requirement is common in languages with obligatory interrogative *wh*-fronting. And third, for *mach* ‘who,’ a class of licensing constructions were documented. This includes negation, conditionals, and prospective (future) and progressive aspects. See also Haspelmath (1997), Bhat (2000), and Gärtner (2009) for discussion of such restrictions in other languages.

## 4 Complex *wh*-quantifiers

We next turn to quantificational expressions formed of *wh*-words combined with additional morphology. The use of modified *wh*-words to form a variety of quantificational expressions is cross-linguistically well-attested. We will call these *complex wh-quantifiers*. The two forms that we will discuss here are the *yalnhej-wh* free choice series and the universal quantifier *masel mach*.

### 4.1 Free choice *yalnhej-wh*

*Wh*-words are often used to form free choice items (FCIs); see Giannakidou and Cheng (2006) for examples from Greek, Catalan, Spanish, Dutch, Korean, Japanese, and Hindi. In this section we discuss Chuj free choice items formed of *wh*-words with *yalnhej*. A basic example is given in (12). Here we gloss *yalnhej* as an unanalyzed unit, but we will return to this issue later in this section.

#### (12) Free choice item (FCI) formed of *yalnhej* and *tas* ‘what’

**Yalnhej tas** (libro-al) ol- $\emptyset$ -w-awtej.  
YALNHEJ what book-NML PROSP-B3-A1S-read  
‘I will read anything/whatever / any book.’

The FCI in (12) is in pre-verbal position, but FCIs may also occur in their post-verbal base position, as in (13a). FCIs are also not limited to object position; see (13b) for a FCI in subject position. Note also that this FCI in (13b) is formed using *mach* ‘who.’

#### (13) FCI in post-verbal object and subject positions

- a. Ol- $\emptyset$ -w-awtej **yalnhej tas** (libro-al).  
PROSP-B3-A1S-read YALNHEJ what book-NML  
‘I will read anything/whatever / any book.’ (cf 12)
- b. In-s-mak **yalnhej mach**.  
B1S-A3-hit YALNHEJ who  
‘Anyone/whoever hit me.’<sup>4</sup>

Examples (12) and (13a) have already shown that *yalnhej*-FCIs may be restricted by a nominal domain, in contrast to bare *wh*-indefinites. *Yalnhej*-FCIs can also take restrictive relative clauses:

#### (14) FCI restricted by a relative clause

[**Yalnhej mach** s- $\emptyset$ -jaw-i] ol-in-och y-et-ok.  
YALNHEJ who IMPF-B3-come-ITV PROSP-B1S-help A3-with-IRR  
‘I will help {anyone who / whoever} comes.’ (literally: help with)

<sup>4</sup>We recognize that the translation here with *anyone/whoever* is unnatural in English. A more natural translation may be ‘Someone or other hit me.’

In addition to FCIs formed with *tas* ‘what’ and *mach* ‘who,’ FCIs formed of *b’aj* ‘where’ are also quite natural:

(15) **FCI with *b’aj* ‘where’**

[**Yalnhej ba’j** tz- $\emptyset$ - $\emptyset$ -al] in-b’at-i.  
 YALNHEJ where IMPF-B3-A2S-say B1S-go-ITV  
 ‘I go anywhere/wherever you say.’

Now we turn to the structure of these FCIs themselves. There is reason to believe that *yalnhej* is internally complex and made up of the ability modal *yal* (16a) and the ‘only’ word *nhej* (16b). Free choice examples are analyzed in this way by Buenrostro (2009), with *yal-nhej* glossed as ‘able-only.’

(16) ***Yal* is an ability modal and *nhej* is an ‘only’ word**

- a. S- $\emptyset$ -**yal** w-al-an kastiya.  
 IMPF-B3-able A1S-speak-SUB Spanish  
 ‘I can speak Spanish.’ (Buenrostro 2009:142)
- b. A **nhej** waj Xun tik ko-gana.  
 FOC only CL.NAME Juan DEM A3P-like  
 ‘We like only [this Juan]<sub>F</sub>.’

The surface morphology suggests that the free choice *yalnhej-wh* could be analyzed transparently as the combination of the modal *yal* ‘able’ and *nhej* ‘only.’ However, we present three arguments here that *yalnhej-wh* is (synchronically) *not* the combination of *yal* and *nhej*.

First, *yalnhej-wh* FCIs have the distribution of a nominal constituent: they can be in post-verbal argument position or fronted as a unit to pre-verbal position, without restriction, as observed above.

Second, particles such as *pax* ‘also’ which normally appear in an immediately post-verbal position cannot split *yal* and *nhej*. This would be unexpected under the view that *yal* here is the regular modal verb.

(17) ***Yal* and *nhej* cannot be split by *pax* ‘also’**

- a. \***Yal** pax **nhej tas** libro-al ol- $\emptyset$ -w-awtej.  
 able also only what book-NML PROSP-B3-A1S-read
- b. Ol- $\emptyset$ -w-awtej pax **yalnhej tas** libro-al.  
 PROSP-B3-A1S-read also YALNHEJ what book-NML  
 ‘I will also read any [book]<sub>F</sub>.’

The third and final argument comes from the position of negation. Negation in Chuj circumscribes the predicate. Example (18a) shows that the second negation marker, *laj*, cannot be placed immediately after *yal*, as would be expected if *yal* here is a predicate. Instead, *laj* with the irrealis marker *ok* must follow the entire FCI as in (18b).

(18) ***Yal* and *nhej* cannot be split by negation**

- a. \*Manh yal (ok)laj **nhej tas** libro-al ol- $\emptyset$ -w-awtej.  
NEG able IRR-NEG only what book-NML PROSP-B3-A1S-read
- b. Manh **yalnhej tas** libro-al ok-laj ol- $\emptyset$ -w-awtej.  
NEG YALNHEJ what book-NML IRR-NEG PROSP-B3-A1S-read  
'I don't read just any book.' (i.e. I read some special kind.)

We have however been able to elicit one example of preverbal *yal* separated from *nhej wh*, but it differs in interpretation from the FCI examples above. The modal interpretation reflected in the translation here, but not in examples above, shows that *yal* here is interpreted as the independent modal verb.<sup>5</sup>

(19) ***Yal* and *nhej* separated, with *yal* interpreted as a moda:**

- Yal** ol- $\emptyset$ -w-awtej **nhej tas** libro-al.  
able PROSP-B3-A1S-read only what book-NML  
'I can read any/whichever type of book.' (cf 12)

The evidence presented above suggests that *yalnhej* in *yalnhej-wh* FCIs is generally not decomposable into the modal *yal* and the 'only' word *nhej* in the synchronic grammar of Chuj. Instead, *yalnhej* forms a nominal (DP) constituent together with a *wh*-phrase. We conclude that this *yalnhej* is unanalyzable in the synchronic grammar of Chuj, but may be diachronically related to the (now rarer) construction involving the modal *yal* and a separate 'only' *nhej*, exemplified by (19), which also yields a similar free choice reading.

## 4.2 Universal *masel mach*

The variety of Chuj we describe here has two common forms of universal quantifiers, *masel* and *masanil*. *Masel* must take a restrictor (here: *anima* 'person'), whereas *masanil* can stand on its own as 'everyone' or take a nominal domain.

(20) **Two universal quantifiers, *masel* and *masanil*, and *masel mach***

- {**Masel** \*(anima) / **masanil** / **masel mach**} ix- $\emptyset$ -ulek'-i.  
every person / everyone / every who PRFV-B3-come-ITV  
'Everyone came.'

The former quantifier commonly appears as *masel mach* (literally 'every who'), which also means 'everyone.' Less commonly, *masanil* can also take *mach*. In this section we present a brief study of these *wh*-derived universals, focusing on *masel mach*.

The domain of *masel mach* can be further restricted by a nominal domain (21) or relative clause (22). Nominal domains as in (21) must be plural, as indicated by the ungrammaticality of removing the plural marker *eb'*. Example (22) also demonstrates that *masel mach* can freely occur in pre- or post-verbal position.

<sup>5</sup>The translation we elicited also reflects that this describes an ability to read any *type* of book, not simply any choice of book. We are not sure why the interpretation changes in this way in this example.

(21) **Masel mach restricted by a plural nominal domain**

[Masel mach \*(eb') ix unin] ix-0-ulek'-i.  
every who PL CL.FEM girl PRFV-B3-come-ITV  
'All the girls came.'

(22) **Masel mach restricted by a relative clause**

- a. Ix-0-k-il [masel mach ix-0-ulek'-i].  
PRFV-B3-A1P-see every who PRFV-B3-come-ITV
- b. [Masel mach ix-0-ulek'-i] ix-0-k-il-a'  
every who PRFV-B3-come-ITV PRFV-B3-A1P-see-TV  
'We saw everyone who came.'

The universal quantifiers have thus far all ranged over human individuals. *Masel* is curiously unable to take *tas* 'what' to form a universal quantifier over inanimates, *masel tas*, parallel to *masel mach*. Furthermore, *masel mach* is limited to animate domains. This is shown in example (23) below.

(23) **There is no masel tas, nor masel mach with inanimate domains**

\*Ix-0-w-awtej [masel tas/mach juntzan libro tik].  
PRFV-B3-A1S-read every what/who certain book DEM  
Intended: 'I read {every one/each} of these books.'

(24) **A universal without wh is used instead**

Ix-0-w-awtej [masanil juntzan libro tik].  
PRFV-B3-A1S-read every certain book DEM  
'I read {every one/each} of these books.'

The fact that *masel* 'every' cooccurs with *mach* 'who' but is incompatible with *tas* 'what' may suggest that *masel mach* is synchronically a monomorphemic, fixed expression. However, evidence from the placement of negation shows that this is not the case: the circumfixal negation markers surround *masel* when forming 'not every' (25). We will leave open for further investigation the nature of this restriction of *masel* 'every' to the animate *wh*-word *mach*.

(25) **Negation can split masel 'every' and mach 'who'**

Manh masel ok-laj mach ix-0-ulek'-i.  
NEG every IRR-NEG who PRFV-B3-come-ITV  
'Not everyone came.'

## 5 Free relatives (FRs)

In this section we turn our attention to *free relatives* (FRs) in Chuj. FRs are headless relative clauses introduced by a non-interrogative *wh*-word, as in the underlined portion of the English *Mary liked [FR what John cooked]*. Two kinds of FRs have been identified in the literature and are attested



cross-linguistically: *definite* FRs (like the English example in the previous sentence) and *indefinite* FRs. Both types of FRs exist in Chuj, as exemplified in (26)–(27):

(26) **Chuj definite FR**

ix-θ-in-mak [FR mach ix-θ-ułek'-i].  
 PRFV-B3-A1s-hit who PRFV-B3-come-ITV  
 'I hit the person who came.'  
 \*'I hit someone who came.'

(27) **Chuj indefinite FR**

Ay [FR mach ix-θ-ułek'-i].  
 EXIST who PRFV-B3-come-ITV  
 \*'The person came.'  
 'Someone came.'

We will show that indefinite FRs have a limited distribution in Chuj, occurring as the complement of existential predicates, as well as a limited set of other verbs whose meaning contains an existential component. On the other hand, definite FRs have the broad distribution of non-free relative DPs. We briefly discuss the details of a proposal for the analysis of these two kinds of FRs which we develop in Kotek and Erlewine (2016) and the evidence for this analysis.

### 5.1 Indefinite free relatives

We begin by examining the behavior of indefinite FRs. Such FRs must be the complement of a limited set of predicates with existential force. Chuj has three basic existential predicates, as shown in (28).

(28) **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.'

All three of these existential predicates may take a FR complement, resulting in an indefinite interpretation. Such constructions are commonly used in Chuj.

(29) **Indefinite FR with existential predicates**

- a. Ay [FR **mach** ix- $\emptyset$ -ulek'-i].  
EXIST who PRFV-B3-come-ITV  
'Someone came.' (= $\geq$ 27)
- b. Malaj [FR **mach** ix- $\emptyset$ -ulek'-i].  
NOT.EXIST who PRFV-B3-come-ITV  
'No one came.'
- c. Ch'ok [FR **mach** ix- $\emptyset$ -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 license indefinite FRs:

(30) **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. Ix- $\emptyset$ -chash [FR **mach** ol- $\emptyset$ -po-an ke'n hin-carro].  
PRFV-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**  $\emptyset$ -ko-k'ulej].  
A1p-look.for-SUB what B3-A1p-do  
'We are looking for something to do.' (Hopkins 1967:158)

## 5.2 Definite free relatives

In contrast, definite FRs have a much freer distribution. They may occur with any predicate and can be in any argument position: for example, in postverbal subject (31a) or object position (26), or as a preverbal subject topic (31b).

(31) **Definite FR subjects in postverbal position and as a preverbal topic**

- a. Ix-in-s-mak [FR **mach** ix- $\emptyset$ -ulek'-i].  
PRFV-B1s-A3-hit who PRFV-B3-come-ITV  
'[The person who came] hit me.' (cf 26)
- b. 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.'

An important characteristic of definite FRs is that they may be used as the domains of different quantifiers. Example (32) shows FRs as the domain for the quantifier *jantak* 'many,' underlined below. See Kotek and Erlewine (2016) for similar data for the quantifiers *tzijtum* 'many' and *juntzan* 'certain, several.' Again, the FR may appear pre- or post-verbally.

(32) **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- $\emptyset$ -w-il [jantak [FR **mach** ix- $\emptyset$ -ulek'-i]].  
 PRFV-B3-A1s-see many who PRFV-B3-come-ITV  
 'I saw the many people who came.'

One last difference between definite and indefinite FRs, which we illustrate here but will leave as an open problem, is the fact that definite FRs—but not indefinite FRs—may take an overt nominal domain, underlined below.

(33) **Definite but not indefinite FRs take nominal domains**

- a. 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.'
- b. \*Ay [FR **mach** winh unin ix- $\emptyset$ -ulek'-i].  
 EXIST who CL.MASC boy PRFV-B3-come-ITV  
 Intended: 'Some boy came.'<sup>6</sup> (cf 27)

See Kotek and Erlewine (2016) for some additional data, as well as for discussion of another type of FRs, which we call *jun-FRs*. We show that such *jun-FRs* have the syntax of definite FRs, but have an indefinite semantics contributed by the numeral *jun* 'one.'

**5.3 The structure of Chuj free relatives (Kotek and Erlewine 2016)**

In Kotek and Erlewine (2016) we argue that definite and indefinite FRs in Mayan languages including Chuj share an internal clausal syntax of CP size. This proposal follows the general approach to FRs developed in work such as Izvorski (1998), Grosu and Landman (1998), and Caponigro (2003, 2004): definite and indefinite FRs both involve a CP with a *wh*-pronoun moved to its edge, interpreted as  $\lambda$ -abstraction (34). This results in a predicate of type  $\langle e, t \rangle$ .

$$(34) \quad \left[ \left[ \text{CP } \mathbf{mach}_i \left[ \text{TP } ixulek' i t_i \right] \right] \right] = \lambda x : x \text{ animate} . x \text{ came}$$

<sup>6</sup> To express this intended meaning of 'Some boy came' with a nonspecific indefinite over boys, an indefinite DP *jun winh unin* with the numeral *jun* 'one' is used, either directly as an argument (ia) or as the head of a relative clause in a *ay* existential construction (ib). Neither option can involve a *wh*-word.

- (i) a. Ix- $\emptyset$ -ulek' jun winh unin.  
 PRFV-B3-come one CL.MASC boy  
 'Some/a/one boy came.'
- b. Ay jun winh unin ix- $\emptyset$ -ulek'-i.  
 EXIST one CL.MASC boy PRFV-B3-come-ITV  
 'There was some/a/one who came.'

Indefinite FRs are the complement of existential verbs, such as *ay* in (35). Indefinite FRs must be the complement of predicates which syntactically allow for a CP complement and which semantically take a description of type  $\langle e, t \rangle$ . This explains the limited distribution of indefinite FRs.

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

In contrast, definite FRs are formed by adding a D-layer to the FR. The addition of a  $t$  D forms a definite FR of type  $e$ , as in (36a). Other quantificational determiners form  $\langle et, t \rangle$  quantificational DPs (36b). The DP layer makes definite FRs available in any argument position, explaining their freer distribution, as well as their meaning.

(36) **Definite and quantificational FRs are DPs**

- a. Ix-in-s-mak [DP  $t$  [CP **mach** ix- $\emptyset$ -ulek'-i]].  
 PRFV-B1s-A3-hit who PRFV-B3-come-ITV  
 'The person who came hit me.' (=31a)
- b. [DP tzijtum [CP **tas** tz- $\emptyset$ -chonh-nax]]  
 many what IMPF-B3-sell-PASS  
 'many things that are sold' (Buenrostro 2009)

Support for this proposal comes from differences in extraction transparency between definite and indefinite FRs. First, we note that headed relative clauses in Chuj are islands for extraction (37).

(37) **Headed relative clauses are islands for extraction**

- a. **Baseline**  
 Ix- $\emptyset$ -y-awtej waj Xun [jun libro ix- $\emptyset$ -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- $\emptyset$ -y-awtej waj Xun [DP jun libro  
 who PRFV-B3-A3s-read CL Juan one book  
 [RC {ix- $\emptyset$ -s-tz'ib'ej, ix- $\emptyset$ -tz'ib'-an(-i)} \_\_\_\_]]?  
 {PRFV-B3-A3s-write, PRFV-B3-write-AF-ITV}  
 Intended: 'Who<sub>i</sub> did Juan read a/one book that they<sub>i</sub> wrote?'

It is similarly impossible to move out of a definite FR (38). In contrast, indefinite FRs are *not* islands for extraction (39).

(38) **Definite FRs are islands for extraction**

- a. **Baseline**  
 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].'

- b. \**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<sub>i</sub> did Juan see [the person who broke it<sub>i</sub>]?’

(39) **Extraction possible out of indefinite FRs**

a. **Baseline**

Ay [FR **tas** ix- $\emptyset$ -s-man waj Xun].  
 EXIST what PRFV-B3-A3s-buy CL.MASC Juan  
 ‘Juan bought something.’

- b.  $\checkmark$  *Mach* [TP ay [FR **tas** ix- $\emptyset$ -s-man-a’ \_\_\_\_]]?  
 who EXIST what PRFV-B3-A3s-buy-TV  
 ‘Who bought something?’

This behavior is explained by our account in Kotek and Erlewine (2016), introduced briefly above. We propose that indefinite FRs are a (special kind of) CP complement with no DP layer, therefore not a RC island. In contrast, definite FRs include a D layer, and hence they pattern with other relative clauses in their island behavior.

## 6 Conclusion

In this paper we provided a survey of non-interrogative uses of *wh*-words in Chuj, an understudied Mayan language of Guatemala. We showed that *wh*-words can be used as (a) bare *wh*-indefinites; (b) complex *wh*-quantifiers: free choice and universal; and (c) free relatives: definite and indefinite. Some distributional properties of these constructions are summarized in the table in (40) below. All of these various uses of *wh*-words—and many of the conditions on their use that we document—are previously attested in other languages.

(40) **Summary of the properties of Chuj *wh*-constructions introduced:**

Availability:	<i>wh</i> -qu.	bare indef	<i>yalnhej</i> FCI	<i>masel mach</i> $\forall$	Free relatives	
					indef	def
Nominal domain	○	×	○	○	×	○
Pre-verbal pos.	○	×	○	○	×	○
Post-verbal pos.	×	(a)	○	○	○	(c)

- Echo questions have *wh*-words in post-verbal position.
- Bare *tas* can be an indefinite in any post-verbal position; bare *mach* requires a licensing operator (§3).
- Indefinite free relatives must be the complement of an existential verb such as *ay* or one of a limited set of other verbs which involves existential semantics (§5.1).

Two key properties of *wh*-words enable this versatility: Semantically, *wh*-words introduce alternatives (Hamblin 1973; a.o.), which form a domain that can be quantified over by various operators

(Kratzer and Shimoyama 2002; Ramchand 1997; a.o.).<sup>7</sup> Syntactically, *wh*-words are natural targets of movement, and abstraction over them forms new  $\langle e, t \rangle$  predicates of arbitrary size. Chuj takes advantage of both properties: *wh*-alternatives enable bare indefinites, FCIs, and universals; *wh*-movement enables definite and indefinite FRs.

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<sup>7</sup>Based on a study of a range of Japanese in-situ quantificational expressions built of *wh*-words, Kuroda (1965) refers to *wh*-words as *indeterminates*, “nouns that behave like a logical variable” (p. 43). This foreshadows this first, semantic property of *wh*-words as introducing alternatives.

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