

## ***Wh*-indeterminates in Chuj (Mayan)**

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This paper investigates the varied 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 *wh*-quantification, indefinites, and the formation of relative clauses. In Chuj, we will show that *wh*-words are used to form indefinites in certain limited environments, universal quantifiers, free choice items, and two kinds of free relatives — definite free relatives but also typologically rarer indefinite free relatives. We sketch an analysis of each construction, and discuss generalizations concerning their distribution. The varied uses of *wh*-words in Chuj supports the view that *wh*-words are used in two capacities: to generate alternatives, and to create a movement/binding relation.

**Keywords:** *Wh*-words, indeterminates, Mayan, *wh*-questions, *wh*-quantification, free relatives

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# 1 Introduction

This paper presents a comprehensive survey of the various uses of *wh*-words in Chuj (ISO code: cac), an understudied language of the Q'anjob'alán branch of the Mayan family. Concentrating on examples with 'who' and 'what,' we show that *wh*-words are used not only for interrogatives but for a range of quantificational uses, forming indefinites, free choice items, universal quantifiers, and free relatives. Due to such multifunctionality of *wh*-words in Japanese, Kuroda (1965) introduced the term "indeterminate" to refer to *wh*-words as "nouns that behave like a logical variable" (p. 43).

Chuj is spoken by approximately 40,000 people in Guatemala and an additional 10,000 people in Mexico. Our study is based on elicitation with a speaker from San Mateo Ixtatán, which is in the department of Huehuetenango, Guatemala. Our methodology is discussed briefly in section 2.4 and again in a few points where this is particularly relevant.<sup>1</sup>

In the first half of the paper, we describe the distribution of *wh*-words in a wide range of quantificational uses. This includes the use of bare *wh*-words as non-specific indefinites, as in (1).<sup>2</sup>

(1) **Bare *wh*-indefinite:**

Ix-Ø-k-il            **tas.**  
PFV-B3-A1P-see what  
'We saw something.'

The affinity between interrogative words and indefinites has been observed across a range of languages (Postma 1994, Haspelmath 1997, Bhat 2000, Gärtner 2009, a.o.). We show that such bare *wh*-indefinites are limited to a certain set of licensing environments. The discussion of these licensing conditions will be the focus of section 3 of the paper.

In section 4 we turn to two types of quantificational expressions derived of *wh*-words. The first, in section 4.1, is the series of free choice items composed of *yalnhej* and a *wh*-word. Although *yalnhej* generally functions here as an unanalyzable word, we note that this form could be a grammaticalized combination of the ability modal *yal* and the 'only' word *nhej*. The second, in section 4.2, is the universal quantifier *masel mach* 'everyone.' We analyze *masel mach* as a calcified expression as this *wh*-universal form is limited to *mach* 'who.' Examples of both types of constructions are shown in (2a–b):

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<sup>1</sup>Uncredited English and Hebrew data are from the authors.

<sup>2</sup>The following abbreviations are used in this paper: A = Set A (ergative), B = Set B (absolutive); FEM = feminine, MASC = masculine, S = singular, P/PL = plural; AF = Agent Focus, IMPF = imperfective, IRR = irrealis, NEG = negation, PFV = perfective, PROG = progressive, PROSP = prospective, PSV = passive, STAT = stative, SUB = subordinate, TAM = tense-aspect marker; ITV = intransitive verb, TV = transitive verb; FOC = focus, TOP = topic; CL = classifier, CL.NUM = numeral classifier, DEM = demonstrative, NML = nominal suffix, NOM = nominative (Japanese), OM = object marker (Hebrew), POSS = possession, PREP = preposition.

See Domingo Pascual (2007) on Chuj orthographic conventions. Two points are relevant here: Vowels in word-initial position are prefixed with an unpronounced "h-" in Chuj orthography to indicate the absence of an initial glottal stop, unlike in forms which are written vowel-initially (Buenroostro 2004). The sequence "nh" represents the velar nasal, also written "ñ" in some Chuj texts.

(2) **A free choice item and a *wh*-universal:**

- a. [Yalnhej mach tz- $\emptyset$ -jaw-i] ol-in-och y-et'ok.  
 YALNHEJ who IMPF-B3-COME-ITV PROSP-B1s-help A3-with  
 'I will help whoever comes.'
- b. [Masel mach] ix- $\emptyset$ -ulek'-i.  
 every who PFV-B3-COME-ITV  
 'Everyone came.'

The latter half of the paper describes the use of *wh*-words to form free relatives. An example is given in (3) below, where the free relative (FR) with *tas* 'what' and denotes a specific entity, 'what I bought.' In section 5 we show that free relatives fall broadly into three categories, which differ in their distribution and structure: definite (as in (3)), indefinite, and *jun* free relatives.

(3) **Free relative:**

- Ix- $\emptyset$ -in-wa [FR tas ix- $\emptyset$ -in-man-a'].  
 PFV-B3-A1s-eat what PFV-B3-A1-eat-TV  
 'I ate what I bought.'

The following table summarizes the key properties of the constructions that make use of *wh*-words discussed in this paper — *wh*-questions, bare *wh*-indefinites, free choice items (FCIs), *wh*-universals, and the three varieties of free relatives, with regard to the ability of the *wh* to have a nominal domain, to pied-pipe or strand prepositions (relational nouns), and be in pre-verbal focus and topic positions, as well as in post-verbal positions.

(4) **Summary of the properties of the *wh*-constructions studied:**

	<i>wh</i> -Q	bare indef.	FCIs	<i>wh</i> $\forall$	Free relatives		
					indef	def	<i>jun</i>
Nominal domain	✓	✗	✓	✓	✗	✓	✗
Prep. pied-piping	✓	NA	NA	NA	✓	✓	✓
Prep. stranding	✓	NA	NA	NA	✓	✓	✓
Pre-verbal focus	✓	✗	✓	✓	✗	✓	✓
Pre-verbal topic	✗	✗	✗	✗	✗	✓	✓
Post-verbal pos.	✗ (*)	✓ (*)	✓	✓	✓ (*)	✓	✓

\* with some caveats — see discussion in the relevant sections

Theoretically, we hypothesize that 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 (Ramchand 1997, Kratzer and Shimoyama 2002, AnderBois

2012, 2017, a.o.). Syntactically, *wh*-words are natural targets of movement, and abstraction over them forms new predicates of arbitrary size. Chuj takes advantage of both properties: *wh*-alternatives enable bare indefinites, FCIs, and universals; *wh*-movement enables the formation of free relatives. Both properties are crucial for the formation of *wh*-questions.

None of these non-interrogative uses of *wh*-words have been previously documented within the Q'anjob'alan branch of Mayan languages. This fine-grained investigation into these constructions in Chuj also contributes to our typological understanding of the use of *wh*-indefinites cross-linguistically.

## 2 Background

We begin with a brief overview of the main features of Chuj that will be relevant for our discussion, including basic clause structure, headed relative clauses, and question formation.

### 2.1 Basic clause structure

Chuj is a verb-initial language with VSO and VOS as possible basic word orders. Nominal arguments in Mayan languages are cross-referenced with ergative-absolutive alignment through Set A (ergative) and Set B (absolutive) markers on the predicate. The Set A and Set B markers are presented in (5) (Hopkins 1967, Domingo Pascual 2007, Buenrosto 2009).

(5) **Ergative and absolutive marking:**

	Set A (ergative)		Set B
	/ ___ V	/ ___ C	(absolutive)
1SG	w-	in-	in
2SG	∅	a-	ach
3SG	y-	s-	∅
1PL	k-	ko-	onh
2PL	ey-	e-	ex
3PL	y-	s-	eb'

Set A markers are also used to mark possessive agreement on nominals:

(6) **Set A as possessor agreement:**

s-pat    winh    hin-mam  
A3-house CL.MASC A1s-father  
'my father's house'

(Buenrosto 2009: 214)

Classifiers in Chuj cooccur with nominals or appear alone and function as pronouns. See Bielig (2015) and Royer (2018) for discussion of nominal classifiers in San Mateo Ixtatán Chuj.<sup>3</sup>

(7) **Nominal classifiers in Chuj:**

- |   |   |
|---|---|
| <p>a. Ix-∅-way winh unin.<br/> PFV-B3-sleep CL.MASC child<br/> ‘The boy slept.’</p> | <p>b. Ix-∅-way winh.<br/> PFV-B3-sleep CL.MASC<br/> ‘He slept.’</p> |
|---|---|

Pre-verbal tense-aspect (TAM) markers in Chuj are shown in (8); see Buenrostro (2007), Carolan (2015), Coon and Carolan (2017) for details. The past perfective marker *ix* can also be dropped.<sup>4</sup> The majority of the examples we will discuss below will involve perfective aspect. Wherever there is an aspect-related interaction with the uses of *wh*-words studied here, this is noted explicitly and motivating examples are shown.

(8) **TAM markers:**

- |      |                      |       |
|------|----------------------|-------|
| i(x) | recent perfective    | PFV   |
| tz   | imperfective         | IMPF  |
| lan  | progressive          | PROG  |
| ol   | prospective (future) | PROSP |

Examples (9–10) show basic transitive and intransitive sentences. Verbs take a status suffix (intransitive *ITV* -*i*; transitive *TR* -*V'*, as in -*a'* here) when they occur at intonational phrase boundaries or utterance-finally.

(9) **Basic transitive sentences:**

- a. Tz-ach-in-chel-a'.  
IMPF-B2-A1s-hug-TV  
‘I hug you.’ (Coon and Carolan 2017: 7)
- b. Ix-∅-in-wa ixim wa'il.  
PFV-B3-A1s-eat CL.GRAIN tortilla  
‘I ate the tortilla.’

(10) **Basic intransitive sentences:**<sup>5</sup>

- a. Ix-onh-ulek'-i.  
PFV-B1P-come-ITV  
‘We came.’
- b. Ol-∅-wa ix.  
PROSP-B3-eat CL.FEM  
‘She will eat.’

The full template for a verbal predicate is shown in (11). This template presents the *maximal* morpheme combination; for example, as noted above, intransitive verbs will lack a Set A (ergative) marker and the status suffix will not be present unless it is at an intonational phrase edge.

<sup>3</sup>Royer (2018) argues that nominal classifiers are never pronouns themselves but rather appear before null *pro*. We set this detail aside here.

<sup>4</sup>Carolan (2015) shows that the choice between *ix* and ∅ encodes a difference between recent and more distant past. We follow Buenrostro (2009) in simply not glossing the null, distant perfective marker.

<sup>5</sup>The stem *ulek'* is morphologically complex, involving the root *ul* and directional *ek'*. We set this complexity aside here.

- (11) **A template for Chuj verbal predicates:** (Coon and Carolan 2017: 5)  
 TAM — Set B — Set A — root — voice — status suffix

As is common in many Mayan languages,  $\bar{A}$ -extraction of subjects of transitive clauses triggers a change to verbal morphology in that clause. This construction is called Agent Focus (AF) in Mayanist literature (see Stiebels 2006, Norcliffe 2009, Coon et al. 2014, and references therein). AF verbs can be identified by the lack of a Set A agreement marker and the addition of an AF suffix, *-an*. We additionally observe the intransitive status suffix on the verb, rather than the transitive. Relevant for this paper, we observe AF in transitive subject *wh*-questions (12c) and in transitive subject relative clauses (see (14) below).

- (12) **Agent Focus in transitive subject questions:**

- a. **Mach** ix- $\emptyset$ -ulek'-i?  
 who PFV-B3-come-ITV  
 'Who came?' intransitive subject question
- b. **Mach** ix- $\emptyset$ -w-il-a'?  
 who PFV-B3-A1s-see-TV  
 'Who did I see?' transitive object question
- c. **Mach** ix-in-il-an-i?  
 who PFV-B1s-see-AF-ITV  
 'Who saw me?' transitive subject question

## 2.2 Headed relative clauses

As a focus of our study here will be free relatives formed using *wh*-words, we briefly discuss the structure of headed relative clauses in Chuj, which generally do not involve *wh*-words. Relative clauses in Chuj are simply gapped clauses preceded by the nominal head that they modify. Some examples are given in (13). For convenience, the head nouns in the examples in this section are underlined.

- (13) **Headed relative clauses:**

- a. ix unin [RC ix- $\emptyset$ -ulek'-i]  
 CL.FEM child PFV-B3-come-ITV  
 'the girl who came'
- b. jun (ch'anh) libro [RC ix- $\emptyset$ -w-awtej]  
 one CL.BOOK book PFV-B3-A1s-read  
 'one book that I read'

As with question formation in (12c), transitive subject relativization triggers Agent Focus on the embedded verb (14).

(14) **Transitive subject relative clause triggers Agent Focus, cf (12c):**

winh unin [RC ix-∅-man-an ixim pastel]  
CL.MASC child PFV-B3-buy-AF CL.GRAIN cake  
'a boy who bought the cake'

Unlike headed relative clauses in English, relative clauses in Chuj cannot be introduced by an overt complementizer, such as English *that*. The examples below, based on (13a–b) above, show that *wh*-words cannot be used as relative pronouns in argument relatives:<sup>6</sup>

(15) **Relative clause cannot be introduced by relative pronoun:**

a. \* ix unin [RC **mach** ix-∅-ulek'-i]  
CL.FEM child who PFV-B3-come-ITV  
Intended: 'the girl who came' cf (13a)

b. \* jun (ch'anh) libro [RC **tas** ix-∅-w-awtej]  
one CL.BOOK book what PFV-B3-A1s-read  
Intended: 'one book that I read' cf (13b)

In the case of adjunct relatives, however, *wh*-words can be used as relative pronouns at the edge of a headed relative clause. This is exemplified in (16a–b) below. This same pattern has been described for Yucatec Maya by Gutiérrez-Bravo (2013): *wh*-relative pronouns are ungrammatical in argument relativization but possible in adjunct relativization. Example (16a) shows an adjunct *wh*-word relative pronoun 'where,' whereas (16b) shows relativization over the object of the preposition *et'* 'with.'<sup>7</sup> Fronting of the adjunct *et'*-phrase in (16b) is accompanied by secondary fronting of the *wh*-word, to reverse the order of the *wh*-word with respect to its pied-piped preposition, as is common in other Mayan languages (Smith-Stark 1988, Aissen 1996, Coon 2009, a.o.).

(16) **Wh-relative pronoun possible in adjunct relativization:**

a. Tz-in-kot t'a jun lugar [RC (**b'ajtil**) tz-∅-al-chaj Español].  
IMPF-B1s-come PREP one place where IMPF-B3-speak-PSV Spanish  
'I come from a place where Spanish is spoken.'

b. Ix-∅-w-ilelta winh unin [RC [**mach** y-et'] ∅-och ix Malin].  
PFV-B3-A1s-meet CL.MASC child who A3s-with B3-help CL.FEM Maria  
'I met the boy who Maria helped.' (lit. 'the boy with whom M. helped')

<sup>6</sup>Similar facts are presented for the San Sebastián variety of Chuj in Maxwell (1976).

<sup>7</sup>Descriptively, we refer to items such as *et'* 'with' using the term "(agreeing) preposition," rather than the Mayanist term "relational noun." This terminological choice is orthogonal to our discussion here.



## 2.3 Question formation

In this section we present what can be thought of as the canonical use of *wh*-words, that of constituent question formation. (17) below gives examples of *wh*-questions using *mach* ‘who’ and *tas* ‘what.’

- (17) a. **Mach** ix- $\emptyset$ -ulek’-i?  
who PFV-B3-COME-ITV  
‘Who came?’
- b. **Tas** ix- $\emptyset$ -a-man-a’?  
what PFV-B3-A2s-buy-TV  
‘What did you buy?’

*Wh*-question formation generally involves the fronting of a *wh*-phrase to pre-verbal position, leaving a post-verbal gap. (We discuss exceptions to this fronting requirement later in the section.) Recall from the discussion of example (12) above that when the fronted *wh*-word is a transitive subject, the verb will be in the Agent Focus form.

Some examples of *wh*-questions with other *wh*-words are given here:

- (18) **Examples of other *wh*-words:**
- a. **B’ak’in** ix- $\emptyset$ -ulek’ ix Malin?  
When PFV-B3-COME CL.FEM Maria  
‘When did Maria come?’
- b. **B’ajtil** ix- $\emptyset$ -a-man-a’?  
Where PFV-B3-A2s-buy-TV  
‘Where did you buy it?’
- c. **Tasyu’uj** ix- $\emptyset$ -el ix Malin?  
Why PFV-B3-leave CL.FEM Maria  
‘Why did Maria leave?’
- d. **Jay-wanh** heb’ winh unin ix- $\emptyset$ -ulek’-i?  
How.many-CL.NUM PL CL.MASC child PFV-B3-COME-ITV  
‘How many boys came?’
- e. **Jay-e’** lapis ix- $\emptyset$ -a-man-a’?  
how.many-CL.NUM pens PFV-B3-A2s-buy-TV  
‘How many pens did you buy?’

In this paper, we will concentrate on *wh*-arguments involving the *wh*-words *mach* ‘who’ and *tas* ‘what’ as in (17) above. Complex *wh*-phrases akin to the English *which/what boy* or *which/what girl* can be formed by adding a nominal domain to *mach*.<sup>8</sup>

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<sup>8</sup>Domingo Pascual (2007) gives the word *aja’a* for ‘which’ in Chuj. Our consultant did not recognize this lexical item when presented with the word in isolation or in the examples from Domingo Pascual.

(19) ***Mach* can take a domain:**

- a. **Mach** winh ix-∅-ulek'-i?  
who CL.MASC PFV-B3-come-ITV  
'Who<sub>masc</sub> came?'
- b. **Mach** winh unin ix-∅-k-il-a'?  
who CL.MASC child PFV-B3-A1P-see-TV  
'Which boy did we see?'

When a plural *wh*-phrase is constructed, it may optionally be marked with the plural marker *-tak*, (20a). Animate individuals may also be marked by the (animate-only) plural marker *heb'*, (20b). If the *wh*-word is explicitly marked as plural, the noun must be as well, (20c).

(20) ***Mach* can be pluralized in two different ways:**

- a. **Mach-tak** ix-∅-ulek'-i?  
who-PL PFV-B3-come-ITV  
'Who<sub>pl</sub> came?'
- b. **Mach** heb' winh winak ix-∅-mak'-an cham nok' tz'i' chi ix-∅-el-i?  
who PL CL.MASC man PFV-B3-hit-AF dead CL.ANIMAL dog DEM PFV-B3-leave-ITV  
'Which of the men who killed the dog left?' (Buenrostro 2009: 210)
- c. **Mach-tak** \*(heb') winh unin ix-∅-ulek'-i?  
who-PL PL CL.MASC child PFV-B3-come-ITV  
'Which boys came?'

Similarly to *mach*, an inanimate nominal domain can be added to *tas* 'what' to create a modified *wh*-phrase:

(21) ***Tas* can take an inanimate nominal domain:**

- Tas** libro-al ix-∅-y-awtej ix Malin?  
what book-NML PFV-B3-A3-read CL.FEM Maria  
'Which book did Maria read?'

*Mach* can also be used to form inanimate complex *wh*-phrases, although more often *tas* is used for this purpose, (21). Note however that *tas* cannot be used with an animate domain:

(22) ***Mach* can take inanimate domain; *tas* cannot take animate domain:**

- a. **Mach** libro-al ix-∅-y-awtej ix Malin?  
what book-NML PFV-B3-A3-read CL.FEM Maria  
'Which book did Maria read?'

- b. \* **Tas** winh ix-∅-ulek'-i?  
 what CL.MASC PFV-B3-COME-ITV  
 Intended: 'Who<sub>MASC</sub> came?'

If a *wh*-phrase is not fronted, the result is an echo question (23a).<sup>9</sup> Such a question cannot be embedded under a question-embedding predicate such as *ojtak* 'know' (23b). Only questions that involve *wh*-fronting are 'true' questions that can be embedded (23c).

(23) **Questions without fronting are echo questions and cannot be embedded:**

- a. Ix-∅-ulek' **mach**?  
 PFV-B3-COME who  
 'Who came?' (echo question) (cf 17a)
- b. \* K-*ojtak* [ix-∅-ulek' **mach**].  
 A1P-KNOW PFV-B3-COME who  
 Intended: 'We know who came.'
- c. K-*ojtak* [**mach** ix-∅-ulek'-i].  
 A1P-KNOW who PFV-B3-COME-ITV  
 'We know who came.'

Question formation involves optional pied-piping of additional material along with the *wh*-word to the front of the question. When pied-piping occurs, secondary fronting takes place.

(24) **Pied-piping with secondary fronting vs. preposition stranding:**<sup>10</sup>

- a. [**Mach** y-et'(ok)] ix-ach-och-i?  
 who A3-with PFV-B2P-help-ITV  
 'Who did you help?'
- b. **Mach** ix-ach-och y-et'(ok)?  
 who PFV-B2P-help A3-with  
 'Who did you help?'
- (25) a. [**Tas** y-et'(ok)] ix-∅-tajn-i ix Malin?  
 what A3-with PFV-B3-play-ITV CL.FEM Maria
- b. **Tas** ix-∅-tajn-i ix Malin y-et'(ok)?  
 what PFV-B3-play-ITV CL.FEM Maria A3-with  
 'What did Maria play with?'

Finally, it is important to note that pre-verbal positions in Mayan languages fall into topic and focus categories; see e.g. Aissen (1992). In Chuj, Bielig (2015) shows that pre-verbal topics are

<sup>9</sup>In some cases an alternative interpretation of a non-fronted *wh*-word as a non-specific indefinite is available. See section 3.

<sup>10</sup>The relational noun *et'* 'with' has a variant form, *et'ok*, with no change in meaning. This alternation occurs freely in all positions. Examples with *et'ok* were judged as marginally better when stranded.

base-generated high — not triggering the AF extraction marking in (26) — and co-occur with a coreferential post-verbal classifier, if there is an appropriate classifier. (Recall from (7b) above that classifiers can be used as pronouns.) In contrast, pre-verbal foci are fronted from a post-verbal position, triggering AF in (27), with no corresponding post-verbal classifier. Bielig also shows that topics are necessarily higher than the position of focus, and that *wh*-fronting patterns with focus-fronting, as is common cross-linguistically. See Bielig (2015) for further discussion on distinguishing topics from foci, and arguments for their distinct derivations.

(26) **Pre-verbal topic with coreferential classifier pronoun:**

A ix Elsa<sub>i</sub> ix-∅-s-xik te' k'atitz \*(ix<sub>i</sub>).  
 TOP CL.FEM Elsa PFV-B3S-A3S-chop CL.WOOD firewood CL.FEM  
 'As for Elsa<sub>i</sub>, she<sub>i</sub> cut the firewood.'

(Bielig 2015: 11)

(27) **Pre-verbal focus with no corresponding post-verbal classifier:**

A ix Ana ix-∅-mak'-an nok' mis (\*ix).  
 FOC CL.FEM Ana PFV-B3S-hit-AF CL.ANIMAL cat CL.FEM  
 'It was Ana who hit the cat.'

(Bielig 2015: 16)

## 2.4 A note on data collection

As mentioned above, our study is based on elicitation with a speaker from San Mateo Ixtatán. Our elicitations were conducted regularly over a period of two years (2014–2016) in Montreal, Canada, with all major contrasts reported in this paper confirmed at least twice in independent sessions. These findings and examples are supplemented by data from existing literature wherever possible. We present homogeneous examples with limited lexical choices to facilitate cross-comparisons between examples and constructions. We believe that this is crucial in order to eliminate any extraneous effects that may influence the contrasts we are interested in.

Following current best practices in semantic fieldwork (see e.g. Matthewson 2004), our data collection involved judgments of felicity/grammaticality in specific contexts, as well as context selection tasks. For example, to test to see whether a free relative admits a singular or plural referent, examples were presented in contexts with either a single relevant individual or with multiple individuals. (This is reported in (98–99) below.) In the interest of space, we do not illustrate all these contexts in the text, but we have included a few of them where they are especially illustrative. See e.g. examples (62), (76a–c), (95–97), and (101).

### 3 Bare *wh*-indefinites

In this section we turn to our first non-interrogative use of *wh*-words in Chuj: bare *wh*-indefinites. In some limited contexts, the bare *wh*-words *tas* ('what') and *mach* ('who') can be interpreted as nonspecific indefinites with the meanings 'something' and 'someone,' respectively. We will begin by giving some background on the use of bare *wh*-words as indefinites cross-linguistically and some common restrictions on such uses. We will then present the various conditions under which Chuj *tas* 'what' and *mach* 'who' can have this indefinite interpretation.

#### 3.1 Background: bare *wh*-indefinites

In addition to their use in interrogative clauses, *wh*-words are often used cross-linguistically to form indefinites (see e.g. Cheng 1991, Postma 1994, Haspelmath 1997, Bhat 2000, Gärtner 2009, and references therein).<sup>11</sup> We can broadly classify such uses into two categories: indefinites formed of *wh*-words with additional morphology on them, and indefinites which are bare *wh*-words. We will show in the following section that Chuj has indefinites of the latter type, which we call *bare wh-indefinites*. Here we will therefore briefly review previous cross-linguistic work on such indefinite uses of bare *wh*-words.<sup>12</sup>

The use of bare *wh*-words as indefinites is cross-linguistically quite common. Building on previous literature, Gärtner (2009) compiled a list of 62 languages with bare *wh*-indefinites (what he calls "[i=i]" or "interrogative=indefinite" languages), which he says is based on an aggregate survey of approximately 150 languages. (See his Appendix B for his full list of such languages.) At the same time, it has been noted that the use of bare *wh*-words as indefinites is limited in these languages in a number of ways.

One common limitation is that, in languages with interrogative *wh*-fronting, the *wh*-word must not be fronted. This restriction is observed in Shoshone (Uto-Aztecan) below in (28). The *wh*-word must be fronted in Shoshone questions (Miller 1996), as in (28a), whereas *wh*-indefinites must not be (28b). As we have seen in section 2.3 above, Chuj is also an interrogative *wh*-fronting language, and we will indeed later observe this in-situ requirement on bare *wh*-indefinites in Chuj.

(28) **Shoshone (Uto-Aztecan) bare *wh*-indefinites must be in-situ:**

- |   |  |
|---|--|
| a. <b>Hakke</b> in puikka?<br>who you saw<br>'Who did you see?' | b. Nĩ kian <b>hakke</b> puikka.<br>I perhaps who saw<br>'I saw someone.' |
|---|--|

(Miller 1996 reproduced in Bhat 2000: 383)

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<sup>11</sup>Cheng (1991: 80) in turn cites Chomsky (1964), Katz and Postal (1964), Klima (1964) for early discussion of the relationship between indefinite and interrogative nominal forms. See also Kuroda (1965) on "indeterminates."

<sup>12</sup>For a review of the former option — indefinites formed of *wh*-words with additional morphology — see Haspelmath (1997) and also Bhat (2000).

Another common restriction is that bare *wh*-indefinites must be in the scope of a particular licensing environment or operator. A common licensing environment is negation, as illustrated in the Mandarin Chinese contrast (29) below.

(29) **Mandarin Chinese *wh*-indefinite licensed by negation:** (Li 1992: 127)

- |  |  |
|--|--|
| <p>a. Ta xihuan <b>shenme</b><br/> s/he like what<br/> ✓ ‘Who does s/he like?’<br/> * ‘S/he likes someone/anyone.’</p> | <p>b. Ta bu xihuan <b>shenme</b><br/> s/he not like what<br/> ✓ ‘Who does s/he not like?’<br/> ✓ ‘S/he doesn’t like anyone.’</p> |
|--|--|

Bare *wh*-indefinites in Mandarin are also licensed in polar questions and in the antecedent of conditionals, leading Huang (1982), Li (1992), and Cheng (1994) to describe bare *wh*-indefinites as negative polarity items.<sup>13</sup> As we will see in the following section, the distribution of bare *wh*-indefinites in Chuj resembles that in Mandarin Chinese. One immediate difference between Mandarin Chinese and Chuj is, of course, the fact that for interrogative clauses, Mandarin Chinese is a *wh*-in-situ language whereas Chuj is a *wh*-fronting language (see section 2.3). While previous work such as Cole and Hermon (1998) has claimed that the use of *wh*-indefinites may correlate with the availability of interrogative *wh*-in-situ, more recent work by Bruening (2007) and Aldridge (2007) have disputed this alleged connection. The facts we will present from Chuj support the idea that the availability and distribution of bare *wh*-indefinites is independent of the language’s *wh* interrogative strategy: in particular, we will show that Chuj allows for bare *wh*-indefinites in licensing conditions very similar to those in Mandarin Chinese, even though they differ in their interrogative *wh* usage.

### 3.2 Bare *wh*-indefinites in Chuj

In this section we will describe the limited conditions under which bare *wh*-words can take an indefinite interpretation. Following the background above, we will cover three restrictions on bare *wh*-indefinites: the behavior of different *wh*-words and phrases, the in-situ requirement, and licensing environments.

First, we note that bare *tas* ‘what’ can be freely interpreted as an indefinite in any post-verbal position (30a). In contrast, *mach* ‘who’ cannot be an indefinite in (30b), although we will see bare *mach* indefinites in a certain limited set of environments below. An echo question interpretation is also always available.<sup>14</sup>

<sup>13</sup>Lin (1998) shows that *wh*-words in Mandarin can also receive an indefinite interpretation in some irrealis contexts such as under future modals. The characterization of these environments identified by Lin (1998) has been thought of as (similar to) so-called non-veridical environments (see e.g. Giannakidou 1998, Giannakidou and Cheng 2006).

<sup>14</sup>Echo question uses were verified through question embeddings as in (23) above, which cross-linguistically resist echo questions, as well as by providing contexts which support a question or declarative interpretation. Our consultant additionally volunteered comments as to whether she interpreted our sentences as a question or a statement.

(30) **Post-verbal ‘what’ but not ‘who’ can be interpreted as a *wh*-indefinite:**

- |  |  |
|--|--|
| a. Ix- $\emptyset$ -k-il <b>tas</b><br>PFV-B3-A1P-see what<br>✓ ‘We saw something.’ (=1)<br>✓ ‘We saw what?’ (echo question) | b. Ix- $\emptyset$ -k-il <b>mach</b><br>PFV-B3-A1P-see who<br>* ‘We saw someone.’<br>✓ ‘We saw who?’ (echo question) |
|--|--|

*Wh*-indefinites must be bare *wh*-words and cannot take nominal domains. Recall that *wh*-words in questions can take a domain, as illustrated again in (31) below. In the minimally different example (32), the addition of a nominal domain blocks the indefinite ‘some book’ reading, leaving only the echo question reading available.

(31) **‘What’ *tas* can take a domain:**

- |  |   |
|--|---|
| a. <b>Tas</b> ix- $\emptyset$ - $\emptyset$ -il-a’?<br>what PFV-B3-A2s-see-TV<br>‘What did you see?’ | b. <b>Tas</b> libro-al ix- $\emptyset$ - $\emptyset$ -awtej?<br>what book-NML PFV-B3-A2s-read<br>‘Which book did you read?’ |
|--|---|

(32) **Indefinite *tas* cannot take a nominal domain:**

- Ix- $\emptyset$ -k-il            **tas** libro(-al)  
PFV-B3-A1P-see what book-NML  
\* ‘We saw some book.’ (cf 30a)  
✓ ‘We saw which book?’ (echo question)

Second, we note that *wh*-indefinites must be in a post-verbal argument position and cannot be fronted. Compare the intended declarative reading of (33) with an indefinite *tas* to the grammatical *wh*-question in (31a) above. We observe that when a *wh*-word is fronted, only the interrogative reading is available.

(33) **Fronted *wh* cannot be indefinite:**

- \* **Tas** ix- $\emptyset$ - $\emptyset$ -il-a’.  
what PFV-B3-A2s-see-TV  
Intended: ‘You saw something.’ (cf 31a)

Recall that Chuj is an interrogative *wh*-fronting language. As noted above, a requirement that *wh*-indefinites be in-situ is common in languages with *wh*-fronting (Cheng 1991, Bhat 2000, a.o.).

Third, we turn to the special licensing conditions of *mach* ‘who’ as the indefinite ‘someone.’ Unlike *tas* which can be interpreted as an indefinite in any post-verbal argument position, a limited set of licensors is necessary for this indefinite reading of *mach*.

A common licensor of bare *wh*-indefinites is negation. Negation in Chuj indeed licenses the indefinite use of *mach* as a narrow-scope ‘someone.’ Negation in Chuj involves two morphemes,

surrounding the main predicate. The first morpheme has various realizations, for example surfacing as *manh* with nonverbal predicates and prospective aspect, as *maj* with perfective aspect, and as *max* with imperfective aspect (Coon and Carolan 2017). The second morpheme is an invariant *laj* and either attaches to the predicate (the verbal stem itself) or to the first negation morpheme.<sup>15</sup>

(34) **Negation is a licenser of bare *mach*-indefinites:**

- a. Maj  $\emptyset$ -k-il      laj **mach/tas.**    b. Maj  $\emptyset$ -ulek'    laj **mach.**  
 NEG B3-A1P-see NEG who/what    NEG B3-COME NEG who  
 'We didn't see anyone/anything.'    'No one came.'

Bare *wh*-indefinites are also licensed in the antecedent of conditional clauses:

(35) **Conditional licenses bare *wh*-indefinites:**

- Tato tz- $\emptyset$ - $\emptyset$ -il      **mach/tas,**  $\emptyset$ - $\emptyset$ -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: 'tell me')

The last licensers of *wh*-indefinites are the prospective (future) and progressive aspects, in (36). Here, in addition to *tas* 'what,' *mach* 'who' is also licensed:<sup>16</sup>

(36) **The prospective and progressive aspects license *wh*-indefinite:**

- a. Ol- $\emptyset$ -w-il      **mach**    b. Lan k-il-an      **mach**  
 PROSP-B3-A1s-see who      PROG A1P-SEE-SUB who  
 ✓ 'I will see someone.'      ✓ 'We are seeing someone.'  
 ✓ 'I will see who?' (echo qu.)    ✓ 'We are seeing who?' (echo qu.)

This is in contrast to the perfective, observed above in (30), and the imperfective in (37) below, where *tas* can take an indefinite interpretation but *mach* cannot.

<sup>15</sup>With stative predicates, this process results in the form *malaj*, which is also used as the negative existential predicate (Domingo Pascual 2007: 142, 200). Example (i) shows *malaj* with the stative predicate *gana* 'want/like':

- (i) Malaj hin-gana      tas.  
 NEG A1s-want/like what  
 'I don't want/like anything.'

We discuss *malaj* as the negative existential predicate in section 5.1.

<sup>16</sup>Transitive verbs in the progressive aspect appear with the suffix *-an*, glossed *sub* for "subordinate clause" in (Buenrostro 2004), which we adopt here. This suffix seems to be identical to the Agent Focus suffix, as is common in Q'anjob'alan languages (Coon et al. 2014), but this verb form is formally distinct from the AF form. For one, here the Set B agreement slot is dropped, with a Set A cross-referencing the subject, whereas the AF verb lacks a Set A marker. (Compare with (12c) and (14) above.) See Coon and Carolan (2017) for detailed discussion, and see also the discussion after example (37).



(37) **Imperfective aspect does not license bare *mach*-indefinite:**

- |    |                 |                            |    |                 |                                |
|----|-----------------|----------------------------|----|-----------------|--------------------------------|
| a. | Tz-∅-∅-il       | <b>tas</b>                 | b. | Tz-∅-∅-il       | <b>mach</b>                    |
|    | IMPF-B3-A2s-see | what                       |    | IMPF-B3-A2s-see | who                            |
|    | ✓               | 'You see something.'       |    | *               | 'You see someone.'             |
|    | ✓               | 'You see what?' (echo qu.) |    | ✓               | 'You see who?' (echo question) |

The licensing of bare *wh*-indefinites by negation, conditionals, and prospective (future-oriented) aspect parallels their licensing environments in Mandarin Chinese, which Giannakidou and Cheng (2006), following Lin (1998), describe as all being non-veridical contexts.

Recall from above that *tas* 'what' differs from *mach* in allowing an indefinite interpretation in any post-verbal position, without a designated licenser, but cannot take a nominal domain as in *tas libroal* with the intended indefinite interpretation of 'some book' (32). We can show this same pattern with *mach*. Because *mach*, unlike *tas*, requires a licensing environment such as negation, we start with the baseline bare *wh*-indefinite under negation in (38a). The addition of an explicit domain to *mach* in (38b) again leads to ungrammaticality of the indefinite reading.<sup>17</sup>

(38) **Indefinite *mach* also cannot take a nominal domain:**

- |    |                |     |                                    |                 |
|----|----------------|-----|------------------------------------|-----------------|
| a. | Maj ∅-k-il     | laj | <b>mach/tas.</b>                   |                 |
|    | NEG B3-A1P-see | NEG | who/what                           |                 |
|    |                |     | 'We didn't see anyone/anything.'   | (= 34)          |
| b. | * Maj ∅-k-il   | laj | <b>mach</b> winh unin.             |                 |
|    | NEG B3-A1P-see | NEG | who CL.MASC child                  |                 |
|    |                |     | Intended: 'We didn't see any boy.' | (see also (32)) |

Finally, we note that a *wh*-indefinite need not be a core argument of the verb, as in the examples we have seen above. This is demonstrated in example (39), where *mach* is the object of a preposition.

(39) **A *wh*-indefinite may be the object of a preposition:**

- |              |     |         |                         |
|--------------|-----|---------|-------------------------|
| Maj in-och   | laj | y-et'   | <b>mach.</b>            |
| NEG B1s-help | NEG | A3-with | who                     |
|              |     |         | 'I didn't help anyone.' |

In summary, in this section we presented the distribution of bare *wh*-indefinites in Chuj. Three types of restrictions were documented, which are all independently well attested in the distribution of bare *wh*-indefinites cross-linguistically. First, *wh*-words differ in their ability to take on an indefinite interpretation: *tas* 'what' can be an indefinite rather freely, *mach* 'who' requires an explicit licenser, and complex *wh*-phrases with nominal domains cannot be used as indefinites. Second, bare *wh*-words must be in post-verbal position for their intended indefinite reading. Such

<sup>17</sup>Just as with *tas libro-al* 'what book' in (32) above, *mach winh unin* is not generally ungrammatical in-situ. It can be used in echo questions.

a requirement is common in languages with obligatory interrogative *wh*-fronting. Third, for *mach* ‘who,’ a class of licensing constructions were documented, including negation, conditionals, and prospective (future) and progressive aspects.

## 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 is the *yalnhej-wh* free choice series and the universal quantifier *masel mach*.

### 4.1 Free choice *yalnhej-wh*

In this section we discuss Chuj free choice items formed of *wh*-words modified with *yalnhej*. A basic example is given in (40). Here we gloss *yalnhej* as an unanalyzed unit, but we will return to this later in this section.<sup>18</sup>

(40) **Free choice item formed of *yalnhej* and *tas* ‘what’:**

Ol-∅-w-awtej      **yalnhej tas.**  
 PROSP-B3-A1s-read YALNHEJ what  
 ‘I will read anything/whatever.’

The term *free choice* for these items comes from Vendler (1962) and Ladusaw (1979) and reflects the intuition that (40) expresses that, no matter what entity is chosen, the speaker will read it, i.e. the speaker is indifferent towards the choice of actual referent. We will translate these items using English *wh-ever* and *any*, although the latter also has use as a negative polarity item in English. The use of *wh*-words to form free choice items (FCI) is cross-linguistically well-attested; for example, Giannakidou and Cheng (2006) present such examples in Greek, Catalan, Spanish, Dutch, Korean, Japanese, and Hindi. See also Dayal (1997 et seq), Fox (2007), Chierchia (2013), among others.

The FCI in (40) is in post-verbal argument position, but FCIs are frequently fronted to pre-verbal focus position as in (41). FCIs are also not limited to object position; see (42) for a FCI in subject position. Note also that this FCI in (42) is formed using *mach* ‘who.’

(41) **FCI can be pre-verbal:**

**Yalnhej mach** ix-in-mak’-an-i.  
 YALNHEJ WHO PFV-B1s-hit-AF-ITV  
 ‘Anyone/whoever hit me.’<sup>19</sup>

(42) **FCI can be post-verbal:**

In-s-mak’ **yalnhej mach.**  
 B1s-A3-hit YALNHEJ WHO  
 ‘Anyone/whoever hit me.’

<sup>18</sup>We choose to keep the discussion of *yalnhej-wh* free choice items separate from the discussion of free relatives (in section 5). Unlike free relatives, which definitionally involve a restrictive clause, these FCIs do not require any modifier to restrict the *wh*-word.

The domain of *yalnhej-wh* FCIs can be further restricted by the addition of a nominal domain or a relative clause:

(43) **FCI restricted by a nominal domain:**

[**Yalnhej tas** libro-al] tz-∅-∅-awtej.  
 YALNHEJ what book-NML IMPF-B3-A2s-read  
 'You read any book.'

(44) **FCI restricted by a relative clause:**

[**Yalnhej mach** tz-∅-jaw-i] ol-in-och y-et'ok.  
 YALNHEJ who IMPF-B3-COME-ITV PROSP-B1s-help A3-with  
 'I will help whoever comes.'

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

(45) **A place FCI:**

**Yalnhej ba'j** tz-∅-∅-al in-b'at-i.  
 YALNHEJ where IMPF-B3-A2s-say B1s-go-ITV  
 'I go anywhere/wherever you say.'

To summarize, *yalnhej* can productively combine with a range of *wh*-words to form a free choice item which can be in pre-verbal focus position or its post-verbal base position. These FCI can also take a nominal domain or relative clause.

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* and the 'only' word *nhej*. Free choice examples are analyzed in this way by Buenrostro (2009: 220), with *yal-nhej* glossed as 'able-only.'

(46) **Yal is an ability modal:**

Tz-∅-yal w-al-an kastilla.  
 IMPF-B3-able A1s-speak-SUB Spanish  
 'I can speak Spanish.'

(Buenrostro 2009: 142)

(47) **Nhej is an 'only' word:**

A **nhej** waj Xun tik ko-gana.  
 FOC only CL.MASC Juan DEM A3P-like  
 'We like only this Juan.' (not that other Juan)

The idea that *yal* and *nhej* should be thought of as separate morphemes is supported by examples such as (48) which also receive a free choice interpretation.

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<sup>19</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.'

(48) *Yal* and *nhej* separated:

**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.'

However, we will argue that in the majority of cases here, where *yal-nhej* is linearly contiguous, *yalnhej* forms a nominal constituent with the *wh*-word and any restricting material. In particular, *yal* in examples with pre-verbal *yalnhej-wh* is not a modal predicate *yal* taking a *nhej-wh* argument.

We give three arguments for this proposal. First, *yalnhej-wh* FCIs have the distribution of a nominal constituent: they can be in post-verbal argument position and can be fronted as a unit to pre-verbal focus position, without restriction. This can be observed in the examples above.

Second, items 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.

(49) *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.'

The third and final argument comes from the position of negation. Recall that negation in Chuj surrounds the predicate. Example (50) shows that this is true for the ability modal *yal*, with the particle *laj* immediately following *yal*. In contrast, in the negative cleft in (51), where the *yalnhej tas libroal* is sentence-initial, negation surrounds the entire fronted FCI (51b), rather than placing *laj* after *yal* alone (51a).

(50) Negation surrounds the modal *yal*:

Max      **yal** laj in-b'ey in-ch'ok'ojil.  
NEG.IMPF able NEG A1s-walk A1s-alone  
'I cannot walk alone.'

(Buenrostro 2009: 230)

(51) *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  
'It's not (just) any book that I read.' (i.e. I read some special kind of book.)

The conclusion then is that *yalnhej* in these FCIs is not obviously decomposable into the modal *yal* and the ‘only’ word *nhej*. Instead, *yalnhej* consistently forms a nominal constituent with the *wh*-phrase. We speculatively conclude that *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 (48), which also yields a similar free choice reading.

## 4.2 Universal *masel mach*

This variety of Chuj has two common forms of universal quantifiers, *masel* and *masanil*. *Masel* must take a restrictor (52a), whereas *masanil* can stand on its own as ‘everyone’ (52b) or take a nominal domain.

### (52) Two forms of universal quantifiers, *masanil* and *masel*:

- |   |   |
|---|---|
| a. <b>Masel</b> anima ix- $\emptyset$ -ulek'-i. | b. <b>Masanil</b> ix- $\emptyset$ -ulek'-i. |
| every person PFV-B3-come-ITV                    | everyone PFV-B3-come-ITV                    |
| ‘Everyone came.’                                | ‘Everyone came.’                            |

The former quantifier commonly appears as *masel mach* ‘every who’ to mean ‘everyone’ (53a) and *masanil* can also take *mach* (53b). In this section we present a brief study of these *wh*-derived universals, *masel mach* and *masanil mach*, focusing on *masel mach* which is more common.

### (53) *Masel* and *masanil* can take *mach* ‘who’:

- |  |                           |
|--|---------------------------|
| a. <b>Masel mach</b> ix- $\emptyset$ -ulek'-i. | b. <b>Masanil mach</b>    |
| every who PFV-B3-come-ITV                      | every who                 |
| ‘Everyone came.’                               | ix- $\emptyset$ -ulek'-i. |
|  | PFV-B3-come-ITV           |

The universal quantifiers have thus far all ranged over the entire set of human individuals. The domain of *masel mach* can be further restricted by a relative clause or a nominal domain. These nominal domains as in (55) must be plural, as indicated by the ungrammaticality of removing the plural marker *heb'*.

### (54) *Masel mach* restricted by a relative clause:

- [**Masel mach** ix- $\emptyset$ -ulek'-i] ix-in-il-an-i.  
 every who PFV-B3-come-ITV PFV-B1S-see-AF-ITV  
 ‘Everyone who came saw me.’

### (55) *Masel mach* restricted by a plural nominal domain:

- [**Masel mach** \*(heb') ix unin] ix- $\emptyset$ -ulek'-i.  
 every who  $\overline{\text{PL}}$   $\overline{\text{CL.FEM girl}}$  PFV-B3-come-ITV  
 ‘All the girls came.’

In the examples above, the universal quantifiers have all been in pre-verbal focus position — as indicated by the use of Agent Focus morpheme in (54) — but they can also be post-verbal:

(56) **Masel mach in post-verbal position:**

Ix-∅-k-il            **masel mach** (ix-∅-ulek'-i).  
 PFV-B3-A1P-see every who (PFV-B3-come-ITV)  
 'We saw everyone (who came).'

Finally, we note that *masel* is curiously unable to take *tas* 'what' to form a universal quantifier over inanimates, \**masel tas*, parallel to *masel mach*. This is shown in example (57) below, while example (58) shows that the attested *masel mach* is limited to animate domains.

(57) **There is no masel tas:**

\*Ix-∅-w-awtej      **masel tas**    juntzan libro tik.  
 PFV-B3-A1s-read every what some.PL book DEM  
 Intended: 'I read {every one/each} of these books.'

(58) **Masel mach is limited to animate domains:**

\*Ix-∅-w-awtej      **masel mach** juntzan libro tik.  
 PFV-B3-A1s-read every who some.PL book DEM  
 Intended: 'I read {every one/each} of these books.'

Instead, inanimate universal quantification involves a simple *masanil* taking a nominal domain, as in example (59).

(59) **Universals without wh are used instead:**

Ix-∅-w-awtej      **masanil** juntzan libro tik.  
 PFV-B3-A1s-read every    some.PL book DEM  
 'I read {every one/each} of these books.'

To our knowledge the only *wh*-universal forms that exist are the animate *masel mach* and *masanil mach*, with the former being preferred. This exceptional use of *mach* cannot be subsumed under any independent differences among the *wh*-words. The only other difference between *mach* and *tas* that we have observed is a difference in their licensing as bare indefinites, in section 3 above, where bare *tas* could be an indefinite in any post-verbal position, whereas bare *mach* required a particular type of licensing environment.

A possible conclusion at this point would be to say that *masel mach* and *masanil mach* now have the status of compounds which are each in the lexicon as syntactic atoms. Evidence from the placement of negation in (60) shows that this is not true. The universal quantifier and *mach* can be separated by the irrealis marker and second negation marker *laj* when the universal operator itself is negated:

(60) **Negation can split ‘every’ and *mach*:**

- a. Manh **masel** ok-laj **mach** ix- $\emptyset$ -ulek’-i.  
NEG every IRR-NEG who PFV-B3-COME-ITV
- b. Manh **masanil** ok-laj **mach** ix- $\emptyset$ -ulek’-i.  
NEG every IRR-NEG who PFV-B3-COME-ITV  
‘Not everyone came.’

We conclude that this restriction of universals to *mach* ‘who’ must be some lexical selectional idiosyncrasy but that these combinations are not compounds. We leave a further investigation of these forms for future work.

## 5 Free relatives

In this section we turn our attention to *free relatives* (FRs) in Chuj. Free (or headless) relatives are introduced by a *wh*-word and lack an overt head, as illustrated by the structures labeled “FR” in (61):

(61) **English free relatives:**

- a. Mary liked [FR what John cooked].
- b. Mary will eat [FR whatever John cooks].

Free relatives cross-linguistically can be broadly classified into three types: *definite* FRs (like the English example in (61a)), *indefinite* FRs, and *-ever* FRs (like the English (61b)). Chuj has the former two forms, whereas a construction reminiscent of the third — *yalnhej wh* — was discussed above in section 4.1, although it has a different structure and distribution; see footnote 18. Here we will concentrate on indefinite and definite free relatives, briefly introducing their properties.

One example of each type of FR attested in Chuj is given in (62a–b). The FR *mach ixulek’i* is interpreted as an indefinite description in (62a). The FR is interpreted in this way when it is the sister of an existential predicate such as *ay* in (85), *malaj*, or *ch’ok*, or of a limited set of predicates whose meaning contains an existential component, such as ‘be born’ and ‘find.’ When the FR *mach ixulek’i* occurs outside of this limited set of environments, it is interpreted as a definite description, as in example (62b).

(62) a. **Indefinite free relative in Chuj:**

- Ay [FR **mach** ix- $\emptyset$ -ulek’-i].  
EXIST who PFV-B3-COME-ITV  
✓ ‘Someone came.’  
\* ‘The person/people came.’

b. **Definite free relative in Chuj:**

ix-∅-in-mak' [FR mach ix-∅-ulek'-i].  
PFV-B3-A1s-hit who PFV-B3-come-ITV  
\* 'I hit someone who came.'  
✓ 'I hit the person/people who came.'

Note that here we intend for 'someone' and 'something' in these English translations to be number-neutral; i.e. (62a) is an appropriate description for a situation where one person came or multiple people came. We will return to this discussion of number in section 5.4, where we discuss FRs with *jun* 'one.'

To verify these judgments, these examples were evaluated in different contexts. (62a) is natural in contexts without any prior mention of people coming, and introduces a new discourse referent — singular or plural — who can be described in following discourse. In contrast, (62b) requires preceding discourses or contexts which establish the existence of people coming. Furthermore, in order to evaluate the form of quantification in (62b), (62b) was evaluated in (a) a context where some unspecified number of people came, and I hit one of them; (b) a context where one person came, and I hit that person; and (b') a context where some unspecified number of people came, and I hit all of them. Our speaker expressed a preference for (b)-type contexts for (62b), which we interpret as a reflection of the maximality semantics of definite descriptions.

We will show that indefinite free relatives 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, the distribution of definite free relatives is not limited. We begin by examining the behavior of indefinite FRs in section 5.1, and then turn our attention to definite FRs in section 5.2.<sup>20</sup>

## 5.1 Indefinite free relatives

### 5.1.1 Background: Indefinite free relatives

Free relatives with an indefinite meaning are cross-linguistically less common than definite free relatives (Radek Šimík, p.c.). They have been observed in some Indo-European and Semitic languages, and are said to be unavailable in Germanic languages (with the exception of Yiddish; see Caponigro 2003). Additionally, Caponigro et al. (2013) document indefinite FRs in two Mixtec languages, Nieves Mixtec and Melchor Ocampo Mixtec. Two examples from Hebrew are given below, with translations reproduced from their sources:

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<sup>20</sup>The organization of section 5 is inspired by the discussion of Mixtec FRs in Caponigro et al. (2013).



(63) **Indefinite free relatives in Hebrew:**

a. Yesh l-i [FR im **mi** le-daber].  
EXIST to-1s with who to-talk

'I have somebody to talk to.'

(simplified from Caponigro 2003: 90)

b. Eyn l-i [FR im **mi** le-daber].  
NOT.EXIST to-1s with who to-talk

'There is nobody I can talk to.'

(Grosu 2004: 422)

Although there is considerable cross-linguistic variation within indefinite FRs — see discussion in e.g. Izvorski (1998), Caponigro (2003), Grosu (2004), Šimík (2011) — a generalization is that they must be the internal argument of a verb which expresses existence, often of a 'have' or 'exist' type. In the Hebrew examples above, the existential verbs *yesh* (EXIST) and *eyn* (NOT.EXIST) are used. We can contrast these grammatical cases with the ungrammatical example below, where an existential verb is not used.

(64) **Hebrew indefinite FR must be the complement of an existential verb:**

\*Kani-ti [FR **ma** li-kro].  
bought-1s what to-read

Intended: 'I bought something to read.'

As we will see, indefinite FRs in Chuj must also be the complement of an existential predicate. For more on such indefinite FRs and the related modal existential *wh*-constructions cross-linguistically, we refer the reader to Grosu and Landman (1998), Izvorski (1998), Caponigro (2003), Grosu (2004), Šimík (2008, 2011, 2013) and references therein.

### 5.1.2 The structure of indefinite free relatives

In this section we will discuss the structure of indefinite FRs in Chuj, concentrating on examples which involve the existential predicate *ay*. Our discussion will be based on the Chuj indefinite free relative (62a) above, repeated below as (65). Additional predicates which allow for indefinite FRs will be discussed in the following section.

(65) **Indefinite free relative in Chuj:**

Ay [FR **mach** ix-∅-ulek'-i].  
EXIST who PFV-B3-COME-ITV

'Someone came.'

literally 'There exists who came.' (= 62a)

We adopt Caponigro's (2003, 2004) analysis of indefinite FRs. Such FRs involve a one-place existential predicate which takes a CP, with a *wh*-word fronted to its edge. See also further discussion in Kotek and Erlewine (2016).

(66) **Proposed structure for indefinite free relatives (cf Caponigro 2003):**

Ay [FR **mach** [TP ix- $\emptyset$ -ulek'-i \_\_\_\_\_]].

EXIST who PFV-B3-come-ITV

'Someone came.'

(= 65)

Given the surface word order in (65), we might alternatively imagine that surface strings such as *ay mach* form nominal constituents, with the morpheme *ay-* affixed onto the *wh*-word. This alternative can be easily dismissed. In addition to the fact that *ay* and other licensing predicates are independently free-standing existential predicates in Chuj (see section 5.1.3 below), we note that these combinations such as *ay mach* cannot together occupy a post-verbal argument position:

(67) ***Ay mach* cannot be post-verbal:**

\*Ix- $\emptyset$ -ulek' [ay **mach**].

PFV-B3-come EXIST who

Intended: 'Someone came.'

Furthermore, it is not the case that the existential predicate must be strictly adjacent to the *wh*-word in these indefinite FRs. Example (68) below shows that the *wh*-word may be separated from *ay*, in this case by the 'also' particle *pax*:

(68) **The existential predicate can be separated from the *wh*:**<sup>21</sup>

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)

The proposed movement in (66) is supported by the appearance of Agent Focus morphology in these clauses. Recall that Agent Focus marks the  $\bar{A}$ -movement of transitive subjects, as illustrated in (12c) and (14) above. Agent Focus marking also appears in indefinite FRs when the *wh*-word corresponds to a transitive subject. This suggests that the *wh*-word originates as an argument of the following clause and moves to its edge.

(69) **Agent Focus marking inside the sister of *ay* with fronting of subject:**

Ay [FR **mach** ix- $\emptyset$ -man-an ch'anh hu'um tik].

EXIST who PFV-B3-buy-AF CL.BOOK book DEM

'Someone bought this book.'

literally 'There exists who bought this book.'

As expected, we do not observe Agent Focus marking with object *wh*-questions, since only the fronting of transitive subjects can trigger AF marking.

<sup>21</sup>The preposition/relational noun *iko'* here expresses possession (Hopkins 2012: 23).

(70) **No Agent Focus marking when transitive objects are fronted:**

Ay [FR **tas** ix-∅-in-man-a’].  
EXIST what PFV-B3-A1s-buy-TV

‘I bought something.’

literally ‘There exists what I bought.’

This fronting is obligatory, as the ungrammatical unfronted version shows:

(71) **Fronting is obligatory in the free relative:**

\* Ay [FR ix-∅-ulek’ **mach**].  
EXIST PFV-B3-come who

Intended: ‘Someone came.’

(cf 65)

Indefinite FRs can be formed with *tas* ‘what’ as in (70) and *mach* ‘who’ as in many of the examples above. In addition, although here we will concentrate on examples with *mach* ‘who’ and *tas* ‘what,’ indefinite FRs with *b’ajtil* ‘where’ are also attested:

(72) **An indefinite FR introduced by *b’ajtil* ‘where’:**

Ay [FR **b’ajtil** tz-∅-al-chaj Español].  
EXIST where IMPF-B3-speak-PSV Spanish

‘There are places where Spanish is spoken.’

### 5.1.3 Licensing predicates

So far we have concentrated on indefinite FRs which involve the existential predicate *ay*. In this section we will show that this indefinite FR interpretation is available more generally with predicates which express the existence of their internal argument description.

We begin by taking a brief look at existential predicates in Chuj more generally.<sup>22</sup> Chuj has three basic existential predicates: the positive predicate *ay*, its negative counterpart *malaj*, and a predicate meaning roughly ‘other, distinct, separate’ *ch’ok*, (73). These predicates can also be used to express possession, as in (74).

(73) **Existential predicates in Chuj:**<sup>23</sup>

a. Ay jun hu’um sat te’ mexa.  
EXIST one book A3.surface CL.WOOD table

‘There is a book on the table.’

b. Malaj ch’anh hu’um sat te’ mexa.  
NOT.EXIST CL.BOOK book A3.surface CL.WOOD table

‘There is no book on the table.’

<sup>22</sup>See also O’Flynn (2017: sec. 4) for a recent look at existential constructions in the closely related Q’anjob’al language.

<sup>23</sup>The noun *sat* is used to introduce surfaces and can also mean ‘face’ (Hopkins 2012). In examples such as (73), *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.”

- c. Ch'ok ch'an̄h hu'um sat te' mexa.  
 OTHER CL.BOOK book A3.surface CL.WOOD table  
 'There is a different book on the table.'

(74) **Existential predicates expressing possession:**

- a. Ay jun hin-tz'i.                      b. Malaj hin-tz'i.  
 EXIST one A1s-dog                      NOT.EXIST A1s-dog  
 'I have a dog.'                      'I don't have a dog.'
- c. Ch'ok jun hin-tz'i.  
 OTHER one A1s-dog  
 'I have a different (kind/breed of) dog.'

All three of these one-place existential predicates can take a *wh*-fronted clause to yield an indefinite FR. Data here is shown for *mach* 'who' but similar facts hold for *tas* 'what.'

(75) **Indefinite FR with different existential predicates:**

- a. Ay [FR **mach** ix- $\emptyset$ -ulek'-i].  
 EXIST who PFV-B3-come-ITV  
 'Someone came.' (= 65)
- b. Malaj [FR **tas** w-ojtak].  
 NOT.EXIST what A1s-know  
 'I don't know anything.'  
 (Buenrostro 2009: 140)
- c. Malaj [FR **mach** tz-b'at  
 NOT.EXIST who IMPF-go  
 peresu].  
 prisoner  
 'There is no one who is taken  
 prisoner.'  
 (Davis 2010: 1289)
- d. Ch'ok [FR **mach** ix- $\emptyset$ -ulek'-i].  
 OTHER who PFV-B3-come-ITV  
 'Someone else / Others came.'

In addition to these basic existential predicates, some other verbs which express the existence of their internal argument can license indefinite FRs in that position. This has been shown for indefinite FRs in some other languages as well; see discussion in Grosu (2004). Here we demonstrate this with *aj-nak* 'be born,' *chax* 'be found,' and *say* 'look for':

(76) **Indefinite free relatives with predicates with an existential component:**

- a. Context: 50 years ago, a boy was born in this village who later became president. So in this place...
- Aj-nak [FR **mach** famoso].  
 born-STAT who famous  
 'Some famous person was born (here).'

b. Context: My car is broken. I need help so I went to the garage . . .

Ix-∅-chax [FR **mach** ol-∅-b'o'-an k'en hin-karro].  
 PRVF-B3-be.found 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<sup>24</sup> what B3-A1P-do

'We are looking for something to do.'

(Hopkins 1967: 158)

Finally, we discuss indefinite FRs in the complement of the stative predicate *gana*. The predicate *gana* in Chuj is ambiguous between 'like' and 'want' when it takes a nominal complement (see e.g. Buenrostro 2009):

(77) *Gana* can be 'like' or 'want':

Malaj hin-gana **tas**.  
 NEG A1s-want/like what

'I don't want/like anything.'

The predicate *gana* is able to take a *wh*-fronted clause as its complement and interpret it as an indefinite FR, but in such cases only the 'want' reading of *gana* is available:

(78) With *wh*-sister, only the 'want' reading survives for *gana*:

Hin-gana [FR **mach** tz-∅-b'at-i].  
 A1s-want/like who IMPF-B3-come-ITV

✓ 'I want someone to come.'

\* 'I like someone who comes.'

This too can be explained through the generalization that indefinite FRs are licensed by verbs that directly express existence of their internal argument. As has been widely observed, verbs of desire taking nominal complements underlyingly express a desire to possess the complement. In contemporary terms, such 'want' verbs have been analyzed as embedding a silent 'have' predicate (see e.g. Larson et al. to appear). To our knowledge, this idea originates with McCawley (1974), who shows that time adverbials can specifically modify this embedded possession: for example, *Bill wants your apartment until June* (p. 74) has a reading where Bill's desire is to have the apartment until June, not that his desire extends until June. Returning now to the Chuj example in (78), adopting this decompositional approach to the intensional transitive 'want' explains the licensing of indefinite FRs with *gana* as 'want' but not as 'like'; (78) can thus be thought of as expressing 'I want there to be people who come.'

<sup>24</sup>Recall that transitive verbs in the progressive aspect appear with a SUB "subordinate" suffix in Chuj (Buenrostro 2004, Coon and Carolan 2017). While there is no overt progressive marker *lan* in this example given by Hopkins (1967), the translation makes it clear that this is the source of the *-an* suffix.

### 5.1.4 The complexity of *wh*-phrases in indefinite free relatives

A noteworthy property of indefinite free relatives is that the *wh*-phrase involved must be a bare *wh*-word without a nominal domain. Compare (79a–b): while it is possible to say ‘someone came’ using an indefinite FR, it is not possible to further restrict the domain of the *wh*-word with additional material, such as ‘boy.’

(79) **No nominal domain with *mach* indefinite FR:**

- a. Ay [FR **mach** ix- $\emptyset$ -ulek’-i].  
EXIST who PFV-B3-come-ITV  
 ‘Someone came.’ lit. ‘There is who came.’ (= 65)
- b. \* Ay [FR **mach** winh unin ix- $\emptyset$ -ulek’-i].  
EXIST who CL.MASC boy PFV-B3-come-ITV  
 Intended: ‘Some boy(s) came.’<sup>25</sup>

Similarly, with the *wh*-word *tas* ‘what,’ only a bare *wh*-word can be used, and an additional domain (here: ‘book’) cannot be added:

(80) **No nominal domain with *tas* indefinite FR:**

- a. Ay [FR **tas** ix- $\emptyset$ -s-man ix Malin].  
EXIST what PFV-B3-A3-buy CL.FEM Maria  
 ‘Maria bought something.’ lit. ‘There is what Maria bought.’
- b. \* Ay [FR **tas** (ch’anh) libro(-al) ix- $\emptyset$ -s-man ix Malin].  
EXIST what CL.BOOK book-NML PFV-B3-A3-buy CL.FEM Maria  
 Intended: ‘Maria bought some book(s).’

This restriction parallels the fact that the bare *wh*-indefinites introduced in section 3 are unable to take domain restrictions; see e.g. examples (32–38) above. However, it contrasts with the ability of *wh*-words to take such domains when they function as question words, as illustrated in (19–21) in section 2.3.

Finally, as with questions, indefinite free relatives may trigger preposition stranding, or they may involve pied-piping of the preposition, with secondary fronting.

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<sup>25</sup>To express the intended meaning of ‘Some boy came’ with a nonspecific indefinite limited to boys, either an indefinite DP *jun winh unin* is used as in (i) or *ay* takes an indefinite headed relative clause *jun winh unin ixulek’i* (ii). Neither option involves the use of a *wh*-word. Recall from section 2.2 that argument *wh*-words cannot be used as relative pronouns in headed relatives.

- (i) Ix- $\emptyset$ -ulek’ jun winh unin.  
PFV-B3-come one CL.MASC boy  
 ‘Some/a/one boy came.’
- (ii) Ay jun winh unin ix- $\emptyset$ -ulek’-i.  
EXIST one CL.MASC boy PFV-B3-come-ITV  
 ‘There is some/a/one boy who came.’

(81) **Prepositions are stranded, or pied-piped with secondary fronting:**

- a. Ay [FR **mach** ix-in-och y-et'(ok)].  
EXIST who PFV-B1s-help A3-with  
'I helped someone.' lit. 'There is with who I helped.'
- b. Ay [FR [**mach** y-et'(ok)] ix-in-och-i].  
EXIST who A3-with PFV-B1s-help-ITV  
'I helped someone.' lit. 'There is who I helped with.'

## 5.2 Definite free relatives

Next we turn our attention to definite free relatives. We will show that they are different from indefinite free relatives in two important ways: the distribution of definite FRs within a sentence is not limited in the way that the distribution of indefinite FRs is; instead, they can appear in any syntactic position and as the sister of any verb. In addition, definite FRs allow for nominal domain restrictions, unlike indefinite FRs.

### 5.2.1 Background: Definite free relatives

In contrast to indefinite FRs discussed above, which have a cross-linguistically limited distribution, free relatives in argument positions are interpreted as definite descriptions (see e.g. Jacobson 1995). We will refer to these FRs as *definite FRs* here, in contrast to the indefinite FRs described above. Examples of definite FRs in English introduced by *who* and *what* are illustrated in (82–83) below, modeled after examples in Caponigro et al. (2013). In each pair, the first element introduces a free relative, and its counterpart gives a paraphrase using a definite description.<sup>26</sup>

(82) **English free relatives introduced by *who*, *what* and *where*:**

- a. Mary liked [FR what John cooked]. (= 61a)
- b. Mary liked [DP the thing(s) that John cooked].

- (83) a. I can help [FR who's next].  
b. I can help [DP the person(s) who is next (in line)].

One example from Modern Hebrew is given in (84). As the translation indicates, here too the FR refers to a definite object. The differential object marker *et*, which marks definite objects but not indefinite ones, is obligatory here.

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<sup>26</sup>The English free relatives here can also take the bound morpheme *-ever*, which follows the *wh*-word (Bresnan and Grimshaw 1978). See section 4.1 for a discussion of the construction in Chuj which most resembles English *wh-ever* free relatives and free choice *any* nominals.

We note that English *who*-FRs are generally degraded outside of a few conventionalized types of cases. Further discussion is outside the scope of this paper, but see Patterson and Caponigro 2015.

(84) **Definite free relative in Hebrew:**

Ahav-ti \*(et) [FR **ma** she-kara-ti].  
like.PAST-1s OM what that-read.PAST-1s  
'I liked what I read.' = 'I liked the thing(s) that I read.'

5.2.2 **The distribution of definite free relatives**

We now turn to the distribution of definite FRs in Chuj and compare it to that of indefinite FRs. Recall the indefinite FR example (62), repeated here as (85) below. The FR *mach ixulek'i* is interpreted as an indefinite description in (85a). The FR is interpreted in this way when it is the sister of an existential predicate such as *ay* in (85), *malaj*, or *ch'ok*, or of a limited set of predicates whose meaning contains an existential component, such as 'be born' and 'find.' When the FR *mach ixulek'i* occurs outside of this limited set of environments, it is interpreted as a definite description, as in example (85b).

(85) a. **Indefinite free relative in Chuj:**

Ay [FR **mach** ix- $\emptyset$ -ulek'-i].  
EXIST who PFV-B3-COME-ITV  
✓ 'Someone came.'  
\* 'The person/people came.'

b. **Definite free relative in Chuj:**

Ix- $\emptyset$ -in-mak' [FR **mach** ix- $\emptyset$ -ulek'-i].  
PFV-B3-A1s-hit who PFV-B3-COME-ITV  
\* 'I hit someone who came.'  
✓ 'I hit the person/people who came.'

When a FR is interpreted as a definite FR, it may occur in any argument position. Example (86) shows a definite FR as a pre-verbal topic and example (87) shows a definite FR in pre-verbal focus position. The two examples can be distinguished through the use of Agent Focus extraction morphology in (87) but not (86).<sup>27</sup>

(86) **Definite FR as pre-verbal topic:**

A [FR **mach** ix- $\emptyset$ -ulek'-i], ix-in-s-mak'-a'.  
TOP who PFV-B3-COME-ITV PFV-B1s-A3-hit-TV  
'[The person who came]<sub>i</sub>, they<sub>i</sub> hit me.'

<sup>27</sup>As noted above, pre-verbal topics generally co-occur with a corresponding post-verbal classifier pronoun (Bielig 2015), but this only applies to topics which themselves have an appropriate classifier. As the definite FR topic here does not have a head noun, there is no appropriate classifier for it. We tentatively suggest that the structure in (86) is the same as other pre-verbal topics discussed above and in Bielg (2015), which are base-generated high with a lower coreferential pronoun, but with the pronoun being null due to the lack of an appropriate nominal classifier to spell it out. See also Royer (2018) on the structure of classifiers and pronouns.



(87) **Definite FR as pre-verbal focus:**

A [FR **mach** ix- $\emptyset$ -ulek'-i] ix-mak'-an waj Xun.  
FOC who PFV-B3-come-ITV PFV-B1s-hit-AF CL.MASC Juan  
'It's the person who came that hit Juan.'

In addition to *mach* 'who' and *tas* 'what,' it is possible to construct definite FRs introduced by *b'ajtil* 'where.' These 'where' FRs share their properties with the *mach* and *tas* FRs described above. (88) shows a 'where' FR in pre-verbal position.

(88) **A definite FR introduced by *b'ajtil* 'where':**

[FR **B'ajtil** kot-nak-in] te k'ach-an tikne'ik.  
where come-STAT-B1s very clear-STAT now  
'Right now (the weather) is clear (in the place) where I come from.'

### 5.2.3 The complexity of *wh*-phrases in definite free relatives

A second property that sets definite free relatives apart from indefinite free relatives is the fact that they may include overt nominal domains. Recall that indefinite free relatives may not include such a domain, as shown in (89), repeated from (79) above.

(89) **No nominal domain with indefinite FR:** (= 79)

- a. Ay [FR **mach** ix- $\emptyset$ -ulek'-i].  
EXIST who PFV-B3-come-ITV  
'Someone came.'
- b. \* Ay [FR **mach** winh unin ix- $\emptyset$ -ulek'-i].  
EXIST who CL.MASC boy PFV-B3-come-ITV  
Intended: 'Some boy(s) came.'

In contrast, definite free relatives may include a nominal domain:

(90) **Nominal domains are possible with definite FR:**

- a. Ix- $\emptyset$ -w-ilelta [FR **mach** ix- $\emptyset$ -ulek'-i].  
PFV-B3-A1s-meet who PFV-B3-come-ITV  
'I met the person/people who came.'
- b. Ix- $\emptyset$ -w-ilelta [FR **mach** winh unin ix- $\emptyset$ -ulek'-i].  
PFV-B3-A1s-meet who CL.MASC boy PFV-B3-come-ITV  
'I met the boy(s) who came.'

- (91) a. Ko-gana [FR **tas** ix-∅-s-man ix Malin].  
 A1P-like what PFV-B3-A3-buy CL.FEM Maria  
 ‘We like the thing(s) that Maria bought.’
- b. Ko-gana [FR **tas** libro-al ix-∅-s-man ix Malin].  
 A1P-like what book-NML PFV-B3-A3-buy CL.FEM Maria  
 ‘We like the book(s) that Maria bought.’

As with questions and indefinite free relatives, definite free relatives may strand prepositions or trigger pied-piping with secondary fronting.

(92) **Prepositions are stranded or pied-piped with secondary fronting:**

- a. Ix-∅-w-ilelta [FR [**mach** y-et’] h-och ix Malin].  
 PFV-B3-A1s-meet who A3-with B3-help CL.FEM Maria
- b. Ix-∅-w-ilelta [FR **mach** h-och ix Malin y-et’ok].  
 PFV-B3-A1s-meet who B3-help CL.FEM Maria A3-with  
 ‘I met the person/people who Maria helped.’

### 5.3 Definite FRs and FRs with quantifiers as light-headed relatives

Definite free relatives in Chuj appear to simply be a clause with *wh*-fronting, but we have seen that they have the external distribution of a definite noun phrase. We follow Caponigro (2002) and Citko (2004) in analyzing definite FRs as involving an unpronounced definite determiner taking the *wh*-fronting CP as its complement, as in (93). Citko (2004) calls such structures *light-headed relatives*.<sup>28</sup>

- (93) [DP ∅<sub>THE</sub> [CP **mach** ix-∅-ulek’-i \_\_\_\_\_ ] ]  
 ↑  
 who PFV-B3-come-ITV  
 ‘the person/people who came’ (literally: ‘the [who came]’)

Although some Mayan languages have overt prenominal definite determiners, Chuj does not. Therefore, the D head in (93) may be the general definite determiner in the language, which is unpronounced. Definite FRs can, however, co-occur with the postnominal demonstrative markers *tik* (proximal) and *chi* (distal).<sup>29</sup>

<sup>28</sup>As sketched in (66) above, we propose that indefinite free relatives as in section 5.1 are structurally distinct from the light-headed relatives described here, in lacking a D layer. We refer the reader to Kotek and Erlewine (2016) for arguments and discussion.

See also Izvorski (1998) and Pancheva-Izvorski (2000) for discussion of definiteness morphology on definite FRs in Bulgarian and Greek, which can also be explained as the reflex of a structure as in (93).

<sup>29</sup>*Tik* ‘this’ can also appear immediately following the *wh*-phrase:

- (i) Ix-∅-w-il [FR mach tik ix-∅-ulek’-i].  
 PFV-B3-A1s-see who DEM PFV-B3-come-ITV

(94) **A definite FR can co-occur with a demonstrative:**

Ix- $\emptyset$ -w-il        [FR **mach** ix- $\emptyset$ -ulek']    tik.  
PFV-B3-A1s-see    who    PFV-B3-come DEM  
'I saw this person/these people who came.'

Support for the light-headed analysis (93) comes from the fact that various overt, quantificational D heads can also introduce FRs. Examples (95–97) show free relatives as the domains for *jantak* and *tzijtum*, two different forms of the word for 'many,' as well as *juntzan* 'some' (plural).<sup>30</sup> Notice that the entire FR may appear pre- or post-verbally and it may include a nominal domain (*heb' winh unin* in (96)), just as we saw for definite FRs above. For convenience, we underline the quantifier in each sentence.

(95) **FRs with quantificational heads, in any syntactic position:**

- a. [DP Jantak [CP **mach** ix- $\emptyset$ -ulek'-i]]    ix- $\emptyset$ -w-il-a'.  
      many        who    PFV-B3-come-ITV PFV-B3-A1s-see-TV
- b. Ix- $\emptyset$ -w-il        [DP jantak [CP **mach** ix- $\emptyset$ -ulek'-i]].  
PFV-B3-A1s-see    many        who    PFV-B3-come-ITV  
'I saw the many people who came.'

- (96) a. [DP Tzijtum [CP **mach** heb' winh unin ix- $\emptyset$ -ulek'-i]]    ix- $\emptyset$ -w-il-a'.  
      many        who    PL    CL.MASC child PFV-B3-come-ITV PFV-B3-A1s-see-TV
- b. Ix- $\emptyset$ -w-il        [DP tzijtum [CP **mach** heb' winh unin ix- $\emptyset$ -ulek'-i]].  
PFV-B3-A1s-see    many        who    PL    CL.MASC child PFV-B3-come-ITV  
'I saw the many boys who came.'

- (97) a. [DP Juntzan [CP **mach** ix- $\emptyset$ -ulek'-i]]    ix- $\emptyset$ -w-il-a'.  
      some.PL        who    PFV-B3-come-ITV PFV-B3-A1s-see-TV
- b. Ix- $\emptyset$ -w-il        [DP juntzan [CP **mach** ix- $\emptyset$ -ulek'-i]].  
PFV-B3-A1s-see    some.PL        who    PFV-B3-come-ITV  
'I saw these people who came.'

Our translations here are supported by our elicitation work. Such examples were presented in a number of contexts: for example, for (95), (a) where some large number of people came and the speaker saw many of the people who came, as a proportion, but not all, and (b) where many people came and the speaker saw all of them. Our speaker expressed a preference for the (b)-type context being more natural, which is then reflected in our translations here, using the English 'the many...'. The examples were uniformly rejected in contexts where no people or very few people

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'I saw this person/these people who came.'

<sup>30</sup>Domingo Pascual (2007: 232) and Royer (2018) describe *juntzan* as plural 'some,' which we follow here, although the precise range of uses for *juntzan* warrants further study. See also Buenrostro (2009) for various examples, especially on pages 219–220.

came or were seen. More careful work is necessary in order to better distinguish such readings, which we leave open for future work.

#### 5.4 *Jun* free relatives

Having presented the distribution and structural characteristics of indefinite FRs and definite FRs in Chuj, in this section we conclude our discussion of Chuj FRs with the particular characteristics of FRs with *jun* ‘one.’ We will see that these special FRs seem to be a sort of hybrid which shares some characteristics with the indefinite FRs above and some characteristics with definite FRs.

The word *jun* in Chuj itself means ‘one.’ The examples below show that *jun* can be added to both definite and indefinite nominal expressions. The nominal *winh unin ixulek’i* in the complement of ‘like’ receives a definite interpretation in (98), while the same structure in the complement of the existential verb *ay* receives an indefinite interpretation in (99). In either case, adding *jun* fixes the referent to be singular, whereas the baselines without *jun* are underspecified for number. These judgments were obtained by providing our speaker with contexts where there was either just one boy present or more than one boy present; examples (98b) and (99b) were only accepted in contexts with a single boy, whereas the (a) examples were accepted in both types of contexts.

(98) ***Jun* can be added to a definite nominal:**

- a. Ko-gana winh unin ix- $\emptyset$ -ulek’-i.  
A1P-like CL.MASC child PFV-B3-come-ITV  
‘We like the boy(s) that came.’ (singular or plural)
- b. Hin-gana **jun** winh unin tik.  
A1s-like one CL.MASC child DEM  
‘I like this boy.’ (singular)

(99) ***Jun* can be added to an indefinite nominal:**

- a. Ay winh unin ix- $\emptyset$ -ulek’-i.  
EXIST CL.MASC child PFV-B3-come-ITV  
‘Some boy(s) came.’ (singular or plural)
- b. Ay **jun** winh unin ix- $\emptyset$ -ulek’-i.  
EXIST one CL.MASC child PFV-B3-come-ITV  
‘Some/a/one boy came.’ (singular)

Now we turn to *jun* free relatives. Our first example is in (100) below:

(100) **A *jun* free relative as the argument of *ay*:**

- Ay **jun mach** ix- $\emptyset$ -ulek’-i.  
EXIST one who PFV-B3-come-ITV  
‘Some/a/one person came.’
- literally ‘There is one who came.’

Consultant comment: In Spanish, “hay una persona” (‘there is one person’), but not “hay alguien” (‘there is someone<sub>sg/pl</sub>’).

Such examples can be used both when the referent is known to the speaker and when they are not. (The same judgments hold for indefinite FRs without *jun*.)

(101) ***Jun* FRs optionally express ignorance or unimportance of the referent:**

Ay **jun mach** ix-∅-mak'-an hin-tz'i'...  
 EXIST one who PFV-B3-hit-AF A1s-dog

‘Someone hit my dog. . .’

literally ‘There is one who hit my dog.’

a. A waj Xun.  
 TOP CL.MASC Juan  
 ‘(It was) Juan.’

b. Ma chekel mach.  
 not seen who  
 ‘It’s not known who (it was).’<sup>31</sup>

At this point, our FR with *jun* resembles the indefinite FRs we described in section 5.1 above. Compare (100) with the indefinite FR in (65), repeated here as (102). It seems that the only difference between the two examples is the addition of *jun* in the former.

(102) **Indefinite free relative, repeated:**

Ay [FR **mach** ix-∅-ulek'-i].  
 EXIST who PFV-B3-come-ITV  
 ‘Someone came.’

(= 65)

There are, however, significant differences between *jun* FRs and indefinite FRs. Recall that indefinite FRs as in (102) must be the internal argument of a limited set of verbs with an existential meaning (section 5.1.3 above). *Jun* FRs, by contrast, are not subject to this restriction. Example (103) shows a FR with *jun* in the object position of ‘see,’ a verb which does not involve existential semantics. Example (104) shows a *jun* FR as a pre-verbal topic.

(103) ***Jun* FR as object of ‘see’:**

Ix-∅-w-il [jun mach ix-∅-ulek'-i].  
 PFV-B3-A1s-see one who PFV-B3-come-ITV  
 ‘I saw some/a/one person who came.’

(104) ***Jun* FR as pre-verbal topic:**

[Jun mach ix-∅-ulek'-i] ix-∅-w-il-a'.  
 one who PFV-B3-come-ITV PFV-B3-A1s-see-TV  
 ‘[Some/a/one person that came]<sub>i</sub>, I saw him/her<sub>i</sub>.’

<sup>31</sup>This expression of ignorance is literally ‘It’s not seen...’; see Hopkins (2012: 52).

Notice also that in both of these examples, the FR with *jun* is interpreted indefinitely. This is a general property of FRs with *jun*: unlike adding *jun* to a lexical noun (see (98–99) above) which does not affect its (in)definiteness, FRs with *jun* are always interpreted indefinitely. For example, compare example (103) above with example (105) below, which simply differs in the removal of *jun*. The sentence is grammatical but only with *mach ixulek'i* interpreted as a definite FR.

(105) **FR without *jun* as the object of ‘see’ must be definite:**

Ix-∅-w-il            [FR **mach** ix-∅-ulek'-i].  
 PFV-B3-A1s-see    who PFV-B3-come-ITV  
 ‘I saw the person/people who came.’ (cf 103)

With regard to these distributional facts, then, *jun* FRs pattern with definite FRs and not with indefinite FRs. Nonetheless, their meaning is indefinite.

In addition — like both indefinite and definite FRs — *jun* FRs allow for both preposition pied-piping and stranding options.

(106) ***Jun* FRs optionally pied-pipe with secondary fronting:** (cf 92)

- a. Ix-∅-w-ilelta    [jun [mach y-et'] h-och ix Malin].  
 PFV-B3-A1s-meet one who A3-with B3-help CL.FEM Maria
- b. Ix-∅-w-ilelta    [jun mach h-och ix Malin y-et'ok].  
 PFV-B3-A1s-meet one who B3-help CL.FEM Maria A3-with  
 ‘I met some/a/one person who Maria helped.’

We propose to model *jun* FRs as light-headed relatives with the head *jun* ‘one.’ In this way, *jun* FRs parallel other cases of FRs restricting a quantifier, such as (97), repeated here:

- (107) a. Ix-∅-w-il            [DP juntzan [CP **mach** ix-∅-ulek'-i]].  
 PFV-B3-A1s-see    some.PL    who PFV-B3-come-ITV  
 ‘I saw these people who came.’ (= 97)
- b. Ix-∅-w-il            [DP jun [CP **mach** ix-∅-ulek'-i]].  
 PFV-B3-A1s-see    one    who PFV-B3-come-ITV  
 ‘I saw some/a/one person who came.’ (= 103)

There is, however, another characteristic besides interpretation which unifies *jun* FRs with indefinite FRs. Recall that indefinite FRs disallow the addition of nominal domains such as ‘boy,’ whereas definite FRs and FRs with quantificational heads allow such restrictors. In this case *jun* FRs pattern with indefinite FRs, and unlike definite FRs and FRs with quantifiers; see (108). At this stage we do not have an explanation for why *jun* FRs disallow nominal domains.

(108) *Jun* FRs disallow nominal domains:

a. \* IX-Ø-w-il [jun mach winh unin ix-Ø-ułek'-i].  
PFV-B3-A1s-see one who CL.MASC boy PFV-B3-come-ITV  
Intended: 'I saw some/a/one boy who came.' (cf 103)

b. \* [Jun mach winh unin ix-Ø-ułek'-i] ix-Ø-w-il-a'.  
one who CL.MASC boy PFV-B3-come-ITV PFV-B3-A1s-see-TV  
Intended: '[Some/a/one boy that I saw] came.' (cf 104)

*Jun* FRs thus exhibit a combination of the characteristics of indefinite FRs and definite FRs, presented earlier. Like indefinite FRs and bare *wh*-indefinites, they have an indefinite interpretation and disallow nominal domains. On the other hand, like definite FRs and FRs with quantifiers, they have a free distribution and are not limited to the complement position of certain existential verbs.

## 6 Conclusion

In this paper we surveyed the distribution and uses of *wh*-indefinites in Chuj, an understudied Mayan language of Guatemala and Mexico. We showed that Chuj can use bare *wh*-words as *wh*-indefinites in certain environments, and in addition as complex *wh*-quantifiers with free choice and universal functions. Chuj also uses *wh*-words to form free relatives of two different kinds: indefinite and definite. These free relatives differ from one another in several important ways: definite FRs' distribution in the sentence is not limited in the way that indefinite FRs are; instead, they can appear in any syntactic position and as the sister of any verb. In addition, definite FRs allow for modification by a nominal domain, unlike indefinite FRs. An additional class of *jun* FRs was also discussed, having a distribution like that of definite FRs, but sharing the ban on nominal domains with indefinite FRs. We proposed that *jun* FRs, definite FRs, and FRs with quantifiers are all light-headed relatives with a D layer (93), in contrast to indefinite FRs which are bare CPs (66); see also Kotek and Erlewine (2016). We hope that future work will explain the general unavailability of nominal domains across indefinite *wh* constructions documented here.

The following table summarizes the key properties of the constructions that make use of *wh*-words discussed in this paper — *wh*-questions, bare *wh*-indefinites, *yalnhej-wh* free choice items (FCIs), *masel mach* universals, and the three varieties of free relatives, with regard to the ability of the *wh* to have a nominal domain, to pied-pipe or prepositions strand, and be in pre-verbal focus and topic positions, as well as in post-verbal positions.<sup>32</sup>

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<sup>32</sup>Recall that there is one additional use of *wh*-words as relative pronouns in headed relative clauses, but only in adjunct relatives. For more on this limited use of *wh*-words, see section 2.2.

(109) **Summary of the properties of the *wh*-constructions studied:**

	<i>wh</i> -Q	bare indef.	<i>yalnhej</i> FCI	<i>masel</i> <i>mach</i> ∇	Free relatives		
					indef	def	<i>jun</i>
Nominal domain	✓	✗	✓	✓	✗	✓	✗
Prep. pied-piping	✓	NA	NA	NA	✓	✓	✓
Prep. stranding	✓	NA	NA	NA	✓	✓	✓
Pre-verbal focus	✓	✗	✓	✓	✗	✓	✓
Pre-verbal topic	✗	✗	✗	✗	✗	✓	✓
Post-verbal pos.	✗ (a)	✓ (b)	✓	✓	✓ (c)	✓	✓

- a. Echo questions have *wh*-words in post-verbal position.
- b. Bare *tas* can be an indefinite in any post-verbal position; bare *mach* requires a licensing operator.
- c. 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.

Theoretically, we hypothesize that 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 (Ramchand 1997, Kratzer and Shimoyama 2002, AnderBois 2012, 2017, a.o.). Syntactically, *wh*-words are natural targets of movement, and abstraction over them forms new predicates of arbitrary size. Chuj takes advantage of both properties: *wh*-alternatives enable bare indefinites, FCIs, and universals; *wh*-movement enables the formation of free relatives. Both properties are crucial for the formation of *wh*-questions.

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