

Noun classifiers and the composition of DP in Chuj:

The core of unique definites, anaphoric definites, and specific indefinites

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Abstract This paper explores the semantic and syntactic distribution of noun classifiers in Chuj, an understudied Mayan language. I show that noun classifiers appear in a wide range of semantic and syntactic environments, surfacing within (i) unique definite DPs, (ii) anaphoric definite DPs, (iii) specific indefinite DPs, and as (iv) third person pronouns. I propose that despite their wide distribution, noun classifiers are best analyzed as unique (or weak) definite determiners and that the interpretations in (ii)-(iv) are derivable from their underlying unique definite semantics. The result is a unified account of noun classifiers, which derives the different flavours of definiteness and specificity described in (i)-(iv) compositionally. In accounting for the understudied distribution of noun classifiers, this paper sheds light on the cross-linguistic mechanisms behind the composition of DP and establishes a shared semantic core between unique definites, anaphoric definites, and specific indefinites.

Keywords Definiteness · unique definites · anaphoric definites · specific indefinites · compositionality · classifiers · Mayan · typology

1 Introduction

Noun classifiers (distinct from more familiar *numeral* classifiers) are a typologically rare class of grammatical item attested in only a limited set of language families, including the Q'anjob'alan branch of Mayan languages (Aikhenvald 2000; Grinevald 2000). Though Q'anjob'alan noun classifiers have received considerable attention in the descriptive Mayanist literature (see e.g. Craig 1986 on Popti'; Buenrostro et al. 1989 and Royer 2017 on Chuj; Zavala 2000 on Akatek; Mateo Toledo 2017 on Q'anjob'al; and Hopkins 2012 on the Q'anjob'alan languages more generally), they have received little study in formal linguistics. This paper aims to fill this gap, by taking an in-depth look at the distribution of noun classifiers in one Q'anjob'alan language: Chuj. In particular, I show that the distribution of noun classifiers can inform

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us on the underlying (and shared) semantics of specific indefinites, unique definites, and anaphoric definites.

Chuj is spoken by 45,000 to 70,000 speakers in Huehuetenango, Guatemala and Chiapas, Mexico (Piedrasanta, 2009). There are approximately 16 noun classifiers, described in more detail below, which classify nouns according to physical and social attributes (Maxwell 1981; Buenrostro et al. 1989). At first glance, Chuj's noun classifiers appear to pattern like definite determiners in more commonly described languages, a fact which has led previous researchers to describe them as such (see e.g. Buenrostro et al. 1989; García Pablo and Domingo Pascual 2007). For instance, consider the following examples, which feature a classifier occurring before a nominal in Chuj (1a) and in the related Q'anjob'alan languages Popti' (1b) and Q'anjob'al (1c):¹

- (1) a. CHUJ
 Saksak **k'en** uj.
 white CLF.STONE moon
 'The moon is white.'
- b. POPTI'
 Xcham **no'** cheh.
 died CLF.ANIMAL horse
 'The horse died.' (Craig, 1977, 107)
- c. Q'ANJOB'AL
 Max s-man **ix** unin **an** pajich.
 PFV A3-buy CLF.FEM child CLF.PLANT tomato
 'The girl bought the tomato.' (Mateo Pedro, 2010, 32)

When appearing alone with a noun, noun classifiers seem to pattern like definite determiners, as made salient in the translations in (1a) to (1c). However, a closer look at their distribution reveals a more complex picture. That is, noun classifiers appear in a surprising range of semantic and syntactic environments, playing what appears to be a central role in the composition of the Chuj DP.

First, noun classifiers sometimes surface without the presence of an overt nominal, in which case they behave functionally like third person pronouns, a fact that has long been described in the literature on Q'anjob'alan languages (see e.g. Craig 1986; Buenrostro et al. 1989; Zavala 2000). In (2), the noun classifier *nok'* surfaces alone and behaves like a third person pronoun.

¹ Unless otherwise indicated, all data in this paper come from two sources: original elicitation with 16 speakers of the Nentón and San Mateo Ixtatán variants of Chuj, spoken in the communities of Yuxquen, Guaxacaná, and San Mateo Ixtatán, and a corpus of several hours of transcribed audio and video narratives, made available by Mateo Pedro and Coon (2018) on the Archive of Indigenous Languages of Latin America (AILLA), under the collection *Chuj Oral Tradition*. Examples from the corpus are marked with "txt".

Glosses follow Leipzig conventions, with the addition of the following: A – Set A (ergative, possessive); B – Set B (absolutive); EXT – existential; FC – free choice; HUM – human plural marker; IV – intransitive status suffix; CLF – noun classifier; NUM.CLF – numeral classifier; PREP – preposition; TV – transitive status suffix. Glosses and translations in Chuj taken from other sources are in some cases modified for consistency. Spanish to English translations are my own.

- (2) Ix-jaw **nok'**.
 PFV-arrive CLF
 'It (the animal) arrived.'

Second, noun classifiers also co-occur with demonstratives:

- (3) Ix-jaw [**nok'** tz'i' *chi*].
 PFV-arrive CLF dog DEM
 'That/The dog arrived.'

In (3), the noun classifier for animals, *nok'*, co-occurs with the demonstrative *chi*. The demonstrative does not necessarily receive a deictic interpretation, as hinted in the translation. In fact, I argue in this paper that classifier–noun–demonstrative sequences in Chuj are obligatorily used to create anaphoric definites or “strong” definites (see e.g. Schwarz 2009 and Jenks 2018 on this kind of definite).

Though the examples in (2) and (3) are interesting from a descriptive point of view, neither of these two examples raise serious issues for an analysis of noun classifiers as definite determiners. For one, it is very common for pronouns and definite determiners to exhibit overlapping morphology, and some works have even argued that there is no semantic difference between the two (e.g. Postal 1966; Elbourne 2001; 2005 2013). Second, it is also very common for definite determiners to co-occur with demonstratives, an option that appears to be parameterized across languages (see Alexiadou et al. 2007, section 4.2.2. and references therein).

More problematic for an analysis of noun classifiers as definite determiners is the fact that they may co-occur with indefinite quantifiers. This is illustrated in the following examples:

- (4) a. Ix-jaw [jun **winh** winak].
 PFV-arrive INDF CLF man
 'A man arrived.'
 b. Ay [jun **nok'** tz'i'] t'atik.
 EXT INDF CLF dog here
 'There's a dog here.'

In (4a), the noun classifier for male entities, *winh*, appears between the indefinite determiner *jun* and the noun, resulting in an indefinite interpretation. In (4b), the noun classifier appears in an existential clause, which cross-linguistically ban the presence of definite determiners (Milsark 1974; Diesing 1992).

This wide distribution of noun classifiers, and especially the fact that they may felicitously surface within indefinite constructions, poses a serious challenge to the analysis of noun classifiers as definite determiners, or more generally to any attempt at unifying their distribution. In fact, this wide distribution has led previous researchers in the functionalist literature to offer more general accounts of noun classifiers. Craig (1986) argues that they are markers of “referentiality”, while Zavala (2000) argues that they mark “pragmatically important participants in discourse”. These accounts, however, are either too general from a formal perspective or make

wrong predictions. For instance, if noun classifiers only mark important participants in discourse, then their obligatoriness is not expected. But consider the following narrative sequence:

(5) *Narrative sequence in Chuj*

- a. Ix-in-xit ek' t'a te' s-pat waj Xun.
PFV-B1S-go DIR.pass PREP CLF A3-house CLF Xun
'I went to Xun's house.'
- b. Haxo, ix-in-jak' [*(te') pwerta].
Then, PFV-A1S-open CLF door .
'Then, I opened the door.'
- c. Ha waj Xun, tzuy-an ek' winh t'a sat piso!
TOP CLF Xun, lie-STAT DIR.pass CLF PREP face floor
'Xun was lying (unconscious) on the floor!'

An account that treats noun classifiers as markers of important participants in discourse would predict that their presence is sometimes, if not always, optional. In the narrative sequence in (5), the speaker is telling the addressee that Xun, a man that they know, was lying unconscious on the floor. The noun *pwerta* 'door' is not an important participant in this particular conversation, yet the presence of the classifier before it is enforced. I therefore depart from these more general accounts of Q'anjob'alan noun classifiers in this paper.

Instead, I provide a unified analysis of their distribution that maintains their status as definite determiners, as originally proposed (Buenrostro et al. 1989). More particularly, I argue that noun classifiers are *unique* definite determiners at their core, and that they can occur in different configurations to create the semantic distinctions outlined in Table 1.

Table 1 *Noun classifier configurations in Chuj*

sequence	result	
CLF - NP	unique definite	§2.2
CLF - NP	pronoun	§3
INDF - CLF - NP	specific indefinite	§4
CLF - NP - DEM	anaphoric definite	§5

The structure of the rest of this paper is as follows. In section 2, I provide relevant background and propose a denotation of noun classifiers as unique definite determiners. In section 3, I account for the apparent pronominal usage of noun classifiers by arguing that third person pronouns in Chuj are cases of definite determiners with deleted NPs, as in Elbourne 2001, 2005, 2013 for English. In section 4, I account for the appearance of noun classifiers with indefinites. Based on the observation that classifiers force specific interpretations of indefinites, I argue that DPs containing noun classifiers in Chuj can overtly restrict the domain of an indefinite quantifier to a singleton set. The proposed analysis is an extension of Schwarzschild's (2002)

singleton domain restriction approach to specific indefinites, and sheds light on the cross-linguistic mechanisms behind the creation of such indefinites. In section 5, I turn to *anaphoric* definites and show that Chuj overtly marks the distinction between unique definites and anaphoric definites, supporting many recent proposals arguing for this distinction across languages (e.g. Schwarz 2009; Jenks 2018). However, I contribute novel data relevant to this literature by showing that, rather than having separate lexical items for unique and anaphoric definites (as argued is the case in Schwarz 2009, 2013 and Jenks 2018), Chuj anaphoric definites are derived compositionally by combining the semantics of the unique definite classifier with additional morphology. Section 6 concludes.

2 Chuj classifiers as definite determiners

In this section, I first provide additional information on Chuj's noun classifiers. I then propose a denotation of noun classifiers as unique definite determiners, which will be used to derive their wide distribution in the sections that follow.

2.1 Chuj noun classifiers

Like most Mayan languages, Chuj exhibits basic verb-initial word order, though DPs appear preverbally for topic and focus, and so SVO is also quite frequent (see England 1991, Aissen 1992, Clemens and Coon 2018 on Mayan word order). Chuj is a head-marking language and there is no case morphology on nominals.

A notable aspect of Q'anjob'alan languages is their impressive system of nominal classification, described at length in Craig 1977, 1986, Zavala 1992, 2000, and Hopkins 2012. For instance, consider the morphemes that classify the noun *ajb'ulej* 'person from B'ulej' in the following example:

- (6) [Ho-wanh heb' winh aj-b'ulej chi] cham-x-i.
 five-NUM.CLF PL.HUM CLF.MASC AG-B'ulej DEM die-ADV-IV
 'These five b'ulejers (men from B'ulej) died.' (txt)

In the above example, a total of three morphemes covary based on the features of the noun *ajb'ulej*. First, *-wanh* is a numeral classifier that classifies the noun as animate. Second, *heb'* is a plural marker that only appears with human-denoting nominals. Finally, the noun classifier *winh* classifies the noun as male.

Crucially, *noun* classifiers and *numeral* classifiers are distinct morphemes, evidenced by the fact that they may sometimes co-occur, as in (6) above. There are only two numeral classifiers: *-e'* appears with inanimate nouns, and *-wanh* appears with animate nouns (Hopkins 1970; Royer 2017).² The numeral classifiers are obligatory

² I take the non-overlap of Chuj's noun classifiers with its numeral classifiers as evidence that numeral classifiers and noun classifiers are different grammatical categories in Chuj. This contrast is less clear in some South Eastern languages like Cantonese and Vietnamese, for which numeral classifiers are also definite determiners (see e.g. Cheng and Sybesma 1999; Simpson 2005; Jenks 2018). Future work should study more closely whether Chuj noun classifiers can be associated with the latter, but for now, I assume that noun classifiers are distinct from numeral classifiers.

with Mayan-based numerals (i.e. numerals not borrowed from Spanish) above ‘one’ and with the quantifier *jay* ‘how many’.

As for noun classifiers, Chuj features about 16. All noun classifiers closely resemble a noun in the language. For instance, *ix*, the classifier for female entities, is homophonous with the noun *ix* ‘woman’ (Hopkins, 2012). A list of Chuj’s noun classifiers with examples is provided below.³

Table 2 *Chuj noun classifiers*

CLF	Introduces	Example	
<i>ix</i>	female individual	<i>ix chichim</i>	‘the elder (f.)’
<i>winh</i>	male individual	<i>winh icham</i>	‘the elder (m.)’
<i>nok’</i>	animals & derived products	<i>nok’ nholob’</i>	‘the egg’
<i>te’</i>	wood & related entities	<i>te’ k’atzitz</i>	‘the log’
<i>anh</i>	plants & related entities	<i>anh paj’ich</i>	‘the tomato’
<i>k’en</i>	stone/metal & related entities	<i>k’en tumin</i>	‘the money’
<i>lum</i>	earth & related entities	<i>lum yaxlu’um</i>	‘the mountain’
<i>ch’anh</i>	vines & related entities	<i>ch’anh hu’um</i>	‘the paper’
<i>ixim</i>	corn & related entities	<i>ixim wa’il</i>	‘the tortilla’
<i>atz’am</i>	salt & related entities	<i>atz’am atz’am</i>	‘the salt’
<i>ha</i>	liquids	<i>ha melem</i>	‘the river’
<i>k’ak</i>	cloth(es)	<i>k’ak nip</i>	‘the huipil’
<i>k’inal</i>	rain	<i>k’inal nhab’</i>	‘the rain’
<i>w(inh)aj</i>	masculine proper names	<i>waj Matin</i>	‘Mateo’
<i>naj</i>	young (male) individual/proper name	<i>naj nene</i>	‘the (m.) baby’
<i>uch</i>	young (female) individual/proper name	<i>uch nene</i>	‘the (f.) baby’

2.2 Proposal: Chuj classifiers as unique definite determiners

I propose that the wide distribution of noun classifiers can be accounted for if they exhibit the semantics of a unique definite determiner, as proposed in (7).⁴

- (7) *Denotation of definite determiner* (e.g. Heim & Kratzer 1998)

$$\llbracket \text{CLF} \rrbracket = \lambda f: \exists! x \in C [f(x)]. \iota y \in C [f(y)]$$

The denotation of the classifier in (7), used by Heim and Kratzer (1998) as the basic denotation for the definite article in English, presupposes the uniqueness of the referent in a set of entities present in the context (C). Importantly, this denotation of the definite determiner only encodes *uniqueness*, and not *anaphoricity*.⁵ As we will see

³ The exact noun classifiers that are used might vary from variant to variant and even from speaker to speaker. For more information about the history of noun classifiers or information about dialectal variation, see Hopkins 1967, 2012 and Maxwell 1981.

⁴ The denotation in (7) intentionally ignores the fact that noun classifiers vary depending on the noun they introduce. I assume that this is no different than the fact that French *le/la* ‘the’ vary according to the gender of the nominal. Chuj is just an extreme case, as it has sixteen versions of the same definite article. Though I set aside the issue of how the choice of the classifier is determined, one likely possibility is that different classifiers are linked to separate presuppositional heads. This is similar to the presuppositional analyses of ϕ -features in e.g. Cooper 1983 and Heim and Kratzer 1998.

⁵ “Uniqueness” accounts of definite articles have been proposed since at least Frege 1892, and different versions of this denotation have been widely adopted by many researchers (e.g. Russell 1905; Strawson

in section 5 of this paper, anaphoric definites require extra morphology in Chuj, hence why anaphoricity should not be encoded into the basic denotation of the classifier.

Before moving on to the next section, I provide evidence that noun classifiers are (unique) definite determiners. I first show that noun classifiers are incompatible with certain non-definite environments. I then show that noun classifiers behave like so-called *weak definite articles*, in the sense of Schwarz (2009), which are argued to encode only uniqueness (see also Jenks 2018).

2.2.1 Where noun classifiers cannot occur

If noun classifiers are unique definite determiners, then they compose with predicates to give back a unique entity. Therefore, they should not be compatible with certain types of nominals, such as predicative and property-denoting nominals, which do not denote entities. This prediction is borne out. As shown in example (8), noun classifiers cannot combine with predicate nominals (this is also noted in Craig 1986 on Popti' and Zavala 1992; 2000 on Akatek):

- (8) (***winh**) Winak hin.
 CLF man B1S
 'I'm a man.'

In addition, noun classifiers are not possible with property-denoting nominals (nominals that behave like modifiers). Consider the following example:

- (9) Ix-jaw [winh chonhum (***ixim**) wa'il].
 PFV-arrive CLF salesperson CLF tortilla
 'The tortilla salesman arrived.'

In (9), the use of the classifier with *wa'il* 'tortilla' is ungrammatical. This is expected, since in this particular case, *wa'il* does not denote an entity, but rather serves to restrict the denotation of *chonhum* 'salesperson' to only the salespeople who sell tortillas. Therefore, the nominal here behaves like a predicate, and does not pick out a particular tortilla—it must remain of type $\langle e, t \rangle$.

It has also been noted that noun classifiers are incompatible with a construction known as the incorporation antipassive (Maxwell 1976; Coon 2019):

- (10) Ix-onh-chonh-w-i [(***anh**) onh].
 PFV-B1P-sell-AP-IV CLF avocado
 'We sold avocados' (lit. we avocado-sold) (adapted from Coon 2019)

Similarly to (9), Coon (2019) argues that the NP in (10) denotes a property which restricts the denotation of the predicate *chonh* 'to sell' from events of selling to events of avocado-selling. Clearly, the noun in this case does not pick out a particular entity (this utterance does not mean that the agents of the event sold a particular avocado or

1950; Heim 1991, Elbourne 2013, etc.). Though several other accounts of definite determiners exist, I will not discuss them in detail in this paper (see Elbourne 2013, section 1 for discussion).

set of avocados, but that they sold avocados in general), and so the ungrammaticality of the noun classifier in this configuration is expected. In fact, Clemens and Coon (2018) argue based on incorporation antipassives like (10) that classifier phrases in Chuj must have a DP layer, banned in incorporation antipassive constructions.

2.2.2 Noun classifier behave like weak definite articles

Schwarz (2009) establishes a distinction between two types of articles, which he termed *weak* and *strong* articles (see also Jenks 2018; and section 5 of this paper for more on this distinction). The basic idea is that while weak definites only presuppose *uniqueness*, strong definites presuppose both *uniqueness* and *anaphoricity* (I assume that the anaphoricity presupposition can be satisfied if a referent is previously mentioned in discourse or if it is deictically identified). Below, I show that Chuj noun classifiers are specialized to *weak* definites, further supporting the denotation in (7) of classifiers as definites which only presuppose uniqueness. In the remainder of this paper, I adopt the terms *unique definite* for weak definites and *anaphoric definite* for strong definites, following the terminology in Jenks 2018.

Based on cross-linguistic work, Schwarz (2009) argues that unique definites are associated with immediate and larger situation uses of definites (see also Hawkins 1978). Briefly, immediate situation uses of articles occur when a speaker makes reference to a unique entity present in the immediate context (e.g. *the table* if the speaker is in a kitchen). Larger situation uses of definite articles, on the other hand, occur when a speaker makes reference to a unique entity in a larger context (e.g. *the president* if the speaker is in Guatemala and is referring to the current president of Guatemala).

In Chuj, both immediate and larger situation uses of definite articles require the presence of the classifier, as expected if it is a unique definite article. Examples of immediate and larger situation uses are provided in (11) and in (12):

(11) *Immediate situation use*

Context: *There's a book. The speaker asks you to move it.*

Ak' em [***(ch'anh)** libro] t'achi.
put DIR.down CLF jacket there
'Put the book over there.'

(12) *Larger situation use*

Ix-jaw [***(ix)** Presidente].
PFV-arrive CLF Presidente
'The president arrived.'

Schwarz (2009) also proposes that kind-denoting definites should be included in the class of unique definites (see also Chierchia 1998). Consider the following example:

(13) Context: *Talking about which animals, in general, are dangerous.*

Te' ay s-may ***(nok')** ajawchan.
INTS EXT A3-danger CLF rattle.snake
'The rattlesnake is very dangerous.'

In the above example, *nok' ajawchan* 'the rattlesnake' does not refer to a particular rattlesnake, but to rattlesnakes in general as a kind. As expected if classifiers are unique definite determiners, such kind-denoting definite descriptions in Chuj require the presence of the classifier.

Somewhat related to the kind-denoting cases observed above is the use of classifiers with definites such as (14a), first observed in Carlson and Sussman (2005) and Carlson et al. (2006). These are notable for allowing sloppy interpretations in ellipsis contexts. This is shown by the contrast in (14a) and (14b):

- (14) a. Fred went to *the store*, and Alice did, too. (OK as different stores)
 b. Fred went to *the desk*, and Alice did, too. (must be the same desk)
 (Carlson and Sussman 2005)

Aguilar-Guevara (2014) argues that definites like (14a) also refer to kinds and Schwarz (2009, 2014) argues that they should be subsumed under the category of unique definite articles.

As expected if Chuj classifiers are unique definites, a similar phenomenon is observed in Chuj:

- (15) Context: *the speaker grabbed a different bus than Xun.*

Ix-in-yam [**(k'en) bus*], y-et' pax waj Xun.
 PFV-A1S-grab CLF bus , A3-with also CLF Xun
 'I grabbed the bus, and so did Xun.'

The context in (15) forces an interpretation in which the speaker and Xun grabbed a different bus, leading to the sloppy interpretation of *k'en bus* 'the bus'. As expected, the noun classifier *k'en* is nevertheless obligatory with the nominal *bus*.

In the rest of this paper, I show that it is possible to derive the wide distribution of noun classifiers if we assume that they exhibit the semantics of unique definite determiners proposed in (7) above. I first propose in section 3, following Postal (1966) and Elbourne (2001), that the apparent occurrence of noun classifiers as third person pronouns results from the combination of a definite determiner, the noun classifier, with an elided NP. I then propose in section 4, based on the observation that noun classifiers force specific interpretations of indefinites, that DPs containing noun classifiers can co-occur with indefinite determiners to restrict their domain to a singleton set. Finally, in section 5, I propose that anaphoric definites are compositionally derived by combining a unique definite classifier with additional morphology.

3 Pronominals cases of classifiers as NP deletion

Mayan languages are generally described as robustly pro-drop (Coon 2016; Aissen et al. 2017). However, Q'anjob'alan languages are an exception to this, since, as already shown in example (2), noun classifiers serve as third person pronouns and cannot be dropped. Another example is provided below:

- (16) Ay jun nok' tz'i' t'atik. Lan s-way *(nok').
 EXT INDF CLF dog here. PROG A3-sleep CLF
 'There's a dog here. It's sleeping.'

In the above example, there are two sentences. The first introduces a new referent in discourse, namely *jun nok' tz'i'* 'a dog'. In the second, the use of the classifier *nok'* alone is sufficient to refer back to the dog that was introduced in the previous sentence.

Note that even though the classifier in (16) is used in an anaphoric environment (the referent of *nok'* has already been introduced in discourse), the presence of the classifier is not incompatible with the unique definite semantics of the classifier proposed in (7). This is in assuming that anaphoric definites still introduce a *uniqueness* presupposition (Schwarz 2009, Jenks 2018).⁶

In this section, I offer a brief account of the distribution of noun classifiers as third person pronouns in Chuj by appealing to an *NP-deletion* analysis of pronouns (Elbourne 2001; 2005; 2013). This accounts for the distribution of noun classifiers when they appear without an overt nominal:

Table 3 *Noun classifier configurations in Chuj*

sequence	result
CLF - NP	unique definite
CLF - NP	pronoun
INDF - CLF - NP	specific indefinite
CLF - NP - DEM	anaphoric definite

Since Postal 1966, many linguists have argued that pronouns, or at least subtype of what have been referred to as "pronouns", are actually definite determiners (see e.g. Abney 1987; Déchaine and Wiltschko 2002; Elbourne 2001, 2005; Matthewson 2008). There are many reasons to support this view. For one, pronominal elements and determiners often look alike:

⁶ Interestingly, pronominal uses of classifiers are sometimes found in cases where there is neither a clear linguistic antecedent, nor a deictically identifiable satisfier of the nominal, as in (i). Though I leave this for future work, the lack of an antecedence requirement on pronominal uses of classifiers might follow from their core semantics, namely that they *only* presuppose uniqueness (contrary to, say, English pronouns, which I assume presuppose both uniqueness and anaphoricity).

- (i) Context: *At a bus station in a town other than Huxk'e'en, the bus driver decides to inform customers that the bus is currently in the town of Huxk'e'en.*

Ay-ek' **k'en** t'a Huxk'e'en.
 EXT-DIR.pass CLF PREP Huxk'e'en

'It (the bus) is in Huxk'e'en.'

- | | |
|--|--|
| <p>(17) <i>French</i></p> <p>a. Je vois la femme.
I see the woman
'I see the woman.'</p> <p>b. Je la vois.
I it see
'I see her.'</p> | <p>(18) <i>German</i>
(Elbourne, 2001, 245)</p> <p>a. Hans sieht den Mann.
Hans sees the man
'Hans sees the man.'</p> <p>b. Hans sieht den.
Hans sees him
'Hans sees him.'</p> |
|--|--|

Furthermore, it has long been observed that pronouns tend to share more with determiners than they do with nouns in their distribution (Postal 1966; Abney 1987). A classic example is the fact that first and second person pronouns in English pattern like determiners, and not like nouns, in accepting an overt noun (Postal, 1966):

- (19) a. we (linguists)
b. you (people)
c. you (liar)

More recently, Elbourne (2005, 2013) follows this line of work, arguing that English pronouns are definite determiners with elided NPs. In other words, the core semantics of *the* and of pronouns such as *it*, *she*, and *he* is identical. The only difference is that English definite determiners exhibit allomorphy: while *the* appears before overt NPs, the pronominal forms appear before elided NPs:

- (20) a. [the NP]
b. [it NP]

I propose that the apparent occurrence of noun classifiers as pronouns results from a configuration like the one in (20). That is, pronominal noun classifiers always exhibit the semantics of the definite determiner, specifically the semantics proposed in (7). In parallel to (20), I propose that the structure of Chuj pronominal noun classifiers is as in (21b) and (22b):

- (21) a. [CLF NP]
b. [CLF ~~NP~~]
- (22) a. Ix-w-il [ix unin].
PFV-A1S-see CLF girl
'I see the girl.'
b. Ixwil [ix ~~unin~~].
'I see her.'

Finally, notice that Elbourne's theory of pronoun formation predicts that we should find languages that exhibit little or no allomorphy between pronominal and determiner forms. That is, if pronouns are just definite determiners, then we expect to find languages that phonologically realize determiners and pronouns in the same way. Since the pronominal and determiner forms of noun classifiers in Chuj exhibit almost

no allomorphy, the Chuj data provide further empirical support for the Elbournean approach to pronoun formation, in addition to the French (17) and German (18) data observed above.⁷

In the next two sections, we turn to the core empirical puzzle of this paper: cases where noun classifiers co-occur with other determiners, including indefinite determiners (§4) and demonstratives (§5).

4 Indefinites with definite domain restrictors

If we adopt a definite determiner analysis of noun classifiers, then examples like those in (4) above (repeated below), where a noun classifier co-occurs with an indefinite determiner, initially appear to be problematic.

- (4) a. Ix-kot [jun **winh** winak].
 PFV-arrive INDF CLF man
 ‘A man arrived.’
 b. Ay [jun **nok’** tz’i’] t’atik.
 EXT INDF CLF dog here
 ‘There’s a dog here.’

The issue that has to be addressed is the following: if noun classifiers are definite determiners, then there are too many determiners in the examples in (4). That is, why can and indefinite determiner co-occur with a definite determiner?

A clue to the analysis of these data comes from an empirical property I establish in the first subsection, namely that the inclusion of a noun classifier in an indefinite DP forces a *specific* interpretation of the indefinite. Given these facts, I propose to analyze indefinite–classifier combinations as involving *two* DPs instead of one: a definite embedded inside an indefinite. The role of the definite, in particular, is to reduce the restrictor of the indefinite to a singleton, which accounts for the specific indefinite properties established. This type of analysis is an extension of Schwarzschild 2002, in which specific indefinites reduce to quantifier domain restriction down to a singleton set.

Before we move on, it is important to note that examples like (4a) and (4b) cannot be interpreted as partitives in Chuj. First, partitives have been shown to be disallowed in existential constructions (see e.g. Milsark 1974; Enç 1991). Second, if the utterance in (4a) were partitive, it would require the addition of the plural marker *heb’* on *winak* ‘man’, as in (23) below. This is expected since partitives usually select for pluralities (consider the ungrammaticality of English **one of the apple*) (de Hoop, 1997).

- (23) Ix-jaw [jun **#(heb’)** winh winak].
 PFV-arrive INDF PL CLF man
 ‘One of the men arrived.’

⁷ There is allomorphy with only two forms. The noun classifier for young males, *naj*, as in *naj nene* ‘the (male) baby’, is pronounced as *ni’o* in its pronominal form, whereas the pronominal form for young females, *uch*, is pronounced as *utni* in its pronominal form.

This example shows that there is a minimal pair between partitive constructions like (23) and non-partitive constructions like (4a) in Chuj, further demonstrating that utterances like (4a) should not receive a partitive analysis.

This section is divided as follows. In section 4.1, I show that when a noun classifier co-occurs with an indefinite, it forces a specific (or “wide scope”) interpretation of that indefinite. In section 4.2, I provide a formal analysis of DPs headed by noun classifiers (classifier-DPs) as overt domain restrictors. In section 4.3, I discuss predictions made by the analysis, and show they are borne out. Section 4.4 summarizes and addresses why the specific indefinite data observed for Chuj would not adequately be accounted by a choice function analysis of specific indefinites. The result is a theory that accounts for the cases in which a noun classifier co-occurs with an indefinite determiner, thereby accounting for INDF-CLF-NP sequences:

Table 4 *Noun classifier configurations in Chuj*

sequence	result
CLF - NP	unique definite
CLF - NP	pronoun
INDF - CLF - NP	specific indefinite
CLF - NP - DEM	anaphoric definite

4.1 Specific indefinites

Previous work on Q’anjob’alan languages has generally agreed that there are two indefinite determiners. While *jun* ‘a(n)’, also the numeral ‘one’, is used as a singular indefinite determiner, *juntzanh* ‘some’ is used as a plural indefinite determiner (see e.g. Kotek and Erlewine 2016 on Chuj and Mateo Toledo 2017 on Q’anjob’al).⁸ Though bare indefinite plurals are possible, singular indefinites require the presence of *jun*. Examples of the (non)-optionality of *jun* and *juntzanh* are provided in the existential clauses in (24) below:

- (24) a. Ay [***(jun)** tz’i’] t’a-t’ik.
 EXT INDF dog PREP-here
 ‘There’s a dog here.’

⁸ Zavala (2000) argues that *jun* in Akatek, a closely related language, is not an indefinite determiner, but rather a singulative. However, there is reason to believe that *jun* also serves as an indefinite determiner in Chuj. For instance, the ambiguous status of *jun* as a numeral, on one hand, and as an indefinite determiner, on the other, becomes salient when it is used within a negated proposition. Specifically, though the singulative interpretation of *jun* is possible in (ii), in which case the overall meaning is that the speaker bought more than one dog, the indefinite interpretation of *jun* is also possible, in which case the overall meaning is that the speaker did not buy any dogs.

- (ii) Maj hin-man laj **jun** tz’i’.
 NEG.PFV A 1S-buy NEG INDF dog
 Can mean: ‘I didn’t buy any dogs’ or ‘I didn’t buy just one dog’

- b. Ay [(**juntzanh**) tz'i'] t'atik.
 EXT some dog here
 'There are dogs here.'

Indefinites containing classifiers show properties that other indefinites do not show. In particular, they appear to take obligatory wide scope over operators, and they behave like Fodor and Sag's (1982) "referential" indefinites, which have both been described as specific indefinites in the literature (see e.g. Farkas 2002 and Farkas and Brasoveanu 2017).⁹ Below, I go through examples that demonstrate that noun classifiers always force specific interpretations of indefinites.

Before considering examples that show the co-occurrence of noun classifiers with indefinites, let's first consider the example in (25) where an indefinite surfaces without a classifier. This example, adopted from Matthewson (1999), features an operator with which the indefinite could take varying scope. Assuming a restrictor analysis of conditionals (Lewis 1975; Kratzer 1986), the specific interpretation of the indefinite arises when the existential is interpreted outside the scope of the covert universal modal. The non-specific interpretation arises when the existential is interpreted within the scope of that universal modal. The scenarios in (25a) and (25b) exemplify these two possibilities.

- (25) Context: *Malin is organizing a party in the village*

Te-junk'o'olal ix Malin [tato tz-jaw [**jun** icham]].
 INTS-happy CLF Malin if IPFV-come INDF elder
 'Malin will be happy if an elder comes (to the party).'

- a. *felicitous if there is just one elder, for example Xun, such that if Xun comes to the party, Malin will be happy.* (wide scope)
 b. *felicitous if Malin will be happy if at least one elder comes to the party, but it doesn't matter who.* (narrow scope)

As shown above, in the absence of a noun classifier, an existential in Chuj can take both wide and narrow scope interpretations. In that sense, indefinite–noun sequences in Chuj behave just like regular indefinites in languages like English in allowing both specific (wide scope) and non-specific (narrow scope) interpretations.

When an indefinite quantifier co-occurs with a noun classifier, on the other hand, the indefinite must take wide scope over other operators, including out of syntactic islands. This can be observed in the example in (26), which minimally contrasts with (25) in that the indefinite co-occurs with the classifier *winh*.

- (26) Context: *Malin is organizing a party in the village*

Te-junk'o'olal ix Malin [tato tz-jaw [jun **winh** icham]].
 INTS-happy CLF Malin if IPFV-come INDF CLF elder
 'Malin will be happy if an elder comes (to the party).'

⁹ Note, however, that specificity is a controversial notion that has been used to describe many different linguistic phenomena. In this paper, I only concentrate on so-called scopal and referential specificity. Also note that referential indefinites have also been referred to as "epistemic" indefinites (Farkas and Brasoveanu, 2017). For an overview on specificity distinctions, see von Heusinger (2011).

- a. *felicitous if there is just one elder, for example Xun, such that if Xun comes to the party, Malin will be happy.* (wide scope)
 b. *infelicitous if Malin will be happy if at least one elder comes to the party, but it doesn't matter who.* (narrow scope)

As demonstrated by the felicity conditions in (26a) and (26b), the presence of the noun classifier forces a specific interpretation of the indefinite. That is, the only possible interpretation of (26) is one in which the indefinite DP *jun winh icham* 'an elder' takes wide scope over the universal modal that the antecedent of the conditional restricts.

Another example of the wide scope behaviour of noun classifiers is presented in (27) with the scenarios below the example. In this case, the existential could be potentially interpreted either outside or within the scope of the universal quantifier *junjun* 'each'.

- (27) *Junjun kinhib'al, tz-munlaj [jun ix ix] t'a chonh.*
 each morning IPFV-work INDF CLF woman PREP store
 'Each morning, a woman works in the store.'

- a. *felicitous if each morning, the same woman works in the store.* (wide scope)
 b. *infelicitous if each morning, only one woman works in the store, but this can vary (e.g. Malin works Mondays, Xuwan Tuesdays, etc.)* (narrow scope)

In (27), the only possible interpretation of the indefinite DP with the classifier, *jun ix ix* 'a woman', is one in which the existential appears to take wide scope over the universal quantifier *junjun*. In other words, the woman that works in the store cannot co-vary on the basis of the days of the week—it has to be the same woman. Though not explicitly illustrated here, the wide scope interpretation would not be forced if the indefinite did not co-occur with a classifier, in which case both the scenarios in (27) would be felicitous.

The two examples just provided show that noun classifiers force a specific interpretation of indefinites introduced with the singular quantifier *jun*, but note that that noun classifiers force specific interpretations of all indefinite quantifiers in the language. For instance, when a noun classifier co-occurs with the plural indefinite quantifier *juntzanh*, the result is also a specific indefinite:

- (28) *Hin-gana tz-in-man [juntzanh ch'anh libro].*
 A1S-desire IPFV-A1S-buy some CLF book
 'I want to buy some books.'

- a. *felicitous if there are books I want to buy, and I know exactly which ones.* (wide scope)
 b. *infelicitous if I want to buy books, because I feel like I don't read enough. However, I don't know which ones I'll buy yet.* (narrow scope)

In the above example, the classifier forces an interpretation in which the speaker already knows which books they will buy, as shown by the felicitous and infelicitous

scenarios in (28a) and (28b). The only possible interpretation of (28) is one in which the indefinite appears to take scope over the modal WANT.

Another kind of specific indefinite identified in the literature are so-called “referential indefinites”, also known as “epistemic indefinites” (see Fodor and Sag 1982 and Farkas 2002). This particular kind of specific indefinite has been previously contrasted with wide scope indefinites, given that they cannot be explained in terms of scope, since there is no operator with which they could possibly take scope. An example of such an indefinite in English, due to Fodor and Sag (1982, 355), is provided below:

- (29) A student in the syntax class cheated on the final exam.

Fodor and Sag (1982) argue that the indefinite in the above utterance is ambiguous between a *quantificational* and a *referential* interpretation, which respectively correspond to non-specific and specific interpretations (Farkas and Brasoveanu 2017). Under the specific interpretation, the speaker would have a particular student in mind that they know cheated. Under the non-specific interpretation, the speaker would only know that there is a cheater among the syntax students, but they would not know which student it could be.

When a classifier co-occurs with an indefinite, it forces the specific interpretation described above. Consider the following example:

- (30) Hijan ix-ko-chi nok' kaxlan, ix-ik' b'at nok' [jun **nok'** tz'i'].
 almost PFV-A1P-eat CLF chicken PFV-bring DIR.go CLF INDF CLF dog
 ‘We were going to eat the chicken, but a dog stole it.’
- a. *felicitous* if a particular dog known to the speaker, say Fido, stole the chicken. (specific)
- b. *infelicitous* if there are traces of a dog in the speaker’s house, e.g. paw prints, that lead the speaker to think that a dog stole the chicken. (non-specific)

In the above example, the indefinite DP *jun tz'i'* in the second conjunct can appear with or without a noun classifier. Consultants agree that to felicitously use the noun classifier, the speaker must have a particular dog in mind, as demonstrated by the felicitous and infelicitous scenarios in (30a) and (30b).¹⁰

In sum, when appearing with a noun classifier, an indefinite must be interpreted as specific. This includes cases where an indefinite appears to take obligatory wide scope over an operator, and cases where an indefinite behaves like so-called referential indefinites, in the sense of Fodor and Sag (1982). Note, however, that these labels are only descriptive. In the following section, I treat both kinds of specific indefinites as the same phenomenon. Specifically, I propose an analysis of these constructions in which the noun classifier restricts the domain of the indefinite quantifier to a singleton set. The overall result is a definite DP embedded within a larger indefinite DP.

¹⁰ Note that for the speaker to “have a particular dog in mind”, they must not necessarily need to be able to *identify* the dog. Consultants agree that this utterance is felicitous if the speaker is reporting facts that they heard from someone else about an event in which a particular dog called Fido stole the chicken.

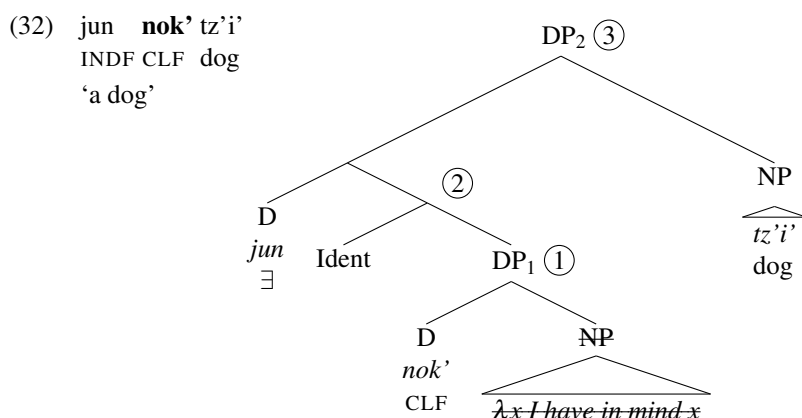
4.2 Singleton indefinites

Schwarzschild (2002) argues that specific indefinites should derive from implicit domain restriction of an indefinite quantifier to a singleton set. The basic idea is that if the existential quantifies over a singleton set, then the interpretation *must* be specific.¹¹ In other words, in Schwarzschild 2002, specific indefinites arise not because they take wide scope relative to an operator or because they are referential, but because there is a covert domain restrictor that delimits the extension of the restrictor of the quantifier to a singleton. This is exemplified in the example below, inspired from Fodor and Sag 1982, in which an elided syntactic constituent serves to restrict the domain of the indefinite quantifier to a singleton set.

- (31) If a relative of John ~~that I have in mind~~ dies, he will inherit a fortune.

In the above example, the indefinite *a relative of John* is restricted to the singleton set via the use of the covert relative clause *that I have in mind*.

Similarly, I propose that the specific indefinite judgments obtained in the examples of the previous section result from the ability for Chuj classifier-DPs to restrict the domain of indefinite quantifiers to a singleton set. The crucial difference between my analysis and Schwarzschild 2002 is that a component of the restrictor is overt. Chuj indefinite quantifiers can be *overtly* restricted by a noun classifier, which heads an otherwise hidden definite DP that provides the restrictor argument. This offers a solution to the *too many determiner* issue established at the beginning of this section: indefinite–classifier configurations have two determiners, because there are two DPs. For illustration, consider the following derivation of *jun nok' tz'i'* ‘a (certain) dog’.



I assume, following previous work on quantifier domain restriction (Westerståhl 1984; von Stechow 1994), that the quantifier takes two restrictor arguments, as implemented in (33) below:¹²

¹¹ Farkas (2002) and Farkas and Brasoveanu (2017) adopt a similar domain-restricting approach, in which specificity is construed in terms of the availability for the stability or variation in reference. Specificity markers are thus understood as imposing a constraint that limits variation of values for relevant variables across a set of assignments to a single entity.

¹² Notice that the domain-restricting DP is situated as an argument of the quantifier. This follows a large body of work that situates the covert contextual variable (or the elided restrictor) that implicitly restricts

(33) *Denotation of the existential quantifier*

$$\llbracket \text{jun} \rrbracket = \lambda f. \lambda f'. \lambda g. \exists x [f(x) \wedge f'(x) \wedge g(x)]$$

While the first domain restricting argument of the above denotation is generally regarded as covert—it is realized by a covert context variable (C) in Westerstahl 1984 and von Fintel 1994, and via syntactic ellipsis in Collins 2018—I propose that it can be partially overt in Chuj. As illustrated in the above structure, only the classifier surfaces and the NP inside the restrictor DP must be elided, which recall from section 3 is also how third person pronouns were argued to be derived in Chuj.¹³

Furthermore, I propose that to compose with the indefinite quantifier, the restrictor DP Ident type-shifts (Partee, 1987). I assume that Ident is a covert morpheme:

$$(34) \quad \llbracket \text{Ident DP} \rrbracket = \lambda x. x = \llbracket \text{DP} \rrbracket$$

Now that the principle ingredients of the analysis are presented, I go through the main steps of the derivation. In step ①, the noun classifier, which I have argued is a unique definite determiner, first composes with the (elided) NP, picking out a unique entity in a set of entities present in the context (the denotation of the classifier is repeated below for convenience):¹⁴

(35) *Noun classifier as unique definite determiner* (repeated from (7))

$$\llbracket \text{CLF} \rrbracket = \lambda f. \exists! x \in C [f(x)]. \iota y \in C [f(y)]$$

$$\textcircled{1} \quad \llbracket \text{DP}_1 \rrbracket = \iota x \in C [\text{the speaker has } x \text{ in mind}]$$

As shown above, this operation returns the unique entity present in the context, such that the speaker has that entity in mind. For purposes of illustration, I included an example of the sort of implicit content that could be contained within the elided NP, namely *thing that the speaker has in mind*. However, note that I remain agnostic about

the domain of quantificational determiners as an argument of the quantificational determiner (see e.g. Westerstahl 1984; von Fintel 1994; Martí 2003). But there is no consensus on the exact location of C, nor is there consensus on the exact mechanisms behind domain restriction. For instance, von Fintel (1994) proposes that domain restriction is realized as a C(ontextual) variable which appears as an argument of the quantifier. Stanley and Szabó 2000 and Stanley 2002 argue for an account that situates C as a sister of N. For Sellars (1954) and Collins (2018), quantifier domain restriction is achieved, not with a C variable, but via the use of elided relative clauses, as exemplified in example (31). Another account has been to propose that domain restriction should be thought of in terms of contextually determined parameters (e.g. Recanati 1996). Finally, see also Schwarz 2009, section 3.2.2. and references therein, for an account of domain restriction within the framework of situational semantics, which also does away with C.

Since there is no obvious difference between the contribution of C and the contribution of the classifier-DP, insofar as both have the potential to restrict the domain of a quantifier, I assume that the distribution of the domain restricting classifier-DP parallels C. Another possibility would be to situate the domain restricting DP as an adjunct of NP. Under such an account, the adjunct DP would first need to Ident-shift, as already proposed. It would then compose with the overt NP via Predicate Modification. The constituent that underwent Predicate Modification would eventually compose with the existential quantifier, resulting in the same overall meaning as the one observed in ③. Since the choice of syntactic structure is not crucial for my analysis, I remain agnostic about which parse is the correct one.

¹³ Since only CLF-NP configurations are possible as restrictors of existential quantifiers, it could alternatively be said that only pronominal DPs can serve as domain restrictors in Chuj.

¹⁴ To simplify the composition, I omit the existence and uniqueness presuppositions of the unique definite in the composition shown.

what exactly should or must be contained within the elided NP, so long as that NP gets introduced with the correct noun classifier (*nok'* in this case) to avoid a classifier mismatch with the overt NP in the matrix DP.¹⁵

In step ②, type-shifting of the embedded DP is required in order for it to compose with the indefinite quantifier.¹⁶ Specifically, I propose that DP₁ Ident-shifts from type *e* to type $\langle e, t \rangle$ (Partee, 1987), returning a predicate true of just one entity:

$$\textcircled{2} \quad \llbracket \text{Ident DP}_1 \rrbracket = \lambda y. y = \iota x [\text{the speaker has } x \text{ in mind}]$$

When the predicate that resulted from the type-shifting operation in step ② composes with the existential quantifier, the result is an existential that is restricted to a singleton set, namely the set containing only the thing that the speaker has in mind. Because a classifier-DP is always type *e*, it always picks out a particular entity, and so Ident shifting will always result in a singleton set as the quantifier's innermost restrictor argument. This is shown in step ③, where the existential quantifier has also composed with the overt predicate, in this case *tz'i'* 'dog':

$$\textcircled{3} \quad \llbracket \text{DP}_2 \rrbracket = \lambda g. \exists y [y = \iota x [\text{the speaker has } x \text{ in mind}] \wedge y \text{ is a dog} \wedge g(y)]$$

The overall result is an indefinite DP whose domain is doubly restricted by the intersection of the first domain restrictor argument, DP₁, with the second domain restrictor argument, the overt NP.¹⁷ In this particular case, the existential is restricted to the singleton set containing only the unique entity which the speaker has in mind and which

¹⁵ If there were to be a classifier mismatch between the embedded DP and the overt DP, then the intersection of the classifier-DP restrictor with the overt NP restrictor would return the empty set, since the set given by the elided NP would not overlap that given by the overt NP.

¹⁶ It is worth noting that noun classifiers, as definite determiners, cannot be further restricted by a noun classifier:

- (iii) *Lan s-way [DP *nok'* [DP *nok'* NP] *tz'i'*].
 PROG A3-sleep CLF CLF NP dog
 Intended: 'The dog is sleeping.'

The ungrammaticality of the above example is not necessarily predicted by the current proposal. Though I reserve this issue for future work, there are many reasons this construction could be banned. For instance, it could be that the semantics of the definite determiner, contrary to that of the indefinite quantifier, lacks the extra argument required to host the overt domain restricting pronoun.

¹⁷ Assuming that Chuj has partitive constructions, then noun classifiers should have the ability to appear twice within the same complex DP: once within the domain restrictor DP and once as the definite determiner of the partitive clause. However, this configuration is not possible:

- (iv) a. Ix-w-il juntzanh (*winh) heb' winh winak.
 PFV-A1S-see INDF CLF PL CLF man
 'I saw some of the men.'
 b. *Ix-w-il [DP juntzanh [DP (*winh) NP] [PP Ø [DP heb' winh winak]]].

If the above example is truly partitive, then the impossibility of the classifier after the quantifier *juntzanh* is not predicted by the current analysis. I have no concrete explanation for this gap, but note that specificity modifiers in English are also impossible with partitives: *I saw some (*specific/*particular/*certain) of the men*. This suggests that a more general incompatibility between domain restriction and partitivity is at issue, a puzzle I leave for future work.

is a dog. Since the existential is restricted to a singleton, the specific interpretation of the indefinite is forced.

4.2.1 Remaining issues

Before turning to the implications of this proposal in section 4.3, I first discuss two remaining issues. A first issue is that the analysis, as it stands, crucially relies on obligatory ellipsis of the NP that is embedded within the matrix DP. If obligatory ellipsis were not enforced, then we would expect to sometimes find two overt nominals with the same referent within the same complex DP, but this is never the case:

- (36) * $[\text{DP } \text{jun} \quad [\text{DP } \text{nok'} \quad [\text{NP } \text{tas} \quad \text{lan} \quad \text{hin-na'-an-i} \quad]] \quad [\text{NP } \text{tz'i'} \quad]]$.
 INDF CLF thing PROG A I S-think-DEP-IV dog
 Intended (lit.): ‘ $[\text{DP } \text{a} \quad [\text{DP } \text{the} \quad [\text{NP } \text{thing that I'm thinking of} \quad]] \quad [\text{NP } \text{dog} \quad]]$.’

Though more work is warranted on this issue, one possible explanation for the ungrammaticality of configurations like (36) is that there is a constraint on intervening NPs within a matrix DP. Specifically, an overt NP cannot intervene linearly between the matrix NP and the head (D, *jun*) that selects for it. In this case, producing the NP *tas lan hinna'ani* in (36) violates this constraint, forcing ellipsis of the embedded NP.

Second, this account raises questions about the possibility for covert domain restriction in general. For example, the proposal relies on obligatory ellipsis of the NP inside the restrictor DP, but it is not clear why speakers should be allowed to felicitously elide a constituent that has no linguistic antecedent. That is, the availability of the NP ellipsis in such contexts is surprising, since ellipsis is generally conceived as having a strict linguistic antecedence requirement (Hankamer and Sag 1976). As Heim (2011) notes on this issue, “other cases of context-dependency, such as deictic pronouns or covert restrictors for universals and definites, lead to infelicity unless the hearer can in some sense identify the intended value for the contextual parameter or covert element”. This problem is, however, not specific to my own analysis of the classifier data, but rather is general to any analysis of specific indefinites based on domain restriction. In fact, Schwarzschild (2002) establishes the Privacy Principle, which describes the felicitous use of elements within a quantifier restrictor even though it is impossible for the addressee to delimit the extension of the restriction:

- (37) PRIVACY PRINCIPLE (Schwarzschild 2002, 307)
It is possible for a felicitous utterance to contain a restricted quantifier even though members of the audience are incapable of delimiting the extension of the (implicit) restriction without somehow making reference to the utterance itself.

Extended to the case at hand, the Privacy Principle allows for speakers to felicitously use a covert NP in a classifier-DP, in a limited set of contexts including that of indefinite quantifiers, even though this elided NP has no linguistic antecedent in the discourse. It remains to be understood, however, *why* restrictor environments are exempt from general antecedence requirements.

It is worth noting, though, that the ellipsis required to restrict the domain of a quantifier in Chuj is different from the domain restricting ellipsis described in Schwarzschild (2002). Specifically, domain restricting classifier-DPs pattern just like Chuj pronouns, which recall from section 3 were accounted as cases of overt definite determiners with NP deletion. So the ellipsis issue from above is specialized to the case of pronouns. That is, why can unlicensed pronouns in Chuj appear as the restrictors of quantifiers?

Though I leave this issue for future work, I believe a potential answer might lie in the type of a determiner that is being used to introduce the pronouns. Since noun classifiers are unique definites in presupposing only uniqueness (and not anaphoricity), it is conceivable that they lack an antecedence requirement altogether, even when they function as third person pronouns (see footnote 7 above for a relevant example). As such, the pronominal use of a classifier without an overt noun would not be much different than the possibility of using the (weak) definite in the English sentence *I took **the train** to London* without prior mention of the train.

4.3 Further predictions

I have argued for an analysis of indefinite–classifier–noun segments in Chuj in which a classifier-DP can surface as the restrictor of an existential quantifier to limit its domain to a singleton. In this section, I verify further predictions that follow from the proposal. For one, there are several semantic environments in which noun classifiers should never be found. In particular, they should never co-occur with expressions that do not allow singleton domain restrictors. Second, while bare classifier–noun sequences should trigger uniqueness presuppositions on the overt noun, indefinite–classifier–noun sequences should not, since in such configurations, the noun classifier does not directly compose with the overt noun. Third, noun classifiers should be optional with indefinites, when they embed under an indefinite quantifier, but obligatory with definite DPs, when they serve as the head of the matrix DP. In the following subsections, I show that these predictions are borne out.

4.3.1 Classifiers are disallowed with non-specific expressions

If classifier-DPs serve as singleton domain restrictors, then noun classifiers should not be felicitous with expressions that are incompatible with singleton domain restrictors. Many such expressions have been identified in the literature, including “domain-widening” expressions such as the NPI *any* in English (Kadmon and Landman 1993), indefinites like German *irgendein* (Kratzer and Shimoyama 2002), and modal indefinites like the Spanish epistemic indefinite *algún* (Alonso-Ovalle and Menéndez-Benito 2010) or the random-choice indefinite *un N cualquiera* (Alonso-Ovalle and Menéndez-Benito, 2018) (see also Farkas & Brasoveanu 2017, fn 8, for more examples of non-specific expressions). In what follows, I show that this prediction holds.

Like Spanish, Chuj features a random-choice modal indefinite, *yalnhej tas*, described as a free-choice indefinite in Kotek and Erlewine (2016) and in Royer (to appear).

- (38) Yalnhej tas (*anh) itajil ix-in-yam-a'.
 FC WH CLF herb PFV-A1S-grab-TV
 'I grabbed a random herb.'

In (38), the presence of the noun classifier *anh* on the DP following the random-choice indefinite *yalnhej tas* is ungrammatical. This is expected, since random-choice modal indefinites have an anti-singleton constraint on their domains, as has been argued on independent grounds by Alonso-Ovalle and Menéndez-Benito (2018) for Spanish *un N cualquiera*. For comparison, the incompatibility of specificity markers with a similar modal indefinite can also be observed in English, which does not allow combinations of *a random* with *certain*:

- (39) I bought a (*certain) random book.

Negative polarity items such as English *any* constitute another family of expressions that have been independently described as “non-specific” in the literature. For instance, Kadmon and Landman (1993) and Arregui (2008) describe *any* in English as a domain widener, hence the incompatibility with singleton domain restrictors or specificity markers like *certain*:

- (40) *I didn't find any certain book.

Chuj features a morphologically complex negative polarity item composed of the indefinite quantifier *jun* and the irrealis clitic *-ok* (*jun-ok*), which patterns much like English *any* in its distribution. As expected, noun classifiers are incompatible with *jun-ok*:

- (41) Maj chax laj jun-ok (*ch'anh) libro.
 NEG.PFV find NEG INDF-IRR CLF book
 'I didn't find any book(s).'

Finally, I discuss one last environment in which the use of a noun classifier should not be possible. Consider the following example, which shows that noun classifiers cannot co-occur with the interrogative word *tas* ‘what’.

- (42) Tas (#anh) nib'al ha-gana?
 WH CLF huipil A2S-desire
 'What huipil do you want?'

If we take wh-words to be existential quantifiers (Karttunen, 1977), then the infelicity of examples like (42) follows from the analysis. This is because restricting the domain of an interrogative word to a singleton set would render the question trivial. That is, questions presuppose that some answer is true, but if the speaker is able to delimit the domain of the interrogative to a singleton, then it amounts to presupposing that the one answer is true. In other words, the question denotation will contain just one possible answer and it will be presupposed that this one answer is true, leading to expected (and observed) infelicity. Again, an English equivalent with *certain* is provided below for comparison:

- (43) #What certain book would you like?

A related phenomenon arises in the case of polar questions. While unbiased polar questions are infelicitous with a classifier, speakers can make use of a classifier to create a biased polar question. An example with different contexts is provided below:

- (44) Ay (ix) ha-nulej?
 EXT CLF A2-sibling
 ‘(Do) you have a sister?’
 a. *infelicitous* if out of the blue you ask a person if she has a sister. (unbiased question)
 b. *felicitous* if you see a person you know in the streets with someone who looks just like her. You assume it’s her sister, and confirm by ask her whether she as a sister. (biased question)

As shown above, the presence of a classifier in a polar interrogative can give rise to a biased question. On the other hand, the unbiased version (44) would require the omission of the noun classifier. This is exactly what would be predicted from an analysis of classifier-DPs as singleton domain restrictors: the classifier-DP in (44) restricts the domain of the existential to only the individual that the speaker thinks is the sister of the addressee, which should be impossible with unbiased questions.

4.3.2 Lack of uniqueness presupposition when combined with indefinites

As proposed in section 2 of this paper, noun classifiers, analyzed as unique definite determiners, presuppose that there is a unique contextually salient satisfier of the NP. This seems to be true for bare classifier–noun sequences like the ones in (45) and (46), which constitute typical examples of unique definites, repeated from earlier in this paper.

- | | |
|--|--|
| <p>(45) Saksak #(k'en) uj.
 white CLF moon
 ‘The moon is white.’</p> | <p>(46) Ix-kot #(ix) presidente.
 PFV-arrive CLF president
 ‘The president arrived.’</p> |
|--|--|

An additional example with context is provided in (47) below. When it is clear from the context that there is only one salient satisfier of the NP, then the presence of the classifier is obligatory.

- (47) Context: *There’s only one priest in Huxk’e’en and the speaker and addressee know it. The speaker and addressee live in Huxk’e’en.*
 Ix-in-lolon yet’ [#(winh) Pale].
 PFV-A1S-speak with CLF priest
 ‘I spoke with the priest.’

In the above example, both the speaker and addressee know that there is only one priest in Huxk’e’en. Therefore, there is only one contextually salient satisfier of the NP. In this case, the unique definite classifier heads the matrix DP that introduces the nominal, as shown in the structure below:

- (48) [DP winh [NP pale]]

Given that the classifier heads the matrix DP in (47), then it presupposes the uniqueness of the satisfier of the overt nominal. As expected, consultants agree that it would not be possible to use (47) in a context where there are, for example, five priest in Huxk'e'en, even if the speaker spoke with only one of the priests.

This is in stark contrast with cases where a noun classifiers co-occurs with an indefinite quantifier. In such cases, the proposal predicts that they should *not* presuppose uniqueness relative to the overt NP. Specifically, when a noun classifier occurs within the restrictor of the quantifier, it should only presuppose uniqueness of the NP that it introduces, namely the *elided* NP, and not of the overt matrix NP. Since the overt NP appears beneath an existential quantifier and outside the scope of the domain restricting classifier-DP, its uniqueness should never be presupposed (just like in English). This prediction is borne out, as corroborated in the example in (49).

- (49) Context: *There are five priests in Huxk'e'en and the speaker and addressee know it. The speaker and addressee live in Huxk'e'en.*

Ix-in-lolon yet' [jun (winh) pale].
 PFV-B 1S-speak with INDF CLF priest
 'I spoke with a priest.'

As shown in (49), it is felicitous to use an indefinite–classifier–noun sequence when the entity denoted by the overt NP is not the *unique* satisfier of this NP in the context, in this case, because the town of Huxk'e'en has more than one priest. This is predicted, since the noun classifier only presupposes uniqueness relative to the embedded (and elided) NP, and not relative to the matrix NP, as shown in (50).

- (50) [DP jun [DP winh NP] [NP pale]]

4.3.3 Optionality with indefinites

The proposal also predicts that while noun classifiers should be optional with indefinites (even with specific indefinites), they should not be optional with bare definite nouns. Though we have already observed the optionality and obligatoriness of noun classifiers with indefinites (47) and without indefinites (49), consider the following examples for illustration.

- (51) Context: *There's a book, namely The Little Prince, that you want to buy. You tell your friend:*

Hin-gana tz-in-man jun (ch'anh) libro.
 A 1S-desire IPFV-A 1S INDF CLF book
 'I want to buy a book.'

- (52) Context: *You already told your friend there's a particular book that you find interesting. You tell your friend:*

Hin-gana tz-in-man #(ch'anh) libro.
 A1S-desire IPFV-A1S CLF book
 'I want to buy the book.'

The contrast between these two examples is clear: when noun classifiers surface with a quantifier, as in (51), they are optional, but when they surface alone with a noun, as in (52), they are obligatory. This is exactly what the current proposal predicts.¹⁸ Specifically, noun classifiers are expected to be obligatory when they appear alone with nouns, as in (52), because they head the DP that takes the noun as a complement. But their optionality with quantifiers, as in (51), is also predicted, since in these constructions, the classifier heads an embedded DP that is part of a larger DP and whose function is to restrict the domain of the quantifier.

Given previous work on quantifier domain restriction (see e.g. von Stechow 1994; Schwarzschild 2002; Collins 2018), there is no reason to believe that the embedded DP serving as a domain restrictor should be obligatory. First, it follows from this body of work that *implicit* restriction of a quantifier via some sort of contextual variable (C) or elided segment is in general available. I assume that this option is also available in Chuj, and that the classifier-DP in the restrictor position is in alternation with it. For example, if C is a singleton, then a specific reading arises (Schwarzschild 2002), and though the presence of the classifier-DP *forces* the singleton interpretation, C could offer an alternative route to it. Second, the overt domain restriction we observe with noun classifiers is not too different from other restriction mechanisms, such as the use of modifiers like *certain* or *specific* or the use of relative clauses. That is, the optionality of classifiers to delimit the extension of quantifiers is not *a priori* any different from the optionality of inserting *certain* in an English utterance like *John bought a certain book*.

4.4 Summary and choice functions

In this section, we observed that the presence of a noun classifier with an indefinite forces a specific interpretation of that indefinite. To account for these facts, I proposed that DPs containing noun classifiers have the ability to restrict the domain of a quantifier to a singleton set. The proposed analysis thus aligns with domain restriction approaches to specific indefinites (Schwarzschild 2002; Farkas 2002).

Since classifiers create specific indefinites, a natural alternative could have been to consider whether they denote choice function variables (of type $\langle et, e \rangle$), an approach

¹⁸ There is an exception to this generalization. In certain environments, bare indefinite plurals are possible in Chuj. Therefore, indefinite plurals sometimes appear to allow an optional classifier without the overt presence of a quantifier.

(v) Ay (nok') tz'i' t'atik.
 EXT CLF dog here
 'There are dogs here.' (cannot mean: 'there's a dog here.')

I assume that bare plurals have a null indefinite quantifier, as has been commonly assumed in the literature (see e.g. Carlson 1977 and Longobardi 1994). Crucially, maximal/definite plurals require the presence of the classifier, as expected from the proposal.

that has been adopted by many authors to account for the exceptional scope of indefinites (see e.g. Reinhart 1997; Winter 1997; Kratzer 1998; Matthewson 1999).¹⁹ There are two major views on the choice function analysis of indefinites. On one hand, Reinhart (1997) and Winter (1997) propose that indefinite determiners denote existentially bound choice function variables. Importantly, for these authors, the scope of an indefinite is determined by the site of existential closure, which can occur at any point in the structure. On the other hand, Kratzer (1998) and Matthewson (1999) argue that English indefinites are ambiguous between a choice function interpretation and a quantificational interpretation, and that the former must always take widest scope.²⁰

A choice function analysis of noun classifiers, however, faces complications. First, noun classifiers are clearly not the indefinite determiner proper, but occur separate from the determiner *jun*. This analysis would thus require the stipulation that there are two indefinite determiners (two choice-function variables), an undesirable consequence for both views of indefinites as choice functions (why should there be two overt forms with the same semantics?). Second, if the classifier were of type $\langle et, e \rangle$, as choice functions are, it would apply to the NP to return a type e meaning, which is not the right type to be taken as the argument of the existential quantifier. Even if that type e meaning could type-shift to $\langle e, t \rangle$, the analysis would only predict that indefinite-classifier combinations *can* take wide scope, not that they *must*. This is contrary to the view of choice functions entertained in Kratzer 1998 and Matthewson 1999. Moreover, embedding a choice function under another choice function would render the contribution of the higher choice function trivial: after type-shifting occurs, the higher choice function would necessarily pick out the same entity as the lower choice function. Third, since the analysis proposed by Reinhart (1997) and Winter (1997) predicts that existential closure can occur at any site, a theory of noun classifier as choice function variables would also predict that you could have classifiers with narrow scope interpretations of indefinites, contrary to fact. Fourth, an analysis of classifiers as (bound) choice function variables would not straightforwardly extend to the other non-indefinite environments in which noun classifiers occur, as in cases where noun classifiers surface alone as pronouns. For all these reasons, I conclude that attempting to account for the specific indefinite facts observed in Chuj by appealing to a choice function analysis of noun classifiers would be inadequate.

More generally, the Chuj data provide evidence that the exceptional scope of indefinites cannot always involve choice functions, and reinforces the validity of contextual domain restriction approaches to specific indefinites. Of course, this does not preclude that so-called wide scope indefinites in other languages may involve choice functions (see e.g. Matthewson 1999 on the possibility of overt choice functions in St'át'imcets) or even in Chuj (in cases where no overt classifier surfaces, but that the indefinite still receives a 'wide scope' interpretation), but shows that choice functions cannot be the only way to derive the exceptional scope of indefinites.

¹⁹ Note that these approaches have independently received "overgeneration" criticism, see Schwarz 2004 and Heim 2011.

²⁰ According to Matthewson (1999), St'át'imcets (Salish) features an overt reflex of the choice function associated with wide-scope indefinites.

5 Deriving anaphoric definites from unique definites

In this section, I return to examples like (3), repeated below, where a noun classifier co-occurs with a demonstrative:

- (3) Ix-kot [**nok'** tz'i' *chi*].
 PFV-arrive CLF dog DEM
 'That/The dog arrived.'

I show that apart from behaving like regular demonstratives when used deictically, Chuj demonstratives also play a crucial role, together with noun classifiers, in deriving anaphoric definites in the language. Maintaining the unique definite semantics proposed in (7) for noun classifiers, I propose that anaphoric definites in Chuj are derived compositionally via two obligatory ingredients: (i) noun classifiers, which trigger a uniqueness presupposition, and (ii) morphemes that trigger an anaphoricity presupposition, which includes demonstratives, as discussed in this section, but also topic marking (see appendix B). The analysis therefore accounts for cases of a noun classifier co-occurring with demonstratives, as illustrated below:

Table 5 *Noun classifier configurations in Chuj*

sequence	result
CLF - NP	unique definite
CLF - NP	pronoun
INDF - CLF - NP	specific indefinite
CLF - NP - DEM	anaphoric definite

In section 5.1, I provide background on the contrast between unique (also known as “weak”) and anaphoric (also known as “strong”) definites. In section 5.2, I show that while Chuj bare classifier–nominal constructions can be unique definites (as already shown in section 2.2.2), they cannot themselves yield anaphoric definites. Instead, additional morphology is required to trigger anaphoric definite interpretations, namely the addition of a demonstrative (classifier–nominal–demonstrative). In section 5.3, I provide a compositional semantic analysis of anaphoric definites in Chuj.

5.1 Background

Though there are many approaches to the semantics of definiteness, two major perspectives stand out. On one hand, it has been argued that definite determiners introduce a uniqueness (or maximality) presupposition (e.g. Frege 1892; Russell 1905; Strawson 1950; Hawkins 1978). On the other hand, others have argued that definite determiners encode a presupposition that the speaker and addressee are *familiar* with the referent of the nominal (Christophersen 1939; Kamp 1981; Heim 1982). Some accounts have combined features of both views (e.g. Farkas 2002; Roberts 2003).

More recently, based on the observation that some languages overtly distinguish unique and anaphoric uses of definites, Schwarz (2009) proposes that there are two

kinds of definite determiners crosslinguistically: unique definites, which encode only uniqueness, and anaphoric definites, which encode both uniqueness and anaphoricity (see also F. Schwarz 2013 and Jenks 2018).²¹

The overt contrast between unique and anaphoric definites is observed in German in the ability for different article forms to contract with prepositions (Schwarz, 2009).²² Unique definite forms of articles occur in environments where the uniqueness is satisfied in the context, but where the referent of the DP has either not been previously mentioned in discourse or deictically identified. Example (53) illustrates this, with the key feature to notice being that the unique article form phonologically contracts with the preposition *von*:

(53) *Weak definite article in German*

Der Empfang wurde **vom** / **#von dem** Bürgermeister eröffnet.
 the reception was by.the_{weak} / by the_{strong} mayor open
 ‘The reception was opened by the mayor.’ (Schwarz, 2009, 42)

Anaphoric definites, on the other hand, must occur when the referent of the DP is present in the prior discourse. In that case, the contraction with the preposition is not possible, as illustrated in (54) below:

(54) *Strong definite article in German*

Hans hat einen Schriftsteller und **einen Politiker** interviewt. Er hat
 Hans has a writer and a politician interviewed. He has
#vom / **von dem** **Politiker** keine interessanten Antworten
 from.the_{weak} / from the_{strong} politician no interesting answers
 bekommen.
 gotten
 ‘Hans interviewed a writer and a politician. He didn’t get any interesting
 answers from the politician.’ (Schwarz, 2009, 23)

The two examples above show that German exhibits an overt reflex of the distinction between unique and anaphoric definites in the ability or not for different article forms to contract with prepositions.

Another language which has been identified as exhibiting the contrast between unique and anaphoric definites, and where their distribution more closely resembles that observed in Chuj, is Mandarin. In recent work, Jenks (2018) shows that while unique definites are realized as bare nouns in Mandarin, anaphoric definites obligatorily appear with a demonstrative. Consider the following narrative sequence, which shows the obligatory presence of demonstratives with anaphoric definites in Mandarin.

²¹ Schwarz (2009) labels unique definites as “weak definites” and anaphoric definites as “strong definites”. As already mentioned in section 2, I adopt Jenks’ terminology in using the terms unique and anaphoric definites.

²² Unique and anaphoric forms of articles were identified before Schwarz 2009, for example, in Ebert 1971 on Fering.

(55) *Narrative segment in Mandarin* (adapted from Jenks 2018)

- a. Jiaoshi li zuo-zhe yi ge nansheng he yi ge nüsheng.
 classroom inside sit-PROG one CLF boy and one CLF girl
 ‘There are a boy and a girl sitting in the classroom.’
- b. Wo zutian yudao #(na ge) nansheng.
 I yesterday meet that CLF boy
 ‘I met the boy yesterday.’

As shown above, definites that have been previously introduced in discourse in Mandarin require the presence of a demonstrative. This is contrary to unique definites, which according to Jenks (2018), must surface as bare nouns.

Building on the semantics of unique and anaphoric definites developed in Schwarz 2009, Jenks (2018) provides formal denotations of each article form by assuming that they are separate lexical items. He argues that anaphoric definites in Mandarin have the same core semantics as unique definites, with the minimal addition of an index argument, encoded into the semantics of the demonstrative. The proposed denotations, modelled in situational semantics (Barwise and Perry, 1983), are reproduced below:

- (56) a. *Unique definite article*

$$\llbracket \iota \rrbracket = \lambda s_r. \lambda P_{\langle e, \langle s, t \rangle \rangle} . : \exists ! x [P(x)(s_r)]. \iota x [P(x)(s_r)]$$
- b. *Anaphoric definite article*

$$\llbracket \iota^x \rrbracket = \lambda s_r. \lambda P_{\langle e, \langle s, t \rangle \rangle} . \lambda Q_{\langle e, t \rangle} . : \exists ! x [P(x)(s_r) \wedge Q(x)]. \iota x [P(x)(s_r)]$$
- (Jenks 2018)

In the above denotations, both the unique definite, ι , and the anaphoric definite, ι^x , presuppose uniqueness within a particular situation. The crucial difference lies in the fact that the anaphoric definite takes an extra index argument (Q above), responsible for introducing the anaphoricity presupposition. While Jenks argues that this indexical argument (termed the domain restriction) is sometimes overtly realized, it is most often realized by null indices relativized to the assignment function. Importantly, this analysis follows Schwarz 2009 in assuming that the distinction between unique and anaphoric definites is realized by separate lexical items. While unique definites are derived via a covert ι (Chierchia, 1998), anaphoric definites (assumed to be identical to the semantics of demonstrative in Mandarin) independently encode both a uniqueness and anaphoricity presupposition.

In addition to Jenks 2018 on Mandarin, Schwarz’s (2009) observation on there being two kinds of definite determiners cross-linguistically has led to a large body of work on definiteness, with a great deal of crosslinguistic support in favour of the distinction between unique and anaphoric definites (see e.g. Arkoh and Matthewson 2013 on Akan; Jenks 2015 on Thai and Mandarin; Cho 2016 on Korean; Ingason 2016 on Icelandic; Cisneros 2018 on Cuevas Mixtec; Irani 2018 on American Sign Language; Schwarz 2018; and Šereikaitė 2018 on Lithuanian). In the next sections, I contribute to this view of definiteness with additional empirical support from Chuj, showing that Chuj also overtly marks the distinction between unique and anaphoric definites. However, I show that Chuj anaphoric definites are transparently decomposed with a unique definite, namely the classifier, as their core. As such, Chuj shows

overt evidence that anaphoric definites are derived compositionally, in apparent opposition to the theories developed in Schwarz 2009 and Jenks 2018, where unique and anaphoric definites are conceived as separate lexical items.

5.2 Anaphoric definites in Chuj

Recall from section 2 that Chuj unique definite DPs are introduced only with the presence of a noun classifier. A relevant example is repeated for convenience below:

- (57) Saksak [**k'en** uj].
 white CLF moon
 ‘The moon is white.’

This is not the case with *anaphoric* definites, which on top of the obligatory presence of a noun classifier, require additional morphology. That is, while unique DPs are only introduced with the use of a noun classifier, DPs that denote *familiar* referents generally require the presence of an additional morpheme (glossed as demonstrative), as shown by the only possible continuation of (58a) in (58b):²³

- (58) *Anaphoric definite in Chuj*
 a. Ay [jun **nok' tz'i'**] yet' jun nok' mis t'atik.
 EXT INDF CLF dog with INDF CLF cat here.
 ‘There’s a dog_i and a cat here.’
 b. Saksak [**nok' tz'i'** #(chi)].
 white CLF dog DEM
 The dog_i is white.’

In (58b), the noun classifier must obligatorily co-occur with the demonstrative *chi*, since the referent of the nominal has already been introduced in the immediate discourse (note that this appears to be contradicted by certain pronominal uses of classifiers, as in (16), but see Appendix B).²⁴

It is generally agreed that anaphoric forms of definite articles are also required on DP uses (as opposed to pronominal uses) of donkey anaphora (see Schwarz 2009 and Jenks 2018). This is also the case for Chuj, which requires both the classifier and the demonstrative to occur with the nominal in donkey sentences with full DP arguments:

²³ The term “demonstrative” is used, since *chi* and *tik* can both be used deictically and are the only two demonstratives in the language.

²⁴ It is unclear for how long the use of the anaphoric form of the definite article is obligatory in discourse, a fact that is also discussed in Ebert 1971, Schwarz 2009 and Schwarz 2018. For example, the anaphoric form of the definite article seems to be obligatory with nominals that co-refer with a nominal in an immediately preceding sentence(s). However, once a referent becomes “central” to the narrative, the unique form of the article might become appropriate. This is not expected, since the presuppositions associated with the anaphoric definite article are stronger than those associated with the unique definite article, and so, according to Maximize Presupposition! (Heim 1991), the anaphoric form should always be preferred. Since this issue is general to all existing theories on the distinction between unique and anaphoric definites, I leave this issue for future work.

- (59) Junjun anima' ix-il-an jun much, ix-s-mak'-cham [**nok'** much #(chi)]
 each person PFV-see-AF INDF bird, PFV-A3-hit-die CLF bird DEM
 heb'.
 PL
 'Each person that saw a bird, killed that bird.'

As shown above, donkey sentences in Chuj require the presence of both the classifier and the demonstrative. Without the demonstrative, *much* 'bird' can only be interpreted as a specific bird—the bird cannot covary with the quantifier *junjun* 'each'.

Furthermore, demonstratives are also obligatory with so-called “producer-product bridging definites” (see Clark 1975), also known as “associative anaphora” (Hawkins 1978).²⁵ First consider an English example of a producer-product bridging definite:

- (60) John bought a book yesterday. **The author** is French. (Schwarz 2009)

In the above example, *the author* picks out the author of the book that was introduced in the previous sentence. As discussed at length in Schwarz (2009), such definites require the anaphoric article form (see also Jenks 2018). Now consider the following two sentences which involve a similar definite in Chuj:

- (61) *Producer-product bridging definite*
 a. Ix-w-awt-ej jun ch'anh libro.
 PFV-A1S-read-DTV INDF CLF book
 'I read a book.'
 b. Te-wach [**ix** tz'ib'um #(chi)].
 INTS-good CLF writer DEM
 'The writer is really good.'²⁶

As demonstrated in (61), producer-product bridging definites in Chuj require the presence of both the classifier and the demonstrative, as expected if classifier-noun-demonstrative sequences form anaphoric definites.

Finally, it is worth noting that the obligatoriness of demonstratives with anaphoric definites in Chuj is reminiscent of the data seen above for Mandarin in (55). There is a clear parallel to be drawn: both languages require the presence of a demonstrative to form anaphoric definites. Crucially, however, the Chuj data suggests a departure from the account of Mandarin anaphoric definites in Jenks 2018. Recall from (56) that in Jenks 2018, there are two separate definite articles in Mandarin. One is *t*, a null definite determiner with the semantics of the unique definite. The other is the demonstrative, which incorporates both the semantics of the unique definite with the addition of an extra indexical argument, responsible for giving rise to the anaphoricity presupposition. The Chuj data seems to indicate that the semantics of anaphoric is in fact compositional. I return to this issue in the next subsections.

²⁵ Note that producer-product bridging definites contrast with part-whole bridging definites, which are introduced with unique definites (see e.g. Schwarz 2009; Jenks 2018). This is also the case in Chuj.

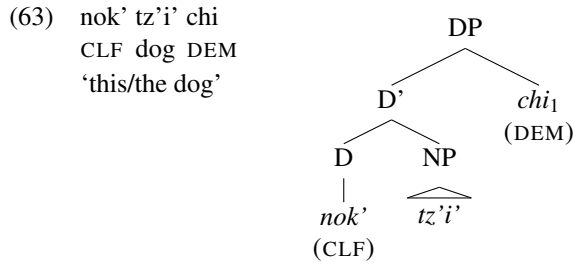
²⁶ Another natural-sounding (and perhaps preferred) way to say this would be to topicalize the NP *ix tz'ib'um* 'the author'. But see appendix B for topicalization as an alternative to achieving anaphoric definites in Chuj (also the case in Mandarin, Jenks 2018).

5.3 Deriving anaphoric definites

I propose that anaphoric definites in Chuj are derived compositionally by combining the unique definite semantics of the noun classifier with that of the demonstrative, which I argue has as its sole contribution to introduce an anaphoricity presupposition. This is implemented in the denotation in (62). The demonstrative denotes a partial identity function of type $\langle e, e \rangle$. In the presupposition, the demonstrative makes use of an index interpreted relative to a contextually provided assignment function.²⁷

$$(62) \quad \llbracket \text{DEM}_i \rrbracket^g = \lambda x: x = g(i). x$$

As shown above, the demonstrative's sole contribution is to introduce an index specifying that the referent of the DP is anaphorically identifiable through the assignment function. Now consider the following derivation of the composition of the anaphoric definite DP *nok' tz'i' chi* 'the dog' in Chuj:²⁸



$$\llbracket D' \rrbracket(\llbracket \text{chi} \rrbracket^g)$$

$$\text{P: } \exists! x \in C [x \text{ is a dog}] \wedge x = g(1)$$

$$\text{A: } \iota x \in C [x \text{ is a dog}]$$

In the above derivation, the noun classifier *nok'* first introduces a uniqueness presupposition, returning the unique salient dog in the context. If the anaphoricity presupposition is met, namely that the dog is picked out by the index 1 in the variable assignment, then the demonstrative *chi* composes with the unique dog, returning the unique salient dog identifiable through the assignment function. I assume that for the relevant dog to be in the range of the assignment function, it must have either already been introduced in discourse or be deictically identifiable. The overall result is an anaphoric definite, realized compositionally by combining the unique definite semantics of the noun classifier in (7) with the semantics of the demonstrative established in (62).

²⁷ This is similar to Jenks 2018 insofar as the anaphoric definite is associated with an extra index argument. However, it is also quite different from Jenks 2018, in that the sole contribution of the demonstrative is to introduce this index.

²⁸ For the purposes of this paper and for reasons of simplicity, I assume that Chuj demonstratives are located in a right-side specifier of DP (see Alexiadou et al. 2007 on demonstratives occupying specifier positions). This is not crucial for the analysis.

6 Conclusions and cross-linguistic implications

In this paper, I proposed a unified account of noun classifiers in Chuj. While noun classifiers initially looked like a new piece in the composition of DP, especially given their wide distribution, I argued that they encode a piece of the DP already established: noun classifiers are unique definite determiners. From this perspective, the wide distribution of noun classifiers sheds light on the composition of pronominals, singleton indefinites, and anaphoric definites, suggesting each can involve a unique definite in their construction.

I first argued, following Postal (1966) and Elbourne (2013), that pronouns in Chuj involve definite DP with NP deletion. This theory of pronoun formation is especially compelling for Chuj, given that Chuj (unlike English) exhibits almost no allomorphy between pronominal and determiner forms. I then argued that nuances in (in)definiteness in Chuj are achieved compositionally by combining the unique definite semantics of the classifiers with the semantics of either of the following: (i) indefinite quantifiers, to form singleton (specific) indefinite; or (ii) demonstratives to form anaphoric definites. The possible noun classifier configurations and their associated meanings are summarized in Table 7:

Table 6 *Noun classifier configurations in Chuj*

sequence	result
CLF - NP	unique definite
CLF - NP	pronoun
INDF - CLF - NP	specific indefinite
CLF - NP - DEM	anaphoric definite

The insights obtained from examining the composition of DP in Chuj raises several typological questions regarding the marking of (in)definiteness across languages. For instance, one typological question that arises is the following: if noun classifiers are definite determiners that have the ability to restrict the domain of a quantifier to a singleton set, then why can other languages not also restrict their indefinite quantifiers with definite determiners, as in English (64)?

(64) I want to buy some (*the/it) book.

I hypothesize that the ability for noun classifiers to appear in the restrictor of a quantifier is related to the fact that they are *unique* definites, while English definite determiners/pronouns are likely not. This opens up the following expectation: languages with overt unique definite determiners might also be able to appear in the restrictor of quantifiers. Given the limited set of described languages with overt unique definite determiners (Jenks 2018; Schwarz 2018), I have not been able to corroborate these facts, and so I leave this as an open prediction.

A second typological question regards the extent at which anaphoric definites are cross-linguistically compositional. As already discussed in the previous section, the compositional nature of anaphoric definites observed for Chuj is not straightfor-

wardly captured in previous proposals on anaphoric definites, including in the recent typology of definiteness marking in Jenks 2018, reproduced below.

Table 7 *Typology of definiteness marking* (Jenks, 2018)

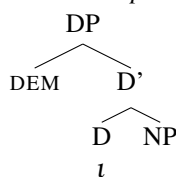
	Bipartite	Marked anaphoric	Generally marked	Marked unique
Unique	Def _{weak}	Ø	Def	Def _{weak}
Anaphoric	Def _{strong}	Def _{strong}	Def	Ø
Languages	German, Lakota	Madarin, Akan, Wu	Cantonese, English	(unattested)

In this typology, *bipartite* languages are languages which overtly and distinctively mark the contrast between unique and anaphoric definites; *marked anaphoric* languages are languages which only overtly mark anaphoric definites, but not unique definites; *generally marked* languages are languages which overtly mark definiteness, but do not make a distinction between unique and anaphoric definites; and *marked unique* languages would correspond to the other logical but unattested possibility: languages that mark unique definites, but not anaphoric definites.

Crucially, under this typology of definiteness marking, unique and anaphoric definite determiners are conceived as separate lexical items. At first glance, Chuj appears to fit as a bipartite language insofar as it overtly and distinctively marks the distinction between unique and anaphoric definites. However, the distribution of unique and anaphoric definites in Chuj points toward another type of language: one which marks the distinction between unique and anaphoric definites compositionally, as argued in section 5, as opposed to a language which marks the distinction via the use of separate lexical items, as proposed in Schwarz 2009, 2013 and Jenks 2018.

Taking this observation one step further, the distribution of Chuj definites opens up the possibility that the distinction between unique and anaphoric definites is, cross-linguistically, *always* compositional. If this is the case, the account of unique and anaphoric definites in Jenks 2018 for Mandarin would require minimal modification: ι could derive the uniqueness presupposition for both unique and anaphoric definites. As proposed is the case for Chuj, the Mandarin demonstrative's sole contribution, then, would be to introduce an anaphoricity presupposition. A structure is provided below for illustration:²⁹

(65) *Potential compositional structure of anaphoric definites in Mandarin*



The parallel with Chuj becomes clear: while both Chuj and Mandarin overtly realize the anaphoricity presupposition of anaphoric definites with a demonstrative, the

²⁹ The compositional analysis could likely be extended to all *anaphoric marked* languages, such as Akan, which also marks anaphoric definites but not unique definite (Arkoh and Matthewson, 2013).

uniqueness presupposition is achieved overtly with classifiers in Chuj, but covertly with *ɿ* in Mandarin.

Since unique definite articles are not overtly realized in Mandarin, it is not immediately obvious whether we should favour the current proposal, extended to Mandarin, or the proposal in Jenks 2018, which derives the distinction via the use of separate lexical items. However, since unique and anaphoric definites share a common core—they both presuppose uniqueness—a compositional analysis seems inviting. While a lexical ambiguity theory renders the common core accidental: *ɿ* and the demonstrative independently encode uniqueness; a decompositional analysis depends on it directly: *ɿ* is responsible for deriving the uniqueness presupposition with both unique and anaphoric definites.

In sum, I have shown that the compositional analysis of unique and anaphoric definites proposed for Chuj could potentially extend to other languages, which do not immediately appear to derive the distinction compositionally. Future work should corroborate whether the analysis could extend to *all* languages which overtly distinguish unique definites from anaphoric definites.

Finally, another area of research that should be further pursued is the diachronic origin of definite determiners and to what extent their historical origin might affect their grammaticalization as unique definites, anaphoric definites, or both. While Romance and Germanic definite determiners historically originate from demonstratives (see Bauer 2007 on Romance and Greenberg 1978 and Lyons 1999 on Germanic), noun classifiers in Q'anjob'alan languages originate from nouns (Hopkins, 2012). Perhaps there is a link to be made between these different paths of grammaticalization and whether definite articles grammaticalize as unique or anaphoric definites.

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Appendix

In this appendix, I discuss two additional puzzles related to some of the data seen in this paper. The first puzzle regards the apparent optionality of noun classifiers with possessive marking. The second puzzle regards the apparent optionality of demonstratives with topicalized anaphoric definite DPs and anaphoric pronouns.

A Noun classifiers and possession

There is a puzzle regarding the interaction between classifiers and possessive marking, which has also been identified for other Q'anjob'alan languages. Craig (1977), on the related language Popti', proposes the *noun classifier drop rule* to account for the optionality of noun classifiers with determiners, including the indefinite *jun* and so called "Set A" possessive marking, used to cross-reference possessors in Chuj.³⁰ Though the optionality of noun classifiers with *jun* is accounted for in section 4, it is not immediately clear why noun classifiers should be optional with possessed nouns, as in (66):

- (66) Ix-cham [[(nok') s-chej] waj Xun]
 PFV-die CLF A3-horse CLF Xun
 'Xun's horse died.'

As shown in the above example, given the presence of possessive marking on the noun, the noun classifier can be optionally omitted (with no apparent semantic effect). I tentatively propose that what accounts for the optionality of noun classifiers in this case is the ability for a covert *iota* operator to contribute definiteness in place of an overt noun classifier (as in Chierchia 1998), exceptionally only in possessive constructions.³¹

It is already well-established that this option is parametrized across languages (Alexiadou et al. 2007), as shown by the minimal contrast between Italian and Spanish below:

³⁰ Set A marking also cross-references ergative arguments. However, only possessive marking is at issue here.

³¹ Another hypothesis could be that possessive marking can also realize definiteness in Chuj (see e.g. ?; ?; Alexiadou et al. 2007 on possessors as determiners). However, there are empirical reasons to doubt this analysis, since possessive marking in Chuj is compatible with indefinite determiners:

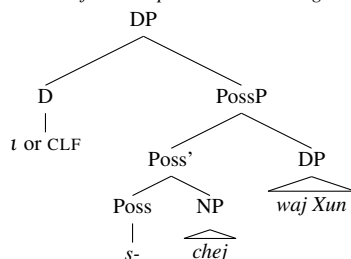
- (vi) Hin-gana tz-in-man [jun ch'anh hin-libro].
 A1S-want IPFV-A1S-buy INDF CLF A1S-book
 'I want to buy (me) a book.'

- (67) *Italian*
 il mio libro
 the my book
 ‘my book’ (Alexiadou et al., 2007)

- (68) *Spanish*
 (*el) mi libro
 the my book
 ‘my book’

Perhaps Chuj is best represented as an intermediate case between a configuration like Italian, where possessive marking obligatorily co-occurs with the overt definite article, and a configuration like Spanish, where possessive marking cannot surface with the definite article. Assuming that definiteness in Spanish is also realized with *t*, then Chuj is a language that optionally allows for both options. To illustrate, consider the structure below.

- (69) *Optional classifier with possessive marking in Chuj*



Though further work is needed to understand why the covert *iota* is exclusively available in possessive constructions in Chuj (and languages like Spanish), this tentative analysis offers a potential perspective on the exceptional optionality of noun classifiers specifically in possessive environments. Importantly, this analysis does not interfere with the proposed analysis of noun classifiers as unique definite determiners, obligatory in the central data.

B Apparent exceptions for anaphoric definites

There are two exceptions regarding the obligatoriness of demonstratives with anaphoric definites in Chuj. First, whenever a nominal constituent is topicalized, the demonstrative is no longer required with anaphoric definites. Topicalization in Chuj is obligatorily marked by the appearance of the DP at the left periphery (with *ha* marking) and by the presence of a resumptive classifier (?). This is shown in (70b), which could also naturally follow the utterance in (58a), repeated below in (70a) for convenience (the non-topicalized counterpart with the obligatory demonstrative is also repeated in (70c) for comparison):

- (70) a. Ay [jun **nok' tz'i'**] yet' jun nok' mis t'atik.
 EXT INDF CLF dog with INDF CLF cat here.
 ‘There’s a dog_i and a cat here.’
 b. Saksak [**nok' tz'i'** #(**chi**)].
 white CLF dog DEM
 ‘The dog_i is white.’
 c. [*(**Ha**) nok' tz'i' (**chi**)], saksak nok'.
 TOP CLF dog DEM white CLF
 ‘The dog is white.’

The optionality of demonstratives with topicalized anaphoric definites might be explained if the topic head itself introduced an anaphoricity presupposition. In fact, topicalized constituents are cross-linguistically associated with discourse-old referents (see e.g. ?, von Stechow 1994, and Aissen 1992 on Mayan specifically). If only discourse-old referents can be topics, then it follows that topicalized constituents will always be anaphoric. The topic presupposition being similar to (if not stronger than) that of the demonstrative, the necessity of adding an additional demonstrative may be circumvented. Since, Mandarin features the same exception—demonstratives are optional with anaphoric definites that are placed in topic position (Jenks

2018, section 5.)—this optionality may be a general property associated with anaphoric definites across languages.

Second, though demonstratives are possible with pronominal uses of noun classifiers, argued in section 3 to result from combining a definite determiner (the classifier) with an elided NP, they are not obligatory:

- (71) Ay jun nok' tz'i' t'atik. Lan s-way **nok'** (*chi*).
 EXT INDF CLF dog here. PROG A3-sleep CLF DEM
 'There's a dog here. It's sleeping.'

The optionality of the demonstrative in (71) is not predicted by the proposal: if pronouns are just definite determiners with elided NPs, then why is the demonstrative not required as in cases where the NP is overt? Though more work is required, I hypothesize that, similarly to the proposal made above for the optionality of demonstratives with topicalized constituents, the need for the demonstrative in examples like (71) may be circumvented due to the presence of ellipsis. Specifically, I tentatively propose that ellipsis, generally viewed to be governed by a linguistic antecedence requirement (Hankamer and Sag 1976), itself satisfies the anaphoricity presupposition required for anaphoric definites in the case of anaphoric pronouns.