Domain restriction and noun classifiers in Chuj (Mayan)*

Justin Royer

McGill University

1.   Introduction

This paper examines the role of noun classifiers (CLF) in the composition of DP in Chuj, an understudied Mayan language spoken by 45,000 to 70,000 speakers in Huehuetenango, Guatemala and Chiapas, Mexico (Piedrasanta 2009). Chuj features approximately 16 noun classifiers, and which classifier appears depends on the physical or social properties of the nominal (see Buenrostro et al. 1989 for full list). *Noun* classifiers should not to be confused with *numeral* classifiers, which Chuj also has (see Hopkins 1970 and Royer 2017). Consider the following two examples:[1]

(1)   Saksak [*(**k'en**) uj   ].
      white   CLF   moon
      'The moon is white.'

(2)   Ix-w-il   [*(**nok'**) tz'i'].
      PFV-A1S-see   CLF   dog
      'I saw the dog(s).'

In (1), the noun classifier for stone or metal entities, *k'en*, introduces the noun *uj* 'moon'. In (2), the noun classifier for animal entities, *nok'*, is used to introduce the noun *tz'i'* 'dog'. In both cases, a CLF-N sequence yields a definite description.

Given examples like (1) and (2), previous work has argued that noun classifiers are definite determiners (see e.g. Buenrostro et al. 1989; García Pablo and Domingo Pascual 2007; Domingo Pascual 2007). Assuming a basic denotation of the definite determiner that

[1]Abbreviations in glosses are as follows: 1: first person; 2: second person; 3: third person; A: ergative; AP: antipassive; B: absolutive; CLF: noun classifier; DEM: demonstrative; DIR: directional; EXT: existential; INDF: indefinite; IV: intransitive; NEG: negation; NP: noun phrase; NUM: numeral; PFV: perfective; PL: plural; PREP: preposition; PROSP: prospective; SG: singular.

presupposes that there is a unique entity in the context that satisfies the NP (e.g. Heim and Kratzer 1998), Chuj classifiers could be construed as the following:

(3) *Denotation of a (unique) definite determiner*   (e.g. Heim & Kratzer 1998)
$[\![\ \text{CLF}\ ]\!] = \lambda f: \exists! x \in C\ [f(x)].\ \iota y \in C\ [f(y)]$

However, a thorough analysis of noun classifiers must account for their surprisingly broad distribution. Apart from examples like (1) and (2), there are other environments in which noun classifiers surface that challenge their analysis as definite determiners in (3).

(4) *occurrence as pronoun:*

Saksak [*(**nok'**)].
white   CLF

'It (the dog) is white.'

(5) *occurrence with demonstrative:*

Saksak [*(**nok'**) tz'i' *chi*   ].
white   CLF   dog DEM

'This/the dog is white.'

In (4), the noun classifier surfaces alone and appears to function as a third person pronoun.[2] In (5), the noun classifier occurs with a demonstrative, resulting in a deictic or anaphoric interpretation. Though a unified analysis of noun classifiers should account for this distribution, (4) and (5) are not unexpected. Cross-linguistically, pronouns tend to be similar to definite determiners (Elbourne 2005), and it is relatively common for definite determiners to co-occur with demonstratives (Alexiadou et al. 2007).

   More problematic for a definite analysis of noun classifiers is the fact that they may co-occur with indefinite quantifiers:

(6) *occurrence with indefinite:*

Ix-kot   [*jun*   (**winh**) winak].
PFV-arrive   INDF CLF   man

'A man arrived.'

(7) *occurrence in* ∃ *construction:*

Ay [*jun*   (**winh**) winak] t'atik.
EXT INDF CLF   man   here

'There's a man here.'

In (6), the noun classifier optionally co-occurs with the indefinite *jun*, also the numeral 'one', and in (7), the noun classifier appears with *jun* in an existential construction, known to cross-linguistically ban the presence of definite articles (Milsark 1974; Diesing 1992).[3]

   This broad distribution of noun classifiers in Chuj and other Q'anjob'alan languages has led researchers to posit a more general function to these morphemes. Craig (1986), on the related language Popti', describes them as markers of "referentiality"; whereas Zavala (2000), on Akatek,, describes them as "markers of pragmatically important participants in discourse" (Zavala 2000).

   In this paper, I depart from these more general analyses and maintain the analysis of noun classifiers as definite determiners in (3). I first argue in section 2 that examples like

---

[2]Chuj and other Q'anjob'alan languages have no other overt third person pronoun apart from the noun classifiers. For this reason, researchers have assumed that noun classifiers are both determiners and pronouns at the same time (see Craig 1977; Zavala 2000; Domingo Pascual 2007).

[3]Note that the examples in (6) and (7) are not partitive. First, partitives are disallowed in existential constructions (Enç 1991). Second, partitives with human denoting nouns in Chuj require human plural marking; compare *jun heb' winh winak* 'one of the men' with *jun (winh) winak* 'a man' in (6).

(4), where the noun classifier appears alone as a pronoun, are cases of determiners with NP deletion, as in Elbourne 2001, 2005, 2013. In section 3, based on the observation that INDF-CLF configurations force specific interpretations of indefinites, I propose that Chuj DPs can surface with existential quantifiers to restrict their domain to a singleton set. This is building on the view of specific indefinites in Schwarzschild 2002. In section 4, based on the observation that noun classifiers must co-occur with demonstratives to form anaphoric definites, I argue that anaphoric definites in Chuj are derived compositionally by combining the semantics of the noun classifier with that of the demonstrative. Section 5 concludes.

2.   Third person pronouns and NP deletion

Since Postal 1966, many have argued that pronouns, or at least a subset of pronominal elements (Déchaine and Wiltschko 2002), are definite determiners (also see Abney 1987). For instance, English first and second person pronouns often appear in a determiner position and trigger a definite (maximal) interpretation, as in *we (linguists)* or *you (liar)*.

   More recently, Elbourne (2005; 2013) follows this line of work, proposing that English pronouns are definite determiners with elided NPs. This theory of pronoun formation predicts that we should find languages that, contrary to English, exhibit no allomorphy between pronominal and determiner forms. I argue that this is the case for Chuj. That is, the apparent occurrence of noun classifiers as pronouns results from the configuration in (8):

(8)   Saksak [**nok'** ~~tz'i'~~].
      white   CLF dog

      'It (i.e. the dog) is white'[4]   (compare with (5) above)

The unique definite semantics of the noun classifier in (3) can thus be maintained for cases where classifiers seem to pattern like pronouns.

3.   Indefinites with definite domain restrictors

If we assume that noun classifiers are definite determiners, then examples such as (6) and (7) where a noun classifier co-occurs with an indefinite determiner are problematic. The problem is that there are too many determiners: why should a definite determiner (i.e. the noun classifier) be allowed to co-occur with an indefinite determiner? In this section, I argue that Chuj DPs containing classifiers (classifier DPs) can type-shift to restrict the domain of an existential to a singleton set, resulting in a singleton indefinite. In section 3.1, I show that when noun classifiers co-occur with indefinites, they force a specific interpretation of the indefinite. In section 3.2, I argue that classifier DPs can appear in the restrictor of an existential to restrict its domain to a singleton.

---

[4]Note that any relevant NP could serve as the elided NP in (8). In fact, I do not commit to the content of this NP, as long as it receives the correct classifier.

3.1 Specific indefinites

The presence of a noun classifier with an indefinite quantifier forces a specific ('wide scope') reading of the indefinite. To illustrate, consider (9) with its felicity conditions:

(9) Context: *Malin is organizing a village party*

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.'   (adapted from Matthewson 1999)

Not felicitous if Malin wants any elder to come to the party, but she doesn't care which; Felicitous if there is a specific elder, for example Xun, such that if Xun comes to the party, Malin will be happy.

As shown in the felicity conditions in (9), the presence of the noun classifier forces a specific indefinite interpretation—one in which the indefinite appears to take wide scope over the universal modal that the antecedent of the conditional restricts (Kratzer 1986).[5] Another example shows the apparent scoping of the indefinite over the universal *junjun*:

(10) 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.'

Not felicitous if each morning, only one woman works in the store, but this can vary (e.g. Malin works Mondays, Xuwan Tuesdays, etc.); Felicitous if each morning, the same woman works in the store.

Note that though the co-occurrence of a noun classifier with an indefinite forces a specific reading, specific indefinites do not *require* noun classifiers in Chuj. (9) and (10) could receive specific interpretations (i.e. they would be compatible with both wide and narrow scope scenarios) even without the presence of a classifier.

3.2 Singleton indefinites

I propose that the specific indefinite judgments observed in (9) and (10) result from the ability for classifier DPs to appear in the restrictor of existential quantifiers, in which case they restrict the domain of the existential to a singleton set. We therefore have an answer to the problem presented at the beginning of this section: the reason there are two determiners is that there are two DPs. By assuming that specific indefinites are restricted quantifiers, this analysis extends Schwarzschild 2002, which proposes that the exceptional scope of indefinites derives from (implicit) domain restriction of a quantifier to a singleton. Consider the following structure, which I propose underlies the indefinite in (11a):

---

[5]Note that the apparent scope facts in (9) and (10) are equally consistent with the characterization of specificity as "anti-variation" (Farkas 2002). For instance, in (9), the witness of the elder is constant across all of Malin's happy-worlds.

(11) jun nok' tz'i'
      INDF CLF dog

      'a dog'
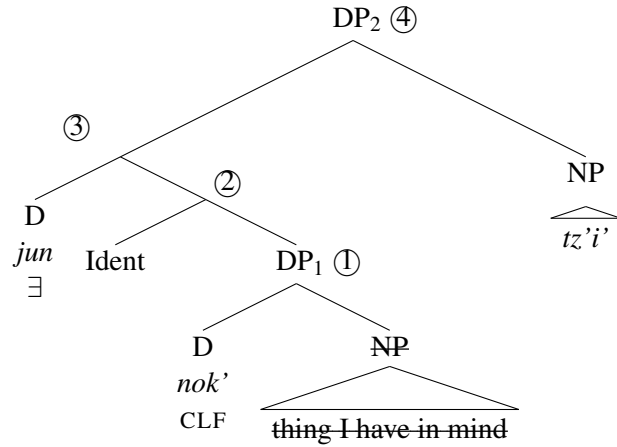
① $[\![DP_1]\!] = \iota x \in C$ [the speaker has x in mind]
② $[\![Ident\ DP_1]\!] = \lambda y_e.\ y = \iota x$ [the speaker has x in mind]
③ $[\![jun\ Ident\ DP_1]\!] = \lambda f_{et}.\ [\lambda g_{et}.\ \exists y[y = \iota x$ [the speaker has x in mind] $\wedge f(y) \wedge g(y)]]$
④ $[\![DP_2]\!] = \lambda g_{et}.\ \exists y[y = \iota x$ [the speaker has x in mind] $\wedge y$ is a dog $\wedge g(y)]$

The first DP, step ①, picks out a unique entity in the set of entities present in the context. Though I remain agnostic about the content of the elided NP under DP_1, this NP must belong to the same "class" of entities as the overt matrix NP. In order to compose with the indefinite quantifier, which I assume takes two restrictor arguments (one for the domain restricting DP and one for the matrix DP), the result of DP_1 must Ident shift from type e to type $<e,t>$, as shown in step ②, giving back a predicate true of just one entity (Partee 1987). In step ③, the Ident shifted DP composes with the existential quantifier, restricting it to a singleton set, namely the singleton set containing the unique dog that the speaker has in mind. Finally, in step ④, the existential quantifier composes with the matrix DP *tz'i'* 'dog'. This results in a doubly restricted existential with a meaning roughly equivalent to that of "some dog that I have in mind is in *g*", hence a specific indefinite.

This analysis makes several predictions about the distribution of noun classifiers. For one, noun classifiers should not be possible when domain restriction to a singleton is not possible. Second, with indefinites, noun classifiers should not presuppose uniqueness relative to the overt matrix NP. Third, noun classifiers should be optional with indefinites, but obligatory without indefinites.[6] Next, I show that these predictions are borne out.

3.2.1 Not allowed when domain restriction to a singleton is not possible

If noun classifiers restrict the domain of quantifiers to a singleton, then they should not be allowed in cases where restriction of a quantifier to a singleton is not possible. For example,

---

[6]For reasons of space, I left out more general predictions regarding an analysis of noun classifiers as unique definite determiners. Since noun classifiers are definite determiners, it follows that they are not possible with predicative nominals like *(*winh) Winak waj Xun* 'John is a man' and property-denoting nominals like *chonhum (*ixim) wa'il* 'tortilla-salesman'. This is predicted, since these nominals function as properties and must therefore remain of type $<e,t>$.

classifiers are not allowed with modal indefinites, independently argued by Alonso-Ovalle and Menéndez-Benito (2018) to have an anti-singleton constraint on their domains:

(12) Yalnhej tas **(*anh)** itajil ix-in-yam-a'.
      FC   WH CLF   herb PFV-A1S-pick-TV
      'I picked a random herb.'

In the above example, for the "random-choice" modal indefinite construction *yalnhej tas* to be felicitous, the domain of the quantifier cannot be restricted to a singleton set (see Alonso-Ovalle and Menéndez-Benito on Spanish *uno-cualquiera*). As predicted, *anh*, the classifier for plants, cannot restrict the domain of the random-choice indefinite in (12). As a comparison, consider the ungrammaticality of English **I picked a specific random herb*.

Additionally, Chuj negative polarity items (NPI) like *junok* 'any' (*jun* + irrealis morphology), cannot co-occur with noun classifiers:

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

The ungrammaticality of noun classifiers with *junok* is predicted, since such NPIs have been argued to be domain wideners (Kadmon and Landman 1993 and Arregui 2008). Again compare this with the ungrammaticality of English **I didn't find any certain book*.

Finally, noun classifiers cannot co-occur with the interrogative word *tas* 'what' in Chuj.

(14) Tas **(*anh)** itajil ha-gana?
      WH CLF   herb A2S-desire
      'What herb do you want?'

Assuming that interrogative words are existential quantifiers (Karttunen 1977), then the ungrammaticality of noun classifiers with *what*-questions is expected. Specifically, if a noun classifier were to restrict the domain of an interrogative quantifier to a singleton, then the question would be trivialized (it would presuppose its own answer). Again, compare this with the infelicity of English #*What certain book do you want?*.

3.2.2 No uniqueness presupposition with indefinites

Contrary to cases where classifiers appear alone with nouns, whenever they co-occur with indefinites, they should not presuppose uniqueness of the overt argument NP, as in (15):

(15) Context: *There are five priests in Yuxquen and the speaker and hearer know it.*

      Ix-in-lolon   yet' [jun (**winh**) pale].
      PFV-B1S-speak with   INDF CLF   priest
      'I spoke with a priest.'

As shown in the above example, it is felicitous to use an INDF-CLF-N sequence even though the entity denoted by the overt noun (*pale* above) is not unique in the context. That is, even if it is part of the common ground that there are five priests in Yuxquen, the speaker can utter *jun winh Pale*. The proposal predicts this, since the classifier in this case only presupposes the uniqueness of the elided NP. As illustrated in the structure in (16), the matrix NP remains outside the scope of the classifier.

(16)   [DP jun [DP winh NP] [NP pale]]

This contrasts with cases where a classifier appears alone with a noun, where its presence does trigger a uniqueness presupposition relative to the matrix NP:

(17)   Context: *There's only one priest in Yuxquen and the speaker and hearer know it.*

Ix-in-lolon   yet' [*(**winh**) pale   ].
PFV-B1S-speak with   CLF   priest

'I spoke with the priest.'   (not felicitous with context of (15))

(18)   [DP winh [NP pale]]

Contrary to the context in (15), in the context in (17), there is only one priest in Yuxquen, and this is part of the common ground between the speaker and the addressee. Consequently, it is not only possible but obligatory to have a classifier in this context, and the classifier presupposes the uniqueness of the matrix noun, as evidenced by the fact that (17) would be infelicitous in the context in (15).

3.2.3   Optionality of noun classifiers with indefinites

Finally, the proposal also predicts that with indefinites, noun classifiers should be optional. Specifically, the ability for classifier DPs to appear in the restrictor of an existential should not preclude speakers from restricting the domain of quantifiers by making use of a covert context variable (see e.g. von Fintel 1994) or through syntactic ellispsis (see e.g. Collins 2018). This prediction is borne out, as made explicit in previous examples that show that the co-occurrence of a noun classifier with an indefinite (including (15) above) is optional.

3.3   Summary and remaining issue

In sum, I proposed that Chuj noun classifiers, as (unique) definite determiners, can restrict the domain of a quantifier to a singleton set, accounting for the "specific indefinite" interpretations observed in section 3.1. I have not, however, discussed an important issue related to ellipsis. The proposal crucially relies on obligatory ellipsis of the NP embedded in the domain restricting DP, but there is no linguistic antecedent to license this ellipsis.[7] Note, however, that this issue is general to the approach of (implicit) domain restriction to

---

[7]It is also worth pointing out that the classifier DPs that restrict the domain of quantifiers in Chuj look like the pronouns of section 2, which also require NP deletion (and sometimes with no clear linguistic antecedent).

specific indefinites, which relies on ellipsis with no linguistic antecedent. Acknowledging this issue, Schwarzschild (2002) establishes the Privacy Principle, which allows for the felicitous use of elements within a quantifier restrictor even though it is impossible for the addressee to delimit the extension of the restriction:

(19) *Privacy Principle*   (Schwarzschild 2002: 52, 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.

Though I leave this issue for future work, it is clear that more work is needed to understand *why* restrictor environments are exempt from general antecedence requirements.

4.   Anaphoric definites

This section briefly returns to examples like (5), where a noun classifier co-occurs with a demonstrative. I show that the co-occurrence of a noun classifier with a demonstrative creates an anaphoric definite in Chuj. I then propose a preliminary sketch of the structure of anaphoric definites in Chuj.
    Consider the following example which contains two sentences:

(20) *Anaphoric definite*

      Ay jun   nok' tz'i' yet' jun   nok' mis t'atik. Saksak [**nok'** tz'i' #**(chi)**].
      EXT INDF CLF dog with INDF CLF cat here. white   CLF dog DEM
      'There's a dog$_i$ and a cat here. The dog$_i$ is white.'

As shown in the second sentence of the above example, Chuj noun classifiers must co-occur with demonstratives to form anaphoric definites.[8] This pattern is reminiscent of much recent work on the contrast between unique (weak) and anaphoric (strong) definites, including work by Jenks (2018), who argues that anaphoric definites in Mandarin also obligatorily appear with demonstratives (see also Schwarz 2009 on this contrast cross-linguistically).
    Of special interest is the fact that anaphoric definites in Chuj are decomposable as two morphemes: a noun classifier and a demonstrative. Though further work is required, I suggest that anaphoric definites in Chuj are derived compositionally, by combining the semantics of the classifier (3), which I have argued are unique definites, with the semantics of the demonstrative. I hypothesize that the demonstrative realizes an index of type $<e,e>$, which introduces an anaphoricity presupposition on the referent of the unique NP.
    Under this analysis, Chuj fits in Jenks' (2018) typology of definiteness marking as a *bipartite* language (i.e. a language that marks unique and anaphoric definites differently). However, Chuj is unlike previously reported languages in that it derives the anaphoric definite from the unique definite, instead of marking the distinction between unique and

---

[8]The co-occurrence of definite determiners (in this case noun classifiers) with demonstratives is not typologically rare. For example, Alexiadou et al. (2007) show that this configuration is commonly used to form demonstratives across various languages of different families (e.g. Hungarian, Greek, Spanish, Indonesian).

anaphoric definites via the use of distinct lexical items (see e.g. on Fering and Lakhota and Jenks 2018 on Mandarin). Though I let the details of this analysis for future work, I believe it can offer much insight on the semantic distinction between weak and strong definites and the typology of definiteness more generally.

5.   Conclusion

In this paper, I proposed a unified analysis of noun classifiers in Chuj as unique definite determiners. Following Postal (1966) and Elbourne (2005, 2013), I first proposed that the "pronominal" cases of classifiers were cases of definite determiners with NP deletion. I then proposed that classifier DPs can surface in the restrictor of an existential to restrict its domain to a singleton set, which accounted for the fact that classifier DPs force specific interpretations of indefinites. Finally, following the observation that noun classifiers obligatorily combine with demonstratives to form anaphoric definites in Chuj, I suggested that anaphoric definites are derived compositionally. The different syntactic configurations that noun classifiers can exhibit and their resulting meanings are summarized below:

(21)   *Configurations with noun classifiers*

Sequence	Result
CLF + ~~N~~	pronoun
INDF + CLF + N	specific indefinite
CLF + N	unique definite
CLF + N + DEM	anaphoric definite

The proposal raises questions about how quantifier domain restriction is realized across languages. For instance, future work should address why definites cannot appear with indefinites in English to create specific indefinites. That is, what explains the ungrammaticality of English *I want to buy some the/it book*? A potential answer to this question might lie in the following observation: while Chuj noun classifiers are unique definites at their core (and not anaphoric definites), English definite determiners are not (*the* is used both with unique and anaphoric definites). Perhaps only definites that only function as unique definites can combine with indefinites to restrict their domain. I leave these questions open for future work.

References

Abney, Steven P. 1987. The English noun-phrase in its sentential aspect. Doctoral dissertation, MIT, Cambridge, MA.

Alexiadou, Artemis, Liliane Haegeman, and Melita Stavrou. 2007. *Noun phrase in the generative perspective*. Mouton de Gruyter.

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2018. Projecting possibilities in the nominal domain: Spanish *uno cualquiera*. *Journal of Semantics* 35:1–41.

Justin Royer

Arregui, Ana. 2008. Some remarks on domain widening. In *Proceedings of the 27th West Coast Conference on Formal Linguistics*, 45–53.

Buenrostro, Cristina, José Carmen Díaz, and Roberto Zavala. 1989. Sistema de clasificación nominal del Chuj. In *Memorias del segundo coloquio internacional de Mayistas*, volume II. Mexico City: UNAM.

Collins, Chris. 2018. Quantifier domain restriction as ellipsis. *Glossa* 1:1–7.

Craig, Colette Grinevald. 1977. *The structure of Jacaltec*. Austin, TX: University of Texas Press.

Craig, Colette Grinevald. 1986. Jacaltec noun classifiers. *Lingua* 70:241–284.

Déchaine, Rose-Marie, and Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33:409–442.

Diesing, Molly. 1992. *Indefinites*. Cambridge, MA: The MIT Press.

Domingo Pascual, Pascual Martín. 2007. *Stzolalil stz'ib'chaj ti' Chuj / Gramática normativa Chuj*. Academia de Lenguas Mayas de Guatemala.

Elbourne, Paul. 2001. E-type anaphora as np-deletion. *Natural Language Semantics* 9:241–288.

Elbourne, Paul. 2013. *Definite descriptions*. Oxford University Press.

Elbourne, Paul D. 2005. On the acquisition of Principle B. *Linguistic Inquiry* 36:333–366.

Enç, Mürvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22:1–26.

Farkas, Donka F. 2002. Specificity distinctions. *Journal of Semantics* 19:213–243.

von Fintel, Kai. 1994. Restrictions on Quantifier Domains. Doctoral dissertation, University of Massachusetts, Amherst, MA.

García Pablo, Gaspar, and Pascual Martín Domingo Pascual. 2007. *Stzolalil slolonispaxtini heb' chuj: Gramática descriptiva chuj*. Academia de Lenguas Mayas de Guatemala.

Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Oxford: Blackwell Publishers.

Hopkins, Nicholas A. 1970. Numeral classifiers in tzeltal, jacaltec and chuj (mayan). In *Papers from the sixth regional meeting of the Chicago Linguistic Society*, 23–35.

Jenks, Peter. 2018. Articulated definiteness without articles. *Linguistic Inquiry* 49:501–536.

Kadmon, Nirit, and Fred Landman. 1993. Any. *Linguistics and philosophy* 16:353—-422.

Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and philosophy* 1:3–44.

Kratzer, Angelika. 1986. Conditionals. *Chicago Linguistics Society 22* 2:1–15.

Matthewson, Lisa. 1999. On the interpretation of wide-scope indefinites. *Natural Language Semantics* 7:79–134.

Milsark, Gary. 1974. Existential Sentences in English. Doctoral dissertation, MIT, Cambridge, MA.

Partee, Barbara. 1987. Noun phrase interpretation and type-shifting principles. In *Studies in discourse representation theory and the theory of generalized quantifiers*, ed. Jeroen Groenendijk, Dick De Jongh, and Martin Stokhof. Foris.

Piedrasanta, Ruth. 2009. *Los chuj, unidad y rupturas en su espacio*. Guatemala City, Guatemala: Amrar Editores.

Postal, Paul. 1966. On so-called pronouns in English. *Monograph series on language and linguistics* 19:177–206.

Royer, Justin. 2017. Noun and numeral classifiers in Chuj (Mayan). In *Proceedings of the Berkeley Linguistics Society*, ed. Julia Nee, Margaret Cychosz, Dmetri Hayes, Taylor Lau, and Emily Remirez, volume 2, 29–38. Berkeley Linguistics Society.

Schwarz, Florian. 2009. Two types of definites in natural language. Doctoral dissertation, University of Massachusetts.

Schwarz, Florian. 2013. Two kinds of definites cross-linguistically. *Language and Linguistic Compass* 7:534–559.

Schwarzschild, Roger. 2002. Singleton indefinites. *Journal of Semantics* 19:289–314.

Zavala, Roberto. 2000. Multiple classifier sytems in Akatek (Mayan). In *Systems of nominal classification*, ed. Gunter Senft, 114–146. Cambridge: Cambridge University Press.