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**QUESTIONS AND INDEFINITES IN SANTIAGO LAXOPA  
ZAPOTEC**

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by

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## Abstract

Questions and indefinites in Santiago Laxopa Zapotec

by

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Typologically, many languages have indefinite pronouns that are derived from interrogative pronouns. In fact, some indefinite pronouns assume the same morphological shape as their interrogative counterparts. Such words are termed quexistentials: they take on an indefinite or interrogative reading depending on the sentence environments in which they are licensed. Hengeveld et al. (2021) argue that indefinite quexistentials only appear in non-focused environments, whereas their interrogative counterparts only appear in focused environments. With Santiago Laxopa Zapotec (Oto-Manguéan) as the empirical focus of this thesis, I expand the typology of quexistentials presented by Hengeveld et al. (2021) and argue that indefinite and interrogative quexistentials are not always in complementary distribution, providing elicited data from native speakers of Santiago Laxopa Zapotec as evidence. I use Karttunen's (1977) semantics for questions to unite indefinite and interrogative quexistentials into having the same generalized quantifier semantics. The difference in their interpretations arises from the syntax-semantics interface – in particular, whether the quexistential composes with an interrogative operator.

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# Chapter 1

## Introduction

Indefinite pronouns are distinct from personal pronouns, demonstrative pronouns, relative pronouns, and interrogative pronouns in that they express indefinite reference. Such pronouns have only been the subject of language-specific theoretical studies since the 1960s (see Haspelmath (1997) for a comprehensive overview of earlier works on indefinite pronouns). Most languages have indefinites and they often assume a uniform shape insofar as they are usually derived from an interrogative pronoun (either identical to it or with some type of indefiniteness marker) or they originate from generic nouns like ‘person’ or ‘thing’ (Haspelmath, 1997).

In Haspelmath’s (1997) typology of languages with indefinite pronouns, it was found that 63 out of 100 languages have indefinite pronouns that are derived from interrogatives. For example, in Chechen (Nakh-Daghestanian), interrogative

pronouns undergo stem modification – specifically, final-consonant lengthening and addition of the particle *a* – to arrive at the indefinite forms of the pronouns (Maciev, 1961).

<i>wh</i> -	Interrogative	Indefinite	Gloss
person	<i>mila</i>	<i>milla a</i>	‘someone’ (ABS)
thing	<i>hun</i>	<i>huʔa a</i>	‘something’ (ABS)
place	<i>mičħa</i>	<i>miččaħa a</i>	‘somewhere’
time	<i>maca</i>	<i>macca a</i>	‘sometime’
manner	<i>muxa</i>	<i>muxxa a</i>	‘somehow’

Table 1.1: **Indefinites in Chechen**

In contrast, languages like French and English have indefinites which are not derived from interrogative pronouns: for example, *somebody* and *something* are not derived from interrogatives *who* and *what*, respectively. Typological studies predating Haspelmath (1997) have also reported that it is more often the case that a language will have interrogative-derived indefinites. Ultan (1978) found that, out of 78 languages, Samoan and Rotuman seemed to be the exception to this observation. Additionally, in Moravcsik (1969), the indefinite was similar or the same as the interrogative in 26 languages across all continents.

When the indefinite pronoun takes the same morphological shape as the interrogative pronoun, it is assumed that the indefinite is zero-derived from the interrogative and not vice versa (Haspelmath, 1997). An example of a zero-derived indefinite can be found in Khmer, in which the words for ‘someone’ and ‘some-

thing’ (*neəq-naa* and *qwəy*, respectively) are morphologically the same as their interrogative counterparts ‘who’ and ‘what’ (*neəq-naa* and *qwəy*, respectively) (Huffman, 1967). Typologically, indefinites are more marked, as they usually appear as morphemes in non-zero-derived indefinite pronouns (Haspelmath, 1997).

In recent literature, indefinites which assume the exact same morphological shape as their interrogative counterparts have been studied with respect to their syntactic distributions. Hengeveld et al. (2021) refer to zero-derived indefinite pronouns and their interrogative bases as “quexistentials.” They propose that the indefinite pronoun can only appear in non-focused environments, whereas their interrogative counterparts must appear in focused environments. In other words, the syntactic distribution of the two types of pronouns are complementary. With Santiago Laxopa Zapotec (SLZ) as the empirical focus of this thesis, I intend to connect a semantic analysis of indefinite quexistentials as being semantically similar to interrogatives (as typologically presumed) with a syntactic analysis of the distributional differences and similarities between indefinite and interrogative quexistentials, using methods of categorizing the distribution of indefinite pronouns put forth by Hengeveld et al. (2021).

This thesis first outlines empirical observations regarding the distribution of quexistentials in Santiago Laxopa Zapotec (SLZ) and other languages. In Chapter 2, I provide background on quexistentials in other languages, showing that previous literature assumes a clear complementary distribution between indefinite

and interrogative quexistentials. I also provide background on syntactic properties of SLZ and present the two quexistentials under analysis – *nhu* ‘who’ and *bi* ‘what.’ Chapter 3 presents empirical data on the distribution of quexistentials in SLZ, which reveals that while this language seems to partially adhere to indefinite distribution typologies, both indefinite and interrogative quexistentials can appear in the antecedent of conditionals, diverging from Hengeveld et al.’s (2021) proposal. I then present a syntactic and semantic analysis of quexistentials in SLZ in Chapter 4, ascribing the difference in interpretation of such words to a syntactic operator, unifying the semantics of indefinite and interrogative pronouns. I conclude in Chapter 5 and discuss further research to be done.

## 1.1 Quexistentials

Quexistentials are words that have both indefinite and interrogative readings depending on the sentence environments in which they are licensed (Hengeveld et al., 2021). For example, SLZ has the quexistentials *nhu* (roughly analogous to ‘who’ and ‘someone’) and *bi* (‘what’ and ‘something’). These words inherit interrogative meanings when they move into Spec,CP, a focus position, as in (1a). When they are licensed within existential constructions, however, they receive indefinite interpretations, as in (1b).

- (1) a. Nhu benh llinh-a'nh?  
 QUEX do.COMP work-DEF  
 'Who did the work?'
- b. De nhu benh llinh.  
 lie.STAT QUEX do.COMP work  
 'Someone did the work.'

In contrast, a language such as English has separate words for interrogative and indefinite expressions. An interrogative *wh*-word in English must be licensed by a +Q feature on C and appear in Spec,CP, shown in (2a) below.

- (2) a. Who did Bijou see?  
 b. Bijou saw someone.

Quexistentials are distinct from *wh*-indefinites and indeterminate pronouns, which require additional morphology.<sup>1</sup> Greek, for example, has an existential indefinite *kati* which is morphologically derived from the interrogative word *ti*, as in (3).

- (3) a. Ti efages?  
 what ate.2SG  
 'What did you eat?'
- b. Efages kati.  
 ate.2SG something  
 'You ate something.'

---

<sup>1</sup>Bruening (2007) refers to *wh*-indefinites which have the same form as their interrogative counterparts as bare-*wh*-indefinites (BWIs). Indeterminate pronouns, which involve particles, are also called complex *wh*-indefinites (CWIs) (see Yun (2013)).

The process of deriving existential indefinites from their corresponding interrogatives is productive: *ka-* prefixes onto an interrogative stem to compose an indefinite (Hengeveld et al., 2021). Quexistentials are unlike *wh*-indefinites as they do not undergo any morphological changes to derive the existential or interrogative interpretation.

Quexistentials are thought to be distinct from indeterminate pronouns, a related element which was first identified in Japanese by Kuroda (1965). Indeterminate pronouns are lexical items that can appear in existential and interrogative constructions. However, indeterminate pronouns exhibit morpho-syntactic differences depending on whether they assume the existential or interrogative interpretation. For example, in Japanese, an indeterminate pronoun must compose with the particle *-ka*, which appears in different syntactic positions depending on the interpretation. In an existential construction like (4a), the particle appears locally with the indeterminate pronoun. The interrogative construction always features the particle in the clause-final position.<sup>2</sup>

- (4) a. Dare-ka-ga hashitta.  
       indet-KA-NOM ran  
       ‘Someone ran.’
- b. Dare-ga ki-mas-u ka?  
       indet-NOM come-POLITE-PRS KA  
       ‘Who will come?’

---

<sup>2</sup>There is an additional requirement on the interrogative use of *-ka*, such that it must appear with a politeness particle (Miyagawa 1987, 2017, Uegaki 2018), furthering the point that indeterminate pronouns involve morpho-syntactic considerations, unlike quexistentials.

The different syntactic requirements for the two interpretations consequently make indeterminate pronouns syntactically different from quexistentials. Existential and interrogative interpretations of quexistentials do not have differences in their spell-out (Hengeveld et al., 2021).

While the morpho-syntactic differences between quexistentials, *wh*-indefinites, and indeterminate pronouns render them completely distinct elements, I argue that they can be analyzed under a uniform semantic approach. Novel data from Santiago Laxopa Zapotec provides an example of an exception to the quexistential language typology proposed by Hengeveld et al. (2021), such that indefinite quexistentials in this language may appear in Spec,CP, a position which canonically hosts interrogatives. Specifically, I propose that quexistentials, like *wh*-indefinites, have denotations that involve an existential generalized quantifier which allows either the interrogative or existential interpretation to arise depending on a language's syntactic configurations for each interpretation. Ultimately, quexistentials should not be analyzed as a separate phenomenon to *wh*-indefinites and related elements; they are a certain instantiation of generalized quantifier semantics with more lenient syntactic licensing requirements in interrogative constructions than related phenomena.

## 1.2 Santiago Laxopa Zapotec

Santiago Laxopa Zapotec (SLZ), known as *Dille'xhunh* by speakers, is an Oto-Manguean language spoken by about 1,000 speakers in Santiago Laxopa in the Sierra Norte region of Oaxaca, Mexico. Santiago Laxopa is a municipality located about three hours north of Oaxaca City in the Ixtlán District of Oaxaca. Neighboring towns include San Sebastián Guiloixi and Santa María Yalina, though the Zapotec languages spoken within these towns have different phonetic inventories (for example, the continuative form of sing in SLZ is *dzul* versus *chhol* in Yalina Zapotec) and different lexical items.

## 1.3 Data collection

Interrogatives and indefinites are frequently used in natural speech to ask questions and make non-specified reference to people or things, respectively. While I used corpus data for preliminary observations about quexistentials in SLZ (such as the fact that only two *wh*-words appear in indefinite contexts), most data presented in this thesis was collected from elicitation sessions with two native speakers of Santiago Laxopa Zapotec in-person in Santa Cruz, California.

The methods used during elicitation involved asking for acceptability or felicity judgements. In some cases, I asked how a Spanish sentence would be translated into Zapotec, and in other cases, I gathered judgements by asking if a



Zapotec sentence that I translated was acceptable or felicitous.

## 1.4 Spelling convention

The orthography used in this thesis is the *alfabeto práctico de zapoteco de la Sierra Juárez*. This orthography is used by Zapotec speakers in the Sierra Norte, as well as in California. While most symbols correspond with their symbols in the International Phonetic Alphabet, the following symbols do not:  $ch = [tʃ]$ ,  $chh = [dʒ]$ ,  $j = [ɣ \ \chi]$ ,  $lh = [l]$  (lenis lateral),  $ll = [ʒ]$ ,  $nh = [m \ n \ \eta]$  (lenis nasal),  $sh = [ʃ]$ ,  $x = [s]$ ,  $xh = [z]$ , and  $' = [ʔ]$ . Tone is not represented in this orthography and was not recorded in the data collection for this thesis.

## Chapter 2

# Background on Quexistentials and Santiago Laxopa Zapotec

Quexistentials differ in the distribution of their interrogative and indefinite readings across languages. While the interrogative reading of quexistentials is licensed in focus positions in all quexistential languages, Hengeveld et al. (2021) propose that the indefinite reading cannot appear in such positions. The two readings therefore are complementary in their licensing environments; wherever the interrogative quexistential can appear, the indefinite quexistential cannot appear.

Additionally, the distribution of indefinites is more restricted in some languages. For example, in Mandarin, Russian, and Vietnamese, indefinite quexistentials can only appear in NPI-licensing environments, such as polar questions and in the antecedent of conditionals. Such languages are grouped as "polarity-

sensitive" quexistential languages. In "undique" languages, like Korean and Pas-samoquoddy, the indefinite reading is licensed in any position that is not fronted (Hengeveld et al., 2021). "Topological" quexistential languages feature indefinite readings of quexistentials when they remain inside VP (Postma, 1994).

Among the *wh*-words in Santiago Laxopa Zapotec, two of them – *nhu* ‘someone, who’ and *bi* ‘something, what’ – can have both interrogative and in-definite interpretations. These words are distinct from other *wh*-words in the lan-guage which cannot surface with indefinite interpretations. SLZ has *wh*-movement pre-verbally; similar to other quexistential languages, the interrogative reading is only licensed in the sentence initial position. However, as will be shown in §3, the distribution of the indefinite quexistential does not adhere fully to the existing quexistential typologies.

## 2.1 Quexistential typologies

The indefinite interpretation of quexistentials does not share the same distribution cross-linguistically. Hengeveld et al. (2021) propose a typology of quexistential languages in which they are divided into three groups, characterized below.<sup>1</sup>

---

<sup>1</sup>While the current research illustrates that Santiago Laxopa Zapotec does not conform to the quexistential typologies proposed by Hengeveld et al. (2021), note that this is not the only language which does not clearly fit a group. The grouping of Tlingit is also unclear from the facts presented in Cable (2010a).

- (5) **Quexistential typologies** (Hengeveld et al., 2021)
- a. **Polarity-sensitive**: the indefinite interpretation is exclusively licensed in NPI-licensing environments. Languages in this group include Mandarin (Huang, 1982, among others), Russian (Yanovich, 2005), and Vietnamese (Tran & Bruening, 2013).
  - b. **Undique**: the indefinite interpretation is *not* possible in a fronted position in languages that have overt *wh*-movement. Languages in this group include Korean (Yun, 2013) and Passamaquoddy (Bruening, 2007; Bruening & Tsai, 2009).
  - c. **Topological**: the indefinite interpretation is licensed only inside VP. Languages like Dutch and German exist in this group (Postma, 1994).

Each group is illustrated below with examples of the indefinite interpretation from languages that adhere to them.

### 2.1.1 Polarity sensitive languages

In Russian, the existential reading cannot be licensed in the non-initial position in positive episodic contexts (6a); it can only be licensed in negative-polarity contexts, such as in a polar question (6b).

- (6) a. Vasja s'jel čto.  
 Vasja ate QUEX  
 \*‘Vasja ate something.’
- b. Vasja s'jel čto?  
 Vasja ate QUEX  
 ‘Did Vasja eat something?’
- c. Čto Vasja s'jel?  
 QUEX Vasja ate  
 ‘What did Vasja eat?’

It should be noted that the quexistential can only receive an indefinite interpretation in its origin position; if it is fronted, it is interpreted as an interrogative, as in (6c).

Vietnamese is also an example of a polarity-sensitive quexistential language. The indefinite reading of a quexistential in Vietnamese cannot be licensed in a positive sentence (7a), but can appear in NPI-licensing environments, such as under negation (7b), polar questions (7c), and in the antecedent of conditionals (7d) (Tran & Bruening, 2013).

- (7) a. Cô ấy gặp ai?  
 she meet QUEX  
 ‘Who did she meet?’  
 \*‘She met anyone.’
- b. Tân không gặp ai.  
 Tân NEG meet QUEX  
 ‘Tan does/did not meet anyone.’

- c. Cô ấy có gặp ai không?  
 she Q meet QUEX Q  
 ‘Did/Does she meet anyone?’
- d. Nếu ai đến thì Anh Thơ sẽ rất vui.  
 if QUEX arrive then Anh Tho FUT very happy  
 ‘If anyone arrives, Anh Tho will be very happy.’

Thus, languages in which the indefinite reading are constrained to NPI-licensing environments are grouped into one quexistential language group.

### 2.1.2 Undique languages

Undique languages allow the indefinite reading to occur when a quexistential is in any non-fronted position. For example, in Passamoquoddy, the indefinite quexistential can appear in positive episodic contexts (8a), which is unlike indefinite quexistentials in the polarity group. Additionally, the indefinite reading of the quexistential can still arise in NPI-licensing environments, as in (8c).

- (8) a. Piyel ‘kisotomon keq.  
 Piyel ate QUEX  
 ‘Piyel ate something.’
- b. Wen nemihtaq keq?  
 QUEX saw QUEX  
 ‘Who saw something?’
- c. Piyel mate ‘kisotomuwon keq.  
 Piyel not ate QUEX  
 ‘Piyel did not eat anything.’

Not possible: ‘There is something which Piyel did not eat.’

Note that in (8b), the fronted quexistential *wen* ‘who, someone’ must assume its interrogative interpretation. The lower quexistential is therefore interpreted as an existential, since it remains in its original position.

### 2.1.3 Topological languages

Topological languages feature a slightly more restrictive distribution of the indefinite reading than unique languages. In such languages, the indefinite reading is only licensed within the VP, as shown by Postma (1994) for Dutch and German. Thus, the indefinite quexistential can appear in past episodic contexts, as in (9b); when it is fronted, it receives the interrogative meaning, similar to the two other groups.

- (9) a. Wat heb je gegeten?  
      QUEX have you eaten  
      ‘What have you eaten?’
- b. Ik heb wat gegeten.  
          I have QUES eaten  
          ‘I have eaten something.’

Since the indefinite reading is restricted to appearing within the VP in topological languages, the indefinite quexistential cannot appear in the subject position of an unaccusative, as in (10a); a non-quexistential indefinite *iets* appears instead in (10b).

- (10) a. Wat is gevallen?  
 QUEX is fallen  
 ‘What has fallen?’  
 \*‘Something has fallen.’
- b. Iets is gevallen.  
 something is fallen  
 ‘Something has fallen.’

Postma (1994) argues that quexistentials are originally variables. Thus, the syntactic conditions that are fulfilled to give rise to an interrogative meaning also involve an interrogative operator binding the variable. When the quexistential remains in the VP, the variable is bound by an existential closure operator. This analysis follows from Heim’s (1982) and Diesing’s (1992) theories of indefinites, in which the VP is the syntactic domain of existential closure. Further evidence that the quexistential cannot have an indefinite meaning outside of the VP can be observed when considering the relationship between quexistentials and adverbs.

- (11) a. Jan heeft snel iets opgeschreven.  
 Jan has quickly something written.down  
 ‘There is something that Jan has quickly written down.’
- b. Jan heeft iets snel opgeschreven.  
 Jan has something quickly written.down  
 ‘There is something that Jan has quickly written down.’
- c. Jan heeft snel wat opgeschreven.  
 Jan has quickly QUEX written.down  
 ‘Jan has quickly written something down.’



- d. \*Jan heeft wat snel opgeschreven.  
 Jan has QUEX quickly written.down  
 Intended: ‘Jan has quickly written something down.’

Since the adverb *snel* ‘quickly’ is situated at the left-edge of the VP, the indefinite quexistential cannot appear to the left of it in (11d) because it must undergo existential closure within the VP. The indefinite quexistential *wat* must appear to the right of the adverb in the VP, like in (11c). In contrast, the non-quexistential indefinite *iets* can appear on either side of the adverb in (11a) and (11b).

#### 2.1.4 QF Biconditional

All three groups of quexistential languages show that the indefinite readings are licensed in certain environments. The overarching generalization which all groups share is the fact that the indefinite reading cannot arise when the quexistential fronts to a position which interrogatives would canonically occupy. Hengeveld et al. (2021) extend this generalization to the Quexistential Focus Biconditional, defined below, adapted from Haida (2007). The QF Biconditional is claimed to be a universal property of quexistential languages.

(12) **Quexistential Focus (QF) Bi-conditional** (Hengeveld et al., 2021)

Quexistentials are interpreted as question words if and only if they are focused. In short: the interrogative interpretation of QUEX  $\iff$  focus on QUEX

In other words, when a quexistential is focused, it must have an interrogative interpretation. And, when a quexistential has an interrogative reading, it must be focused. This generalization holds for prosodic facts in German, noted by Haida (2007), shown in (13), insofar as the stressed quexistential must be an interrogative like (13a).

- (13) a. Wer sieht WEN?  
 QUEX sees QUEX  
 ‘Who sees who?’  
 Not possible: ‘Who sees someone?’
- b. Wer SIEHT wen?  
 QUEX sees QUEX  
 Not possible: ‘Who sees who?’  
 ‘Who sees someone?’

In (13b), the quexistential is not focused and therefore cannot have an interrogative interpretation. Although the QF Biconditional has been analyzed with respect to focus realized prosodically, it should follow that it holds for focus that is realized syntactically. As will be shown in §3, this claim does not hold, since Santiago Laxopa Zapotec, a quexistential language, features movement of an indefinite quexistential into a syntactic focus position.

## 2.2 Syntactic background on SLZ

SLZ is a verb initial language, as shown in (14). Adler et. al (2018) propose that the word order in SLZ is derived via predicate raising, in which both the subject and object evacuate vP before vP moves to Spec,TP.<sup>2</sup>

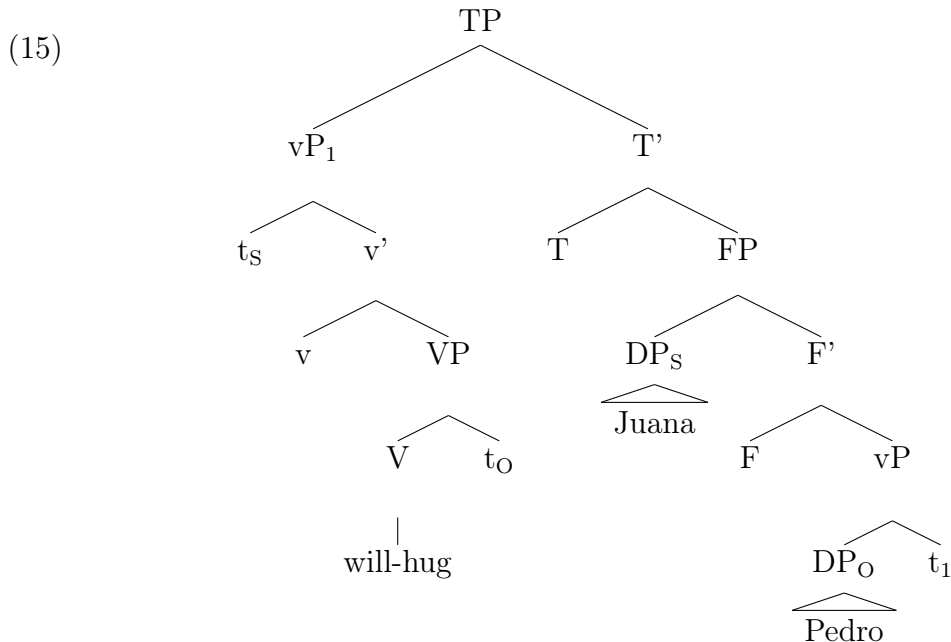
- (14) Enide Xwanh-a' Bedw-'nh.  
hug.POT Juana-DEF Pedro-DEF  
'Juana will hug Pedro.'

(Zapotec Language Project, 2022: SLZ5058-s, 38)

A tree illustrates the basic structure of a declarative sentence below. Before the vP moves to Spec,TP, the subject and object must move out. The subject raises to Spec,FP, which is some functional position below the verb. The position of the subject in SLZ is strict; it is necessarily the first postverbal argument in the clause (Adler et al., 2018). The object moves to a specifier of vP (or, rather, any position that does not intervene between the vP and subject).

---

<sup>2</sup>Predicate raising contrasts with head movement of only V to Spec,TP, and is motivated by the fact that adverbial elements can remain in the moved vP. Note that for the purposes of this work, details of predicate raising will be omitted.



This predicate raising account correctly predicts that certain elements must remain within the vP, including aspectual adverbs, the adjectival predicate in a copular clause, and the nonverbal element in a light verb construction (Adler et al., 2018).

### 2.3 *Wh*-questions in SLZ

Additionally, *wh*-questions are possible with non-existential *wh*-words, as well as interrogative existentials. *Wh*-words move into Spec,CP, as in (16). For complex *wh*-phrases, the NP restrictor pied-pipes with the *wh*-word, shown in (17).

- (16) Nhuxhe blhe'e Maria-'nh?  
 who see.COMP Maria-DEF  
 'Who saw Maria?'

(Zapotec Language Project, 2022: SLZ030-s, 23)

- (17) Nhuxhe lhill blhe'e-du' ?  
 who house see.COMP-2SG.EXP  
 'Whose home did you see?'

(Zapotec Language Project, 2022: SLZ037-s, 8)

The inventory of *wh*-words in SLZ is shown in Table 2.1. Additionally, the table shows whether they can also have an indefinite interpretation, as well as whether they can appear with a restrictor. Crucially, all *wh*-words appear in Spec,CP when they have an interrogative reading – with or without an NP restrictor – but cannot remain in-situ. The *wh*-words which cannot receive indefinite interpretations therefore must move to Spec,CP, where they receive an interrogative interpretation. The distribution of two *wh*-words in SLZ – *bi* 'what, something' and *nhu* 'who, someone' – is unlike the other *wh*-words listed in Table 2.1.<sup>3</sup> Both *nhu* and *bi* can appear, with or without a restrictor, in Spec,CP as interrogatives or in non-Spec,CP positions with an indefinite interpretation.

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<sup>3</sup>It should be noted that *nhu* and *bi* can also take the forms *nhude'* and *bide'*, which are perhaps morphologically related to QUEx + *-de'* 'thing.' The quexistential forms used in this paper will be those without *de'*, though future research should be done to decompose the complex forms.

		Restrictor	Indefinite
who	<i>nhu</i>	✓	✓
	<i>nhuɬhe</i>	✓	✗
what	<i>bi</i>	✓	✓
	<i>nhakɬhe</i>	✗	✗
where	<i>ga</i>	✓	✗
when	<i>bat</i>	✗	✗
why	<i>bixtse</i>	✓	✗
how	<i>gak</i>	✓	✗

Table 2.1: *Wh*-words in SLZ

When *nhu* or *bi* appear in Spec,CP, they must receive an interrogative interpretation, regardless of whether the quexistential is bare (18a), has a light nominal restrictor (18b), or a heavy nominal restrictor (18c).

- (18) a. *Nhu bchalhj-lhenh-u'?*  
 QUEX talk.COMP-with-2SG  
 ‘Who did you have a conversation with?’  
 Not possible: ‘You had a conversation with someone.’
- b. *Bi de'e benh shchahg-e'nh?*  
 QUEX thing do.COMP noise-DEF  
 ‘What thing made that noise?’  
 Not possible: ‘Something made that noise.’
- c. *Bi yu'u blhe'e-du'?*  
 QUEX house see.COMP-2SG.EXP  
 ‘What house did you see?’  
 Not possible: ‘You saw some house.’

While none of the quexistentials in (18) receive an indefinite interpretation, such readings are possible when the quexistential appears in two environments – namely,

within one NPI-licensing environment (the antecedent of conditionals) and in existential constructions, as I will show in Chapter 3.

## Chapter 3

# The Distribution of Quexistentials

The distribution of quexistentials in Santiago Laxopa Zapotec expands the existing typological groups of quexistential languages posited in Hengeveld et al. (2021), repeated as (19) below. These existing groups, in tandem with the QF Biconditional in (20), describe a complementary distribution between interrogative readings (henceforth QU) and indefinite readings (henceforth EX), insofar as QU can never be licensed in a construction which licenses EX. The QF Biconditional claims that QU arises when a quexistential is in a focus position. Consequently, EX should not be expected to assume a focus position.

- (19) **Quexistential typologies** (Hengeveld et al., 2021)
- a. **Polarity-sensitive:** EX is exclusively licensed in NPI-licensing environments.
  - b. **Undique:** EX is *not* possible in a fronted position in languages that



have overt *wh*-movement.

c. **Topological:** EX is licensed only inside the VP.

(20) **Quexistential Focus Bi-conditional** (Hengeveld et al., 2021)

Quexistentials are interpreted as question words if and only if they are focused. In short: QU of QUEX  $\iff$  focus on QUEX

Empirical data from Santiago Laxopa Zapotec reveals that this language allows the licensing of EX readings in the antecedent of conditionals (21) as well as in existential constructions (22).

(21) Chi bchalhj-lhenh-u'     **nhu**, gull     Maria-'nh.  
if talk.COMP-with-2SG QUEX tell.COMP Maria-DEF  
'If you talked with someone, tell Maria.'

(22) De     **nhu**     benh     llinh-a'nh.  
lie.STAT QUEX do.COMP work-DEF  
'Someone did the work.'

This distribution of the indefinite reading necessitates a different group than any put forth in Hengeveld et al. (2021). The antecedent of a conditional comprises only one particular NPI-licensing environment, barring SLZ from fully fitting into the polarity group. Moreover, Hengeveld et al. (2021) accounted for three typological groups in which the indefinite reading is licensed; novel data from SLZ presents an additional group – or perhaps a pattern that is optional in the existing groups – which allows EX in specifically existential constructions with an overt existential predicate.

Crucially, in conditionals, a quexistential can surface in a pre-verbal position with either a QU or EX reading depending on the particular semantic composition of the structure hosting such pre-verbal movement. In both readings, the QUEX moves to the same landing site in Spec,CP (details to follow in Chapter 4). This movement requires a reevaluation of the proposed complementary relationship between QU and EX readings and motivates the need to disambiguate the QU versus EX difference in the syntax-semantics interface. Table 3.1 summarizes the facts about the distributions of QU and EX in SLZ presented in this chapter.

<b>Environment</b>	<b>QU</b>	<b>EX</b>
Conditionals	*	[...QUEX...] QUEX[...t...]
Negation	*	[...QUEX...]
Modals	*	[...QUEX...]
Polar questions	*	*
Existentials	*	[...QUEX...]
<i>Wh</i> -questions	QUEX[...t...]	*

Table 3.1: **Licensers of indefinite QUEX**

QU is fronted in *wh*-questions and does not appear in the other environments which license EX. EX can appear without obscurities in one NPI-licensing environment – conditionals – as well as existentials. Within conditionals, EX can be licensed either in-situ or with movement.

### 3.1 The indefinite reading in polarity environments

The polarity group of quexistential languages include those languages which only license the indefinite reading in NPI-licensing environments and not in positive episodic contexts (Hengeveld et al., 2021). Languages which belong to this group, such as Mandarin, Russian, and Vietnamese, license EX in *more than one* NPI-licensing environment. Similar to the polarity languages, EX cannot be licensed in positive episodic contexts in SLZ, shown in (23).

- (23) \*Benh nhu llinh.  
do.COMP QUEX work  
Intended: ‘Someone did the work.’

However, the EX in Santiago Laxopa Zapotec is licensed only in the antecedents of conditionals and not in polar questions or under the scope of negation. This distribution of EX diverges from the polarity-sensitive group, such that EX these languages is licensed in all NPI-licensing environments. Thus, SLZ cannot be categorized fully as a polarity-sensitive quexistential language.

#### 3.1.1 Polar questions

In polarity languages, the EX reading arises under a polar question marker. Canonical polar questions in SLZ contain a question particle *e*, as in (24) below, and have VSO word order. Indefinites may also appear in polar questions, as in (25).

- (24) E uxhi'-dz-ba'                    yet-e'nh?  
 Q buy.DUB-more-3HU tortilla-DEF  
 'Did he buy more tortilla?'

(Zapotec Language Project, 2022: SLZ1010-s)

- (25) E blhe'e    Bedw-'nh tu    beku'?  
 Q see.COMP Pedro-DEF INDF dog  
 'Did Pedro see a dog?'

A quexistential cannot be licensed in a polar question with this canonical structure. Replacing the indefinite in (25) with the quexistential *nhu* results in an ungrammatical polar question.

- (26) \*E bchalhj-lhenh-u'    nhu?  
 Q talk.COMP-with-2SG INDF  
 Intended: 'Did you talk with someone?'

Polar questions can only contain an indefinite quexistential in a non-canonical structure that involves two of the same predicate surrounding the indefinite. For example, in (26), the indefinite *nhu* must appear between a higher predicate, *bchalhj-lhenhu* 'you talked with' and the same predicate in a lower position.

- (27) E bchalhj-lhenh-u'    nhu bchalhj-lhenh-u'?  
 Q talk.COMP-with-2SG INDF talk.COMP-with-2SG  
 'Did you talk with someone?'

It is possible that these polar questions with quexistentials contain a light-headed relative clause with the quexistential as the indefinite light head. For example, in Polish, indefinite light heads are derived from *wh*-words (Citko, 2004). More

research is necessary to determine whether these constructions are subject to matching effects (i.e., that the quexistential does not have to fulfill the category and case requirements of the matrix and relative clause). If these constructions lack matching, they can be differentiated from headless relatives which require matching (Citko, 2004).

Questions as to whether quexistentials in such polar questions are indefinite light heads of light-headed relatives, or whether another analysis can account for these constructions, are left open and should be pursued in further research. While the status of the structure of polar questions with quexistentials is unclear, it should be noted that other languages which are grouped as polarity-sensitive explicitly allow quexistentials in polar questions without a problem. Thus, SLZ diverges from this group based on the facts presented in this section.

### 3.1.2 Antecedents of conditionals

Conditionals in SLZ are formed with *chi* ‘if’ followed by the canonical VSO word order.

- (28) Chi dzuj            bzi'inh-a'    nhilhe,    lastuma elleb-a'.  
       if    leave.CONT mouse-DEF this.way a.lot      be.scared.POT-1SG  
       ‘If a mouse comes out, I will get scared.’

(Zapotec Language Project, 2022: SLZ045-s, 19)

SLZ shows partial adherence to the polarity group insofar as the only NPI-licensing group in which EX is licensed is in the antecedents of conditionals, shown below.

- (29) Chi bchalhj-lhenh-u' nhu, gull Maria-'nh.  
 if talk.COMP-with-2SG QUEX tell.COMP Maria-DEF  
 'If you talked with someone, tell Maria.'

In (29), the quexistential *nhu* assumes an indefinite meaning. The object *nhu* appears in its origin position post-verbally, providing clear evidence that it is acting as an indefinite quexistential in this construction.

In addition to EX being licensed in a canonical post-verbal position, EX can also undergo optional movement pre-verbally, as in (30). Crucially, the indefinite reading is retained with this movement.

- (30) Chi nhu bchalhj-lhenh-u', gull Maria-'nh.  
 if QUEX talk.COMP-with-2SG tell.COMP Maria-DEF  
 'If you talked with someone, tell Maria.'

As I will discuss in Chapter 4, the complementary relationship between the distribution of QU and EX readings is undermined by this movement since the EX reading appears in a position in which it is not canonically licensed. A question (to be addressed in Chapter 4) arises: how should interrogative meaning be severed from the quexistential, so that this optional movement does not license the interrogative reading?

### 3.1.3 Modal licensing

Quexistentials in SLZ are licensed under the epistemic modal particle *chik* 'I think.' I include modal licensing as an NPI-licensing environment under the

polarity-sensitive group as modals are able to license NPIs.

- (31) Chik nhu blhe'e Maria-'nh.  
I.think QUEX see.COMP Maria-DEF  
'I think someone saw Maria.'

Additionally, quexistentials can appear as free-choice items, providing further evidence that modal environments license quexistentials.

- (32) Unapa' bi instrumentw dzaklhall-u'.  
choose.COMP QUEX instrument want.CONT-2SG  
'Choose any instrument that you want.'

Thus, modals are a separate licenser of quexistentials. While I do not attempt to provide an in-depth syntactic or semantic analysis of modal licensing of quexistentials, this data clearly shows that existential licensing is not the sole licensing environment of quexistentials in SLZ.

### 3.1.4 Negative indefinites

In SLZ, sentential negation is expressed by the negative marker *bitu* at the left edge of a clause.

- (33) Bitu dzoo Pedro-'nh.  
NEG eat.CONT Pedro-DEF  
'Pedro doesn't eat.'

(Zapotec Language Project, 2022: SLZ020-s, 47)

- (34) Dzike Elena-'nh bitu dzoo Jose-'nh.  
 think.CONT Elena-DEF NEG eat.CONT Jose-DEF  
 ‘Elena thinks that Jose is not eating.’

(Zapotec Language Project, 2022: SLZ027-s, 25)

In root clauses, sentential negation in a clause with a non-existential indefinite is also grammatical, as in (35). Additionally, in root clauses, negative indefinites (NIs) *nhutxhu'* ‘no one’ and *bitbi* ‘nothing’ can also be used, as shown in (36).

- (35) Bitu blhe'e-du' tu xa'ag.  
 NEG see.COMP-2SG.EXP INDF topil  
 ‘You did not see a topil.’

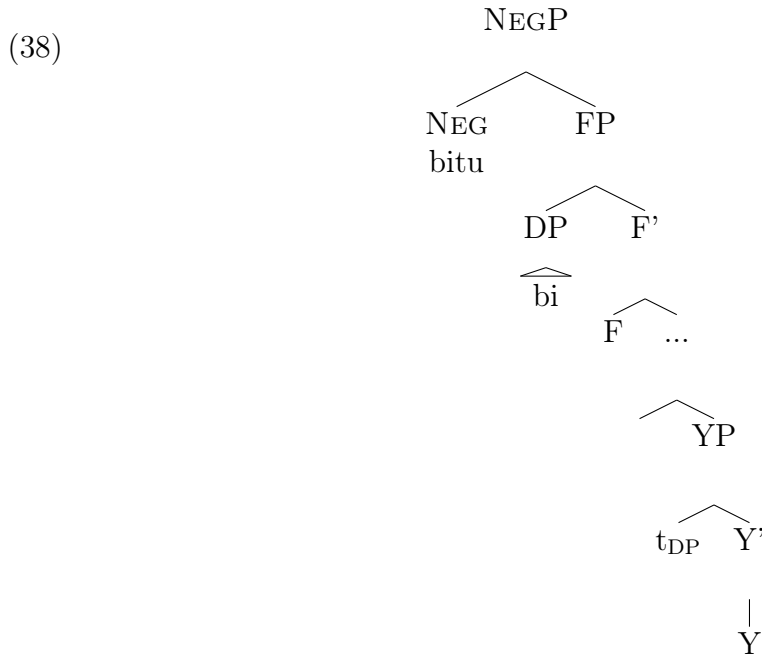
- (36) {Nhutxhu', bitbi} blhe'e-du'.  
 NEG.IND see.COMP-2SG.EXP  
 ‘You did not see {anybody, anything}.’

Negative indefinites in SLZ appear pre-verbally in the position of sentential negation and do not co-occur with sentential negation. Such positionally restricted NIs, though typologically rare, are found in languages related to SLZ like San Martín Peras Mixtec (SMPM) (Eischens, 2023). In SMPM, NIs contain a negative marker *ko* and a non-negative indefinite and appear in a fronted position. Crucially, there is optional movement of the indefinite component of the NI: it may appear with the negative marker in the fronted position (37a), or remain in-situ post-verbally (37b).



- (37) a. Kǒ:-ñā            yíbi    ní-shini    Pebro.  
 NEG-3SG.NEUT person COMPL-see Pedro  
 ‘Pedro didn’t see anyone.’
- b. Ko-nǐ-shini            Pebro ñà            yíbi.  
 NEG-NEG.COMPL-see Pedro 3SG.NEUT person  
 ‘Pedro didn’t see anyone.’

Following the analysis of San Martín Peras Mixtec by Eischens (2023), I propose that NIs in SLZ are formed by movement of the indefinite to a right-adjacent position to the negative marker. Unlike SMPM, this movement is not optional, as the indefinite cannot remain in-situ, as illustrated by (36). (38) shows this obligatory movement.



I do not make claims about the morphological process that ensues to combine the negative marker with the indefinite after movement, though there are morphological parallels which can be drawn between the separate pieces of the NIs and

how they combine: namely, *bitbi* ‘nothing’ contains [bit] from the negative marker *bitbi*, and *nhutxhu* ‘no one’ contains [tu].

On the surface, negative indefinites do not seem to be composed of a negative marker and a quexistential. As shown in §3.1.2, quexistentials in SLZ can undergo optional movement in the antecedent of conditionals. In negative conditionals, the NI must appear pre-verbally, in the position of sentential negation.

- (39) a. Chi nhutxhu bchalhj-lhen-u’, gull Marianhka’.  
 if NEG.IND talk.COMP-with-2SG tell.POT Maria.DEM  
 ‘If you did not talk to anyone, tell Maria.’
- b. \*Chi bchalhj-lhenh-u’ nhutxhu, gull Marianhka’.  
 if talk.comp-with-2SG NEG.IND tell.POT Maria.DEM  
 Intended: ‘If you did not talk to anyone, tell Maria.’

The restriction on the position of the NI in (39a) cannot be explained by the theory of NIs put forth by Eischens (2023) if the NI is composed of a negative marker and a quexistential. In the antecedent of conditionals, it is clear that there is optionality between a pre-verbal and post-verbal position of the quexistential; NIs cannot appear in their origin position post-verbally like in (39b) and are positionally restricted to the location of sentential negation.

Sentential negation and a quexistential can co-exist in sentences in which the quexistential is in an embedded clause, shown in (40), insofar as the negation occurs at the left edge of the clause.

- (40) Unha bene'-nh bitu betw Bedw nhu.  
 say.COMP person-DEF NEG kill.COMP Pedro QUEX  
 'The person (suspect) said that Pedro did not kill anyone.'

However, grammaticality judgements show more intra-speaker variation when there is sentential negation in a root clause with a quexistential. Prior to hearing a context for a sentence such as (41), the consultant judged it to be ungrammatical. After hearing contexts for sentences like (40) and (41), the consultant began judging root clauses with sentential negation and quexistentials as grammatical.

- (41) Bitu blhe'e-du' {nhu, bi}.  
 NEG see.COMP-2SG.EXP QUEX  
 'You did not see {anybody, anything}.'

While a quexistential is clearly licensed specifically with negation in constructions which have embedded clauses, a negative indefinite is preferred in most other contexts. If the NIs in SLZ were made up of a negative marker and a quexistential, an analysis would have to be presented for (i) the morphological process which combines the two pieces into a surface realization that is not clearly NEG + QUEX and (ii) the positional restriction of the quexistential that is not present in the other context (i.e., conditionals) in which quexistentials arise. While it could be the case that a fronted NI blocks an in-situ quexistential, this analysis should be pursued in future research. Regardless of the status of NIs as quexistentials in SLZ, it is clear that SLZ still does not adhere to the typology presented by Hengeveld et al. (2021), since quexistentials cannot occur in *all* NPI-licensing

environments, in particular polar questions.

## 3.2 Existential constructions

The EX reading of quexistentials is also licensed directly following the existential predicate *de*. The existential *de*-constructions co-occur with indefinite quexistential pivots. When the pivot is a non-quexistential indefinite, *de* is dispreferred and the verb *zua* ‘be’ is used instead.

(42) a. Zua tu xa’ag benh llinh-a’nh.  
be.CONT INDF topil do.COMP work-DEF  
‘A topil did the work.’

b. \*De tu xa’ag benh llinh-a’nh.  
lie.STAT INDF topil do.COMP work-DEF  
Intended: ‘A topil did the work.’

(43) a. De nhu benh llinh-a’nh.  
lie.STAT QUEX do.COMP work-DEF  
Someone did the work.

b. De bi benh Xwanh-a’.  
lie.STAT QUEX do.COMP Juana-DEF  
‘Juana did something.’

These constructions are existential constructions because the pivot cannot be definite, following the Definiteness Restriction (Milsark, 1974).

(44) a. De nhu tsinia yu’u.  
lie.STAT QUEX cook.CONT house  
‘There is someone cooking in the house.’

- b. #De Bedw tsinia      yu'u.  
lie.STAT Pedro cook.CONT house

Intended: 'There is Pedro cooking in the house.'

The Definiteness Restriction bars strong NP/determiner pivots in existential constructions, which according to some accounts is because the existential predicate contributes an operator which must combine with an expression denoting a property. Strong NPs/determiners are already quantificational and consequently cannot combine with an existential operator, as illustrated by (44b). This data therefore supports the fact that *de*-constructions are, in fact, existential constructions.

Thus, the additional typological finding for quexistential languages is as follows: in an existential construction, the indefinite reading of a quexistential in the pivot position arises. Currently, it is unclear what the semantic and syntactic configuration of such structures is. My analysis of quexistentials as denoting generalized quantifiers, presented in Chapter 4, is compatible with an analysis of *de* as a predicate type existential. Following McNally (1998), this predicate would declare the instantiation of the pivot without exerting existential force on its own. The force therefore comes from the quexistential.

A second possible approach to analyzing the semantics of these constructions is to take the existential predicate as having its own existential force. Under this approach, quexistentials are predicates without existential force and depend on existential closure for their indefinite readings outside of existential construc-

tions, whereas interrogative quexistentials must be licensed by an interrogative licenser. This analysis aligns with Kratzer and Shimoyama’s (2002) analysis of indeterminates in Japanese; however, it does not follow from the generalized quantifier semantics I propose for quexistentials, in which the existential force is built into the denotation of quexistentials. In Chapter 4, I present an illustration of how generalized quantifier semantics can apply to indeterminate pronouns.

It should be noted that *de* is morphologically related to the postural verb *de* ‘lie,’ though the literal meanings are not found in *de*-constructions. In fact, another postural verb, *dzi* ‘sit,’ can also act as an existential predicate.

- (45) a. Dzi    nhu   dzul        yu’u.  
           sit.STAT QUEX read.CONT house  
           ‘There is someone reading in the house.’
- b. #Dzi   Bedw dzul        yu’u.  
           sit.STAT Pedro read.CONT house  
           Intended: ‘There is Pedro reading in the house.’

In (45a), the postural verb *dzi* ‘sit’ occupies the position of an existential predicate. The quexistential, as an indefinite, acts as the pivot of the construction. (45b) is infelicitious with a definite NP in the pivot position. As the Definiteness Restriction is only active in the domain of existential predicates (Milsark, 1974,

1977), it is clear that *dzi* can assume an existential meaning with indefinites.<sup>1</sup>

Ultimately, indefinite readings of QUEXs can appear in existential constructions with postural verbs acting as existential predicates. The typology in Hengeveld et al. (2021) does not account for indefinite readings in existential constructions. They are not NPI-licensing environments, nor do they align with the generalization for undique languages, since the quexistential appears pre-verbally before the main predicate. Moreover, existential constructions do not adhere to the topological generalization, as the indefinite appears outside of the main VP.

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<sup>1</sup>While adding a lower existential predicate seems to be optional for *de* and *dzi*, the postural verb *ze* ‘stand’ requires an existential construction of this form, shown below.

- (1) i. Ze           nhu ze           yu’u.  
stand.STAT EX stand.STAT house  
‘There is someone in the house.’  
ii. \*Ze           nhu yu’u.  
stand.STAT EX house  
Intended: ‘There is someone in the house.’  
iii. #Ze       Bedw ze           yu’u.  
stand.STAT Pedro stand.STAT house  
Intended: ‘There is Pedro in the house.’

It is unclear why *ze* ‘stand’ differs from the other postural/existential verbs in its requirement in existential constructions; (1i) is grammatical with two existential predicates, whereas (1ii) is ungrammatical with a single *ze*. What remains clear is that in general, constructions with postural verbs, whether there are one or two existential predicates, are effected by the Definiteness Restriction and therefore should be considered existential constructions. In (1iii), a definite NP pivot cannot appear with *ze* ‘stand’ as an existential predicate.

### 3.3 Interrogative readings

The interrogative reading of quexistentials in SLZ is licensed in Spec,CP, which is the obligatory landing site of *wh*-movement (Adler et al., 2018). A complementary relationship between QU and EX holds for cases in which movement occurs in non-conditional constructions. Sentences (46) and (47) below illustrate the fact that the moved quexistentials in a matrix question must be QU.

- (46) Nhu   benh     lloh-a'nh?  
      QUEX do.COMP work-DEF  
      ‘Who did the work?’

Not possible: ‘Someone did the work.’

- (47) Nhu   ebnexhju   librw-e'nh Bedw-nha'-nh?  
      QUEX give.COMP book-DEF Pedro-that-DEF  
      ‘Who gave Pedro the book?’

Not possible: ‘Someone gave Pedro the book.’

Additionally, there does not exist a subject-object asymmetry in the argument which can occupy Spec,CP in a matrix question. This fact is illustrated below with *wh*-movement of object quexistentials.

- (48) Bi     benh     Xwanh-a' ?  
      QUEX do.COMP Juana-DEF  
      ‘What did Juana do?’

Not possible: ‘Juana did something.’



- (49) Bi ebnexhjw Maria-'nh Bedw-nha'-nh?  
 QUEX give.COMP Maria-DEF Pedro-that-DEF  
 'What did Maria give Pedro?'

Not possible: 'Maria gave Pedro something.'

Consequently, the QU reading arises in matrix questions when the quexistential must undergo obligatory movement to Spec,CP. It is therefore necessary to develop an account of the differences between the obligatory movement which forces QU readings versus the optional movement in conditionals which licenses EX readings in Chapter 4.

### 3.4 Summary

In SLZ, EX is clearly licensed in two environments: (i) the antecedent of a conditional (with optional movement) and (ii) *de*-constructions. Whether quexistentials are licensed under sentential negation or as a component of negative indefinites is less apparent. Nonetheless, there does not seem to be a clear typological group into which SLZ can fall; it is not fully a polarity-language, since EX is only licensed in two polarity contexts, nor is it completely topological, as it can optionally move out of VP in conditionals. It is not fully unique either, since the existential predicate *de* is necessary for the quexistential to be licensed in positive episodic contexts.

Crucially, the distribution of the indefinite readings of QUEXs in SLZ

diverges from the QF Biconditional, which states that a quexistential gives rise to an interrogative meaning if and only if it is focused. As will be shown in Chapter 4, a quexistential can optionally move to occupy Spec,CP – a syntactic focus position in SLZ – with an indefinite interpretation in the antecedent of conditionals. The question of what typological group SLZ belongs to is thus peripheral; the complementary distribution between QU and EX does not hold in SLZ.

## Chapter 4

# Composition of Quexistential Constructions

The syntactic and semantic composition of quexistentials must capture the fact that interrogative and existential readings are licensed under different conditions in SLZ: QU arises with obligatory movement, whereas EX arises either in-situ in conditionals or with optional movement in conditionals. While the syntactic movement of QU mirrors that of canonical *wh*-movement to Spec,CP, the semantics of QU must differentiate it from a canonical *wh*-word. Moreover, QU and EX movements must have different motivations which encode the obligatoriness, or lack thereof, of the operations.

Specifically, §4.1 will argue that a +Q feature on C motivates movement of an interrogative quexistential to Spec,CP. The semantics of Q on C allows the

quexistential to combine with it for an interrogative meaning to arise. In contrast, §.4.2 outlines the composition of an indefinite quexistential, which encodes an existential operator; in a conditional with optional movement, the quexistential then combines with  $C_{-Q}$ , which does not possess interrogative semantics.

I present a generalized quantifier account of quexistentials, in which the existential force is a part of the denotation of a quexistential, though other approaches to account for their semantics are not ruled out. It remains to be seen how this fits into the larger picture of quexistentials cross-linguistically, given the typology which Hengeveld et al. (2021) present for other languages. I adopt a Karttunen-style approach to the semantics of quexistentials over, for example, an *in-situ* Hamblin-style approach, since interrogative quexistentials in SLZ are licensed by  $C_{+Q}$  which motivates movement to Spec,CP. Moreover, I do not assume a focus semantics approach, since the QF Biconditional from Hengeveld et al. (2021) does not apply to SLZ. Since movement occurs to a focus position in conditionals, it is unclear how a focus semantics might apply to derive the different readings of quexistentials in SLZ.

While I use a Karttunen-style approach to the semantics of quexistentials, a Q-particle based approach (Cable, 2010b) to quexistentials might be considered in future research. As will be discussed, a Q-particle semantics would implicate that the *wh*-feature of a DP does not play a role in the movement of that phrase; instead, a QP containing a Q-particle and *wh*-word fronts to the left periphery.

This analysis implicates a connection between *wh*-words and their focus semantic value.

## 4.1 Background on *wh*-questions and interrogative quexistentials

As I showed in Chapter 2, SLZ has obligatory *wh*-movement in which *wh*-words move to Spec,CP after evacuating the vP during predicate raising (Adler et al., 2018).

- (50) Nhuxhe beku' tse-nh blhe'e Maria-'nh?  
 who dog of-DEF see.COMP Maria-DEF  
 'Whose dog saw Maria?'

(Zapotec Language Project, 2022: SLZ030-s, 18)

The *wh*-word *nhuxhe* 'who' in (50) undergoes *wh*-movement from a post-verbal object position to the A-bar position of Spec,CP. Evidence supporting the fact *wh*-questions in SLZ involve A-bar movement comes from island effects, shown below. The interrogative quexistential *bi* induces a violation when it moves out of the embedded *wh*-island.

- (51) \*Bi<sub>i</sub> dzaklhalle' Maria-'nh eneze-ba' [nhu<sub>j</sub> bseni'a t<sub>j</sub> t<sub>i</sub>]?  
 what want.CONT Maria-DEF know.POT-3HU who cook.COMP  
 Intended: 'What does Maria wonder who cooked?'

There exists a complementary distribution between manner adverbs and *wh*-words

in this landing site. Firstly, manner adverbs do not move with the VP when verb-initiality is derived. Before the VP moves, the subject, object, and manner adverb evacuates the phrase. This fact is illustrated below, as the manner adverb *xtido* ‘quickly’ cannot appear to the right of the moved verb (52b), but it can appear sentence-initially (52a), sentence-finally (52d), or between the subject and object (52c).

- (52) a. *Xtido*’-yes *udoo* *Juanh*-a’ *yet*-e’nh.  
 quickly-INT eat.COMP Juan-DEF tortilla-DEF  
 ‘Juan ate tortillas very quickly.’

(Adler et al., 2018: p. 9)

- b. \**Udoo* *xtido*’-yes *Juanh*-a’ *yet*-e’nh.  
 eat.COMP quickly-INT Juan-DEF tortilla-DEF  
 (Adler et al., 2018: p. 9)

- c. *Udoo* *Juanh*-a’ *xtido*’-yes *yet*-e’nh.  
 eat.COMP Juan-DEF quickly-INT tortilla-DEF  
 (Adler et al., 2018: p. 9)

- d. *Udoo* *Juanh*-a’ *yet*-e’nh *xtido*’-yes.  
 eat.COMP Juan-DEF tortilla-DEF quickly-INT  
 (Adler et al., 2018: p. 9)

Additionally, manner adverbs cannot co-occur with a *wh*-word pre-verbally (Adler et al., 2018).

- (53) a. *Gate* *ebxhunj* *Bedw*-’nh *tedo*’?  
 where run.COMP Pedro-DEF quickly  
 ‘Where did Pedro run quickly?’
- b. \**Gate* *tedo*’ *ebxhunj* *Bedw*-’nh?  
 where quickly run.COMP Pedro-DEF

- c. \*Tedo' gate ebxhunj Bedw-'nh?  
 quickly where run.COMP Pedro-DEF

Since manner adverbs can appear pre-verbally in declaratives, the source of the ungrammaticality in (53b) arises from the co-occurrence of the *wh*-word and manner adverb in Spec,CP.

Following Dayal (2016), the denotation of a canonical *wh*-word is an existential quantifier with a restrictor, as in (54). I adopt this semantics for quexistentials in SLZ.

$$(54) \quad \llbracket wh \text{ NP} \rrbracket = \lambda f \exists y. \llbracket (\text{NP}) \rrbracket (y) \wedge f(y)$$

(54) denotes the set of properties that an object or person has (Dayal, 2016). In *wh*-phrases or quexistentials with restrictors, the restriction is explicitly stated in the denotation of the *wh*-phrase or quexistential. For example, *nhuxhe beku'* 'whose dog' in (50) has the denotation (55).

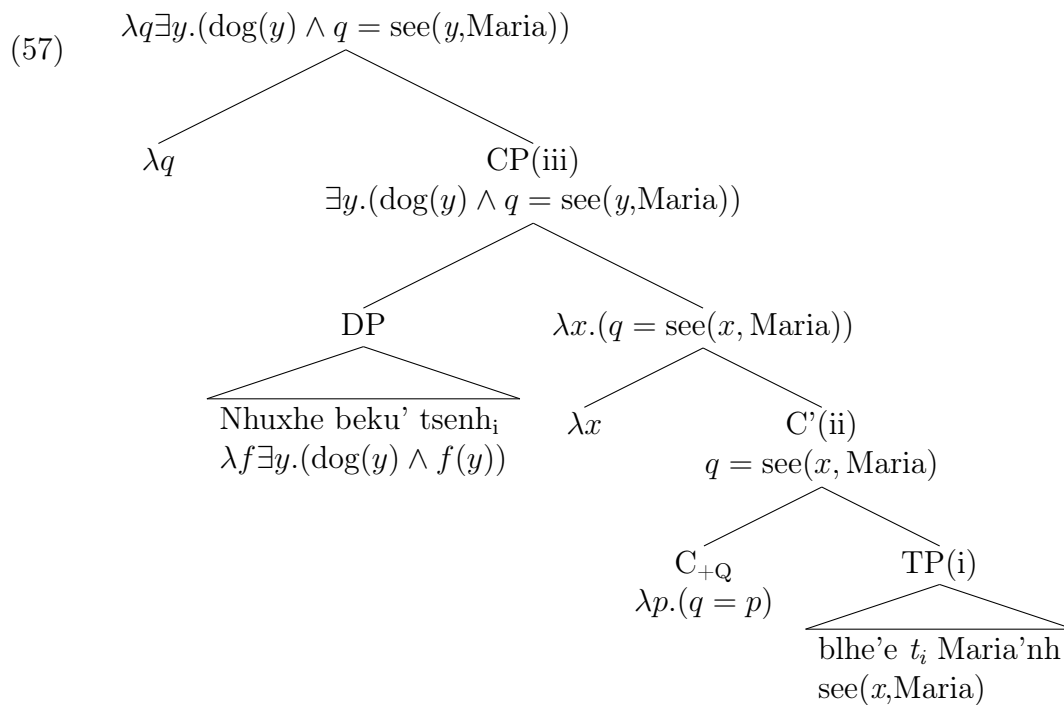
$$(55) \quad \llbracket nhuxhe beku' \rrbracket = \lambda f \exists y. (dog(y) \wedge f(y))$$

Syntactically speaking, *wh*-movement is motivated by a question feature on C (i.e.,  $C_{+Q}$ ). The fact that the interrogative quexistential must only occur with  $C_{+Q}$  is a consequence of a syntactic requirement and is not necessarily stated in its semantics. I therefore opt for a non-alternatives based semantics, unlike the Hamblin semantics approach proposed for Japanese indeterminates by Krazter and Shimoyama (2006), since interrogative quexistentials are necessarily licensed by movement. A semantics for  $C_{+Q}$  should be able to shift the sentence meaning

to an interrogative (Dayal, 2016). Crucially, it should also combine with a true *wh*-word or quexistential at the CP level. The denotation of  $C_{+Q}$  is therefore as follows:

$$(56) \quad \llbracket C_{+Q} \rrbracket = \lambda p.(q = p)$$

The *wh*-phrase and  $C_{+Q}$  are able to combine while  $C_{+Q}$  shifts the locus of meaning to an interrogative.

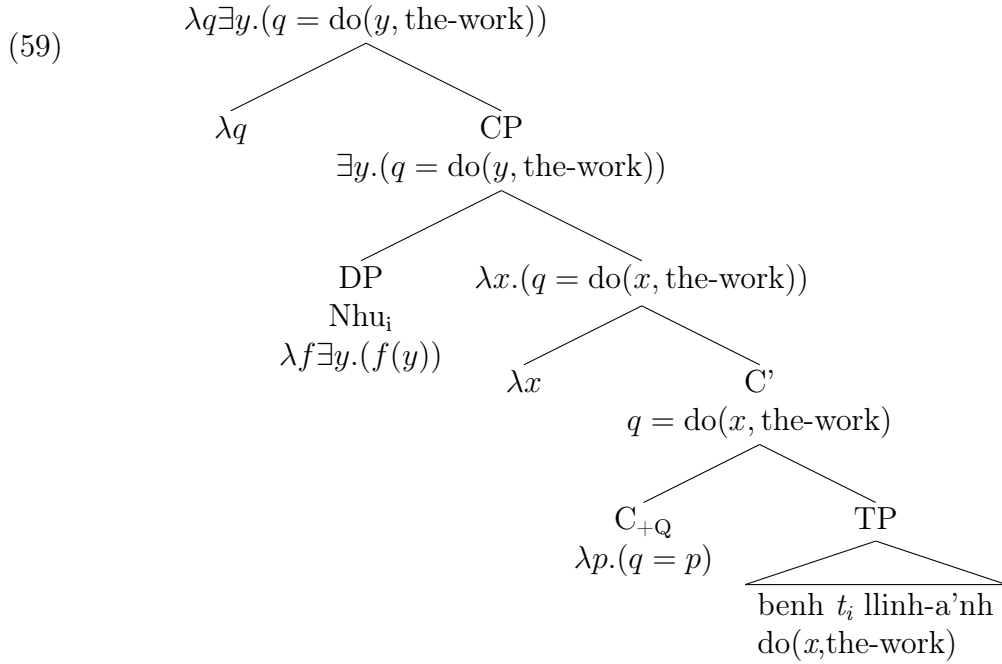


The structure of an interrogative construction is thus separated into three distinct parts: (i) the TP level which hosts the original position of the *wh*-word; (ii) the introduction of the locus of shift to an interrogative ( $C_{+Q}$ ) in the CP layer; and (iii) the binding of the variable inside the nucleus. Adopting Karttunen's (1977) approach to questions, this derivation arrives at the correct type for an interrogative, namely, a set of propositions:  $\langle \langle s, t \rangle, t \rangle$ .



(46) is copied below as (58) to illustrate the composition of a question with an interrogative quexistential.

- (58) Nhu   benh   llich-a'nh?  
 QUEX do.COMP work-DEF  
 'Who did the work?'



Similar to the structure of an interrogative construction, the interrogative quexistential construction has the same three distinct parts: (i) the TP level in which the quexistential originates; (ii) the introduction of the locus of shift to an interrogative ( $C_{+Q}$ ) in the CP layer, which will differentiate this construction from an indefinite quexistential; and (iii) the binding of the variable inside the nucleus. Again, the correct type – a set of propositions – is derived.

## 4.2 Syntax of optional movement in conditionals

As shown in §3.1.2, optional movement of a quexistential is permitted in the antecedent of conditionals while retaining an indefinite interpretation. (29) is copied below as (60).

- (60) Chi *nhu* bchalhj-lhenh-u', gull Maria-'nh.  
 if QUEX talk.COMP-2SG-with tell.COMP Maria-DEF  
 'If you talked with someone, tell Maria.'

This movement is syntactic movement since it obeys strong island constraints (Rizzi, 1990). A quexistential cannot move out of an adjunct island in the antecedent of a conditional, shown in (61b).

- (61) a. Chi *bxhill* Bedw-'nh kate' blhe'e-ba' *nhu*, wenh-a'nh  
 if smile.COMP Pedro-DEF when see.COMP-3HU QUEX good-DEF  
 zua-ba'.  
 be.CONT-3HU  
 'If Pedro smiled when he saw someone, he was happy.'
- (Lit. 'If Pedro smiled when he saw someone, he was good.')
- b. \*Chi *nhu* *bxhill* Bedw-'nh kate' blhe'e-ba', wenh-a'nh  
 if QUEX smile.COMP Pedro-DEF when see.COMP-3HU good-DEF  
 zua-ba'.  
 be.CONT-3HU  
 Intended: 'If Pedro smiled when he saw someone, he was happy.'

(61a) is grammatical since *nhu* remains in-situ post-verbally within the adjunct. When moved out of the adjunct, as in (61b), the sentence becomes ungrammatical.

Additionally, weak crossover effects with indefinite movement in conditionals supports the fact that this movement is A-bar movement (Postal, 1971).

- (62) a. Chi  $nhu_{a,i}$  dzike  $t_i$  tse xhn-e'-nh<sub>a</sub>, wenh sua  
 if QUEX love.CONT of mother-3EL-DEF good be.POT  
 xhn-e'-nh.  
 mother-3EL-DEF  
 'If someone<sub>i</sub> loves their mother<sub>i</sub>, she will be happy.'
- b. \*Chi  $nhu_{a,j}$  dzike tse xhn-e'-nh<sub>a</sub>  $t_j$ , wenh sua  
 if QUEX love.CONT of mother-3EL-DEF good be.POT  
 xhn-e'-nh.  
 mother-3EL-DEF  
 Intended: 'If someone's<sub>j</sub> mother loves them<sub>j</sub>, she will be happy.'

In the conditional (62a), the quexistential *nhu* 'someone' is moved to the pre-verbal position. The quexistential can only refer to the possessee *tse xhne'nh* 'of mother' when it is a subject (i.e., moved from the subject position  $t_i$ ). A weak crossover effect is induced when the quexistential moves from object position; the object interpretation cannot have co-reference between the quexistential and the possessee in (62b).

Finally, there is evidence that supports the hypothesis that the landing site of optional quexistential movement is Spec,CP. In SLZ, manner adverbs occupy this position and are displaced when a constituent moves pre-verbally.

- (63) a. Chi nhu bchalhj-lhenh-u' xtido', gull Maria-'nh.  
 if QUEX talk.COMP-with-2SG quickly tell.COMP Maria-DEF  
 'If you talked with someone quickly, tell Maria.'
- b. #Chi xtido' nhu bchalhj-lhenh-u', gull Maria-'nh.  
 if quickly QUEX talk.COMP-with-2SG tell.COMP Maria-DEF  
 Intended: 'If you talked with someone quickly, tell Maria.'

- c. #Chi nhu xtido' bchalhj-lhenh-u', gull Maria-'nh.  
 if QUEX quickly talk.COMP-with-2SG tell.COMP Maria-DEF  
 Intended: 'If you talked with someone quickly, tell Maria.'

With these facts about optional movement in mind, it becomes imperative to differentiate the mechanisms of obligatory *wh*-movement in the cases of canonical *wh*-words and interrogative quexistentials and the mechanisms of optional movement of indefinite quexistentials in conditionals. Thus far, both movements are A-bar, insofar as *wh*-movement and optional movement move an element to Spec,CP. Consequently, it is necessary that the semantics captures when an interrogative or indefinite reading arises.

### 4.3 Semantics of indefinite quexistentials

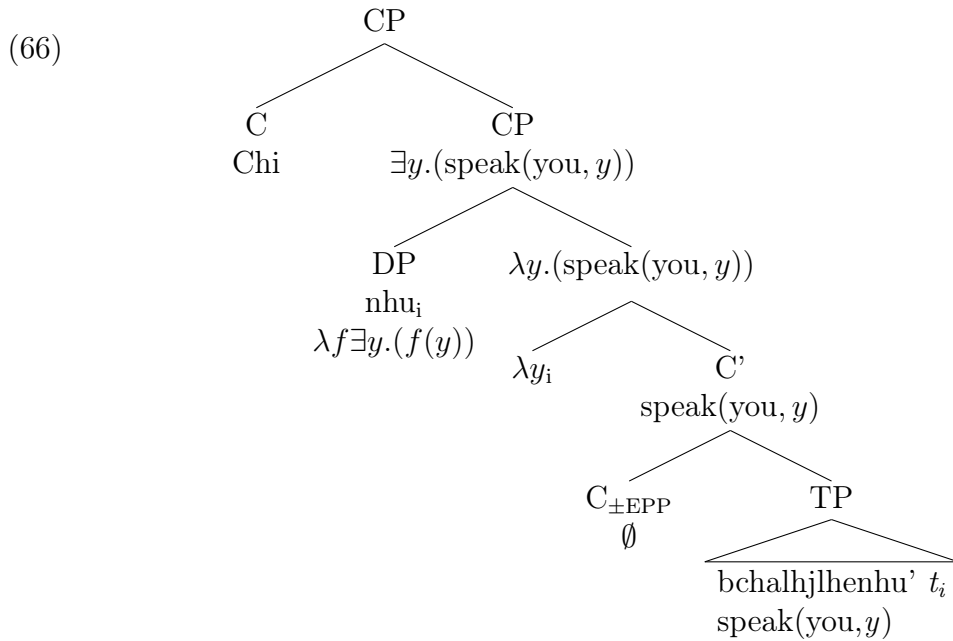
Indefinite quexistentials can optionally move to an A-bar position – Spec,CP – in the antecedent of conditionals. While the landing site of indefinite and interrogative quexistential movement, as well as *wh*-movement in general, is the same, the motivation for movement and how the indefinite structure composes semantically is necessarily different from interrogative movements.

In particular, the C head should *not* have a +Q feature which shifts the locus to an interrogative. Instead, an optional Extended Projection Principle (EPP) feature allows movement to fill Spec,CP in declarative clauses (Bobaljik & Wurmbrand, 2015). Since the meaning of the indefinite quexistential does

not change with optional movement, it follows that the C head is vacuous and only encodes syntactic movement. The denotation of the indefinite quexistential remains the same as QU; it is a generalized quantifier denoting the properties that some individual or object has. (29) is written below as (65) to illustrate the composition of optional movement in the antecedent of a conditional.

(64)  $\llbracket C_{\pm \text{EPP}} \rrbracket = \emptyset$

- (65) Chi nhu bchalhj-lhenh-u', gull Maria-'nh.  
 if QUEX talk.COMP-with-2SG tell.COMP Maria-DEF  
 'If you talked with someone, tell Maria.'



Note that (66) illustrates only the antecedent of the conditional and not the consequent. The derivation can be severed into parts similar to that of the interrogative quexistential. First, there is a TP level where the quexistential appears before movement. However, there is *not* a shift to an interrogative since the

C head is semantically vacuous, diverging from the composition of interrogative quexistentials. The derivation therefore continues, and lambda abstraction allows the DP – a generalized quantifier – to compose with its sister.

Ultimately, the difference between the two readings of a quexistential can be attributed to the feature on the C head. When C has a question feature (+Q), motivating obligatory movement to Spec,CP, the semantics on C necessarily shifts the meaning to an interrogative. When the C does not have a +Q feature, the interrogative meaning cannot arise, as in the case of indefinite quexistentials which either optionally move to Spec,CP or remain in-situ. The semantics of the quexistential remains the same regardless of the reading; both EX and QU are generalized quantifiers that denote properties which a person (*nhu*) or object (*bi*) possesses.

## 4.4 Cross-linguistic comparisons

The semantics of quexistentials is not unique to interrogative and indefinite constructions in SLZ, as previewed in Chapter 2. Languages such as English and Japanese have elements – *wh*-phrases analyzed as existential indefinites and indeterminate pronouns, respectively – which semantically behave like quexistentials. Both *wh*-indefinites and indeterminate pronouns involve the semantics of generalized quantifiers, insofar as *wh*-phrases in English denote a set of sets of objects or people, and Japanese indeterminate pronouns denote a set of sets that are

restricted by the pronoun.

While quexistentials have semantic similarities with English *wh*-phrases and Japanese indeterminate pronouns, the syntax of quexistentials distinguishes them from such elements. Crucially, there is only one licensing requirement for quexistentials in SLZ: the +Q feature requires Spec,CP to be filled, so the quexistential moves accordingly. When C does not have the +Q feature, there is not a requirement for the quexistential to move to Spec,CP, so it can remain in-situ to receive an indefinite interpretation. In contrast, a *wh*-phrase in English cannot remain in-situ with an indefinite reading – a different, non-*wh* morphological form (i.e., *someone*, *something*) is present in the indefinite construction instead. English therefore has more licensing requirements, such that (i) there must be a +Q feature on C to license a *wh*-word, and (ii) such a feature mandates movement to Spec,CP. In the case of Japanese indeterminate pronouns, the operator that provides the generalized quantifier denotation to the indeterminate phrase can appear outside of the clause which hosts the indeterminate pronoun; the indeterminate pronoun must then compose with a distinct particle before attaining the generalized quantifier denotation, whereas the quexistential in SLZ has a denotation that is inherently a quantifier.

#### 4.4.1 Indefinite treatment of *wh*-words in English

The analysis of indefinite and interrogative quexistentials as having the same denotations parallels an analysis of English *wh*-words as indefinites. *Wh*-words and indefinites in English have unrelated morphological forms, such as *someone* and *who*, though they both have generalized quantifier denotations. Consider the following sentences:

- (67) a. Who saw the cat?  
b. Bijou saw someone.

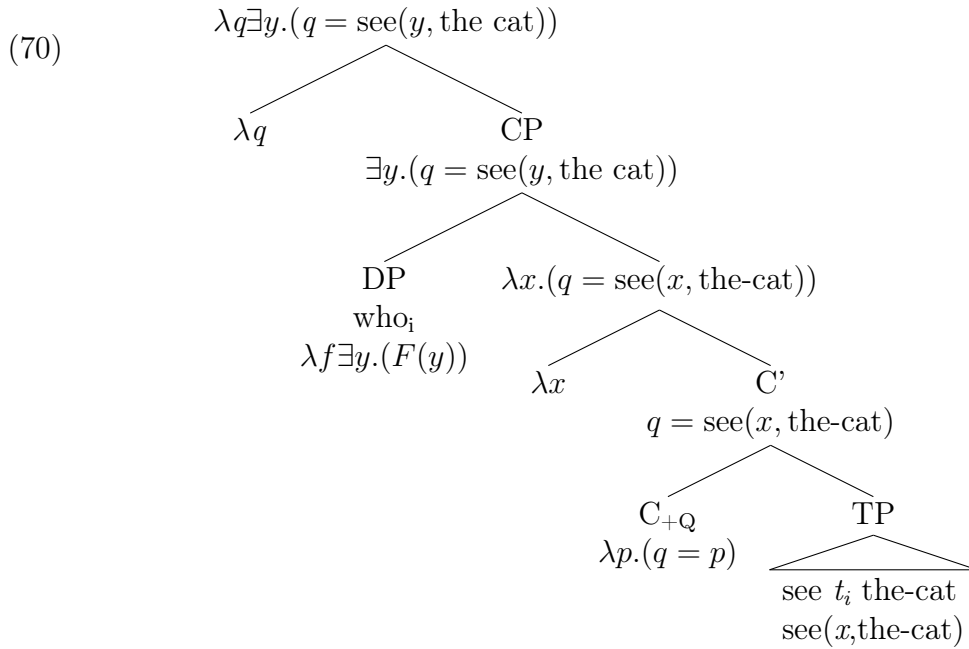
Both the *wh*-word in (67a) and the indefinite *someone* in (67b) denote an existential quantifier (68). When  $C_{+Q}$  is present in a clause, forcing obligatory movement of a *wh*-phrase, the semantics shifts the meaning of the clause to an interrogative.

The denotation of  $C_{+Q}$  remains the same as in SLZ, copied as (69).

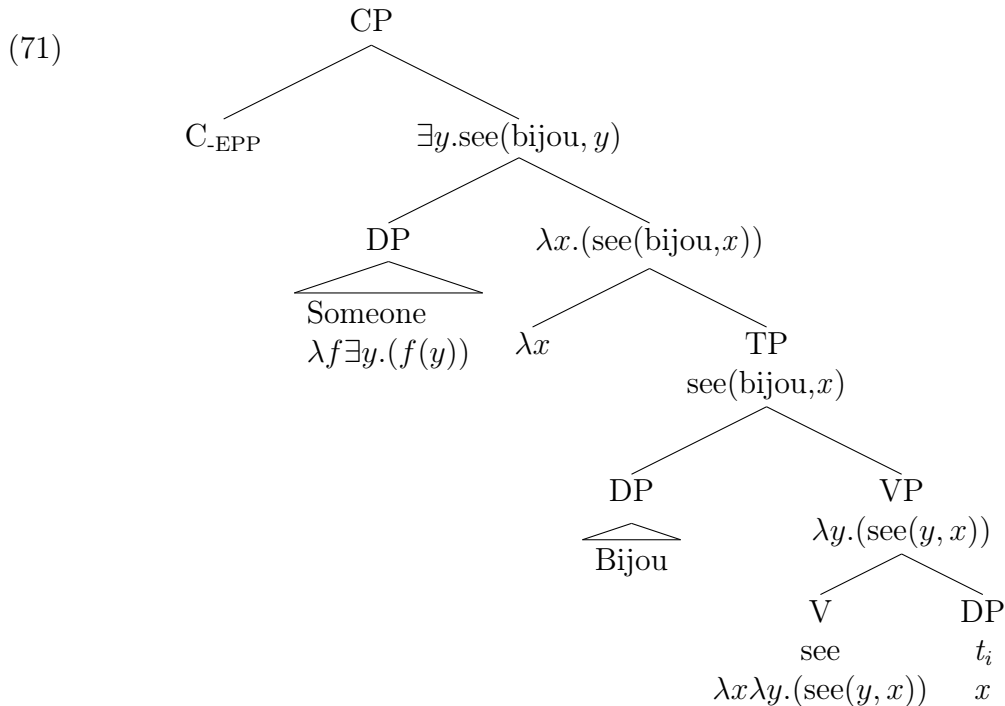
$$(68) \quad \llbracket wh \rrbracket = \lambda f \exists y. (f(y))$$

$$(69) \quad \llbracket C_{+Q} \rrbracket = \lambda p. (q = p)$$





The composition of an interrogative construction in English is the same as that of an interrogative quexistential construction in SLZ. The obligatory *wh*-movement in English leaves a trace,  $t_i$ , inside the TP. Motivated by the +Q feature on C, the *wh*-word moves from this position; the shift in meaning to an interrogative also occurs here with the denotation in (69). Variable binding between *who* and the variable inside the nuclear scope occurs. At the highest level (where predicate abstraction occurs with  $\lambda q$ ) the type  $\langle \langle s, t \rangle, t \rangle$  is derived. Thus, an indefinite denotation of *wh*-words in English allows the derivation to follow the derivation of interrogatives in SLZ. Likewise, indefinites in English can have the same denotation as their *wh*-word counterparts, shown in (71), illustrating that a quexistential treatment of both *wh*-words and indefinites in English is possible.



Generalized quantifiers undergo *Quantifier Raising* to move covertly at the Logical Form (LF) (Dayal, 2016). Thus, indefinites in English are assumed to move and adjoin at the clausal level, at which they are interpreted. The indefinite has the same denotation as a *wh*-phrase, as put forth in (54). The difference between an indefinite structure and interrogative structure is therefore the fact that C<sub>+Q</sub> motivates syntactic movement, whereas a C without a Q feature (i.e., one that is -EPP) does not motivate syntactic movement, rather QR occurs at LF.

While *wh*-words and interrogative quexistentials compose similarly, it is important to highlight that in English, *wh*-constructions have two syntactic licensing requirements: (i) Spec,CP must be filled when a question feature is present on the C head, and (ii) a *wh*-word must be licensed by a question feature. Quex-

istential constructions in SLZ, however, only have one requirement, namely that Spec,CP should be filled when +Q is present on C. When a quexistential is not in Spec,CP (i.e., when there is not a question feature on C), the quexistential can remain in-situ with an indefinite interpretation. Thus, English does not have words which syntactically behave like quexistentials, though the semantic composition of *wh*-words and indefinites is shared by quexistentials in SLZ.

#### 4.4.2 Indeterminates in Japanese

In Japanese, quantifier phrases are built out of indeterminate pronouns and an associated operator which allows different interpretations to arise (Krazter & Shimoyama, 2002). For example, the indeterminate pronoun in (72) has a universal interpretation, and in (73), the indeterminate pronoun has an interrogative interpretation.

- (72) [[**Dono hon**-o yonda] kodomo] -**mo** yoku nemutta.  
 which book-ACC read child -MO well slept  
 ‘For every book x, the child who read x slept well.’

(Shimoyama, 2006)

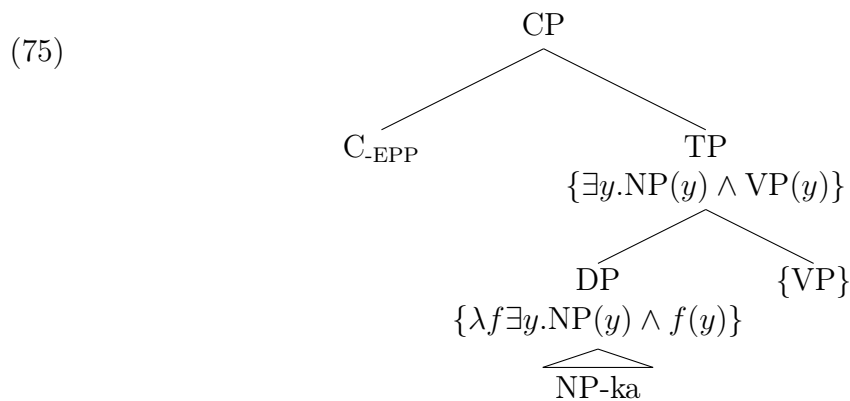
- (73) Taro-wa [[**dare**-ga katta] mochi]-o tabemasita ka?  
 Taro-TOP who-NOM bought rice.cake-ACC ate Q  
 ‘Who is the x such that Taro ate rice cakes that x bought?’

(Shimoyama, 2006)

Kratzer and Shimoyama (2002) present an analysis of Japanese indeterminate pronouns using Hamblin semantics, such that indeterminate phrases are interpreted in-situ and introduce sets of alternatives, which are used up by an operator. Thus, the operators analyzed as generalized quantifiers operate over the sets of alternatives denoted by indeterminate pronouns. An indefinite combines with an existential particle *-ka*, which is also the particle used with interrogative indeterminates (Shimoyama, 2006). The denotation an existential indeterminate pronoun is a set of entities, which combines with the existential quantifier *-ka*, as in (74b).

- (74) For  $\llbracket \alpha \rrbracket \subset D_e$ ,
- a.  $\llbracket \text{dono } \alpha \rrbracket = \llbracket \alpha \rrbracket$
  - b.  $\llbracket \alpha \text{ ka} \rrbracket = \{ \lambda f \exists y. y \in \llbracket \alpha \rrbracket \wedge f(y) \}$

Once the pronoun combines with the *-ka* particle, it can compose with the predicate to pick out a set containing a single existentially quantified proposition. The skeleton of this composition is illustrated below:

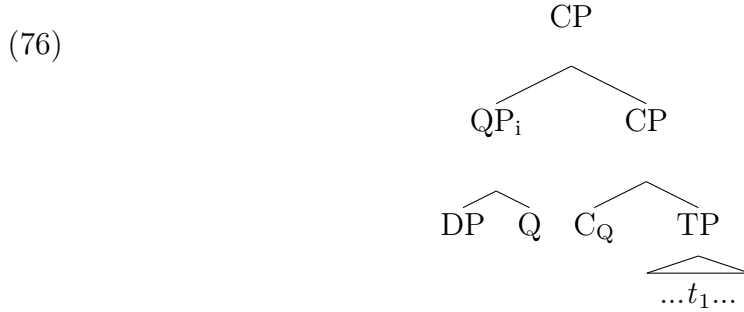


The particle acts as a generalized quantifier and the indeterminate pronoun restricts the set of things being quantified over. The denotation of the composition of the particle and pronoun are analogous to a restricted indefinite. As illustrated in §4.1, *wh*-words can be decomposed into two parts – namely, they are indefinites with an additional existential restriction (Dayal, 2016). Consequently, the denotation of an indeterminate pronoun resembles that of a *wh*-indefinite in English and quexistential in SLZ. Syntactically, however, indeterminate pronouns are able to compose across clause boundaries, as in (72) and (73), which differentiates them from *wh*-indefinites and quexistentials. In other words, the alternatives generated by indeterminate pronouns can expand across boundaries, whereas the alternatives generated by *wh*-indefinites and quexistentials are generated only in-situ.

## 4.5 A Q-particle approach

A Q-particle approach, detailed by Cable (2010), relates the left-peripheral position of foci and *wh*-phrases as being motivated by a Q-particle, a semantic element (sometimes phonologically present, as in Tlingit (Cable, 2010b)) which forms alternative-generating constructions. The Q-particle c-commands the *wh*-element or focused element and projects a QP. With indefinites, the Q-particle allows alternatives to be generated and then undergoes existential closure with an existential operator. In questions, the QP fronts to the left-periphery since C agrees with the QP. Crucially, in this movement, the *wh*-word is not relevant

for movement itself – its movement to the periphery is an epiphenomenon. The variable introduced by Q is bound by a question operator. A skeleton of this approach is sketched below:



If the Q-particle motivates the movement of the QP, and thus the foci or *wh*-word, it follows that there is a connection between the left-peripheral position and alternative-generating elements. A Q-particle approach to quexistentials in SLZ would predict that the interrogative movement is semantically and syntactically related to focus, which follows since both interrogative and focused elements move into the left-periphery; both sentences in (77) have a structure like (76).

- (77) a. Nhu   benh       llich-a'nh?  
 QUEX do.COMP work-DEF  
 'Who did the work?'
- b. MARIA udoo       gayet-e'nh.  
 Maria eat.COMP cookie-DEF  
 'MARIA ate the cookie.'

Ultimately, the Q-particle based approach presents a unified approach to the landing site of movement that concerns alternative-generating phenomena. A Karttunen-style approach does not stipulate a connection between the landing site

of interrogative quexistentials and the landing site of other alternative-generating phenomena. I therefore propose a Karttunen semantics for quexistentials in SLZ in place a Q-particle semantics, as the optionality of indefinite movement in conditionals motivates an approach that does not involve stipulations about foci. However, the Q-particle semantics should not be ruled out; the question as to which approach better captures the patterns of quexistentials is left open to further research.

## 4.6 Summary

Quexistentials in SLZ surface with two different readings depending on the syntactic configuration in which they appear. When +Q is present on C, movement to Spec,CP is obligatory, and an interrogative reading arises. Alternatively, when there is a  $\pm$ EPP feature on C, Spec,CP does not necessarily need to be filled. The lack of an obligatory licensing constraint allows the indefinite quexistential to appear in Spec,CP (with +EPP) or in its origin position (with -EPP).

While the generalized quantifier semantics of quexistentials is shared with similar elements cross-linguistically, such as *wh*-words in English and indeterminate pronouns in Japanese, quexistentials in SLZ have a distinct syntactic requirement. In particular, the interrogative reading arises only with +Q, which specifies that Spec,CP must be filled. However, +Q does not need to be present on C to license a quexistential, since its indefinite interpretation is not depen-

dent on +Q. This licensing requirement differentiates quexistentials in SLZ from *wh*-words in English, which are specifically licensed by +Q. Moreover, quexistentials are syntactically unlike Japanese indeterminate pronouns, as quexistentials generate alternatives in-situ, and do not expand across clause boundaries.

The similarities between quexistentials, *wh*-words, and indeterminate pronouns ultimately point toward a uniform semantic analysis for these elements. The syntactic domain dictates the licensing requirements and overall syntactic configuration which determines the form of the *wh*-elements. Specifically, it is the +Q feature on C which (i) shifts the locus of meaning to an interrogative, in the case of both quexistentials and canonical *wh*-words and (ii) licenses *wh*-words in English. Consequently, the C head and its features are responsible for determining the interpretations of quexistentials and similar elements.

Though a Karttunen semantics avoids creating connections between the landing site of left-peripheral movement and the moved elements (i.e., focused elements, interrogatives, and indefinites), it is not the only approach by which to analyze quexistentials. A Q-particle based approach would present a unified semantic account of alternative-generating phenomena in which the Q particle is bound by certain operators that instantiate different meanings.



# Chapter 5

## Conclusion

Empirical data from Santiago Laxopa Zapotec reveals that the syntactic distributions of indefinite and interrogative quexistentials is not entirely complementary. The QF Biconditional does not hold for quexistentials which appear in the antecedent of conditionals, in which the indefinite quexistential is allowed to undergo optional movement to Spec,CP, a position which canonically hosts interrogatives. I argue that this movement is A-bar movement and is motivated by an  $\pm$ EPP feature on C, thereby encoding the optionality of indefinite movement to differentiate it from interrogative movement.

Moreover, I utilize a Karttunen semantics approach to semantically differentiate indefinite quexistentials from interrogative quexistentials while avoiding positing connections between the landing site A-bar movement and the element which undergoes movement. While both quexistentials are born into a structure

with a generalized quantifier semantics and therefore existential force, it is how they combine with the semantics of the interrogative operator (i.e., the +Q feature on C) that determines whether it receives an indefinite or interrogative interpretation. A Karttunen-style approach is not the sole way of analyzing constructions with quexistentials, however. A Q-particle based approach, for example, could present a unified semantic and syntactic account of indefinite and interrogative movement, as well as other alternative-generating phenomena in SLZ. More research on how such an account could be implemented in SLZ is necessary and should be pursued in further research.

Finally, the novel data presented in this work has opened routes of research for various topics in Santiago Laxopa Zapotec. The structure of polar questions with quexistential-like elements is unclear: are these constructions light-headed relative clauses, in which the indefinite is acting as the light head, or is this “doubling” of the verb attributed to another phenomenon? Additionally, the internal composition of negative indefinites should be studied, as they seem to display distributional patterns that are unlike the distribution patterns of quexistentials. Finally, more research should be done on existential sentences in SLZ. A syntax and semantics should be devised for such structures: are the existentials predicate type existentials, or do the predicates exert their own existential force? Investigations of these questions would lead to a more clear understanding of the nature of indefinites and questions in Santiago Laxopa Zapotec, which would, in turn, pro-

vide more insight into cross-linguistic typologies of indefinites and interrogatives.

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