Focus, Interrogation, and Indefinites
Scott AnderBois   Brown University

1. INTRODUCTION

In many languages, there are certain words, morphemes, or constructions which occur only (or at least primarily) in matrix or embedded questions and are therefore called *interrogative*. There are also, however, linguistic elements which are not interrogative, yet play crucial roles in question formation. Chief among these are disjunctions, focus, and wh-words, which are used as indefinites in various environments.

In Mayan languages, wh-questions appear to consist solely of these elements (the picture for polar questions is more variable and we mostly set it aside in what follows) as in (1) from Tsotsil. The indefinite wh-word, *buch'u* 'someone/who', fills the preverbal focus position – indicated here with brackets and subscript [ ]$_F$. In (2) and (3), we see that either focus or an indefinite wh-word alone fails to produce a question interpretation.

TSOTSIL (Aissen 1996: 451)
(1) [Buch'u]$_F$ s-pas   mantal?
    someone/who   A3-do order
    'Who's giving the orders?'

TSOTSIL (Aissen 1999: 456)
(2) [Vo'on]$_F$ i-j-maj.
    me   CP-A1-hit
    'It was me that hit him.'

TSOTSIL (Aissen 1999: 457)
(3) Oy   much'u   ch-a-s-sa'.
    exists someone/who   ICP-B2-A3-seek
    'Someone is looking for you.'

For the semanticist, then, the primary puzzle that arises is the following: what is the meaning of the focus construction in (2) and the wh-word in (3) such that their combination, (1), produces a question meaning? This puzzle, which appears to arise quite consistently across Mayan languages, has three subparts to it: the semantics of focus, **§3**, the semantics of indefinite wh-words, **§4**, and the *compositional* principles for putting the two together, **§5**. Section **§2** provides brief background on formal theories of the semantics of questions, focus, and indefinites cross-linguistically.

2. SEMANTIC BACKGROUND
2.1. Questions
The framework we assume here is that of *possible worlds semantics*, where a possible world is a complete description of a way the world might be or might have been. Classically in this framework, the meaning of a declarative sentence is conceived of as the set of possible worlds in which the sentence is true. To take a simple example, then, a sentence like "John

ran" is true in all and only the possible worlds where the real world individual "John" refers to is a member of the set of real world individuals who were running at a given time.

(4) [[John ran]] = "that John ran" = {w': John ran in w'}

While such an approach is sensible for assertions, it immediately runs into difficulty when we apply it to the meanings of *questions*, since (matrix) questions are intuitively neither true nor false. Therefore, semanticists have instead treated the meanings of questions as sets of alternatives corresponding with varying degrees of abstraction to its possible answers. These individual alternatives, then, can either be true or false, allowing us to apply the framework of possible worlds to question meanings. Here we adopt the approach of Hamblin (1970), in which a simple example like "Who ran?" is assigned a meaning as in (5a), or a bit more formally (5b):

(5a) [[Who ran?]] = { "that John ran", "that Ana ran", "that Lucia ran", ... }
(b) [[Who ran?]] = { {w': John ran in w'}, {w': Ana ran in w'}, {w': Lucia ran in w'}, ... }

So, while this allows us to use the same basic formal tools to talk about assertions and questions, questions are assigned meanings which are of a different type than assertions. (4) has a set of possible worlds as its meaning, (5) has a set *of sets* of possible worlds as its meaning. For languages which have morphosyntactic elements unique to interrogatives, we can plausibly attribute this difference in type to the semantic effect of these elements. For Mayan languages, however, as we have seen in (1) for Tsotsil, there is no such element overtly present. We therefore face a choice: we can either posit covert interrogative elements (e.g. Aissen (1996)'s interrogative complementizer, C[+WH]) or we can examine the elements we do see (focus and indefinite wh-words) to see if we have been too hasty in positing such a fundamental difference between questions and assertions in the first place (or, of course, some combination of these two).

2.2. Focus

As we will discuss in detail in **§3,** the term "focus" has been used to refer to a variety of different forms and pragmatic notions both within Mayanist literature and cross-linguistically. One use of the term, espoused by Rooth (1985), Rooth (1992), Roberts (1996), Beaver and Clark (2008), Büring (2012), and many others is to refer to elements that make reference to a salient set of alternative propositions as part of their meaning. We regard a sentence with a focused element of this sort, then, as having *two* semantic values: its ordinary semantic value – [[...]]^o – and its focus semantic value – [[...]]^f. The latter is computed by substituting alternatives of the same semantic type as the focused element and allowing them to combine one-by-one (i.e. in *pointwise* fashion) with the other elements in the sentence.

A simple sentence like (6a), then, has the ordinary semantic value in (6b) and has as its focus semantic value the set of alternative propositions in (6c) that can be formed substituting in other individuals in place of the meaning of the focused element, Mary.

(6a) José saw [Mary]$_F$
(b) [[(6a)]]^o = "that José saw Mary"
(c) [[(6a)]]^f = { "that José saw Mary", "that José saw Ana", "that José saw Lucia", ... }

In a simple sentence like (6a), the focus semantic value serves only to indicate that the speaker takes the set of alternatives in the focus semantic value to be part of contextually salient background of the conversation[1]. It does not play any role in determining the truth-conditions of the sentence, that is to say, its ordinary semantic value. In more complex sentences, however, focus semantic values can influence ordinary semantic values, as in the case of sentences like (7) which contain a focus-sensitive operators like English *only*.

(6a') José only saw [Mary]$_F$.

Here, the ordinary semantic value can only be computed by reference to the focus semantic value. To a rough approximation, (6a') conveys the meaning of (6b), but also that none of the other alternative propositions in (6c) are true. Furthermore, we can see that focus is what plays the crucial role by noting that changing the focus in (6a') – "José only [saw]$_F$ Mary" – changes the truth-conditional meaning of the sentence (i.e. that José saw Mary, but did not, say, talk to her).

Note that even in cases like (6a') where focus does influence truth-conditions, it still also has the pragmatic effect noted in (6). That is, as von Fintel (1994) points out, an example like (6a') is only felicitous in contexts where the alternative set in (6c) is salient in prior context. Closely related to this is the observation that both (6a) and (6a') indicate that it is background information that there is some alternative or other in (6c) which is true – i.e. that José saw someone – though there is active debate over whether this implication has the same properties as true *presuppositions* (e.g. Cohen (1999), Geurts and van der Sandt (2004), Abusch (2009)).

2.3. Indefinites

Traditionally, indefinites like English *someone* in (7a) are treated as contributing ordinary truth-conditional content, as seen in (7b), akin to a proper name like John in (4). However, as the paraphrase in (7b) makes clear, there is nonetheless a clear sense in which the contribution of an indefinite is quite different. Therefore, just as questions and focus made use of sets of alternatives, it is easy to reconceive of the meaning of an indefinite along similar lines (e.g. Kratzer and Shimoyama (2002), Groenendijk and Roelofsen (2009)). One way to think of this, parallel to the Roothian account of focus we have just sketched is to adopt a third semantic value, call it the inquisitive semantic value – [[...]]^i – and allow this value to influence to the ordinary semantic value as in (7b').

(7a) José saw someone.
(7b) [[(7a)]]^o = "that there is some x or other (such that x is a person) which makes the sentence 'José saw x true' "
(7b') [[(7a)]]^o = "that there is some alternative in [[(7c)]]^i which is true"
(7c) [[(7a)]]^i = { "that José saw Mary", "that José saw Ana", "that José saw Lucia", ... }

While this way of formalizing things looks in some ways like the mirror image of the Roothian focus semantics, the level of complexity represented by $[[\ldots]]^i$ is not actually needed in this case. This is because the operation that we used to incorporate the inquisitive semantic value into the ordinary one, existential closure, is plausibly a default operation, so general that it can be built into the semantic system itself, rather than being attributed to a particular element in the sentence. More concretely, we can tweak the picture in (7) by instead taking ordinary semantic values – for all sentences – to be sets of alternatives (often singleton sets) and define sentences to be true – again, for all sentences – if and only if there is some true alternative or other in $[[\ldots]]^o$.

(7d) $[[(7a)]]^o$ = { "that José saw Mary", "that José saw Ana", "that José saw Lucia", ... }

Thus far, then, we have seen that from a theoretical perspective, both focus and indefinites plausibly evoke sets of propositional alternatives. Given this, it seems plausible that the alternatives found in questions in Mayan languages such as (1), arise compositionally either from focus or from the indefinite wh-word. With this brief theoretical background in place, we now turn to examine focus and indefinites in Mayan languages in more detail.

3. FOCUS IN MAYAN

3.1. Form vs. meaning

As mentioned above, the term "focus" has been used cross-linguistically as well as within Mayanist literature to refer to several distinct, yet related, properties. In the first place, the term "focus" is often used to refer to a particular *syntactic* construction whether or not focus semantics/pragmatics is present in any sense.

While Mayan languages at least typically have verb-initial basic word orders (with VOS being more common), the literature has long recognized two kinds of preverbal positions: topic and focus (Aissen (1992) and others cite Norman (1977) as being the earliest proponent of such a view). While these names both of course reflect semantic/pragmatic properties typical of the two positions, the terms are often applied to the construction whether or not the semantic/pragmatic function is present.

For example, in (8) we see a variety of different examples which all involve the focus construction. An example like (8a) is clearly an example of focus semantics and/or pragmatics in some sense (see **§3.2**). The issue of whether/how questions like (8b) involve focus is of course central to our current discussion. The head noun *ixq* 'woman' in a relative clause like (8c), however, does not intuitively seem to be focused in any sense, nor are there clear semantic or typological reasons to think relative clauses ought to involve focus (pace Tonhauser (2003a)). Finally, for negative and free choice quantifiers in certain languages, (8d-8e), it is unclear whether focus semantics/pragmatics are involved without more detailed compositional semantic analysis.

Q'EQCHI (Berinstein 1985: 150)

(8a) li k'anti' x-Ø-lop-o-k   r-e   li winq.
the snake PFV-B3-bite-AF-SS   A3-DAT   the   man
'It was the snake that bit the man.'

Q'EQCHI (Dayley 1981: 20)
(8b) ani x-Ø-a-sak'?
who PFV-B3-A2SG-hit
'Who did you hit?'

Q'EQCHI (Berinstein 1985: 167, modified)
(8c) x-Ø-kam   li   ixq   li   x-r-il   li winq.
PFV-B3-die   the   woman   that   PFV-A3-see   the man
'The woman that the man saw died.'

YUCATEC (Monforte et al 2010: 51)
(8d) K-u   jook'-ol   te'   ich le bolquete-o',   mix ba'al k-u   y-il-ik.
IPFV-A3   exit-SS   there in the truck-DISTAL   NEG thing IPFV-A3 EP-see-SS
'Leaving the truck, he didn't see anything.'

TSOTSIL (Aissen 1999: 464)
(8e) K'us-uk   nox   tij-on-uk   li   j-malal-e.
what-IRR just   shake-AF-IRR   the   A1-husband-ENC
'Just anything wakes my husband.'

There are, then, a diverse range of different constructions which make use of the morphosyntactic position commonly referred to as the "focus" position in Mayanist literature. Not all of these cases necessarily involve focus in any semantic/pragmatic sense, while for others this remains unclear. In the case of questions, however, there is a clear semantic connection with focus (**§2**) as well as strong cross-linguistic evidence that focus plays a key role in question formation (Haida (2008) and references therein). Additionally, it is robustly true that questions and focus cannot co-occur in the same clause regardless of their relative order, as seen in (9).

YUCATEC (Tonhauser 2003b: 116)
(9a) *Ba'ax   María   t-u   jant-aj
something/what   María   PFV-A3   eat-SS
Intended: 'What did María eat?'

YUCATEC {ELIC}
(9b) *María   ba'ax   t-u   jant-aj
María   something/what PFV-A3   eat-SS
Intended: 'What did María eat?'

Therefore, it seems quite plausible that wh-questions are an instance not only of a focus construction in terms of their form, but also in terms of their semantics, i.e. that the semantics of focus plays a compositional role in question formation.

3.2 Two kinds of focus

We have just seen that the term "focus" in the Mayanist literature has been used both to refer to a particular set of forms as well as to the semantic and/or pragmatic properties associated with certain uses of this form. We turn now to the question of what exactly these semantic/pragmatic properties are, where again, there has been much debate both within Mayan languages and more generally. See Shklovsky (2012), Can Pixabaj and England (2012), and Velleman (2014) for recent detailed discussions, and Aissen (this volume) for a recent overview of information structure in Mayan languages.

While some authors have assumed a unified notion of focus, recent decades have seen an emerging consensus that two related but separate notions are grammatically relevant. É. Kiss (1998), who traces this distinction back to Halliday (1967), calls these two notions IDENTIFICATIONAL FOCUS and INFORMATION FOCUS. Whereas she regards information focus as being new (i.e. not presupposed) information, she ascribes to identificational focus the more specific definition in (10).

(10) **The function of identificational focus:** An identificational focus represents a subset of the set of contextually or situationally given elements for which the predicate phrase can potentially hold; it is identified as the exhaustive subset of this set for which the predicate phrase actually holds.   É. Kiss (1988)

Therefore, while arguably every declarative sentence has an information focus, not every sentence has an identificational focus. We set aside here the issue of exhaustivity, since the question of whether/how exhaustivity is semantically encoded in Hungarian[2] (É. Kiss's main empirical focus) has itself been a matter of active debate (e.g. Onea and Beaver (2010), É Kiss (2010), Balogh (2013)) and this issue has been little explored for Mayan languages (though Aissen (1992: 50) does claim that preverbal focus Tsotsil is exhaustive).

One crucial aspect of this definition is that the notion of "contextually or situationally given elements" is quite broad, encompassing, as É. Kiss notes, both contrastive and non-contrastive uses. While the notion of "contrast" relevant here has been notoriously difficult to pin down with precision, we follow Büring (2011) and assume that contrastive uses are ones where specific alternatives in the set have been mentioned in prior discourse.

For Mayan languages, it has been argued by various authors that the preverbal focus position, similar to Hungarian, has both contrastive and non-contrastive uses (this is likely true of all Mayan languages). One fairly clear indication of this comes from K'ichee', where Can Pixabaj and England (2011) argue that preverbal foci marked with the particle *are* as in (11) do show a more limited distribution, being restricted to contrastive uses only.

K'ICHE' (Can Pixabaj and England 2011: 21)
(11)   Are   ri   achi   x-ø-war   kan-oq.

          Emph   Det   man   cp-B3sg-sleep   dir:remaining-ss
          'It was the man who stayed sleeping.'

Another question which has arisen in recent works on focus in Mayan languages is whether there are also postverbal foci (Kügler et al (2007) for Yucatec, Shklovsky (2012) and Polian (2013) for Tseltal, Velleman (2014) for K'iche' and more generally). These authors all show that in at least some cases, answers to explicit or implicit questions may occur postverbally, as in (12), with no preverbal focus present.

K'iche' (Velleman 2014: 210)
(12) **Context:** What do the people here eat?
Nima   k-onojel, ka-ki-tij   le   lej.
mostly   A3pl-all   Icp-A3pl-eat Det   tortilla
'Basically everyone eats tortillas.'

While such data appear to be quite widespread[3], this should not be taken as an indication that identificational focus is present in such examples. First, recalling the parallel with Hungarian, É. Kiss (1998) shows that postverbal information foci in Hungarian can serve as felicitous answers provided that the answer is interpreted non-exhaustively. For the example in (12), world knowledge suggests that the postverbal phrase *le lej* 'tortillas' is to be interpreted non-exhaustively (we leave evaluation of the broader claim to future work since it requires more careful work on exhaustivity more generally). Second, as discussed in **§2.2**, one of the main motivations for an alternative-based semantics for focus is the existence of focus-sensitive elements like English *only*. At present, there is no evidence that such operators interact with postverbal foci (and in any case, Beaver and Clark (2008) argue that many focus-sensitive elements in English are only optionally focus-sensitive). Therefore, we tentatively conclude that while such cases may act as information foci, they do not encode identificational focus.

Since wh-words in questions across Mayan languages can only occur in the preverbal focus position, we conclude that these require identificational focus and therefore that an alternative-based analysis along the lines of that sketched in **§2.2** is appropriate for the preverbal focus position itself. At the same time, as we have seen, there is evidence that individual Mayan languages may differ in their expression of related notions like information focus and contrastive focus.

4. WH-WORDS IN MAYAN

4.1 History of wh-words

One of the most striking observations about wh-words across Mayan languages is their instability, i.e. the lack of cognates across languages and even dialects of the same language. Whereas much of the lexicon of Proto Mayan has been reconstructed on the basis of large cognate sets (e.g. Kaufman and Justeson (2003)), wh-words are a systematic exception, as noted by Idiatov (2011). For example, in (13), we see a sampling of the word 'who' across languages from different branches of the family[4].

(13) *hita'*   HUASTECO   (Edmonson 1988: 529)
      máax   YUCATEC   (Bricker and Po'ot Yah 1998: 191)
      majchki   CH'OL   (Vázquez Álvarez 2011: 151)
      chi   CH'ORTI'   (Pérez Martínez 1994: 82)
      buch'u   TSOTSIL   (Haviland 1981: 40)
      machunk'a   TOJOLABAL   (Brody 1982: 239)
      maktxel   Q'ANJOB'AL   (Mateo Toledo 2008: 76)
      k'on   MOCHO'   (Palosaari 2011: 157)
      alkyee   MAM   (England 1983: 250)
      jab'il   IXIL   (Ayres 1991: 184)
      neen   USPANTEK   (Can Pixabaj 2007: 142)
      achike   KAQCHIKEL   (Patal Majzul et al. 2000: 89)
      jachinaq   K'ICHE'   (Larsen 1988: 122)
      qa'keh   POQOMAM   (Santos Nicolás and Benito Pérez 1998: 216)
      ani   Q'EQCHI'   (Dayley 1981: 29)

Beyond the lack of cognates even across closely related languages (esp. true for Eastern Mayan in the case of *who*), we see clear signs of recent morphological complexity. Two recurring patterns in particular are potentially relevant here. First, wh-words sometimes show clear connections with semantically 'bleached' nouns with related general meanings like person, thing, etc. (e.g. *máak* 'person' in Yucatec, *achi* 'man' in K'iche'), as discussed by Tonhauser (2003b). Second, they sometimes show clear relationships with morphemes encoding or relating to focus in some way (e.g. *ha'* in Huastec, *ix* in Yucatec, *ja'* in K'iche'). These correspondences are inconsistent enough that we do not take them to be synchronically decomposable in these ways (e.g. *ix* is not synchronically productive in Yucatec), but these historical connections may well nonetheless inform our semantic investigation (and hopefully the opposite is true as well).

4.2 Semantics of wh-words

While there are many cases of diachronic connections between wh-words and semantically 'bleached' nouns, there is also a far more consistent synchronic connection between wh-words and indefinites of various kinds. Cross-linguistically, this pattern, which has been dubbed the "interrogative-indefinite affinity," is extremely common in the world's languages (see Haspelmath (1997), Bhat (2000), Haida (2008)).

Within Mayan languages, we see this affinity quite straightforwardly realized. Indefinites can be formed from wh-words, often with additional morphology present as in (14). The details of how such indefinites are formed are quite variable across and within Mayan languages (e.g. Are they fronted? Do they require irrealis marking?), though this variation is little understood at present.

TSOTSIL (Haviland 1981: 40)
(14a) **Context:** Who is on the top of the hill?
       Muk'   buch'u   tey.

NEG.EXIST   who   there
    'There's no one there.'
TSELTAL (Polian 2007: 22)
(14b)   Bay-uk=nax   ø-bajt-ø.
    where-IRR=FOC   CP.I-go-B3
    'He went wherever (all over).'

YUCATEC (Tonhauser 2003b: 110)
(14c)   In   k'áat   bin   wa   tu'ux.
    A1   wish   go   or   where
    'I want to go somewhere'

YUCATEC (Monforte et. al. 2010: 207)
(14d)   Yaan   máax-e',   yaan   k-u   y-a'al-ik-e':   ...
    EXIST   who-TOP   exist   IMP-A3   EP-say-SS-TOP
    'Some people say: ...'

One important note here is that in some of these cases (e.g. (14a), (14d)), wh-words are likely best analyzed as relative pronouns in free relative constructions, rather than indefinites per se. Regardless, however, the function of the wh-word is ultimately indefinite in nature in these cases, and there clearly exist many cases, such as (14b-c), for which a free relative analysis is clearly not tenable.

5. QUESTIONS IN MAYAN

As we have described in some detail, then, content questions in Mayan languages are consistently composed of an indefinite wh-word occurring in the preverbal focus position, as in (15). Here, the wh-word *máax* "who" is focused as indicated both by its preverbal position as well as the Agent Focus form of the verb (unlike other Mayan languages, Agent Focus in Yucatec is indicated solely by the *lack* of Set A agreement and transitive status suffix, with no AF suffix present).

YUCATEC (AnderBois 2012: 351)
(15)   [Máax]$_F$ uk'   le   sa'-o'?
    someone/who   drink.AF   DET   atole-DISTAL
    'Who drank the atole?'

Given the semantic parallels between indefinites, focus, and questions that we have just seen, we now ask the question of how these parts are combined to produce a question meaning. Two main approaches to this compositional question have been proposed both within Mayan languages and cross-linguistically: one where focus introduces question alternatives, and one where indefinites play this role. We focus here on Yucatec, since this issue has been explored in some depth under both approaches by Tonhauser (2003b) and AnderBois (2012) respectively.

5.1. Focus as alternative generator

As we have seen in **§2.2**, focus not only has a clear morphosyntactic connection with questions cross-linguistically, but also a clear semantic connection since both involve sets of alternative propositions in some way. Recent works have fleshed out how this composition could work in a variety of different unrelated languages: Beck (2006) for Korean and German and Cable (2010) for Tlingit (though both authors draw on data from a variety of other languages as well).

The basic approach these authors take is to assume that wh-words themselves are lexically specified as lacking an ordinary semantic value. Instead, they claim that wh-words themselves only have a focus semantic value as in (16).

(16a) [[*máax*]]^o = undefined
(b) [[*máax*]]^f = { José, Maria, Ana, … }
(c) [[*máax uk' le sa'o'*]]^o = undefined
(d) [[*máax uk' le sa'o'*]]^f = { "that José drank the atole", "that Maria drank the atole", "that Lucia drank the atole", … }

While the composition thus far does produce the appropriate set of alternatives (i.e. the one in (16d)), we still do not have any ordinary semantic value. The final step then, is to propose a Q operator which combines with (16d), converting the focus semantic value into an ordinary semantic value, as in (17). In essence, then, the Q operator these authors propose is a focus-sensitive operator: like *only* it makes conventional reference to the focus semantic value. However, the Q operator is a special kind of focus-sensitive operator since unlike other such elements, it does not also make reference to the ordinary semantic value.

(17) [[Q [*máax uk' le sa'o'*]]]^o = { "that José drank the atole", "that Maria drank the atole", "that Lucia drank the atole", … }

Empirically, Cable (2010) argues for such a semantics on the basis of elements like Japanese *ka* and Tlingit *sá*, which he claims overtly instantiate the Q-particle in these languages[5]. Diachronically, the "focus particles" discussed in **§4.1** found in wh-words in some languages (Huastec *ha'*, Yucatec *ix* and K'iche' *ja'*) provide superficially plausible candidates in Mayan. However, while these elements are particles which play a role in question formation, they appear to differ crucially from Beck and Cable's Q-particles since, according to available descriptions of these elements, they also occur in focus constructions outside of questions.

Synchronically, however, modern Mayan languages have no Q-particle present overtly. Therefore, it would seem that an approach where focus is the generator of question alternatives must posit a covert Q operator. While such an approach is not necessarily untenable (e.g. Beck and Cable both propose covert operators of this sort for English), it does not move us any further towards a compositional account of questions in Mayan languages. Moreover, since the account assigns no ordinary semantic value to wh-words, it is not clear how the interrogative-indefinite affinity is to be captured on such an approach.

To conclude, then, we have argued that while an account based on focus alternatives may be appropriate for other languages[6], this approach does not in fact appear to resolve the compositional puzzle for Mayan languages (at least synchronically).

5.2. Wh-words as alternative generator

Rather than focus providing the interrogative alternatives, then, we turn now to consider the other approach, on which it is the indefinite semantics of the wh-word that introduces the question's alternatives. On this approach, developed in detail by AnderBois (2012), focus semantic values play no crucial role. Instead, as discussed in **§2.3**, the ordinary semantic value of the wh-word introduces a set of alternatives, as in (18a), which composes with the rest of the clause to form a set of propositional alternatives, (18b).

(18a) $[[\textit{máax}]]^o$ = { José, Maria, Ana, ... }
(b) $[[\textit{máax uk' le sa'o'}]]^o$ = { "that José drank the atole", "that Maria drank the atole", "that Lucia drank the atole", ... }

Recent work in inquisitive semantics (e.g. Groenendijk and Roelofsen (2009), AnderBois (2012), Ciardelli et al (2013), AnderBois (2014)) uses such representations to capture the intuition that indefinites (as well as disjunctions) typically make two contributions to the discourse. First, they provide the truth-conditional information that there is some alternative or other which is true. Second, they make salient in subsequent discourse the issue of which alternative(s) are true. By hypothesis, wh-words such as *máax* 'who' in (15) contribute indefinite semantics, and therefore introduce both components to the sentence's meaning.

Where questions differ from corresponding indefinites, then, is that questions have the wh-word or phrase in the preverbal identificational focus position. AnderBois (2012) argues that the role of focus is to presuppose the information that there is some *x* or other for which the main predication holds, as in (18c).

(18c) **Focus presupposition of (15):** { "that someone or other drank the atole" }

Relative to the focus background in (18c), then, (18b) is no longer informative. It serves only to highlight the different possible alternatives which together comprise the logical space. Under this approach, no covert morphosyntax needs to be posited. Instead, it is indefinite wh-words which contribute question-like alternatives in all their uses plus the focus presupposition, which effectively isolates this 'inquisitive' contribution, producing the desired interrogative interpretation.

One area that the approach in this section does not address are the historical considerations touched on in **§4.1**. Whereas Tonhauser (2003b) attempted to make use of such facts within the formal semantic account, there is no obvious place for such decomposition in the present approach. Instead, the question becomes how indefinite wh-words arose historically across all their uses, interrogative or not. We leave this issue to future work, but given the lack of synchronic productivity in wh-word formation discussed

above, we hope to have made the case that this issue is separate from the compositional question on which we focus here.

6. CONCLUSIONS

In this chapter, we have investigated the semantic composition of content questions in Mayan languages. Whereas many languages make use of question-specific morphosyntax, wh-questions in Mayan languages consist of indefinite wh-words and a preverbal focus position, both of which occur separately outside of questions. We have considered two leading approaches to this compositional problem: one in which focus is the nexus of alternatives, and one in which indefinite wh-words play this role. While some quite thorny diachronic issues remain unresolved on either view, we have argued that only the indefinite-based approach resolves this compositional puzzle without the need to posit covert interrogative morphology.

While we have focused exclusively on wh-questions here, it is worth noting that AnderBois (2012) shows that, given the deep semantic parallels between indefinites and disjunctions, the indefinite-based approach can be readily extended to polar questions (with or without preverbal foci) and alternative-question uses of focused disjunctions, at least for Yucatec. We leave more detailed investigation of these other types of questions to future work since the facts regarding these are both more variable and less well documented. For example, unlike Yucatec, many Mayan languages either lack a disjunctive coordinator or else have recently borrowed the Spanish *o*. However, we hope to have given good reason to think that such compositional issues are in principle resolvable and that doing so can shed light both on the structure and history of Mayan languages and on the formal semantics of these component constructions cross-linguistically.

References

Abusch, Dorit. 2010. "Presupposition triggering from alternatives." *Journal of Semantics* 27(1): 37-80.

Aissen, Judith. 1996. "Pied-piping, abstract agreement, and functional projections in Tzotzil." *Natural Language and Linguistic Theory* 14: 447-491.

Aissen, Judith. 1999. "Agent focus and inverse in Tzotzil." *Language* 75(3): 451-485.

AnderBois, Scott. 2012. "Focus and uninformativity in Yucatec Maya questions." *Natural Language Semantics* 20: 349-390.

AnderBois, Scott. 2014. "The semantics of sluicing: beyond truth conditions." *Language* 90(4): 887-926.

Ayres, Glenn. 1991. *La gramática Ixil*. Guatemala: Centro de investigaciones regionales.

Balogh, Kata. 2013. "Hungarian pre-verbal focus and exhaustivity." *New Frontiers in Artificial Intelligence Lecture Notes (Proceedings of LENLS 9):* 1-16.

Beaver, David and Brady Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning*. Oxford: Blackwell.

Beck, Sigrid. 2006. Intervention effects follow from focus interpretation. *Natural Language Semantics* 12: 1-56.

Berinstein, Ava. 1985. *Evidence for Multiattachment in K'ekchi Mayan*. New York: Garland Publishing.

Bhat, D.N.S. 2000. "The interrogative-indefinite puzzle." *Linguistic Typology* 4: 365-400.

Bricker, Victoria, Eleuterio Po'ot Yah, and Ofelia Dzul de Po'ot. 1998. *A dictionary of the Maya language: as spoken in Hocabá, Yucatán*. Salt Lake City: University of Utah Press.

Brody, Jill. 1982. "Discourse processes of highlighting in Tojolabal Maya morphosyntax." PhD. diss., Washington University.

Büring, Daniel. 2012. "Focus and intonation." In Russell, Gillian and Delia Graff Fara (eds) Routledge Companion to the Philosophy of Language. London, Routledge: 103-115.

Cable, Seth. 2010. *The Grammar of Q: Q-Particles, Wh-movement and Pied-Piping*. Oxford University Press.

Can Pixabaj, Telma. 2007. *Jkemiik Yoloj li Uspanteko: Gramática Uspanteka*. Guatemala: OKMA and Cholsamaj.

Can Pixabaj, Telma and Nora England. 2011. "Nominal topic and focus in K'ichee'." Gutiérrez-Bravo, R. Mikkelsen, L. and Potsdam, E. (eds) *Representing Language: Essays in honor of Judith Aissen*. Linguistics Research Center, UC Santa Cruz: 15-38.

Ciardelli, Ivano and Jeroen Groenendijk and Floris Roelofsen. 2013. "Inquisitive semantics: a new notion of meaning." *Language and Linguistics Compass* 7(9): 459-476.

Cohen, Ariel. 1999. "How are alternatives computed?" *Journal of Semantics* 16(1): 43-65.

Dayley, Jon. 1981. "Voice and ergativity in Mayan languages." *Studies in Mesoamerican Languages* 4: 5-119. Survey of California and Other Indian Languages.

É. Kiss, Katalin. 2010. "Structural focus and exhaustivity." in Malte Zimmermann and Caroline Féry (ed) Information Structure: Theoretical, typological and experimental perspectives. New York, Oxford: 64-88.

É. Kiss, Katalin. 1998. "Identificational focus versus information focus." *Language* 74(2): 245-273.

Edmonson, Barbara. 1988. "A descriptive grammar of Huastec (Potosino dialect)." PhD. diss., Tulane University.

England, Nora. 1983. *A grammar of Mam, a Mayan language*. Austin: University of Texas Press.

von Fintel, Kai. 1994. "Restrictions on quantifier domains." PhD. diss., University of Massachusetts.

Geurts, Bart and Rob van der Sandt. 2004. "Interpreting focus." *Theoretical Linguistics* 30:1-44.

Groenendijk, Jeroen and Floris Roelofsen. 2009. "Inquisitive semantics and pragmatics." Proceedings of SPR 09, ed. by Jesus Larrazabal and Larraitz Zubeldia, 41-72. San Sebastián, Basque Country: Universidad del País Vasco.

Haida, Andreas. 2008. "The indefiniteness and focusing of wh-words." PhD. diss., Humboldt University.

Hamblin, Charles L. 1973. "Questions in Montague English." *Foundations of Language* 10: 41-53.

Haspelmath, Martin. 1997. *Indefinite pronouns.* Oxford, Oxford University Press.

Haviland, John. 1981. *Sk'op sotz'leb: el tzotzil de San Lorenzo Zinacantán*. México: UNAM.

Idiatov, Dmitry. 2011. "The instability of Eastern Mayan interrogative pronominals: interrogative pronominals as complex constructions." Presentation at 20th International Conference on Historical Linguistics. Retrieved 8/28/14: http://webh01.ua.ac.be/dmitry.idiatov/talks/2011_ICHL_Mayan_slides_Idiatov.pdf

Kaufman, Terrence and John Justeson. 2003. *A preliminary Mayan etymological dictionary*. Foundation for the Advancement of Mesoamerican Studies. Online at http://www.famsi.org/reports/01050/index.html.

Kratzer, Angelika and Junko Shimoyama. 2002. "Indeterminate pronouns: the view from Japanese." *Proceedings of the Third Tokyo Conference on Psycholinguistics*: 1-25.

Kügler, Frank and Stavros Skopeteas and Elisabeth Verhoeven. 2007. Encoding information structure in Yucatec Maya: on the interplay of prosody and syntax. In Ishihar, S., Jannedy, S., and Schwarz. A. *ISIS* 8: 187-208.

Larsen, Thomas. 1988. "Manifestations of ergativity in Quiché grammar." Ph.D. diss., University of California, Berkeley.

Mateo Toledo, Eladio (B'alam). 2008. "The Family of Complex Predicates in Q'anjob'al (Maya); Their Syntax and Meaning." Ph.D. diss., University of Texas at Austin.

Monforte, Jorge, Lázaro Dzul, and Rodrigo Gutiérrez-Bravo. 2010. *Narraciones mayas*. México: INALI.

Onea, Edgar and David Beaver. 2010. "Hungarian focus is not exhausted." *Proceedings of Semantics and Linguistic Theory (SALT) 19*: 342-359.

Palosaari, Naomi. 2011. "Topics in Mocho' phonology and morphology." Ph.D. diss., University of Utah.

Par Sapón, Beatriz and Telma Can Pixabaj. 2000. *Variación dialectal en K'ichee'*. Guatemala: Cholmasaj.

Patal Majzul, Filiberto, Pedro Oscar Garcia Matzar (Lolmay), and Carmelina Espantzay Serech (Ixchel). 2000. *Rujunamaxik ri Kaqchikel Chi': Variación dialectal en Kaqchikel*. Guatemala: Cholsamaj.

Pérez Martínez, Vitalino. 1994. Gramática del Idioma Ch'orti'. La Antigua, Guatemala: Proyecto Lingüístico Francisco Marroquín.

Polian, Gilles. 2007. "El sufijo -*uk* y la diversificación de la modalidad *irrealis* en tseltal." *Proceedings of the Conference on Indigenous Languages of Latin America III*. Austin, University of Texas.

Polian, Gilles. 2013. *Gramática del Tseltal de Oxchuc*. México: CIESAS/Publicaciones de la Casa Chata.

Roberts, Craige. 2012 (1996-1998). "Information structure in discourse: towards an integrated formal theory of pragmatics." *Semantics and Pragmatics* 5(6): 1-69.

Rooth, Mats. 1985. "Association with Focus." PhD. diss., University of Massachusetts.

Rooth, Mats. 1992. "A theory of focus interpretation." *Natural Language Semantics* 1(1): 75-116.

Santos Nicolás, José Francisco (Pala's) and José Gonzalo Benito Pérez (Waykan). 1998. *Rukorb aal Poqom Q'orb'al: Gramática Poqom (Poqomam)*. Guatemala: Cholmasaj.

Shklovsky, Kirill. 2012. "Tseltal clause structure." PhD. diss., MIT.

Tonhauser, Judith. 2003a. "F-constructions in Yucatec Maya." Proceedings of Semantics of Understudied Languages of the Americas (SULA) 2, ed. by Jan Anderssen, Paula Menéndez-Benito, and Adam Werle, 203-223. Amherst, MA: GLSA.

Tonhauser, Judith. 2003b. "On the syntax and semantics of content questions in Yucatec Maya". *Proceedings of the 6th Workshop on American Indian Languages (WAIL)*, ed. by Juan Castillo, 106-122. Santa Barbara: Santa Barbara Papers in Linguistics.

Vázquez-Álvarez, Juan Jesús. 2011. "A grammar of Chol, a Mayan language." PhD. diss., University of Texas.

Velleman, Leah Bridges. 2014. "Focus and movement in a variety of K'ichee'." PhD. diss., University of Texas.

---

[1] This description hopefully makes clear the connection between focus in the alternative-evoking sense we intend here and focus in sense of *new information*. We will revisit this connection in **§3** when we look specifically at focus in Mayan languages.

[2] Like Mayan languages, Hungarian has an immediately preverbal (identificational) focus position, and it is here that wh-words occur in wh-questions. Note that, in line with the discussion in **§3.1**, relative clauses in Hungarian demonstrably do not make use of this position.

[3] Velleman (2014) shows for K'iche' that transitive subjects systematically do not allow for this possibility and suggest that this is so for some other Mayan languages, including at least Yucatec. Velleman analyzes this as a reflex of the topical status of postverbal transitive subjects, an assumption we adopt here as well.

[4] Beyond the variation shown here, for some languages there is known to be significant dialectal variation (e.g. Par Sapon and Can Pixabaj (2000), p. 95's work on K'iche'). One further parameter of variation is that in some cases (e.g. Kaqchikel, Uspanteko) the word cited here applies not only to animates, but to inanimates as well similar to English 'what'.

[5] One crucial point to be noted here is that Cable (2010)'s proposal has the Q-particle combining directly with the wh-phrase itself, rather than the entire question radical. In order to simplify the presentation here, we set aside this detail in our formulas, despite its relevance for the discussion of compositionality.

[6] See AnderBois (2012), pp. 377-379 for theoretical arguments against even this position.