Disjunction and Alternatives in Egyptian Arabic*

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Abstract

Some languages have two lexical items that encode disjunction and they appear to lexicalize the difference between a polar and alternative question (Haspelmath 2007, Alonso-Ovalle 2006). This paper offers a more in-depth discussion one such language: Egyptian Arabic. Specifically, it discusses the behavior of these lexical items outside of the polar/alternative question distinction. The data from the expanded empirical coverage is not expected under previously proposed theories. A new analysis of the lexical items is proposed within Alternative Semantics. This analysis builds on the "association" analysis proposed by Kratzer and Shimoyama (2002) for indefinites and Alonso-Ovalle (2006) for English disjunction. Under this analysis, all disjunctions introduce alternatives, but they differ in whether the proposed alternative set bound by existential closure.
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1 Introduction

In English, a disjunctive question, such as (1), has two possible interpretations depending on the intonation it is paired with (Larson 1985, Pruitt and Roelofsen 2013, a.o.).

(1) Do you want coffee or tea?

This variability in interpretation can be seen in the response patterns. If (1) is produced with no particular emphasis on each of the disjuncts and a final rise[1], it elicits the responses in (2). Under this interpretation, the question is classified as a polar question, because the possible responses are 'yes' and 'no'. Informally, in asking this question the speaker offers the addressee two options: one in which at least one of the disjuncts is true, and one in which neither disjunct is true.

(2) Do you want coffee or tea? POLAR QUESTION
   a. Yes → *I want coffee or tea.*
   b. No → *I don't want coffee or tea.*

In contrast, if (1) is produced with emphasis on each of the disjuncts and a final fall, it elicits the responses in (3). Under this interpretation, the question is classified as an alternative question

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[1]See Pruitt and Roelofsen (2013) for a more detailed description and experimental confirmation of these facts.

because the responses correspond to each of the disjuncts.

(3) Do you want coffee or tea? ALTERNATIVE QUESTION
   a. Coffee → *I want coffee.*
   b. Tea → *I want tea.*

This perceived variability in interpretation of disjunctive questions is not present in all languages. In a number of languages, different disjunctions are used to form polar and alternative questions (Haspelmath 2007, Alonso-Ovalle 2006). One such language is Basque, as shown in the examples below (Saltarelli 1988). In Basque, a polar question such as (4) is formed with *edo*, while an alternative question such as (5) is formed with *ala*. Haspelmath (2007) labels the disjunction that occurs in alternative questions an *interrogative disjunction*, and the disjunction that occurs in polar questions a *standard disjunction*.

(4) Te-a **edo** kafe-a nahi duzu?
   tea-ART or coffee-ART want you.it
   Do you want tea or coffee? Standard disjunction/POLAR Q

(5) Te-a **ala** kafe-a nahi duzu?
   tea-ART or coffee-ART want you.it
   Do you want tea or coffee? Interrogative disjunction/ALT Q

Haspelmath (2007) points out that within the languages that have standard and interrogative disjunctions, there are two common patterns: In the some of these languages, the standard disjunction can occur in declarative clauses, while the interrogative disjunction cannot. In other languages both disjunctions occur in declarative clauses. An interesting generalization can be drawn: We never find a language where the disjunction that occurs in alternative questions (e.g., *ala* above) is the only one that occurs in declaratives. The chart below summarizes these facts. Polar questions and declarative clauses (assertions) always pattern together, sometimes to the exclusion of alternative questions.

Table 1: Haspelmath's generalizations

	interrogative clauses	declarative clauses
interrogative-∨	✓ ⇒ Alternative Q	#
standard-∨	✓ ⇒ Polar Q	✓

Languages with standard and interrogative disjunctions are of interest because they seem to lexically encode the difference between a polar and alternative question. This raises a number of questions: What exactly is being lexicalized in these disjunctions? How does this difference manifest in other questions, beyond the distinction between polar and alternative questions? Why does the cross-linguistic data pattern as it does (cf. Table 1)?

This paper introduces new data from Egyptian Arabic to address these questions. It provides a more complete picture of a language with standard and interrogative disjunctions, and expands on the range of data discussed by Haspelmath to include the behavior of these disjunctions in other questions and assertions. This broader view supports a new empirical generalization about these disjunctions: They consistently show sensitivity to how their disjuncts correspond to responses to the questions they occur in.

The paper also discusses a previous analysis that has been suggested for standard and interrogative disjunctions: the *wh*-analysis (Nicolae 2013b, Uegaki 2014a,b). Under this analysis, all disjunctions introduce alternatives, but standard and interrogative disjunctions differ in how they scope relative to a question operator. I will show that this analysis faces challenges when accounting for the new data discussed here: the differences beyond the standard and alternative question distinction.

I propose a similar analysis which builds on Kratzer and Shimoyama's (2002) analysis of indefinite and indeterminate phrases. I follow Alonso-Ovalle (2006) in taking disjunctions to introduce alternative sets which are bound by a higher operator. I call this the "association

analysis" because it takes the difference between standard and interrogative disjunctions to be a lexical specification of what operators the disjunctions can associate with (in the sense of Kratzer and Shimoyama (2002)). This analysis is similar to the *wh*-analysis in that all disjunctions introduce alternatives and their variability in interpretation is derived by how the disjunctions interact with higher operators. Rather than relying on movement, as the *wh*-analysis does, the association analysis uses syntactic features. I will show that this difference makes some interesting predictions for the distribution of the interrogative disjunction outside of questions.

The rest of the paper is structured as follows: Section 1.1 gives the necessary background on question formation and disjunction in Egyptian Arabic. Section 2 confirms the polar/alternative question distinction for Egyptian Arabic questions, and discusses how the lexical items behave in other question types. Section 3 provides data about the properties of the lexical items beyond the polar/alternative question distinction. Section 4 discusses one theory that has been suggested to account for basic distribution of standard and interrogative disjunctions, the *wh*-analysis (Nicolae 2013b, Uegaki 2014a,b). It also presents some challenges for this analysis. Section 5 proposes a new analysis for standard and interrogative disjunctions. It shows that the distribution of the interrogative disjunction in some assertions is compatible with the proposed analysis, but not the *wh*-analysis. Section 6 concludes and discusses some open questions.

1.1 Background on Egyptian Arabic

Egypt is a country that exists in a state of diglossia. Gadalla writes, "In Egypt, two main varieties of Arabic are commonly used: Standard Arabic and Colloquial Arabic. The former is the language of reading and writing, while the latter is the language of daily social intercourse." (Gadalla 2000, p. x) The focus of the present paper is the latter. Following Gadalla, I will call this variety Egyptian Arabic (EA). EA differs importantly from Standard Arabic in that the interrogative disjunction *walla* occurs in EA, but not Standard Arabic. While variation exists across different regions of Egypt, I have not found variation in the behavior of the disjunctions.[2]

1.2 Basics of questions and disjunction in EA

Questions in EA are formed with an (optional) initial question particle (Soltan 2011, a.o.). Synchronically, it is homophonous with the third person pronouns, and agrees with the subject in gender and number.

(6) *Huwwa* Muḥammad min Amerika?
Q3SGM Mohammad from America?
Is Mohammad from the United States?

(7) *Hiyya* Miriam min Amerika?
Q3SGF Miriam from America?
Is Miriam from the United States?

(8) *Humma* il-binaat min Amerika?
Q3PL the-girls from America?
Are the girls from the United States?

Questions with a first or second person subject often occur without a question particle. When these questions do occur with the question particle, it surfaces as default masculine singular *huwwa* (Soltan 2011). This is shown in (9).

[2]The data presented here, unless otherwise stated, was collected in Cairo, Alexandria, and Los Angeles. A variety of elicitation methods were used to confirm the data, including translation tasks, picture matching tasks, and felicity judgement tasks. All of the data collected in Los Angeles was confirmed with speakers in Cairo or Alexandria, either in person or through online surveys. Glossing conventions rely on Gadalla (2000).

(9) (Huwwa) ʔinta min Amerika?
(Q3SGM) you from America?
Are you from the United States?

Constituent questions are also formed with an initial question particle, as in (10). In Egyptian Arabic a *wh*-item can either remain in-situ or be fronted. See Soltan (2011, 2012) for a more complete discussion of constituent questions in EA, as well as the role of the question particle in these questions.

(10) Huwwa Muħammad bi-ħibb miin?
Q3SGM Mohammad IMP-like(3SGM) who?
Who does Mohammed like?

The intonational patterns of polar and constituent questions differ. Below is a summary chart of the intonation for basic clauses (e.g., without disjunction) in Egyptian Arabic from Chahal and Hellmuth (2014). Polar questions (YNQ), such as those in (6)-(9), are formed with a final rise in intonation, whereas constituent questions are formed with a final fall in intonation. In this way constituent questions pattern with declarative clauses to the exclusion of polar questions. I will return to the intonational patterns of questions with disjunction in the next section.

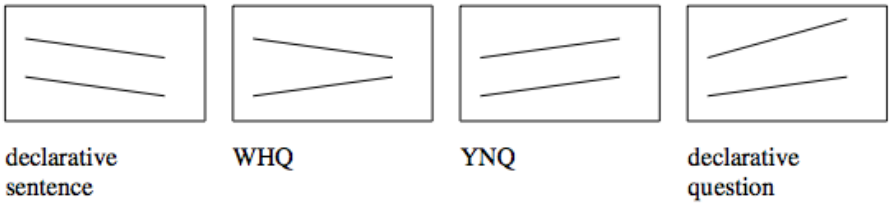


Fig. X.14

Figure 1: Intonation for basic clauses from Chahal and Hellmuth (2014)

Turning now to disjunction in EA, there are a variety of lexical items that might be translated as English *or*. The focus of this paper will be the lexical items *aw* and *walla*. Abdel-Massih et al. (1981) provides a general rule that *walla* occurs in questions, and *aw* occurs in assertions. For the speaker consulted for this paper, *walla* is judged as unacceptable in assertions, but *aw* is acceptable.[3] This is shown in the examples below. (11) is an example of an object disjunction and (12) is an example of a subject disjunction.

(11) Muħammad bi-ħibb Amina aw/#walla Mariam.
Mohammad IMP-like(3SGM) Amina or$_{PQ}$/or$_{AQ}$ Mariam
Mohammad likes Amina or Mariam.

(12) Muħammad aw/#walla Khaled bi-yigree.
Mohammad or$_{PQ}$/or$_{AQ}$ Khaled IMP-run(3SGM)
Mohammad or Khaled is running.

As stated previously, the question particle is not obligatory. Thus, the strings in (11) and (12) with *walla* do have an acceptable interpretation, but they must be interpreted as questions, not

[3]There are specific assertions that *walla* can occur in. This will be discussed in Section 3.

assertions. In contrast, (11) and (12) with *aw* can be interpreted as either an assertion or a question, depending on the intonation they occur with.

The next section will show that the distribution of *walla* and *aw* is more complex than Abdel-Massih et al.'s (1981) generalization. Both disjunctions can occur in questions, although the questions they occur in receive distinct interpretations. Specifically, the disjunctions conform to Haspelmath's (2007) description of standard and interrogative disjunctions. Before discussing this point in depth, there is another lexical item that encodes disjunction that should be mentioned: *wala*. It differs phonologically from *walla* in that it has a non-geminate *l*. Abdel-Massih et al. (1981) translates *wala* as English 'nor'. It seems that *wala* is a negative polarity item (NPI). It is likely that *walla* was derived from *wa+illa* 'and+else' and *wala* was derived from 'and+not'. *Wala* will not be discussed further in this paper.

2 Standard and interrogative disjunctions in EA

Egyptian Arabic has two disjunctive markers that conform to Haspelmath's (2007) description of interrogative and standard disjunctions. This section provides support for this claim. Evidence for this comes from response patterns, the contexts they occur in, intonational patterns, and the agreement triggered when the disjunction occurs in the subject. Section 2.2 discusses other disjunctive questions: constituent questions and polar alternative questions. These questions are interesting because in English, they do not show the variability in interpretation that simple disjunctive questions show, and in Egyptian Arabic one of the disjunctions is judged as unacceptable when used in them.

2.1 Confirming the polar/alternative question distinction

Response Patterns The example in (13) shows that a question with *walla* has felicitous responses that correspond to each of the disjuncts.[4] Responding to (13) with *aywa* 'yes' or *laʔ* 'no' is seen as being extremely uncooperative[5].

(13) Huwwa Muħammad bi-ħibb Amina walla Mariam?
Q3SGM Mohammad IMP-like(3SGM) Amina or$_{AQ}$ Mariam
Does Mohammad like Amina or Mariam? ALTERNATIVE QUESTION

a. ✓Amina
b. ✓Mariam
c. #Laʔ 'no'
d. #Aywa 'yes'

In contrast, a question with *aw*, as in (14), is felicitously responded to with *aywa* 'yes' or *laʔ* 'no'. When asked whether responding with one of the disjuncts (e.g., *Mariam*) is an acceptable answer, consultants often changed the response to *aywa, Mariam* 'yes, Mariam', as in (14-e). I have marked these responses as '??' to indicate that they are not entirely felicitous, although speakers don't directly reject them.

(14) Huwwa Muħammad bi-ħibb Amina aw Mariam?
Q3SGM Mohammad IMP-like(3SGM) Amina or$_{PQ}$ Mariam
Does Mohammad like Amina or Mariam? POLAR QUESTION

a. ??Amina

[4] I will gloss *walla* as 'or$_{AQ}$' and *aw* as 'or$_{PQ}$' to indicate that *walla* is the disjunction that occurs in alternative questions, and *aw* is the disjunction that occurs in polar questions. This is simply meant as a convenience for the reader.

[5] Note that some speakers accept *el etnain* 'both' as a response to (13). This disagreement is not unique to Egyptian Arabic alternative questions; it has also been debated for English (Aloni et al. 2013).

b. ??Mariam
c. ✓Laʔ 'no'
d. ✓Aywa 'yes'
e. ✓Aywa, Mariam 'yes, Mariam'

Contexts In addition to the response patterns, *walla* and *aw* differ in the contexts they are used in. Below are two example contexts that were provided to consultants. Context one is meant to induce a polar question, while Context two is meant to induce an alternative question.

> CONTEXT ONE: Mariam and Mohammad are walking down the street, they pass by a cafe, and Mohamed wants to know if Mariam would like to go inside and have something to drink, he asks *Do you want coffee or tea?*.

> CONTEXT TWO: Amina is at a cafe and the waiter comes to take her order. The waiter asks her *Do you want coffee or tea?*. (Cafes or *ahwas* in Cairo often only serve coffee and tea.)

In this task, consultants were given each context and then asked to translate "Do you want coffee or tea?" into E.A. The two possible responses are given below.

(15) ʕyza ʔahwa aw šaay?
want(SGF) coffee or$_{PQ}$ tea
Do you want coffee or tea?

(16) ʕyza ʔahwa walla šaay?
want(SGF) coffee or$_{AQ}$ tea
Do you want coffee or tea?

Consultants regularly chose to translate the question with *aw* (15) with context one, and the question with *walla* (16) in context two. The response patterns and the translation task converge on the same conclusion: a non-constituent question with *walla* is interpreted as an alternative question, while one with *aw* is interpreted as a polar question.

Intonation Patterns Questions with *walla* and *aw* also differ in their intonational patterns. The intonation associated with a question with *aw* is similar to the intonation of a non-disjunctive polar question (c.f. Fig 1). That is, it ends with a final rise (a H-H% boundary tone). This is shown in figure 2.

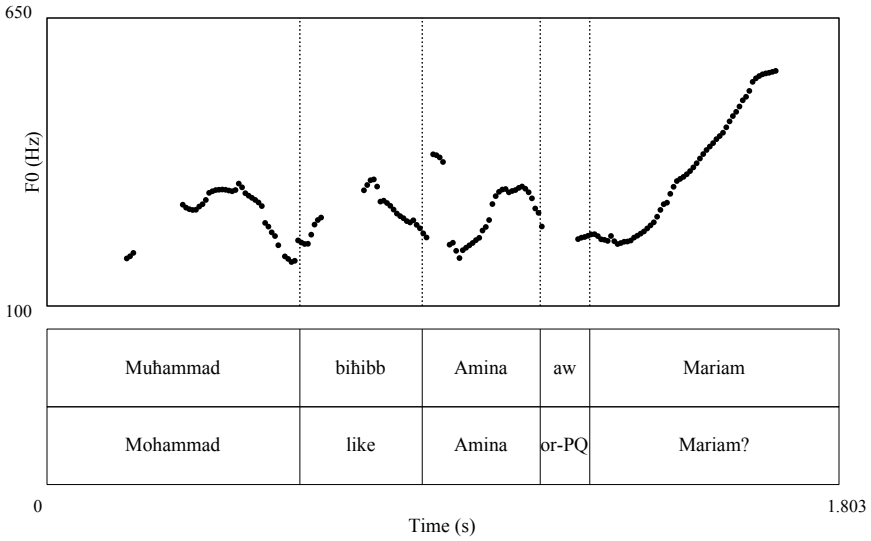


Figure 2: Question with *aw*

In contrast, a question with *walla* has a distinct intonational pattern from that of non-disjunctive polar questions. There is a rise on the first disjunct, but the material after the first disjunct does not have a rise the way a polar question does. This is shown in Figure 3.

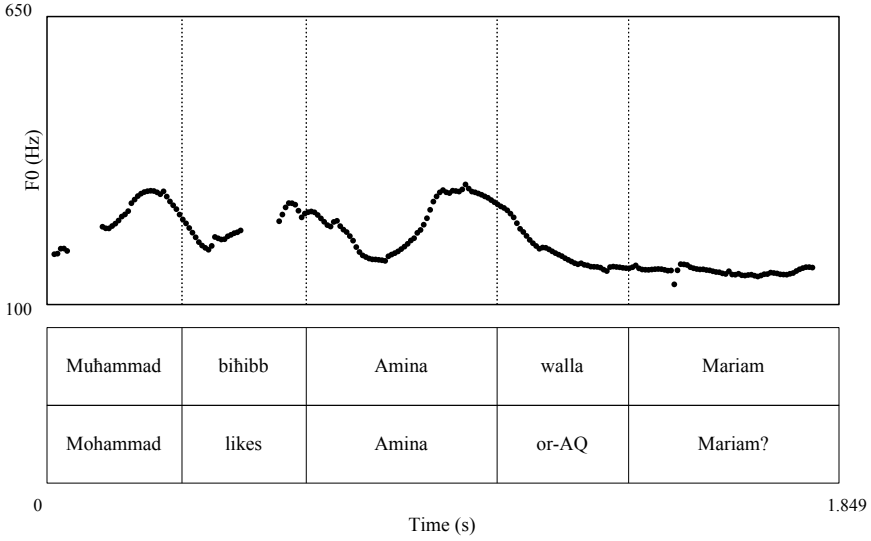


Figure 3: Question with *walla*

The intonation of a question with *aw* is similar to a question without *aw*, whereas a question with *walla* is intonationally very different[6]. This lends further evidence that a question with *aw*

[6]More work is needed to determine exactly what the boundary tones for a *walla* question actually are. While phonetically it looks like the same tone that is present in declaratives, the declination of these sentences is not the same. This makes it less straightforward to categorize this tone.

is a polar question, whereas a question with *walla* is not.

Agreement Patterns Questions with *walla* and *aw* also differ in the type of agreement they can trigger when in subject position. A parallel is also found in English. A question with *aw* shows the same agreement pattern as a polar question in English, and a question with *walla* shows the same agreement pattern as an alternative question in English.

(17) provides two examples of subject disjunctions in English. In (17-a) the verb *does* has singular agreement. (17-a) can be produced with alternative question or polar question intonation, and it can receive either a polar or alternative question interpretation depending on the intonation. This can be contrasted with (17-b), in which the verb *do* has plural verb agreement. (17-b) is only felicitous with polar question intonation, and cannot receive an alternative question interpretation.

(17)	a.	**Does** Lindsay or Angela sing?	✓PolQ	✓AltQ
	b.	**Do** Lindsay or Angela sing?	✓PolQ	#AltQ

The polar question with plural agreement (17-b) is felicitous in the following context:

> Dave and Matt are throwing a last minute party tonight. They know they can count on Dave's sisters, Lindsay and Angela, to be there. Matt is coordinating the entertainment and the last thing he needs is someone who can sing "Happy Birthday". He asks Dave (17-b). As long as one of the sisters can sing, it doesn't matter which one, the entertainment is taken care of.

The key factor of the context is that it isn't necessarily relevant which of the sisters can sing (i.e., which disjunct is true), it is only relevant if one of them can.

In Egyptian Arabic, a question with a disjunctive subject formed with *aw* can trigger either singular or plural verbal agreement. In both cases, (18) is interpreted as a polar question. This is parallel to the English data above; the disjunctive question with a polar question interpretation can occur with both singular (17-a) and plural (17-b) verbal agreement.[7]

(18)	Hiyya	Mariam	aw	Amina	{bi-tiħibb/ bi-ħibbu}	Muħammad?
	Q3SGF	Mariam	or$_{PQ}$	Amina	IMP-like(3SGF)/ IMP-like(3PL)	Mohammad
	Does/Do Mariam or Amina like Mohammad?					

A question with a disjunctive subject formed with *walla*, as in (19), can only trigger singular verbal agreement. The acceptable version of (19) can only be interpreted as an alternative question.[8] Again, we see a parallel with English where the alternative question can only have singular verb agreement.

(19)	Hiyya	Mariam	walla	Amina (illi)	{bi-tiħibb/	*bi-ħibbu}	Muħammad?
	Q3SGF	Mariam	or$_{AQ}$	Amina (that)	IMP-like(3SGF)/	IMP-like(3PL)	Mohammad
	Does Mariam or Amina like Mohammad?						

In both English and EA, we see that a disjunction in subject position of a polar question can trigger either singular or plural verbal agreement. This is because one of the disjuncts is singular.

[7] Similar facts can be shown using agreement between the question particle and subject.

[8] Questions with disjunctive subjects with *walla* can optionally contain the realitivizer *illi* 'that'. The preference for this seems to vary from speaker to speaker. A similar structure in English may be a cleft, e.g., *Is it Mariam or Amina that likes Mohammad?*. This question in English requires an alternative question interpretation, just like the question in (19). There doesn't seem to be a difference in interpretation when *illi* is present or absent in (19). It certainly doesn't make a difference for the agreement facts; with or without *illi* (19) must have singular verbal agreement.

If the disjuncts were instead plural as in (20), singular agreement is unacceptable regardless of the interpretation of the question.

(20) a. *__Does__ the boys or the girls sing?
b. __Do__ the boys or the girls sing? ✓PolQ ✓AltQ

Given (20), it seems that the reason why the disjunctive subject in (17-a) can trigger singular agreement is because the verb is agreeing with only one of the disjuncts. This is compatible with the idea that alternative questions are actually disjunctions of larger syntactic elements that have undergone ellipsis (Schwarz 1999, Han and Romero 2004, Uegaki 2014b). That is, alternative questions have a structure like the one in (21-a), rather than (21-b).

(21) a. [Mariam ~~likes Mohammed~~] or [Amina likes Mohammad]
b. [Mariam or Amina] likes Mohammad

If a *walla* question has a structure like the one in (21-a), the fact that the verb can only have singular agreement is explained: the verb occurs in a clause with a singular subject, not a complex disjunctive subject. A question with a subject containing a *walla* disjunction is expected to have the same agreement as a non-disjunctive subject. On the other hand, if an *aw* question, instead, has a structure like the one in (21-b), the agreement is not expected to necessarily be the same as if the disjunction wasn't present. A complete account of this data would need to be set within a theory of agreement. Such a theory is outside the scope of this paper, but we may expect that the disjunctive subject could either trigger resolved agreement (i.e., agreement with the entire disjunction) or closest conjunct agreement (i.e., agreement only with the closest DP).

I leave the exact analysis of these agreement patterns for future work. Preliminary attempts to elicit more portions of the paradigm (e.g., disjunctive subjects that do not agree in gender) were unsuccessful. Speakers are uncertain about the judgements and simply prefer to change the structure of the sentence when asked. For now, I take the basic agreement facts presented in (18)-(19) as evidence that *walla* necessarily disjoins syntactically larger elements, while *aw* disjoins smaller elements to trigger verbal agreement with either the entire disjunctive phrase or just one of the disjuncts, as in (21-b).[9]

2.2 Other question types

This section discusses *walla* and *aw* in questions outside of the polar and alternative question distinction. The data will be described using theory-neutral terms. To do this, I will discuss whether or not the answers to a question "correspond" to each of the disjuncts. This is not meant to be an analysis, but instead a descriptive tool to track the various interpretations of a disjunctive phrase. For example, in an alternative question such as (3) (repeated below), the answers to the question "correspond" to each of the disjuncts in that the answers discriminate between the two disjuncts. In contrast, in a polar question such as (2) (also repeated below), the answers do not correspond to or discriminate between the disjuncts.

(22) Do you want coffee or tea? Alternative Question
a. Coffee → *I want coffee.*
b. Tea → *I want tea.*

(23) Do you want coffee or tea? Polar Question
a. Yes → *I want coffee or tea.*
b. No → *I don't want coffee or tea.*

[9]The agreement facts observed for English and EA are most likely part of a larger cross-linguistic pattern. Martin Walkow (p.c.) points out that the pattern is replicated in German polar/alternative questions.

This may seem like a useless distinction from the perspective of a language with only one disjunction. When we look at EA, however, it will allow us to make connections about what interpretation English *or* receives and which EA disjunction is acceptable. Within questions, the distribution of *walla* and *aw* is completely predicted by how the disjuncts correspond to possible responses (i.e., whether there is a one to one correspondence between the disjuncts and the possible responses).

In English, simple questions with *or*, e.g., (22) and (23), can show variability in whether or not the answers correspond to the disjuncts (e.g., whether the interrogative is interpreted as a polar or alternative question). The next section discusses cases where this variability is not present for English *or*.From this discussion, a pattern emerges: If a question with English *or* does have possible answers that correspond to the two disjuncts, then only the counterpart in EA with *walla* is acceptable. If a question with *or* does not have possible answers that correspond to the two disjuncts, then only the counterpart in EA with *aw* is acceptable.

2.2.1 Constituent questions

English constituent questions with disjunctions do not elicit answers that correspond to the disjuncts (Winans 2012, Nicolae 2013b, Guerzoni and Sharvit 2014). A priori, there is no reason why this should be the case; a question with a *wh*-item and a disjunction might reasonably be expected to elicit a complex response, providing values for both the *wh*-item and the disjunction. In fact, there are questions that elicit a similarly complex response. (24) is a case of a question with multiple *wh*-items. The possible answers to this question correspond to both of the *wh*-items (who is the *liker* and who is the *likee*). As shown in (24-d), responding with only an answer for one with the *wh*-items is infelicitous.

(24) Who likes who?
- a. ✓Dave likes Lindsay
- b. ✓Dave likes Lindsay, Matt likes Angela
- c. ✓Dave, Lindsay; Matt, Angela
- d. #Dave → Dave likes Lindsay or Angela (or any other salient individual)

The answers to multiple *wh*-questions like (24) can be compared with those of constituent questions with a disjunction, such as (25). The expected responses to a constituent question with disjunction, only correspond to the *wh*-item, not the disjuncts. The responses that do correspond to the disjuncts, such as (25-a)-(25-c), are not expected answers (possibly to a varying degree). The important fact is that (25-d) is an expected answer. This shows that unlike multiple *wh*-questions, providing a value for both the *wh*-item and the disjunction is not necessary.

(25) Who likes Lindsay or Angela?
- a. ??Dave likes Lindsay
- b. #Dave, Lindsay; Matt, Angela
- c. #Lindsay
- d. ✓Dave → Dave likes Lindsay or Angela

The question in (25) is felicitous in either of the following context:

> Context Three: Dave has two sisters, Angela and Lindsay. He overhears Matt saying that someone likes one of the sisters. Dave asks Matt the question in (25). He doesn't particularly care which sister the person likes, he just wants to know who it is.
>
> Context Four: Dave and Matt are throwing a party for Dave's sisters, Lindsay and Angela. The sisters are not very well liked, but the boys want to make sure that everyone who does like either girl is invited. So Matt starts to make a list and asks Dave (25).

Below is a context that would support the responses in (25-b). In this context, the question in (25) is judged as inappropriate because asking (25) will not get Cassy the information she seeks.

> CONTEXT FIVE: Cassy teaches elementary school and has just learned that two of the girls are receiving love notes from the boys. Gina, one of the other students is a gossip and knows exactly who likes who in the class. Cassy is planning desk arrangements and wants to make sure that none of the boys are sitting by their crushes, so she talks to Gina to see who likes Angela and who likes Lindsay. It is relevant which student likes which girl.

In context five, Cassy wants to know who likes each girl. To request this information she can use a conjoined constituent question, such as *Who likes Angela and who likes Lindsay?* or a question with multiple *wh*-items, such as *Who likes who?*. The constituent question with disjunction, *Who likes Angela or Lindsay?*, does not elicit the information Cassy desires.[10]

In Egyptian Arabic, the standard disjunction *aw* can occur in *wh*-questions, but the interrogative disjunction *walla* cannot. This is shown in (26).

(26) Huwwa miin bi-ħibb Amina aw/#walla Mariam?
Q3SGM who PROG-like(3SGM) Amina or$_{PQ}$/or$_{AQ}$ Mariam
Who likes Amina or Mariam?

The acceptable version of the question in (26) with *aw* elicits the same type of answers as (25): only answers that correspond to the *wh*-item. It seems that, at least in English and EA, disjunctions in a constituent question cannot receive an interpretation similar to what they receive in an alternative question. In English, this is realized as the lack of a possible interpretation. *Or* is acceptable in constituent questions, the question simply lacks what would be its alternative question counterpart. In EA, this is realized as the unacceptability of the interrogative disjunction *walla* in this environment.

2.2.2 Polar Alternative questions

In English, polar alternative questions are formed with *not* or *no* in the second disjunct. This is shown in (27).

(27) Do you have a car or {not/no}?

These questions are interesting because the meanings of the disjuncts require that the answers correspond to each of the disjuncts, because the disjuncts are jointly exhaustive; the second disjunct denotes the complement set of the first. While (27) has answers similar to a polar question, *yes* and *no*, those answers correspond to the disjuncts. A *yes* response is interpreted as 'I have a car', corresponding to the first disjunct. A *no* response is interpreted as 'I don't have a car', corresponding to the second disjunct. This creates the opposite condition of constituent questions.

Additional evidence that polar alternative questions cannot receive a polar question interpretation in English comes from intonation. (27) can be felicitously produced with the intonation typically found on alternative questions, but it cannot felicitously be uttered with the intonation associated with polar questions.

In Egyptian Arabic polar alternative questions are formed with *laʔ* 'no' in the second disjunct, as in (28).[11]

[10] In addition to the question in (25), the judgments were replicated for additional contexts and questions in both English and EA: *Who wants coffee or tea?*, *Who has a dog or a cat?*.

[11] The sentential negation *mish* cannot be used. This may be due to its status as a circumfix, although it does occur preverbally in some cases.

(28) Hiyya Hoda min Amerika #aw/walla laʔ?
Q3SGF Hoda from America or$_{PQ}$/or$_{AQ}$ no
Is Hoda from America (United States) or not?

As shown in (28), polar alternative questions must be formed with the interrogative disjunction, *walla*. They are unacceptable with the standard disjunction, *aw*. Similar to English, the intonation associated with these questions is also the intonation used in alternative questions, as shown in Figure 4.

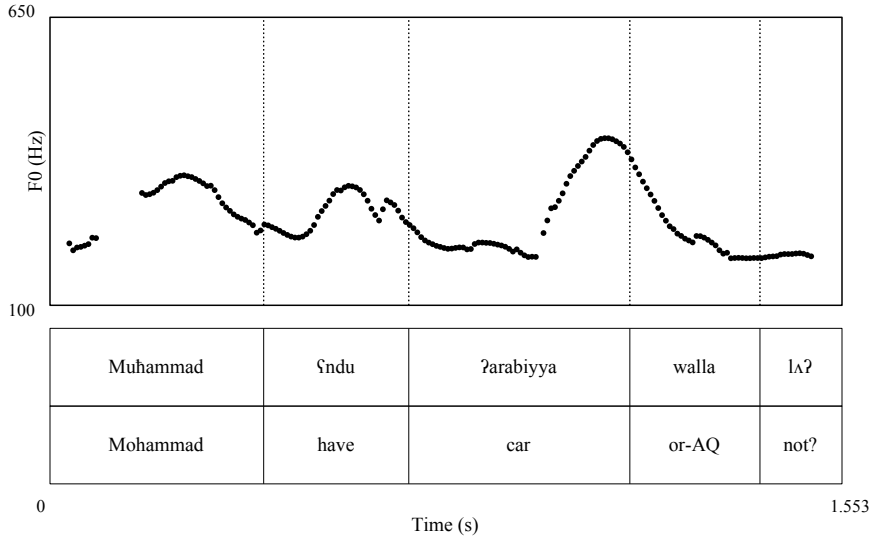


Figure 4: Polar alternative question

Polar alternative questions show the inverse of the property previously discussed for constituent questions. Constituent questions with disjunction only has an interpretations in which the possible responses did not correspond to the disjuncts. Polar alternative questions only have a interpretation in which the possible responses correspond each of the disjuncts; the answers to a polar alternative question must discriminate between the two disjuncts. English *or* lacks the counterpart of its polar question interpretation in these questions. In EA, only *walla*, the disjunction that occurs in alternative questions, can occur in polar alternative questions.

2.3 Interim summary

This section provided more data to support the claim that a simple interrogative clause with *aw* is interpreted as a polar question, while a simple interrogative clause with *walla* is interpreted as an alternative question. Evidence for this claim came from response patterns, the contexts the lexical items occur in, intonation patterns, and the agreement facts when the disjunctions occur in subject position. This section also discussed constituent questions and polar alternative questions. These questions are interesting because two facts align: They are environments where English *or* does not show variability in interpretation. They are also environments where one of the disjunctions of EA is not acceptable.

The data in this section, summarized below, support a new empirical generalization for the distribution of *walla* and *aw* in questions: The disjuncts of *walla* always correspond to distinct responses, whereas the disjuncts of *aw* never do.

Table 2: Question types by responses

responses correspond to disjuncts ✓*walla* #*aw*	responses do not correspond to disjuncts #*walla* ✓*aw*
alternative questions *Do you want coffee or tea?*	polar questions *Do you want coffee or tea?*
polar alternative questions *Do you want coffee or not?*	constituent questions *Who wants coffee or tea?*

The data presented in this section demonstrate a few parallels between English and EA that any analysis needs to explain. First, within English, how is the difference between polar and alternative questions derived? Some authors have focused on the semantics of polar questions with disjunction, others have focused on the semantics of alternative questions, and some have discussed the difference between the two. Second, how do standard and interrogative disjunctions differ from each other? And how is that difference derived in the semantics? These questions can be restated as: (i) How is the variability in interpretations of questions with English *or* derived? (ii) How can this variability be lexicalized in *walla* and *aw*? Ideally, these questions would together receive a coherent answer. The following section provides data about the differences between *walla* and *aw* that appear to be independent of the polar/alternative question distinction.

3 More data: beyond the polar/alternative question distinction

This section discusses other properties of *walla* and *aw* outside of questions. Section 3.1 discusses how the lexical items behave when they disjoin elements of different syntactic sizes. Section 3.2 discusses the behavior of the lexical items when they occur in assertions that contain different types of operators.

3.1 Size of the disjuncts

All of the examples discussed so far have involved either subject or object disjunctions. Disjunctions of larger elements, namely full clauses, show another distinction between *walla* and *aw*. A sentence with a subject or object disjunction with *aw* can be interpreted as a question or an assertion depending on the intonation it is produced with (and the presence of a question particle). Abdel-Massih et al. (1981) points out that, in contrast, when *aw* disjoins full clauses, the sentence can only be interpreted as an assertion, as in (29).[12]

(29) Baaʔ il-ʔarabiyya aw rahan il-beet.
sold DEF-car or$_{PQ}$ mortgaged DEF-house
He had sold the car or mortgaged the house. Abdel-Massih et al. (1981)

There is no way for (29) to receive a question interpretation: The question particle (*hiyya, humma, huwwa*) cannot be grammatically added to (29), and it is also infelicitous with a final rise in intonation (i.e., polar question intonation). On the other hand, a disjunction of full clauses formed with *walla* like (30) can receive a question interpretation, and when it does, the only possible interpretation is as an alternative question.

(30) Baaʔ il-ʔarabiyya walla rahan il-beet?
sold DEF-car or$_{AQ}$ mortgaged DEF-house
Did he sell the car or did he mortgage the house? Abdel-Massih et al. (1981)

[12]I consider both (29) and (30) to be cases of disjunction of full clauses. EA is a pro-drop language, and thus the subject is not overtly realized in either of the disjoined clauses.

It doesn't seem that the difference between *walla* and *aw* observed in (29) and (30) can be reduced to simply a fact about polar versus alternative questions. This is evidenced by the fact that in English a disjunction of two full clauses, such as those in (31), can receive either a polar or alternative question interpretation depending on the intonation it is produced with.

(31) a. Did John sell his car or mortgage his house?
b. Did John sell his car or Laura mortgage her house?

If it were a general fact that polar questions can't be formed by disjoined clauses, we would expect (31) to lack a polar question interpretation. Instead, this seems to be a particular fact about *aw*, or possibly standard disjunctions more generally.

3.2 Assertions with *walla*

Section 1.1 showed that *walla* cannot occur in simple declarative clauses. A simple clause (i.e., without any overt operators) that contains *walla* is interpreted as a question, whereas a simple clause with *aw* can be interpreted as a question or assertion depending on the intonation and presence of a question particle. This section will discuss cases where the disjunction is embedded under an operator: in the scope of a modal and in the antecedent of a counterfactual conditional. In the scope of a modal, an expected pattern is found: *walla* is unacceptable, but *aw* is acceptable. In the antecedent of a counterfactual, however, we find a surprising pattern, namely that both *walla* and *aw* are acceptable.

3.2.1 Modals

Examples of disjunctions in the scope of a possibility modal in EA are given in (32) and (33). These examples contain the modal *mumkin*, a possibility modal interpreted as 'may' or 'can' in these sentences.[13] (32) is an example of an object disjunction, and (33) is an example of a subject disjunction. In both cases, the use of *walla* is unacceptable, while the use of *aw* is acceptable.

(32) Khaled mumkin yakol basbousa aw/*walla kuneffa.
Khaled can eat(3SGM) basbousa or_{PQ}/or_{AQ} kuneffa
Khaled can eat basbousa or kuneffa.

(33) Mariam aw/*walla Amina mumkin yakol il-basbousa.
Mariam or_{PQ}/or_{AQ} Amina can eat(3SGM) the-basbousa
Mariam or Amira can eat basbousa.

These sentences were elicited using a variety of contexts. For example, the following contexts were used to elicit (32).

> CONTEXT SIX: Khaled's mother is stating what Khaled is allowed to eat. She says (32).
>
> CONTEXT SEVEN: Mariam is babysitting Khaled. Khaled's mother told Mariam what Khaled can have for dessert. Mariam can't remember exactly what Khaled can have, but she knows it is either basbousa or kuneffa. She says (32).

The form with *walla* was unacceptable in all of the contexts it was elicited in. When presented with this data, speakers would respond that the sentence must be interpreted as a question, such as (34). There is evidence that *walla* is not in the scope of the modal in (34). The interpretation, as expected, is an alternative question. This is meant to be captured in the translation as a cleft.

[13] *Basbousa* and *kuneffa* are Egyptian desserts.

(34) Mariam walla Amina mumkin yakol il-basbousa?
Mariam or_{AQ} Amina can eat(3SGM) the-basbousa
Is it Mariam or Amina that can eat basbousa?

In Section 2.1 we saw evidence from the agreement facts that *walla* disjoins syntactically large elements. The modal facts seem to also support this. (34) is interpreted as having an underlying structure like (35).

(35) [[Mariam ~~can eat basbousa~~ walla [Amina can eat basbousa]]

In sum, *walla* and *aw* show the same pattern in the scope of modals as they do in simple declarative clauses. An assertion with modals can contain *aw*, but not *walla*.

3.2.2 Counterfactuals

The antecedents of counterfactual conditionals are an exception to the generalization that *walla* does not occur in declarative clauses. In indicative conditionals we find the expected pattern, shown in (36). *Aw* is acceptable in the antecedent of an indicative conditional, but *walla* is unacceptable. Indicative conditionals pattern with simple declarative clauses and declaratives with modals.

(36) Law ʕnduhum maya aw/*walla asiir, hat(ii).
if have(3PLM) water or_{PQ}/or_{AQ} juice, get(it)
If there is water or juice, get it.

In the antecedent of a counterfactual conditional, however, both *walla* and *aw* are acceptable. This is shown in (37). These sentences were elicited with the following context: *There are protests all over the city so store shelves are bare and gas lines are long. Your husband goes to the store and does not return with anything to drink. You give him a hard time and he responds with (37).*

(37) Law kaan ʕnduhum maya aw/walla bebsi, ʔištariit-(hum).
If was have(3PLM) water or_{PQ}/or_{AQ} pepsi, buy(1SG).it-(them)
If they had had water or pepsi, I would have gotten it/them.

The antecedents of counterfactuals are the exception to the generalization that *walla* cannot occur in declarative clauses. There is still more work that needs to be done to understand the interpretation of these sentences. Some speakers report that the versions with *walla* and *aw* have slightly different meanings. One speaker gave a paraphrase of the version with *walla* as "if they had had anything to drink at all". This interpretation seems to be drawn out by using more than two disjuncts, such as *maya walla bebsi walla asiir* 'water or pepsi or juice'. I leave the exact interpretation of these sentences for future work. For now, conclusions can be drawn simply from the mere grammaticality of *walla* in the antecedent of counterfactuals.

4 Previous Analysis

This section focuses on one analysis that has been suggested to account for the difference between standard and interrogative disjunctions: the *wh*-analysis (Nicolae 2013b, Uegaki 2014a,b).[14] These authors focus on facts external to the distinction between standard and interrogative disjunctions. In particular, Nicolae (2013b) is concerned with the licensing of Negative Polarity Items (NPIs) in English polar questions, an aspect of questions that I do not discuss at all. Thus, I will evaluate the theory not for its intended purpose, but for a peripheral aspect. Nicolae (2013b) does, however, state that the difference between these lexical items could be

[14] Also see Erlewine (2014) for an analysis of the interrogative disjunction in Mandarin Chinese.

captured by a *wh*-feature: interrogative disjunctions carry a [WH] feature and scope high, while standard disjunctions lack such a feature and scope low. In this section, I will focus on Nicolae's (2013b) formulation, although there are other ways this analysis could be formulated. See Uegaki (2014a) for an overview.

4.1 Semantic background for *wh*-analysis

Before discussing the specifics of this analysis, I will first review some of the assumptions made about the semantics of questions for the *wh*-analysis. Nicolae's (2013b) analysis is set within a Hamblin-Kartunnen semantics for questions. Assertions and questions are taken to differ in their semantic type: An assertion denotes a proposition, a set of possible worlds (type $< s, t >$), while a question denotes a set of propositions, a set of sets of possible worlds (type $<< s, t > t >$). The shift from an assertion meaning to an interrogative meaning is encoded in a question operator defined below.

(38) $[\![\text{Q}]\!] = \lambda p_{<s,t>}.\lambda q_{<s,t>}.p{=}q$

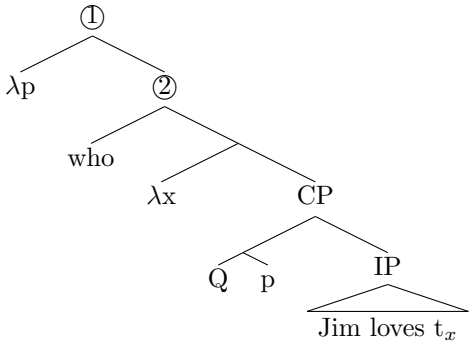
Wh-items are given an existential analysis; they are analyzed as indefinites that bear a [+WH] feature. The presence of this feature forces the *wh*-item to necessarily scope high above the question operator. The denotation of a *wh*-item is given in (39).

(39) $[\![\text{who}]\!] = \lambda \text{P}_{<e,t>}.\exists \text{x}.[\text{person(x)} \wedge \text{P(x)}]$

A derivation for a wh-question is given in (40), slightly adapted from Nicolae's (2013b) example (10). The question contains both a *wh*-item and a Q operator. The *wh*-item *who* moves to scope above the Q operator.

(40) Who does Jim love?

a.



b. (i) CP: p=λw. Jim loves x in w
(ii) ②: ∃x[person(x) ∧ p=λw. Jim loves x in w]
(iii) ①: λp.∃x[person(x) ∧ p=λw. Jim loves x in w]

The effect of the Q operator is that it forms the basis of a question, shifting from a proposition to a set of propositions. The *wh*-item introduces the *alternatives* of the question. A question is a set of propositions, and each proposition in the set is called an alternative. The question in (41-a) will contain as many alternatives as there are individuals in the context. For example, in a context with Pam and Kelly (41-a) will have two alternatives: informally either Jim loves Kelley or Jim loves Pam. This is shown in (41-b) and (41-c).

(41) [Who does Jim love?]=

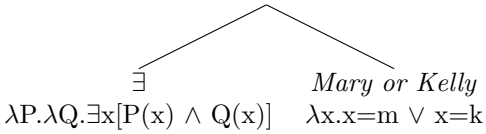
a. λp.∃x[person(x) ∧ p=λw. Jim loves x in w]
b. λp.p=λw.Jim loves Kelly in w ∨ p=λw.Jim loves Pam in w
c. { λw.Jim loves Kelly in w, λw.Jim loves Pam in w}

The denotations given to (41) in (41-b) and (41-c) contain all the *possible* answers to the question, rather than the *true* answers. Nicolae (2013b) uses an *ans*(wer) operator to derive the set of true answers from the set of possible answers. The following discussion does not rely on the distinction between possible and true answers. For this reason, and for simplicity, I will leave out the *ans* operator in the following derivations.

4.2 An existential semantics of disjunction

Under Nicolae's (2013b) analysis, disjunction and *wh*-items receive a parallel analysis. Disjunction introduces alternatives and additionally encodes existential force. The denotation of an *or* phrase in this system is given below in (42).

(42) $\lambda Q.\exists x\ [(x{=}m \vee x{=}k) \wedge Q(x)]$

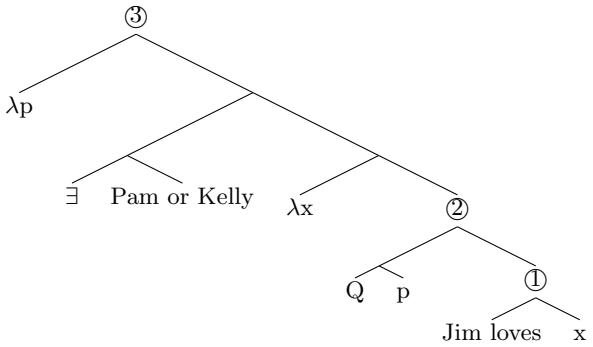


English *or* optionally carries a [+WH] or [-WH] feature[15]. A disjunctive question with $or_{[+WH]}$ is interpreted as an alternative question. Whereas, one with $or_{[-WH]}$ is interpreted as a polar question. The following examples show how each interpretations of disjunctive questions (polar versus alternative question) are derived using the *wh*-analysis.

A disjunction that carries a [+WH] feature undergoes *wh*-movement and scopes outside of the *Q* operator. This results in an alternative question interpretation, as shown in (43).

(43) Does Jim love Pam or Kelly? ALTERNATIVE QUESTION

a.



③: $\lambda p.\exists x[x{=}p \vee x{=}\ k] \wedge p{=}\lambda w.$ Jim loves x in w
②: $p{=}\lambda w.$ Jim loves x in w
①: $\lambda w.$Jim loves x in w

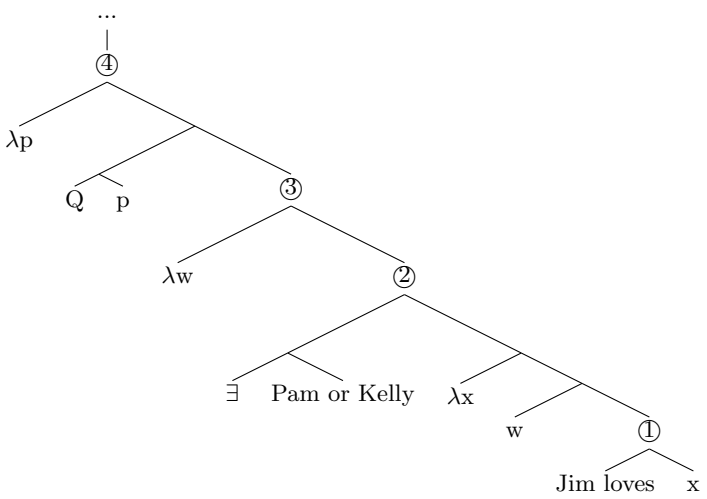
Polar questions in this system are more complicated, and are discussed in detail in Nicolae (2013a). To derive the non-alternative interpretation of the disjunction in these questions, the disjunction has a [-WH] feature forcing it to scope below the question operator. To capture the fact that negative polarity items (NPIs) are licensed in polar questions, Nicolae (2013a) analyses polar questions as containing a covert "*I want to know if*".[16] Thus, the polar question occurs in the antecedent of a conditional, a well known NPI licensing environment. The covert conditional portion of the analysis is not immediately relevant here. What is important is that the disjunction stays low and does not outscope the question operator, as in (44).

[15] Alternatively, this could be formalized as the presence or absence of a [WH] feature.

[16] A reviewer points out that this would predict that NPIs are licensed in questions formed with *aw*. If they are licensed in this environment, the proposed analysis cannot account this fact. More generally, the proposed analysis cannot account for the fact that NPIs are licensed in English polar questions.

(44) Does Jim love Pam or Kelly? POLAR QUESTION

a.



④: λp.p= λw.∃x[(x=m ∨ x=k) ∧ Jim loves x in w]
③: λw.∃x[(x=p ∨ x=k) ∧ Jim loves x in w]
②: ∃x[(x=p ∨ x=k) ∧ Jim loves x in w]
①: λw. Jim loves x in w

Other researchers have analyzed polar questions in a number of ways: They have been analyzed as questions with a singleton set of alternatives (Roberts 1996, Biezma and Rawlins 2012, Uegaki 2014a). Under this view, (44) would be the complete derivation for a polar question. Polar questions have also been analyzed as containing a covert *or not* or an operator with a similar effect. The "..." might be include a higher up operator (such as Karttunen's (1977) *whether* operator). As discussed above, they have been analyzed as covert conditionals by Nicolae (2013a), and the "..." would be a conditional clause which the polar question occurs within the antecedent. Deciding between these analyses is outside of the scope of this paper. The relevant fact will be that the disjunction stays low, within the scope of an operator.

4.3 Implementing the *wh*-analysis for Egyptian Arabic

As discussed in the previous section, the *wh*-analysis takes the variability in interpretation of disjunctive questions in English to be the result of *or* optionally carrying either a [+WH] or [-WH] feature. Turning to languages with standard and interrogative disjunctions, the lack of variability in disjunctive questions is analyzed as the lack in optionality of the *wh*-feature. The standard and interrogative disjunctions each carry one of the two features. For Egyptian Arabic, this would mean that *walla* is [+WH] and always scopes above the question operator, while *aw* is [-WH] and always scopes below the question operator.

(45) Features of EA disjunctions under *wh*-analysis

a. $walla_{[+WH]}$
b. $aw_{[-WH]}$

A desirable aspect of this analysis is that it has the ability to predict the cross-linguistic variation. Some disjunctions (e.g, *walla*) will always occur in clauses that are interpreted as alternative questions, because they necessarily scope high. Other disjunctions cannot induce this interpretation (e.g., *aw*), because they necessarily scope low. Others (e.g., English *or*) can occur in clauses with both types of interpretations, because they can optionally carry the feature. These are also not the only possible feature combinations. We might expect to find languages where one lexical item optionally carries both features, while another only carries one.

This analysis also correctly predicts the difference in interpretation between non-constituent questions with *walla* and *aw*, namely that a question with *walla* is interpreted as an alternative question and a question with *aw* is interpreted as a polar question. This is done in a similar way to the derivations for polar and alternative questions in (43) and (44).

It also correctly predicts that the interrogative disjunction *walla* cannot occur in simple declarative clauses, as discussed in section 1.1. Thus, the *wh*-analysis correctly predicts the basic pattern for standard and interrogative disjunctions noticed by Haspelmath (2007) (c.f. table 1). Likewise, this analysis straightforwardly accounts for why the standard disjunction *aw* cannot occur in polar alternative questions. The disjunction stays in the scope of the question operator.

4.4 Challenges for the *wh*-analysis

In this section I will discuss some challenges for the *wh*-analysis. I will first discuss some general challenges for the analysis, and then discuss challenges specifically for Egyptian Arabic.

One prediction of this analysis is that we would find disjunctions that overtly undergo *wh*-movement, as we find with traditional *wh*-items. As Nicolae (2013b) points out, we don't find languages in which disjunctions overtly undergo *wh*-movement, but we do find a number of languages that have standard and interrogative disjunctions. For traditional *wh*-items, we see that some languages have in-situ *wh*-items and some languages that have overt *wh*-movement. If some disjunctions carried the same *wh*-feature as traditional *wh*-items, we would expect that at least some would show overt movement of the disjunction.

The second general challenge is the interpretation of disjunctions in constituent questions. Section 2.2.1 showed that *walla* (the interrogative disjunction) cannot occur in constituent questions, while *aw* can. This pattern is not predicted by the *wh*-analysis. The fact that *walla* carries a [+WH] feature should not preclude it from occurring in *wh*-questions, because questions with multiple *wh*-items that are not disjunctions (*who bought what?*) are acceptable. The *wh*-analysis, however, could be supplemented to account for this fact. Even in English it is an open question as to why alternative interpretations of *or* are not found in *wh*-questions (although see Guerzoni and Sharvit (2014) for one such proposal). In fact, Nicolae (2013b) points out this lack of coverage for English.

The *wh*-analysis faces the most difficulty when confronted with the differences between *walla* and *aw* beyond the polar versus alternative question distinction. This is the data discussed in section 3.

Size of Disjuncts First, let's return to the behavior of *aw* when it disjoins full clauses. The relevant examples are repeated below in (46) and (47). While a disjunction of full clauses with *walla*, as in (47), can (and must) be interpreted as a question, a disjunction of full clauses with *aw*, as in (46), cannot be interpreted as a question, polar or alternative.

(46) Baaʔ il-ʔarabiyya aw rahan il-beet.
sold DEF-car or$_{PQ}$ mortgaged DEF-house
He had sold the car or mortgaged the house. Abdel-Massih et al. (1981)

(47) Baaʔ il-ʔarabiyya walla rahan il-beet?
sold DEF-car or$_{AQ}$ mortgaged DEF-house
Did he sell the car or did he mortgage the house? Abdel-Massih et al. (1981)

Recall that here are two points that an analysis of *walla* and *aw* needs to account for:

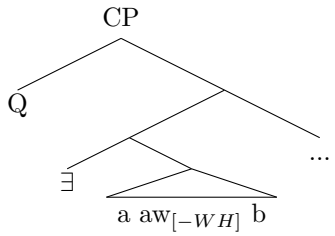
(i) The interpretation of a clause with an *aw* disjunction is dependent on the size of the disjuncts. Why is it that when *aw* disjoins a subject or object, a question interpretation is available, but when *aw* disjoins full clauses, a question interpretation is not available?

(ii) There is an interpretive difference between *walla* and *aw* when they disjoin full clauses. Why is it that (47) can receive a question interpretation, but (46) cannot?

Together these facts provide evidence that the semantics of *walla* and *aw* differ in more than just their scope relative to a Q operator; the *wh*-analysis cannot account for these facts as it is stated. An obvious way to derive (i) in the spirit of the *wh*-analysis is to use the relative scope of the disjunction and the Q operator. Consider the basic trees below. I will assume here that Q is encoded in the complementizer and located in C.

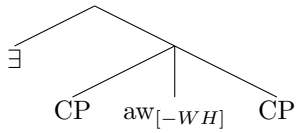
(48) Subject disjunction with *aw*

a.



(49) Disjunction of full clauses with *aw*

a.



There might be a difference in interpretation given the size of the disjuncts because the disjunction outscopes the Q operator in its base generated position in (49), but not in (48). Under this view, when *aw* disjoins subjects or objects, it is generated syntactically low, below the position of the Q operator as expected. In contrast, when *aw* disjoins full clauses, it is syntactically high, and even without undergoing *wh*-movement, it outscopes the position of the Q operator.

To fully evaluate this proposal's ability to explain (i), it would need to be set within a more complete theory of polar questions (*whether* operator (Karttunen 1977), single alternative polar questions (Biezma and Rawlins 2012), conditional analysis (Nicolae 2013a)). Even if this analysis can be used to explain (i), it will necessarily fail to explain the difference between *walla* and *aw*. Let's see why: Under the *wh*-analysis, *walla* and *aw* only differ in how they scope relative to a question operator. If a disjunction of full clauses is a case where the disjunction outscopes the Q operator, we expect neutralization in this context. If *aw* outscopes the Q operator, it should be have the same semantic contribution as *walla*. As we see in (47), this is not the case. This suggests that the *wh*-analysis cannot account for both (i) and (ii). In order to extend the analysis to account for these facts, there would need to be an additional component in the semantics to distinguish *walla* and *aw*.

Declarative clauses Next, let's consider cases of declarative clauses with *walla*. The *wh*-analysis correctly predicts that *walla* cannot occur in simple declarative clauses, as well as in declaratives in the scope of a modal. This is because *walla* contains a [+WH] feature and thus its distribution is limited to interrogative clauses.[17] Because of this, the *wh*-analysis predicts that *walla* should not occur in any declarative clauses. This prediction is not borne out, because we do find *walla* in some declarative clauses, just in a very specific environment: the antecedent of counterfactual conditionals.

The antecedent of counterfactual conditional is not an environment that traditional *wh*-items can grammatically occur in. This is shown by the contrast between (50-a) with an indefinite (which Nicolae (2013b) analyzes as [-WH]) and (50-b) which contains the [+WH] counterpart

[17] I take it to be a syntactic constraint that all [+WH] items must occur in interrogative clauses.

what.

(50) a. ✓If the store had had something, I would have gotten it.
b. *If the store had had what, I would have gotten it.

The grammaticality of *walla* is not predicted by the *wh*-analysis, moreover the analysis cannot easily be extended to account for this fact. This is because with respect to a *wh*-feature, there is nothing that separates the various declarative clauses discussed.

4.5 Summary

The *wh*-analysis predicts the basic polar/alternative question distinction displayed by *walla* and *aw*, and other standard and interrogative disjunctions. It also predicts about the cross-linguistic variation: That some languages, like English, would have disjunctions that show variability in interpretation, while other languages, like Egyptian Arabic, have specific disjunctions that necessarily scope high or low. It also makes a cross-linguistic prediction that is not borne out: that there would be languages that show overt *wh*-movement of a disjunction phrase. For Egyptian Arabic, it also fails to predict the properties of *walla* and *aw* outside of the polar/alternative question distinction. In the next section, I will discuss a new theory which is similar to the *wh*-analysis, but can predict these additional properties.

5 Present proposal

In this section, I propose a modification of the *wh*-analysis to account for the standard and interrogative disjunctions of Egyptian Arabic. Similar to the *wh*-analysis, the variability in interpretation between the disjunctions is derived through interaction with a higher operator. Instead of the variability being derived by movement, the analysis builds on Kratzer and Shimoyama's (2002) analysis of indefinites and indeterminate phrases, and Alonso-Ovalle's (2006) analysis of English *or*. Alonso-Ovalle (2006) discusses cases of standard and interrogative disjunctions as writes:

> "If the Hamblin semantics for *or* that I have advocated is on the right track, and the only role of disjunctions is to introduce propositional alternatives into the semantic derivation, an intimate relation between propositional operators and the disjunctions that they can take as arguments is probably to be expected. But the ultimate nature of the connection between *or* and the propositional operators that it seems to depend on still remains to be explored." Alonso-Ovalle (2006), p. 207

The analysis proposed here uses this connection between disjunction and propositional operators. Kratzer and Shimoyama (2002) propose that indeterminate/indefinites introduce alternatives and that the lexical items can be syntactically specified for what operators they can occur with. Alonso-Ovalle (2006) argues for an analysis in which disjunction also introduces alternatives. The proposal put forth here is that, just like Kratzer and Shimoyama's (2002) indefinite/indeterminate phrases, disjunctions can also be syntactically specified for what operators they can occur with.

Both disjunctions in EA introduce alternatives, but the alternatives of *aw* are necessarily existentially bound. The result is that the alternatives introduced by *aw* never correspond to the alternatives of the questions. The four question types discussed are schematized below. Notice that the question environments that *aw* can occur in are those where the propositional alternatives of the question do not map directly from the disjuncts.

(51) **Polar Question:** Do you want coffee of tea? (✓*aw*/#*walla*)

You want coffee or tea
You don't want coffee or tea

(52) **Constituent Question:** Who wants coffee or tea? (✓*aw*/#*walla*)

Laura wants coffee or Tea
Kaeli wants coffee or Tea

The question environments that *walla* can occur in are those where the propositional alternatives of the question *do* have a one to one mapping with the disjuncts. In the schemas below, the disjunction does not occur within the propositional alternatives, but instead creates them. In the proposed analysis, this fact is derived from an incompatibility between *walla* and existential closure. The propositional alternatives projected by *walla* cannot be existentially bound.

(53) **Alternative Question:** Do you want coffee of tea? (#*aw*/✓*walla*)

You want coffee
You want tea

(54) **Polar alternative Question:** Do you want coffee or not? (#*aw*/✓*walla*)

You want coffee
You don't want coffee

A crucial difference between the *wh*-analysis and the present proposal is that under the *wh*-analysis the difference between *walla* and *aw* arises from the relative scope of the disjunction and the question operator. In contrast, the present analysis posits that the disjunctions are lexically specified for which operators they can "associate" with. The sole role of the disjunction is to introduce alternatives (following Alonso-Ovalle 2006), and the operators the disjunctions occur with determine its force. This has a few advantages: First, the difference in interpretation of the disjunctions is lexically encoded and is therefore constant; it does not vary, for example, with the syntactic size of the disjuncts. Second, there is no longer a binary distinction of whether the disjunction scopes high or low. Instead, the disjunctions are lexically specified for which operators they associate with, and in principle there could be a variety of such propositional operators.

This section is structured as follows: Section 5.1 will provide a brief discussion of my assumptions about the semantics of questions and disjunctions. Section 5.2 will provide background on Kratzer and Shimoyama's (2002) theory of how indefinites and indeterminate phrases associate with operators. This serves two purposes: It presents a parallel between the alternatives of disjunction and the alternatives of indefinites, and it also introduces the formalism of "association" that will extended to disjunction. Section 5.3 will implement the analysis for Egyptian Arabic: the disjunctions are lexically specified to only occur in the scope of particular operators. Section 5.4 will discuss some advantages of this theory over the *wh*-analysis.

5.1 Hamblin-style semantics for questions

This section will provide general background on a Hamblin-style semantics for questions, as well as discuss the semantics of basic questions in Egyptian Arabic. I will assume that the meaning of a question is its set of possible answers (Hamblin 1973). The "alternatives" of a question correspond to the possible answers. In the Hamblin-style framework I assume, most lexical items are type lifted to denote (usually singleton) sets of their traditional denotations. Examples are given in the chart below.

Figure 5: Examples of denotations

	Traditional theories	Hamblin Semantics
1-place predicates	$[\![\text{run}]\!] = \lambda x.\lambda w.\text{run}_w(x)$ <e<s,t>>	$[\![\text{run}]\!] = \{\lambda x.\lambda w.\text{run}_w(x)\}$ <<e<s,t>>t>
2-place predicates	$[\![\text{love}]\!] = \lambda y.\lambda x.\lambda w.\text{love}_w(x,y)$ <e<e<s,t>>>	$[\![\text{love}]\!] = \{\lambda y.\lambda x.\lambda w.\text{love}_w(x,y)\}$ <<e<e<s,t>>>t>
Names	$[\![\text{Angela}]\!]$=a <e>	$[\![\text{Angela}]\!]$={a} <e,t>

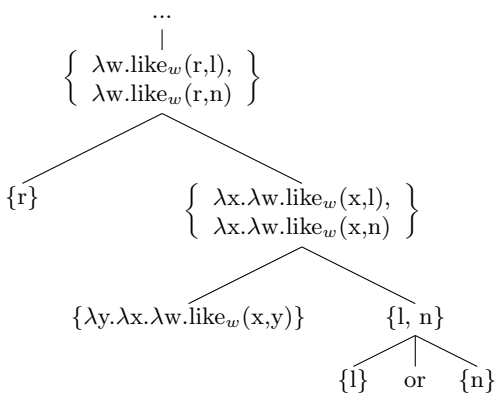
Disjunction is defined as a simple union operation (Alonso-Ovalle 2006, Groenendijk 2009, a.o.). Given the definition in (55) and the type lifting discussed above, the sole semantic contribution of disjunction is to introduce a set of alternatives.

(55) $[\![\alpha \text{ or } \beta]\!] = [\![\alpha]\!] \cup [\![\beta]\!]$ Simplified from Alonso-Ovalle (2006), p. 11

The set of alternatives introduced by disjunction can be a set of individuals, properties, or propositions. For example, in (56), the disjunction creates a set of individuals. As this set composes with other elements, the elements of the set expand from individuals to propositions. This is shown in the tree below.

(56) Reid likes Lane or Noah.

a.



This composition is done via pointwise function application (Hamblin 1973, Kratzer and Shimoyama 2002 p.7, Alonso-Ovalle 2006 p.11, Roelofsen and van Gool 2010 p.386). This operation is defined in (57).

(57) *Pointwise Function Application*
If $[\![\alpha]\!] \subseteq D_{<\sigma,\tau>}$ and $[\![\beta]\!] \subseteq D_\sigma$, then
$[\![\alpha(\beta)]\!] = \{c \in D_\tau \mid \exists a \in [\![\alpha]\!].\ \exists b \in [\![\beta]\!]\ (c=a(b))\}$

Informally, (57) states that if an element in α (e.g., e in $<e,t>$) is in the domain of a function in β (e.g., e in $<<e<s,t>>t>$ or 'λx' in $\{\lambda x.\lambda w.\text{run}_w(x)\}$) then the element in α can be an argument for the function in β.

If the derivation in (56) were complete, (56) would denote a question with two alternatives. These alternatives would correspond to the possible answers *Reid likes Lane* or *Reid likes Noah*. Sentences with *or* are not always interpreted this way. The set of alternatives introduced by disjunction can be bound by a higher operator. The different operators that bind the alternative set are responsible for the apparent variability in interpretation of sentences with English *or*, for example the alternative versus polar question distinction. One possible operator that can bind a set of alternatives is an existential closure operator, as in (58) (Kratzer and Shimoyama 2002

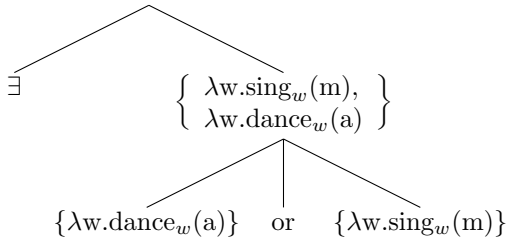
p.7, Alonso-Ovalle 2006 p.12). I will adopt this formulation of existential closure in the present analysis.

(58) Existential closure: Where $[\![A]\!] \subseteq D_{<s,t>}$, $[\![\exists\ A]\!] = \{\lambda w.\exists p\ [p \in [\![A]\!]\ \&\ p(w)]\}$

The effect of the existential closure operator on an alternative set introduced by a disjunction is shown in the tree below, (59).

(59) Matt sings or Angela dances.

a. $\{\lambda w.\exists p[\ p \in \left\{ \begin{array}{l} \lambda w.\text{sing}_w(m), \\ \lambda w.\text{dance}_w(a) \end{array} \right\}\ \&\ p(w)]\}$



I will also assume that questions and assertions are of the same type: $<< s,t > t >$. The difference between assertions and questions is the number of alternatives they contain: an assertions denotes a singleton set of alternatives, as in (59), and a question denote a non-singletons set of alternatives.[18]

5.1.1 Polar and alternative questions

I will first discuss how the polar question interpretation of a disjunctive question is derived in this framework, and then discuss how the alternative question interpretation is derived. Following Hamblin (1973), I assume that polar questions (disjunctive or not) are prefixed with an operator encoding a meaning similar to '*is it the case that*'. The intuition behind this is that a polar question, such as *Is it raining?*, can be decomposed into two parts: an operator and a proposition *it is raining*. Thus, the question can be rephrased as *is it the case that it is raining?* I will give this operator the label Q_{POL}; it is defined below.

(60) Denotation of polar question operator:

a. Where $[\![\alpha]\!] = \{A\}$ (undefined if not a singleton set):

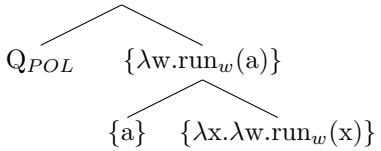
b. $[\![\ Q_{POL}\ \alpha\ ]\!] = \{\lambda w.A(w), \lambda w.\neg A(w)\}$

Hamblin (1973) p.50, adapted in Biezma and Rawlins (2012) p.391

An example of the effect of Q_{POL} in a non-disjunctive polar question is given in (61). Informally, the alternatives of the question are *Angela runs* and *Angela doesn't run*. The possible answers for this question correspond to these alternatives. It is considered a polar question because the alternatives vary along the lines of polarity and license *yes/no* answers. See Roelofsen and Farkas (2014) for an analysis of the licensing of polarity particles.

(61) Does Angela run?

a. $\{\lambda w.\text{run}_w(a), \lambda w.\neg\text{run}_w(a)\}$

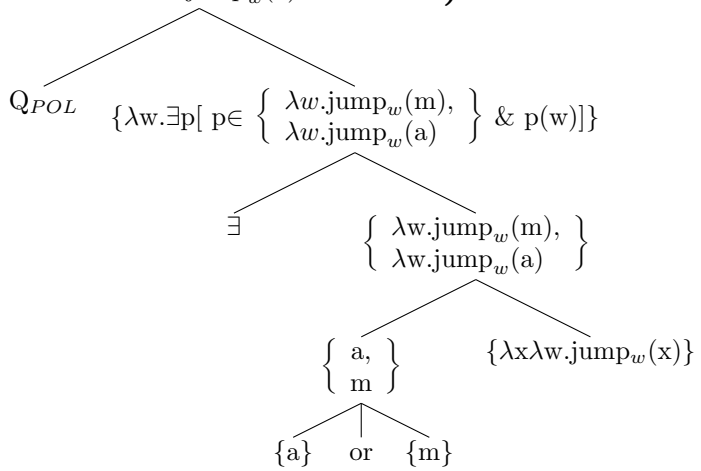


[18] Although, I don't think anything I say depends on this assumption.

Pol_Q is only defined to combine with singleton alternative sets. Recall that in this system disjunction necessarily creates non-singleton sets of alternatives. An alternative set created from a disjunction can therefore only combine with Q_{POL} if it is first bound by an existential closure operator, as in (62).[19]

(62) Did Matt or Angela jump? POLAR QUESTION

a. $\left\{ \begin{array}{l} \lambda w.\exists p[p \in \left\{ \begin{array}{l} \lambda w.\text{jump}_w(\text{m}), \\ \lambda w.\text{jump}_w(\text{a}) \end{array} \right\} \& p(w)] \\ \lambda w.\neg\exists p[p \in \left\{ \begin{array}{l} \lambda w.\text{jump}_w(\text{m}), \\ \lambda w.\text{jump}_w(\text{a}) \end{array} \right\} \& p(w)] \end{array} \right\}$



(62) is interpreted as a polar question. There are two alternatives of the question, informally: *Matt or Angela jumped* and *neither jumped*. I take this Q_{POL} operator to be the semantic correlate of the final raise in intonation in English. Is this also the case for Egyptian Arabic? I will argue that it is.

One might think that the most natural realization of a question operator in Egyptian Arabic would be the question particle, but the problem with that anlaysis is that all questions (polar questions, alternative questions, constituent questions, etc.) occur with the question particle, but not all of these questions carry the *is it the case that* meaning. For this reason, I will assume that the final rise in intonation is also the phonetic realization of the Q_{POL} operator in EA. Recall that in EA, only polar questions, not alternative or constituent questions, have a final rise in intonation. For now, I will assume that the question particles in EA (*huwwa, hiyya, humma*) have no semantic effect, although see Soltan (2011) for a more complete discussion of the semantics of this operator. I will adopt the semantically vacuous denotation of a question operator provided in (Kratzer and Shimoyama 2002 p.8), given below.

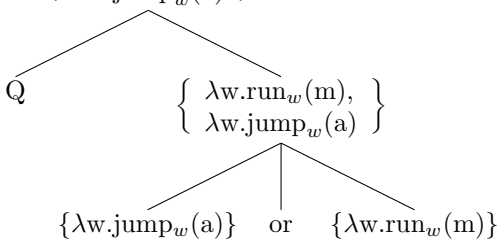
(63) Denotation of question particle (*huwwa, hiyya, humma*):
$[\![\text{Q } \alpha]\!] = [\![\alpha]\!]$

The derivation of a polar question, given in (62), contrasts with a that of an alternative question in two ways. In a polar question, the alternative set introduced by the disjunction is bound by the existential quantifier, and the Q_{POL} adds an *or not* meaning. The derivation for an alternative question interpretation is given in (64). The alternative set introduced by the disjunction is not existentially bound, and there is no Q_{POL}. The alternatives introduced by the disjunction correspond to the alternatives of the question.

(64) Did Matt run, or Angela jump? ALTERNATIVE QUESTION

[19] Another option is to encode the closure operator into the polar question operator itself, as Roelofsen and Farkas (2014) do.

a. $\left\{ \begin{array}{l} \lambda w.\text{run}_w(m), \\ \lambda w.\text{jump}_w(a) \end{array} \right\}$



The question denoted by (64) has two alternatives, informally: *Matt ran* and *Angela jumped*. These alternatives correspond to the disjuncts, rather than along the lines of polarity, as the alternatives denoted by the question in (62) do.

In the *wh*-analysis, disjunctions always encode existential force and the perceived variability in interpretation depends on whether they were interpreted above or below an operator. In the framework presented here, disjunctions do not encode existenital force directly. Instead, the apparent variability in interpretation comes from whether the alternative set introduced by a disjunction is existentially bound. This is summarized in Figure 6.

Figure 6: Interpretation of disjunction in various enviornments

	∃-bound	not ∃-bound
Simple interrogative clauses	✓= Polar Q	✓= Alternative Q
Simple declarative clauses	✓	
Constituent questions	✓	
Polar alternative questions		✓

The chart above provides generalizations about the interpretation of disjunctions in these environments. I have not yet provided a mechanism to derive these facts. If a simple question (e.g., not a constituent question or a polar alternative question) contains a disjunction whose alternative set has been existentially bound, the question is interpreted as a polar question. If a simple question contains a disjunction whose alternative set has not been existentially bound, the question is interpreted as an alternative question. The alternatives introduced by a disjunction in an assertion or a constituent question are existentially bound. And the alternatives introduced by a disjunction in a polar alternative question are not existentially bound.

5.1.2 Summary

In the Hamblin-style semantics introduced above, the following general (not language specific) assumptions were made: denotations are type lifted to denote sets of their traditional denotations, elements combine via pointwise function application, disjunction is basic set union, and an existential operator can bind the alternative sets introduced by disjunction. Specifically for Egyptian Arabic, the following assumptions were made: Q (63) is the denotation of the question particles (*huwwa, hiyya, humma*), and Q_{POL} (60) is the meaning contributed by the final rise in intonation. Thus, polar questions can contain both Q and Q_{POL}. This may seem undesirable, but a polar question in EA does occur with both a question particle and a final rise in intonation.

The analysis proposed in the next section is compatible with different assumptions about the semantics of questions. The crucial aspects are (i) that disjunctions introduce sets of alternatives, and (ii) in polar questions, the alternatives introduced by the disjunction are existentially bound, whereas in alternative questions they are not. These two properties provide a basis for the association analysis of EA disjunctions: the disjunctions are given the same alternative inducing semantic denotation, but they differ in the operators they can occur with. The next section

provides an overview of Kratzer and Shimoyama's (2002) analysis of how lexical items can be specified for which operators they can occur with.

5.2 Background on Kratzer and Shimoyama (2002)

Kratzer and Shimoyama (2002) discuss the fact that Japanese indeterminate phrases take on a variety of interpretations depending on the operator they occur with. (65) and (66) show this variability. In (65) the indeterminate phrase *dono* occurs with *-mo* and receives a universal interpretation. In (66), *dare* occurs with the question particle *ka*, and is interpreted as a *wh*-item.

(65) [[**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'

(66) 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?'

=(2a-b) Kratzer and Shimoyama (2002)

Under Kratzer and Shimoyama's (2002) analysis, the Japanese indeterminate phrases introduce a set of alternative individuals. This set of individuals combines compositionally with other material via pointwise function application to create propositional alternatives, as discussed for disjunction in the previous section. The alternatives continue to compose until an operator selects them (whether it be an operator that binds propositional or individual alternatives). Thus, the force of the nominal is removed from the element that introduces the alternatives. For example, in (65), the alternatives are introduced by *dono* and the alternative set is bound by the universal *-mo*.

Kratzer and Shimoyama (2002) give a similar alternative-inducing analysis to German indefinite *irgendein*. *Irgendein* introduces individual alternatives that are also bound by an independent operator. The difference lies in that the Japanese indeterminate phrases combine freely with whatever operator is the most local, but *irgendein* must be bound by an existential operator.

Kratzer and Shimoyama (2002) formalize this in a system of syntactic features. An indefinite or indeterminate can carry an uninterpretable feature (e.g., [$u\exists$], [$u\forall$], [uQ]), which must be checked with a higher operator also carrying that feature. If the uninterpretable feature is not checked, if there is no higher operator bearing the matching interpretable feature, the derivation crashes. The result is an ungrammatical sentence. Through feature checking, a nominal can always surface with a particular force, e.g., existential force, without directly encoding that force itself.

5.3 An association analysis for Egyptian Arabic

This section will show how Kratzer and Shimoyama's (2002) analysis can be extended to account for the disjunctions of Egyptian Arabic. The analysis of indefinites in Kratzer and Shimoyama (2002) sets up a natural connection between indefinites and disjunction; both introduce alternative sets that can be bound by a higher operator. Thus, the analysis in Kratzer and Shimoyama (2002) could straightforwardly be extended to cases of disjunction, as Alonso-Ovalle (2006) does for English *or*.

The role of indefinite/indeterminate phrases and disjunctions is simply to introduce alternatives, and both can be lexically specified for which operators they combine with. If this is correct, we expect to see both indeterminate phrases and disjunctions that are constant in their interpretation and always associate with the same (type of) operator, as well as ones that are more flexible in their interpretation and combine with a variety of operators. In fact, this is what we find: English *or* is parallel to Japanese indeterminate phrases in that it shows variability in interpretation. Recall Figure 6; *or* can associate with an existential operator in assertions and

polar questions, or not in alternative questions and polar alternative questions. The disjunctions of Egyptian Arabic are parallel to *irgendein* in that they do not show the same variability in interpretation and always associate with the same (type of) operator. This is summarized in the table below.

Figure 7: Summary of associations

	Associates with	
	a variety of operators	specific type of operator
Nominals	Japanese indeterminate phrases	German *irgendein*
Disjunctions	English *or*	Egyptian Arabic *walla, aw*

Figure 6 can be expanded to include EA, as is done below in Figure 8. English *or* can either be existentially bound or not, for example simple questions with *or* can be interpreted as a polar or alternative question. In the environments with "X", English *or* simply lacks that specific interpretation. The alternative set introduced by *aw*, on the other hand, is always existentially bound. A simple question with *aw* is interpreted as a polar question. The alternative set introduced by *walla* is never existentially bound. A simple question with *walla* is interpreted as an alternative question, and *walla* is ungrammatical in simple declarative clauses and constituent question.

Figure 8: Distribution of disjunctions

	∃-bound	not ∃-bound
Simple interrogative clauses	Polar question	Alternative question
Simple declarative clauses	✓	X
Constituent questions	✓	X
Polar alternative questions	X	✓
Disjunctions:	*aw*	*walla*
	or	

Kratzer and Shimoyama's (2002) analysis can naturally be extended to Egyptian Arabic: *Aw* carries an uninterpretable existential feature, and only combines with operators that also carry that feature, just as *irgendein* does. *Walla*, on the other hand, cannot associate with an existential operator. This is summarized in (67).

(67) Feature profile of *aw* and *walla*

a. *aw* carries a uninterpretable existential feature [$u\exists$]

b. *walla* is prohibited from associating with an existential operator

I will argue that *walla* can't occur with an existential operator, but I leave for future work what exactly the feature specification of *walla* is. There is at least one operator that *walla* may be able to associate with, a universal operator.

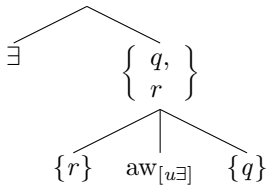
This analysis raises a question about the nature of the existential operator. Existential closure is generally viewed a default operation that applies freely, but here we see a case where a lexical item cannot associate with it. It is possible that the default existential closure occurs below the level disjoined by *walla*, and thus the existential cannot scope above *walla* simply by virtue of its syntactic height. In this paper, I will set aside the question of what prohibits the association of *walla* with an existential closure (e.g., syntactic feature versus syntactic height), and instead simply show that this prohibition can derive the behavior and distribution of *walla*.

The analysis proposed here has a few basic ingredients: First, *walla* and *aw* differ in their syntax. *Walla* always disjoins full CPs, while *aw* disjoins elements of various sizes. This is in line with analyses that alternative questions are cross-linguistically disjunctions of full clauses (See Schwarz 1999, Han and Romero 2004, and especially Uegaki's (2014a) claim that the interrogative disjunction in Japanese always disjoins polar questions). This may not be the case for all interrogative disjunctions, but it seems to be the case for *walla*. Second, the alternative set introduced by *aw* is always bound by an existential, whereas the alternative set of *walla* never is. For now, I assume Kratzer and Shimoyama's (2002) implementation using syntactic feature, although I leave open the question of exactly how these requirements for both disjunction and indefinites should be formalized.

The present analysis accounts for the core data in a similar way to the *wh*-analysis. The fact that the alternatives introduced by *aw* never correspond to the alternatives of the question is derived from the fact that it is always associated with an existential closure. This is shown for a declarative clause (interpreted as an assertion) in (68), and an interrogative clause interpreted as a polar question in (69).

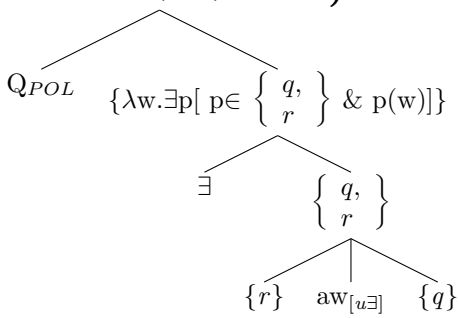
(68) Assertion with *aw*

a. $\{\lambda w.\exists p[\ p \in \left\{ \begin{array}{l} q, \\ r \end{array} \right\}\ \&\ p(w)]\}$



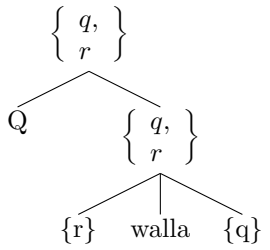
(69) Polar Question with *aw*

a. $\left\{ \begin{array}{l} \lambda w.\exists p[p \in \left\{ \begin{array}{l} q, \\ r \end{array} \right\} \& p(w)] \\ \lambda w.\neg\exists p[p \in \left\{ \begin{array}{l} q, \\ r \end{array} \right\} \& p(w)] \end{array} \right\}$



Walla, on the other hand, carries the opposite requirement; it cannot associate with an operator that carries an existential feature. Since its alternative set cannot be bound by an existential closure operator, an interrogative clause with *walla* is interpreted as an alternative question, as in (70).

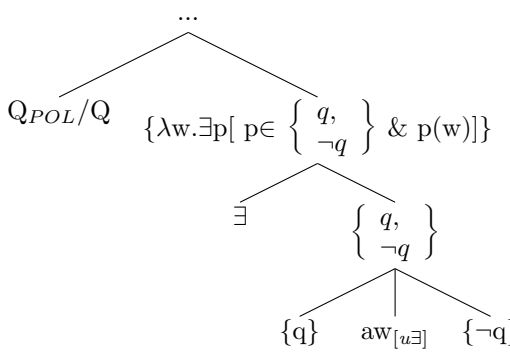
(70) Alternative question with *walla*

a. 

Note that *walla* could not occur in the derivations in (68) and (69) because it would be in the scope of an existential quantifier. Likewise, *aw* could not occur in the derivation of (70) because it would not satisfy its uninterpretable existential feature. This captures the basic facts observed for standard and interrogative disjunctions observed by Haspelmath (2007). It also has the potential to generalizes to the other environments: polar alternaive questions and constituent questions.

Polar alternative questions contain a disjunction with disjuncts that are jointly exhaustive. If the alternative set introduced by the disjunction is bound by existential closure, the resulting alternative would exhaust all possibilities. Consider the derivation in (71), regardless of what question operator occurs above the existenital closure, the resulting question would be infelicitous. This is because the existential closure produces a vacuous alternative, one that is true in all worlds.

(71) Polar Alternative Question with *aw*

a. 

No disjunction that is existentially bound should felicitously occur in this environment, thus the standard disjunction *aw* is predicted to be unacceptable here.

I will not provide a complete analysis of constituent questions here. See Guerzoni and Sharvit (2014, 2015) for a proposal for why disjunction cannot receive an alternative interpretation in constituent questions. In English and Egyptian Arabic, the possible answers to constituent questions with disjunction only pick out values for the *wh*-item, and do not correspond to the disjuncts. In the present system, this could be derived either by a by the *wh*-complementizer encoding the existential force and thus carrying an existenital feature. This would give us the correct prediction: if constituent questions necessarily involve existential closure, then we would predict that *aw* can occur in them, while *walla* cannot.

A reviewer points out that the infelicity of *walla* in constituent questions could also be derived from the syntax of *walla*. If *walla* disjoins full CPs, then the underlying structure of a constituent question with *walla* would be as in (72-a). In fact, a disjunction of constituent questions is ungrammatical in English.

(72) a. [[who wants coffee] walla [~~who wants~~ tea]]
b. *Who wants coffee or who wants tea?

This explanation could be used to account for why *walla* is bad in these questions, but it leaves open why English *or* cannot receive the relevant interpretation in constituent questions.

It is possible that this is because alternative questions across languages are disjunctions of syntactically large elements (as suggested by Schwarz 1999, Han and Romero 2004, and Uegaki 2014a). I leave this as an open possibility.

In addition to the EA specific data, this analysis also accounts for the cross-linguistic pattern noticed by Haspelmath (2007). First, it explains the tendency for the disjunction that occurs in alternative questions to not occur in declarative clauses. The interrogative disjunction cannot occur in simple declarative clauses because its alternatives can never be bound by an existential operator, whereas the standard disjunction occurs in polar questions and declarative clauses because these are both environments where the alternative set of the disjunction is bound by an existential operator. The analysis also explains the presence of disjunctions, like English *or*, which can either associate with an existential or not. These lexical items are either underspecified for which operators they can associate with.

5.4 Advances over the *wh*-analysis

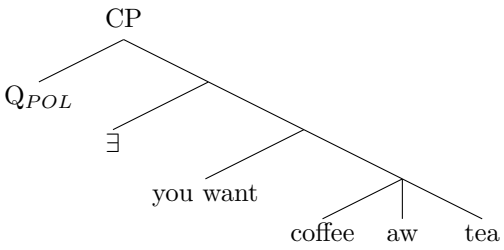
Although both the present analysis and *wh*-analysis derive the difference between the disjunctions from how they interact with a higher operator, the present analysis differs from the *wh*-analysis in that it does not do so using movement. Unlike the *wh*-analysis, the present analysis does not predict that we would find overt movement of disjunctions cross-linguistically. This is a desired outcome. The present analysis can also account for the differences between *walla* and *aw* beyond the polar/alternative question distinction.

Size of the disjuncts Recall that utterances with *walla* and *aw* differ in their possible interpretations when the disjunction disjoins full clauses. Under the present analysis the alternative set of *aw* is stipulated to always be bound by an existential operator. Therefore, an utterance with *aw* can only be interpreted as a question if there is an additional operator that outscopes the disjunction and independently introduces alternatives. In polar questions, this operator is the Q_{POL} operator. This can be contrasted with a question with *walla* in which the alternatives come from the disjunction itself, rather than a higher operator. In order to receive a question interpretation, an utterance with *aw* requires that another alternative introducing operator outscopes the disjunction, but an utterance with *walla* does not.

Returning to the disjunctions of full clauses, the present analysis predicts both that a disjunction of full clauses with *aw* can only be interpreted as an assertion. It also predicts that a disjunction of full clauses with *walla* is interpreted as a question. That is, it predicts both the difference between different sizes of the disjuncts with *aw*, as well as the difference between *walla* and *aw* when they disjoin full clauses.

I assume that when a disjunction disjoins full clauses it outscopes the position of the question operator. This explanation relies on an assumption about the syntactic position of the question operators. In Roelofsen and Farkas (2014) the element responsible for the *is it the case that* meaning is a complementizer (C_{PI}). If we follow this and assume that Q_{POL} is a C, then a polar question with a disjunction below the CP has the structure in (73).

(73)

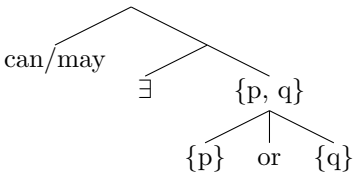


Given this structure, if the disjunction is of two full clauses (CPs), then the disjunction outscopes the position that Q_{POL} would occur in. There is some evidence that the disjunctions do outscope Q in these questions. The question particle cannot grammatically be added to (46) and (47), and (46) cannot be felicitously uttered with polar question intonation (i.e., a final rise).

The lack of a question interpretation for (46) is explained by the fact that there is no Q_{POL} that scopes above the disjunction, and the alternative set introduced by *aw* is necessarily existentially bound. For an utterance with *walla*, we expect no variability in interpretation (e.g., question versus assertion) depending on the ability of a question operator to scope above it, because the alternatives of a question with *walla* come from the disjunction itself and not a higher operator.

Modals Kratzer and Shimoyama (2002) and Alonso-Ovalle (2006) argue that the alternative set of *or* combines with a existential closure before combining with the modal, as shown in (74).

(74)



Within the present analysis *aw* must occur in the scope of an existential operator, but *walla* cannot. Given the structure in (74), the analysis predicts that *aw* can occur in the scope of modals, while *walla* cannot. As discussed in section 3.2 this prediction is borne out. Note that the *wh*-analysis also predicts this.

Counterfactuals Another non-question environment that the association analysis makes predictions about is the antecedent of counterfactual conditionals. Alonso-Ovalle (2006) analyses counterfactuals as co-relative constructions. The relevant aspect of this analysis is that the alternative set projected from the disjunction is, on a typical interpretation, bound by a universal quantifier, not an existential. I will not discuss the co-relative analysis in detail, the interested reader is recommended to read Alonso-Ovalle (2006). The rest of the data discussed in this paper, have contrasted environments where the alternatives of a disjunction associate with an existenital operator or not (or possibly a question operator). If Alonso-Ovalle's (2006) analysis of disjunction in the antecedent of counterfactuals is correct, then this is a unique environment where an existential is actually bound by a universal.

The present analysis posits that *aw* always associates with existential operators and *walla* never does, but we have not seen how these disjunctions behave with respect to other operators. Section 3.2 showed that both *walla* and *aw* are both acceptable in the antecedent of a counterfactual conditional. The grammaticality of both disjunctions is compatible with the present analysis. This data suggests that while *walla* cannot associate with existential operators, it can associate with universals. It also suggests that *aw* is compatible with both universal and existential operators. This is compatible with the present analysis, but not the *wh*-analysis.

5.5 Summary and open questions

The proposed analysis and the *wh*-analysis derive the variability of standard and interrogative disjunctions in a similar way: both disjunctions are given the same alternative-inducing semantic denotation, but they differ in how they interact with a higher operator. The proposed analysis does overcome some of the challenges faced by the *wh*-analysis, but neither analysis provides an explanation for the behavior of disjunctions in constituent questions (in English and Egyptian Arabic). The proposed analysis is compatible with the distribution of the interrogative disjunction *walla* in assertions. It cannot occur in simple assertions or in the scope of a modal, but it can occur in antecedents of counterfactuals.

The analysis proposed here leaves many open questions. In addition to the issue of constituent questions, the proposed analysis does not provide a complete analysis: no feature specification has been proposed. There is evidence that *walla* cannot associate with existential operators, but it can associate with universals. The antecedent of counterfactual conditionals are interesting because they are both (i) an environment where disjunction has been claimed

to associate with a universal and (ii) an environment where *walla* and *aw* overlap. The precise interpretation of *walla* and *aw* in this environment has not been determined. It is possible that the exploration of this last open question will aid in determining exactly what the feature specification of *walla* is.

6 Conclusions

In this paper, I provided a more articulated view of the distribution and interpretation of Egyptian Arabic *walla* and *aw*. I showed that in questions, the difference between these lexical items is in how the disjuncts correspond to the possible responses to that question. The disjuncts of *walla* always correspond to separate answers or discourse alternatives. The disjuncts of *aw* never do. Moreover, we see that environments that require an alternative interpretation, polar alternative questions, the standard disjunction *aw* is unacceptable. In contrast, environments that require a non-alternative interpretation, constituent questions, the interrogative disjunction *walla* is unacceptable. This suggests that the disjunctions of EA are not flexible in the way that English *or* is.

The *wh*-analysis suggested by Nicolae (2013b), Uegaki (2014a) can capture the core facts about interrogative and standard disjunctions first noticed by Haspelmath (2007). This analysis incorrectly predicts that we should see disjunctions that overtly move. It also cannot account for data from Egyptian Arabic beyond the polar/alternative question distinction. Therefore, this analysis may be on the right track in deriving the difference between *walla* and *aw* from their behavior with a higher operator, but the movement aspect of the analysis cannot be maintained for Egyptian Arabic. In response, I proposed an alternative analysis that builds on the basic insights of the *wh*-analysis. In the proposed analysis, the disjunctions of EA are lexically specified for which operators can bind the alternative sets they introduce. This analysis overcomes some of the challenges for the *wh*-analysis and makes interesting predictions for other non-question environments that seem to be borne out.

This paper leaves many questions open and sets a path for further research. I showed that the interrogative and standard disjunction of EA contrast in many ways, beyond the polar and alternative question distinction. One next step might be to test standard and interrogative disjunctions of other languages in the environments discussed here to see if the same patterns hold. There has been much research on the interpretation of English *or* as well as the implicatures it introduces (e.g., free choice inferences, exclusivity, speaker ignorance). A closer look at the interpretation and implicatures of disjunctions in languages like EA would help to fill in some of the gaps in the analysis proposed above, especially what the correct restrictions of interrogative disjunctions *walla* should be.

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