Focus alternatives in alternative questions*

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Abstract. Disjunctive questions are ambiguous: they can either be interpreted as polar questions (PolQs), as alternative questions (AltQs), or as open disjunctive questions (OpenQs). Prosody disambiguates between these readings. This paper aims to derive the different readings from their respective prosody and makes two main points: (i) the semantic difference between PolQs and AltQs/OpenQs cannot be derived from differences in their underlying syntactic structure—as is often assumed; (ii) the alternatives of AltQs/OpenQs need to be derived from focus marking in a more direct way. Although a Roothian focus approach seems on the right track, we need a more fine-grained understanding of the prosody of AltQs to capture the observations.

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1 Introduction

Disjunctive questions such as (1) are ambiguous: they can either be interpreted as a polar question (PolQ), an alternative question (AltQ) or an open disjunctive question (OpenQ)

(1) Did Mary drink coffee or tea? ✓PolQ, ✓AltQ ✓OpenQ

The availability of these readings depends on intonation: it seems that both disjuncts must be pitch accented for the AltQ and the OpenQ reading to arise. That is, the question in (2a) is interpreted as an AltQ because it has pitch accents on *coffee* and *tea*, indicated below with ↑ and ↓ which represent L*H and H*L accents respectively. The example in (2b) with two rising pitch accents is interpreted as an OpenQ. Finally, the example in (2c) with a flat intonation on the disjunction is always interpreted as a PolQ [14, 3].

(2) a. Did Mary drink COFFEE$^{\uparrow}$ or TEA$^{\downarrow}$? × PolQ, OpenQ ✓AltQ
b. Did Mary drink COFFEE$^{\uparrow}$ or TEA$^{\uparrow}$? × PolQ, AltQ ✓OpenQ
c. Did Mary drink coffee-or-tea? × AltQ, OpenQ ✓PolQ

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Acceptable answers to an AltQ are any of the disjuncts, while acceptable answers to an OpenQ are any of the disjuncts as well as alternatives that are parallel to these. In other words, the answers to the AltQ in (2a) are either *tea* or *coffee*. An answer that falls outside of the disjunction, i.e. another alternative like *water*, or a *neither* answer does not seem felicitous in response to an AltQ. OpenQs, in contrast, do allow for such answers: answering (2b) with *she drank water* seems totally fine. For a PolQ as in (2c), we can either answer positively with the assertion that Mary drank either tea or coffee, or we can answer negatively with the assertion that Mary drank neither [15]. In a Hamblin-style semantics, the difference in interpretation between a disjunctive PolQ, OpenQs and AltQs is thus roughly the following (where I use $|\varphi|$ to abbreviate the set of worlds in which the sentence φ is true):

(3) a. $[\![(2a)]\!] = \{|\text{Mary drinks tea}|, |\text{Mary drinks coffee}|\}$
b. $[\![(2b)]\!] = \{|\text{M. drinks tea}|, |\text{M. drinks coffee}|, |\text{M. drinks water}|, ...\}$
c. $[\![(2c)]\!] = \{|\text{M. drinks tea or coffee}|, |\text{M. drinks neither}|\}$

These differences tell us two things about the distinction between AltQs/OpenQs and PolQs. It tells us that (i) the disjunction provides alternatives in the form of distinct answers in AltQs and OpenQs but it does not do so in PolQs, and that (ii) PolQs contain a negative answer that negates the disjunctive statement, while AltQs do not have such an answer.

How do we derive these different meanings from the respective prosody these questions have? In this paper I focus on the difference in (i), that is, the alternative-generating capacity of disjunction in AltQs/OpenQs and its lack thereof in PolQs. More specifically I thus ask: why does the disjunction supply multiple alternatives in AltQs/OpenQs while it does not do so in PolQs?

With respect to this question, I make two main points. First, I will argue that the semantic difference between PolQs and AltQs cannot be derived from differences in their underlying syntactic structure—as is often assumed. To do so I will present new data that is highly problematic under such an account. Second, I propose that the alternatives of an AltQ/OpenQ need to be derived from focus marking. However, although a Roothian focus approach seems on the right track, we need a more fine-grained understanding of the prosody of AltQs/OpenQs to capture the observations.

To show this, I add to the paradigm above examples like (4) in which we find pitch accents on a phrase that is not part of a disjunction:

(4) a. Did JOHN drink coffee? ✓PolQ × AltQ/OpenQ
b. Did John drink COFFEE? ✓PolQ × AltQ/OpenQ
c. Did JOHN drink tea or coffee? ✓PolQ × AltQ/OpenQ

All three questions in (4) are interpreted as PolQs, but the different location of the pitch accents results in subtly different interpretations. That is, pitch accents in (4) provide information about how these questions are situated within a broader discourse structure. I therefore argue that the contrast between AltQs

and disjunctive PolQs should be captured by using the same machinery as used to capture the contrast between the questions in (4).

The remainder of this paper is structured as follows. In Section 2 I will discuss syntactic approaches to the disjunctive questions puzzle, and I will argue that this cannot be the full story. In Section 3 I introduce the Roothian approach to this puzzle as proposed by [4], as well as its limitations. In Section 4 I propose a novel account of the AltQ-OpenQ-PolQ contrast which draws inspiration from the Roothian account, but in which the contrast between AltQs/OpenQs and PolQs is derived via question-answer congruence. In Section 5 I conclude.

2 Syntactic accounts

Many accounts of the PolQ-AltQ contrast assume that AltQs of the form in (2a) involve deletion while PolQs like (2c) do not [19, 10, 9]. That is, the disjuncts in AltQs are often taken to be clausal (depending on the specific theory, either VPs, TPs or CPs), while PolQs always contain subclausal disjunctions. An AltQ as in (2a) would therefore involve gapping as shown in (5). In English, pitch accents on the disjuncts in AltQs are then assumed to be a reflex of this specific underlying structure.

(5) Did Mary drink COFFEE or ~~did she drink~~ TEA? ✓AltQ × PolQ

The main argument for such an approach is that disjunctive questions with clausal disjunctions are never interpreted as PolQs, but will always have an AltQ/OpenQ interpretation.

The most important assumption in these accounts is that disjunction introduces alternatives *by default*—as is standard in alternative semantics. This alternative-generating potential of disjunction has not only been argued to play a crucial role in disjunctive questions, but also in modal constructions, imperatives, and conditionals [17, 2, 1, 7, 8]. The following entry for disjunction is therefore assumed:

(6) $[\![or]\!] = \lambda P_\tau.\lambda Q_\tau.\{P, Q\}$

These disjunctive alternatives are then "percolated up" using pointwise functional application (PFA). Crucially, however, syntactic accounts also assume that alternatives are flattened out at the clausal level, using an existential closure operator ($\exists$):

(7) $[\![\exists\alpha]\!] = \lambda w.\exists p \in [\![\alpha]\!] : p(w) = 1$

The assumed underlying structure of PolQs is as in (8a), where XP stands for any phrase smaller than the clause that hosts $\exists$. The underlying structure of AltQs then has to be the one in (8b) (assuming that $\exists$ occurs above the CP level in this case).

(8) a. $\exists$ [$_{\text{CP}}$ ... [XP_1 *or* XP_2]] ✓PolQ × AltQ

b. $\exists$ [CP_1] *or* $\exists$ [CP_2] $\times$ PolQ ✓AltQ

These assumptions taken together will then predict that the alternatives introduced by the disjunction are preserved when the disjunction scopes over $\exists$, as is the case in AltQs, while they are flattened when $\exists$ scopes over the disjunction $\vee$, as will always be the case in PolQs.

The most important problem with this syntactic approach is that it would commit us to implausible forms of deletion in AltQs. I will go over the most important issues in the next section.

Backwards gapping Although the deletion approach seems to provide a plausible story for disjunctions whose final disjunct aligns with the right edge of the clause, it is less plausible for questions containing subject disjunctions as in (9a). That is, in order to maintain the hypothesis that AltQs always involve clausal disjuncts, we have to assume that the underlying structure of (9a) is the one in (9b).

(9) a. Did JOHN or MARY drink coffee?
b. *Q* [$\exists$ [Did John ~~drink coffee~~] or $\exists$ [(~~did~~) Mary drink coffee]]

Instead of deletion in the second disjunct, the AltQ in (9b) would thus involve deletion in the first disjunct. Such a question would therefore have to involve backwards gapping where the deleted material is followed by the material in the second disjunct that is not deleted. This is highly problematic, because the deleted material generally has to follow the undeleted material in a coordination construction. For example, the sentences in (10) are clearly out [11].

(10) a. *I don't ~~like coffee~~ and John likes coffee.
b. *Either John's ~~dog~~ bit Mary or Mary's dog bit John.
c. *John ~~likes~~ coffee and/or Mary likes tea.

It therefore seems that an analysis of such questions as involving just deletion is impossible—at least for languages that disallow backwards gapping like English.

Right Node Raising Perhaps the only other way to maintain the scope distinction between PolQs and AltQs without assuming backwards gapping is to assume that such questions involve Right Node Raising (henceforth: RNR). RNR constructions involve coordinated structures in which a shared argument surfaces at the right periphery of a coordination, as exemplified in (11) below [16].

(11) Some people love, but other people hate, the role that the government plays in this country.

We might then suggest that AltQs are similar to sentences like this: the AltQ above would then be of the form in (12):

(12) *Q* [$\exists$ [Did John ~~drink coffee~~] or $\exists$ [~~did~~ Mary ~~drink coffee~~] drink coffee]

However, AltQs do not have the typical prosody that RNR constructions usually exhibit (e.g. a pause after each disjunct). Moreover, AltQs do no exhibit the

same properties that are often attributed to RNR sentences in terms of their interpretation. One example of such a property is the availability of sloppy readings: such a reading is possible for the sentence in (13a) in which the pronoun *her* can be interpreted as referring back to both Bill and Alice—despite the gender mismatch [16]. That is, this sentence can be interpreted as expressing that Bill won't pass his math exam. The example in (13b), on the other hand, cannot be interpreted as asking whether Bill passed his math exam or Alice passed hers.

(13) a. Bill won't, but Alice will, pass her math exam.
b. *Will Bill, or Alice, pass her math exam?

It therefore seems that a property of RNR constructions, namely the availability of sloppy readings, does not apply to AltQs in general. In fact, AltQs seem to pattern with simple disjunctions like (14), which cannot involve RNR because of the size of their disjuncts. That is, an RNR parse seems only available when the disjuncts contain a sufficient amount of prosodic material, which is not the case for (14) [18]. In (14) we therefore just seem to be dealing with a disjunction of DPs, again indicated by the lack of the sloppy reading:

(14) *John or Mary, passed her math exam.

But (14) seems just as bad as (13b)—suggesting that at least some AltQs pattern exactly with declaratives for which an RNR parse is arguably not available.

In short, if AltQs with subject DP disjunctions involve neither gapping nor RNR, we perhaps have to let go of the idea that *all* AltQs consist of clausal disjuncts. We therefore might have to conclude that the crucial difference between PolQs and AltQs is not their underlying syntax. Semantically, this means that instead, differences in prosody need to affect the semantics in a more direct way. In the remainder of this paper I will therefore give a rough sketch of how this could be done using the semantics of focus.

3 Focus semantics

Instead of relying on a specific syntactic structure, I propose that the semantics of AltQs has to be derived from the semantics of focus. But how can this be done? In [4], a Roothian account of focus marking is used in which expressions have both an ordinary and a focus semantic value (henceforth o-value and f-value). Under such an account, pitch accents on disjuncts in AltQs directly indicate focus marking, which triggers the introduction of alternatives in its f-value. For instance, focus marking on *Ann* gives us a set of all individuals in its f-value (i.e. we write $[\![\text{Mary}_F]\!]^o = m$, $[\![\text{Mary}_F]\!]^f = \{x \in D_e \mid human(x)\}$).

In [4], the following definition of the f-value and o-value of the disjunction as a whole is then given to account for AltQ readings:

(15) Did $[_{DisjP}$ John_F or $\text{Mary}_F]$ drink coffee?
a. $[\![(15)_{DisjP}]\!]^o = |\lambda P.P(j) \vee P(m)|$
b. $[\![(15)_{DisjP}]\!]^f = \{[\![John]\!]^o, [\![Mary]\!]^o\}$

The alternatives introduced by the disjunction percolate up the tree, and get interpreted by the question operator $Q_{B\&K}$, which is defined as in (16):

(16) $[\![Q_{B\&K}\ \varphi]\!]^o = [\![\varphi]\!]^f$

$Q_{B\&K}$ thus flips the o- and f-value of its prejacent—thereby pulling the focus alternatives generated by the disjunction into the ordinary value of the question. In this way, we can derive the right interpretation for AltQs, but two questions immediately arise. First, what happens when disjuncts are not f-marked, as could be the case in disjunctive PolQs like (2c)? Second, what about f-marking in questions outside of such disjunctive cases, as could be the case in PolQs like (4)? To answer both of these questions, we need to take a closer look into the role of f-marking in PolQs.

3.1 Disjunctive alternatives in the absence of focus marking

To extend the account proposed in [4] to PolQs, we need to assume that the disjunction only generates alternatives when the disjuncts are pitch accented. This can be done in two ways: either we assume that (i) the f-value of non f-marked disjunction is simply the set containing its o-value as shown in (17), or we assume that (ii) the lack of pitch accents indicates a lack of $Q_{B\&K}$, while the f-value is the same as in AltQs as shown in (18).

(17) Did [John or Mary]$_{DisjP}$ drink coffee?
  a. $[\![(17)_{DisjP}]\!]^o = |\lambda P.P(j) \vee P(m)|$
  b. $[\![(17)_{DisjP}]\!]^f = \{[\![(15)_{DisjP}]\!]^o\}$

(18) a. $[\![(17)_{DisjP}]\!]^o = |\lambda P.P(j) \vee P(m)|$
  b. $[\![(17)_{DisjP}]\!]^f = \{[\![John]\!]^o, [\![Mary]\!]^o\}$

The first option would allow us to adopt the same question operator as for AltQs, i.e. an operator that pulls the singleton set in the f-value into the o-value. The second option entails that disjunction generates alternatives independently of f-marking, but these alternatives are only introduced in its f-value. PolQs would have to contain a different question operator, let's call it Q_{pol}, which does not make reference to the f-value of its prejacent.

Under either approach, however, disjunctive alternatives are only available in the presence of f-marking on each disjunct. This makes several incorrect predictions, because the whole motivation for assuming that disjunctions generate alternatives was to account for free choice readings or simplification phenomena in conditionals would disappear without contrastive prosody on the disjunction [17, 2, 1, 7, 8]. However, we do not observe a relevant difference between the examples in (19) with and without contrastive intonation.

(19) a. If John or Mary came to the party, it would be fun
  b. You may have cake or ice-cream

It therefore seems that the disjunctive alternatives that many accounts of these phenomena rely on need to be present independently of contrastive intonation on the disjunction. It seems that disjunction should introduce alternatives in its o-value independently of f-marking, while the introduction of alternatives in its f-value should be contingent on f-marking. This is what I will assume below.

3.2 Focus alternatives in the absence of disjunction

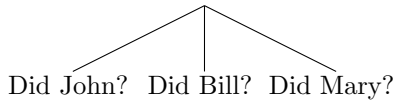
Turning to the second question, we also see that the Roothian approach runs into problems for PolQs that contain narrow focus outside of the disjunction as for the examples in (4a) and (4c). That is, if the presence of f-marking is linked to the presence of $Q_{B\&K}$, these questions both end up being equivalent to a wh-question, i.e. *Who drank coffee* and *Who drank tea or coffee* respectively.

It also has trouble accounting for focus marking in WhQs as in (20), because in this case both the focus and the wh-item generate alternatives. In [4], $Q_{B\&K}$ is assumed to be present in WhQs, but if that is the case then it's unclear what would happen to the alternatives generated by f-marking on *John*.

(20) What did JOHN drink?

The problem is that intuitively, the role of f-marking in all these examples does not seem to affect the denotation of these questions, but it signals something about the overarching structure of the discourse instead. What the pitch accent on *John* in these cases seems to be doing is much closer to what is often referred to as a *contrastive topic*: it signals that there are *parallel questions* that could be asked as well [12]. This could be schematized in (21), where the question on top represents an (implicit) strategy which can be divided into subquestions represented by the polar questions below.

(21) Who did or did not drink coffee?



The same can be said about f-marking in WhQs like (20). Here, focus on *John* indicates presence of parallel questions of the form *What did x drink*, and therefore signals that the discourse is structured in a similar way to (21) above.

Prosodically however, *John* in PolQs and WhQs is pronounced in the same way as the first disjunct of an AltQ. If we thus take the idea seriously that f-marking in PolQs and WhQs signals something like contrastive topic marking, that is, the presence of parallel questions, a uniform account of f-marking requires us to conclude that f-marking in AltQs has a similar effect. The goal of the final section is therefore to explore to what extent we can think of the effect of f-marking in AltQs and other questions in a uniform way.

4 Towards an analysis

How do we capture the effect of f-marking in PolQs (and WhQs)? The analysis below is preliminary, but aims to show that the answer to this question is simple: f-marking has the same effect in questions as it has in assertions. The goal is then to show that f-marking in OpenQ/AltQs can work in a similar way.

4.1 F-marking in PolQs

In the above, I assumed that assertions denote propositions (sets of possible worlds), while questions denote sets of propositions. This means that the alternatives to assertions are propositions as well, while alternatives to questions will be sets of propositions. In other words, the f-value of a question will be a set of questions. Given the characterization of the f-value of (4a) as a discourse tree in the previous section, this makes sense: the tree in (21) can be represented as a set of questions, i.e. a set of sets of propositions as in (22):

(22) $[\![(4a)]\!]^f = \{\{\ |x \text{ drink coffee}|, |\neg x \text{ drink coffee}|\}\ :\ x \in \textsc{people}\}$

This can be derived by assuming the following underlying structure, where focus marking on *John* triggers the set of alternatives PEOPLE and the f-value of the whole CP will be combined with the f-value of the question operator using PFA. Q will be the standard question operator which applies to a proposition and yields the set containing this proposition and its complement.

(23) Q [$_{CP}$ Did JOHN$_F$ drink the coffee?]

a. $[\![CP]\!]^f = \{|x \text{ drank coffee}| : x \in \textsc{people}\}$
b. $[\![(23)]\!]^f = [\![Q]\!]^f([\![CP]\!]^f) = \{[\![Q]\!]^o\}([\![CP]\!]^f)$
c. $[\![Q]\!]^o = \lambda P \lambda Q.Q = P \vee Q = \neg P$

There is not enough space to show the full derivation, but in a similar way, the f-value of the WhQ with f-marking like (20) will be the set of questions in (24):

(24) $\{|x \text{ drank } y| : y \in \textsc{drinks}\} : x \in \textsc{people}\}$

How will all this affect the interpretation of these questions? In working this out, I draw inspiration from the way contrastive topic marking is treated in the literature [12, 6]. I suggest that the effect of f-marking in questions will be similar to that of assertions with contrastive topic marking like (25):

(25) A: Who drank what?
B: FRED$_{CT}$ drank the COFFEE$_F$

That is, in [6], it is argued that this combination of ct- and f-marking signals that the discourse has the same structure as the f-value in (24) above. Now instead of presupposing a question, as would be the case with simple f-marked declaratives, these ct-f sentences presuppose the presence of *a strategy*, i.e. a set of questions. An assertion with ct-f marking has to be congruent with such a strategy, that is, it has to answer a subquestion within this strategy [6]:

(26) **Contrastive topic congruence:** An utterance U with ct-marking answers a question within the strategy $[\![U]\!]^f$.

In this particular case, the answer in (25) provides an answer to the question *What did Fred drink*, which is a subquestion to the strategy which asks, for each person, what they drank. This is exactly the strategy in (24).

We can use the same mechanism to derive the contribution of f-marking in questions. That is, I assume that f-marking will impose congruence conditions by presupposing that the context contains a salient antecedent which has the form of the f-value of the expression [13]. This will again be a strategy, i.e. a set of parallel questions. In other words, asking a question Q with a narrow focus signals that this question is part of a bigger strategy that the addressee would like to see resolved. This means that a question Q with a narrow focus not only raises the issue $[\![Q]\!]^o$, but also presupposes the presence of a strategy $[\![Q]\!]^f$.

Now the crucial assumption is that this presupposition does not only affect the meaning of the question itself, it also affects what counts as a proper answer to that question. That is, I assume that, since the question signals a particular strategy, any response to that same question should be compliant to that strategy. In short, this means I adopt the following constraint:

(27) **Focus-Q/A congruence:** An answer A is a felicitous response to a question Q with narrow focus if (i) A resolves Q, and (ii) A answers at least one subquestion within $[\![Q]\!]^f$.

Here, an answer A resolves a question Q iff A $\subseteq$ A' for some alternative A' of Q. In other words, an answer to a narrow focused question should at least partially resolve the strategy that this question is signaled to be part of. We will see that in the case of PolQs, $[\![Q]\!]^o \in [\![Q]\!]^f$ and resolving $[\![Q]\!]^o$ therefore automatically means answering some subquestion in $[\![Q]\!]^f$. For OpenQs and AltQs, this will not be the case: the alternatives in $[\![Q]\!]^o$ will be too weak to answer any of the subquestions signaled by these questions.

4.2 F-marking in polar disjunctive questions

In what follows, I assume that polar disjunctive questions either involve narrow focus on the whole disjunction as in (28a), or broad focus as in (28b). I address these different cases in turn.

(28) a. Did [John or Mary]$_F$ drink the coffee? ✓PolQ
b. [Did John or Mary drink coffee]$_F$? ✓PolQ

Given the considerations discussed in Section 3, I assume that disjunction generates alternatives in its o-value even in the absence of f-marking. I moreover assume that the standard question operator Q is present in the left periphery of polar (disjunctive) questions. Now the problem with these two assumptions is that Q takes a proposition, while the clause that Q applies to will be a set of propositions, exactly because disjunction generates alternatives. To deal with

this, I assume that, to then avoid a type-mismatch in the case of disjunctive questions, the alternatives generated by the disjunction first have to be flattened out by $\exists$ before Q can be applied. The LF of (28) will therefore be as in (29), which will give us an ordinary value as in (29a). I then assume that in the case of broad focus, the f-value will simply be the singleton set containing the o-value, thus giving us (29b).

(29) Q [$\exists$ [Did John or Mary drink coffee]$_{CP}$] ?

a. $[\![(29)]\!]^o = \{|$ j or m drank coffee $|, |$ neither drank coffee $|\}$

b. $[\![(29)]\!]^f = \{\{|$ j or m drank coffee $|, |$ neither drank coffee $|\}\}$

This means that such a question signals that there is a strategy containing only one question, namely the polar question which is the same as the denotation of the question itself. Answering this polar question therefore means resolving the whole strategy, and we can therefore answer with just *yes* or *no*.

In the case of narrow focus on the whole disjunction, we derive something similar, except that in this case, the f-value of the disjunction as a whole will be the whole domain D_e. Since I assumed that $[\![Q]\!]^f = \{[\![Q]\!]^o\}$, $\exists$ does not have to show up in the f-value of this question: the question operator Q can now simply apply pointwise to each of the alternatives in $[\![CP]\!]^f$. This means that the f-value of (30) will be the set of polar questions as shown in (30b) (where $?\varphi$ abbreviates the set $\{|\varphi|, |\neg\varphi|\}$)

(30) Q [$\exists$ [Did [JOHN OR MARY]$_F$ drink the coffee]$_{CP}$] ?

a. $[\![(30)]\!]^o = \{|$ j or m drank coffee $|, |$ neither drank coffee $|\}$

b. $[\![(30)]\!]^f = \{?(Cj \vee Cm), ?(Cb \vee Cj), ?(Cb \vee Cm), ?Cj, ...\}$

I assume here that, because the f-marked phrase is a disjunction, alternatives will have the form of a disjunction as well. This question therefore signals that the disjunctive polar question is part of a strategy which asks whether each (disjunctive) alternative drank coffee. Answering this polar question partially resolves this strategy, as it addresses the question $?(Cj \vee Cm)$.

4.3 F-marking in AltQs and OpenQs

Both OpenQs and AltQs will be assumed to have the following LF:

(31) Q [$\exists$ [Did [JOHN$_F$ or MARY$_F$]$_{DisjP}$ drink coffee]$_{CP}$]

a. $[\![(31)]\!]^o = \{|$ j or m drank coffee $|, |$ neither drank coffee $|\}$

b. $[\![(31)]\!]^f = \{?Cj, ?Cm, ?Cb, ...\}$

In this case, both *John* and *Mary* generate focus alternatives in their f-values. I assume that the f-value of the disjunction corresponds to union, which will then give us that $[\![DisjP]\!]^f = D_e$. Here, we then get that the f-value of the whole question will again be a set of polar questions. However, note that in this case, the polar question $?(Cj \vee Cm)$ is not a member of the f-value of (31). For this reason, answering that either John or Mary drank the coffee will resolve $[\![(31)]\!]^o$,

but it will not answer any questions in the presupposed strategy. Answering with just *John* or just *Mary*, on the other hand, will both resolve $[\![(31)]\!]^o$ and answer at least one $Q \in [\![(31)]\!]^f$.

However, we now predict that we can answer such a disjunctive question with an utterance like *Bill drank the coffee* as well. Even though this seems correct for disjunctive questions that have rising pitch accents on each disjunct, it does not make the correct predictions for alternative questions, i.e. for questions in which the final pitch accent is falling. I therefore add one more component to the account laid out above, namely the assumption that a final falling pitch accent has the effect of domain restriction (see [13] for a proposal along similar lines). To do so, I distinguish between different types of foci that are associated with different intonational patterns.

Following [20], I assume that disjunctive statement form lists, which can either be open or closed. I then assume that a falling pitch accent on the final disjunct signals list closure by signalling that the alternatives mentioned in the list are the only relevant ones. Even though list closure is often tied to the falling boundary tone [5], I would like to suggest instead that list closure affects focus alternatives: closure intonation restricts focus alternatives to those generated in the ordinary value. For concreteness, I therefore assume that the final pitch accent signals the presence of a closure operator Γ, which scopes over the whole disjunction and restricts the domain f-alternatives to o-alternatives:

(32) $[\![[\varphi_1 \textit{ or } \varphi_2 \textit{ or...or } \varphi_n]\Gamma]\!]^f = [\![\varphi_1 \textit{ or } \varphi_2 \textit{ or...or } \varphi_n]\!]^o$

Understood in this way, the f-value of an AltQ like (2a) will signal that the current strategy will simply be the set containing two PolQs: $\{?Cj, ?Cm\}$. This means that an answer to an AltQ has to answer a least one of these subquestions. Simply answering with the disjunctive statement *John or Mary* will therefore not suffice. Instead, an answer to such a question will have to be either *John* or *Mary*. Moreover, answering with *Sue* will also not do, because it will not address any of the relevant subquestions either.

5 Conclusion

In short, I argued above that relying on differences in the underlying syntax to account for the PolQs-AltQ-OpenQ contrast won't work. We therefore need to make reference to the semantics of focus to account for the interpretation of AltQs: the alternatives in AltQs would have to be introduced via f-marking. I also argued that this is not a trivial task: disjunctive alternatives should not be equated to focus alternatives, because we need the introduction of these alternatives even in the absence of f-marking. Moreover, deriving the alternatives of AltQs from focus alternatives directly would require a crucially different effect of f-marking in PolQs and WhQs: focus alternatives should never enter into the denotation of these questions, but intuitively should situate them within an overarching discourse instead. I therefore argued that f-marking in PolQs and WhQs signals how these questions are substrategies to resolve a higher level

strategy. This meant that answers to such questions need to address at least one substrategy signalled by these questions. I then also showed how the semantics of OpenQs can be derived making very similar assumptions: In OpenQs, not all resolutions address the strategy signaled by these questions themselves, which is why these questions only allow for slightly stronger answers that resolve both the question itself and address the overall strategy that question is part of. For AltQs, I argued that things worked out in a similar way if we assumed that the fall accents indicates removal of focus alternatives.

References

1. Aloni, M.: Free choice, modals and imperatives. Natural Language Semantics **15**, 65–94 (2007)
2. Alonso-Ovalle, L.: Disjunction in Alternative Semantics. Ph.D. thesis, University of Massachusetts, Amherst (2006)
3. Bartels, C.: The intonation of English statements and questions: A compositional interpretation. Routledge (1999)
4. Beck, S., Kim, S.S.: Intervention effects in alternative questions. The Journal of Comparative Germanic Linguistics **9**(3), 165–208 (2006)
5. Biezma, M.: Alternative vs polar questions: the cornering effect. In: Semantics and Linguistic Theory. vol. 19, pp. 37–54 (2009)
6. Büring, D.: On d-trees, beans, and b-accents. Linguistics and philosophy **26**(5), 511–545 (2003)
7. Ciardelli, I., Groenendijk, J., Roelofsen, F.: Inquisitive semantics: A new notion of meaning. Language and Linguistics Compass **7**(9), 459–476 (2013)
8. Ciardelli, I., Roelofsen, F., Theiler, N.: Composing alternatives. Linguistics and Philosophy **40**(1), 1–36 (2017)
9. Gračanin-Yuksek, M.: Size matters: The syntax of disjunctive questions. Linguistic Inquiry **47**(2), 283–305 (2016)
10. Han, C.h., Romero, M.: The syntax of whether/Q... or questions: Ellipsis combined with movement. Natural Language & Linguistic Theory **22**(3), 527–564 (2004)
11. Hankamer, J.: Deletion in coordinate structures. Garland (1979)
12. Kamali, B., Büring, D.: Topics in questions. In: Workshop on the Phonological Marking of Focus and Topic: GLOW. vol. 34 (2011)
13. Meertens, E., Eggers, S., Romero, M.: The role of multiple accent in alternative questions (2018)
14. Pruitt, K., Roelofsen, F.: The interpretation of prosody in disjunctive questions. Linguistic inquiry **44**(4), 632–650 (2013)
15. Roelofsen, F., van Gool, S.: Disjunctive questions, intonation, and highlighting (2009), technical report, ILLC, University of Amsterdam
16. Sabbagh, J.: Right node raising. Language and Linguistics Compass **8**(1), 24–35 (2014)
17. Simons, M.: Dividing things up: the semantics of *or* and the modal/*or* interaction. Natural Language Semantics **13**(3), 271–316 (2005)
18. Swingle, K.: The role of prosody in right node raising. Syntax at Santa Cruz **2**, 84–111 (1993)
19. Uegaki, W.: A unified semantics for the japanese q-particle" ka" in indefinites, questions and disjunctions. Glossa: a journal of general linguistics **3**, 45 (2018)
20. Zimmermann, T.E.: Free choice disjunction and epistemic possibility. Natural language semantics **8**(4), 255–290 (2000)