Disjoining Questions

Szabolcsi (1997) and Krifka (2001) argue that questions can be conjoined but not disjoined, based on examples like (1):

(1) a. Who did you marry and where do you live?
     b. #Who did you marry or where do you live?

Krifka (2001) argues that this is a specific manifestation of the more general fact that speech acts cannot be disjoined. In recent work, the empirical generalization of Szabolcsi and Krifka has been reconsidered (Haida and Repp 2013, Ciardelli et al. 2015, Hirsch 2017). Ciardelli et al. argue that questions can in fact be disjoined on the basis of examples like (2) and propose that the examples of Szabolcsi and Krifka are odd for pragmatic reasons.

(2) Where can we rent a car or who might have one that we could borrow?

The present paper points to data that is relevant in this debate but has not been considered in this light before. It revives Krifka's position that questions *qua* speech acts cannot be disjoined, but also incorporates elements of Ciardelli et al.'s account to explain the contrast in felicity between (1b) and (2).

New data. The focus in the debate has so far been on *wh*-questions. We suggest that data involving non-*wh*-questions sheds new light on the issue. A simple PolQ as in (3) can be resolved in two ways: by establishing that Mary speaks Spanish (p), or that she doesn't ($\neg p$).

(3) Does Mary speak Spanish?

How this is captured exactly differs from one theory to the next, but it is common to assume that the syntactic structure underlying this sentence involves an operator, let's call it Q, which on the one hand is responsible for the interrogative syntax of the sentence (auxiliary inversion in this case) and on the other hand for delivering a semantic value which contains two alternative propositions, $[\![p]\!]$ and $[\![\neg p]\!]$. The first is contributed by the clause that Q applies to, and the second is added by Q itself.

Now consider (4), which superficially looks like a disjunction of two PolQs ($^\uparrow$ indicates rising pitch accents on each disjunct; with this prosody, the question cannot be interpreted as an alternative question, which would require a final fall).

(4) [Context: the speaker wants to write a letter to Mary. But she knows that Mary does not speak English, her own native language, so she is looking for another language to write the letter in.]

Does Mary speak Spanish$^\uparrow$ or does she speak French$^\uparrow$?

This question can be resolved in three ways: by establishing (i) that Mary speaks Spanish (p), (ii) that she speaks French (q), or (iii) that she doesn't speak either ($\neg(p \vee q)$). The crucial observation is that this cannot be derived if Q applies to each disjoined clause individually: this would give us four alternatives corresponding to p, $\neg p$, q, and $\neg q$, and it would thus wrongly predict that the question could be resolved, for instance, by establishing that Mary does not speak Spanish. Rather, the disjunction should introduce the two alternatives $[\![p]\!]$ and $[\![q]\!]$, and the Q operator should apply to the disjunction as a whole, adding a third alternative $[\![\neg(p \vee q)]\!]$. Even though the two clauses that are disjoined here both involve interrogative syntax, semantically they are not complete PolQs in the sense that they do not introduce two alternatives but just one. The same point can be made based on examples where a polar

interrogative is disjoined with a *wh*-interrogative:

(5)   Where can we rent a car or does Sue have one that we could borrow?

The fact that this question cannot be resolved by establishing that Sue does not have a car that we can borrow means that, semantically, the second disjunct is not a full PolQ.

    Contrast this with (6), involving conjunction rather than disjunction:

(6)   Does Mary speak Spanish$^\uparrow$ and does she speak French$^\uparrow$?

This question can be resolved in four ways, i.e., by establishing that Mary speaks (i) both Spanish and French, (ii) only Spanish, (iii) only French, or (iv) neither. To derive this, Q must apply to both conjuncts and not to the conjunction as a whole. Thus, we have a conjunction of two full PolQs here, in contrast with the disjunctive case in (4).

Proposal. We lay out a simplified version of our proposal here. The full paper contains a further refined theory which also extends to other question types such as alternative questions, and question embedding. Following Rizzi (1997, 2001) and others we assume that full clauses are projections of a Force head, and that in interrogative clauses this Force head hosts Q. Syntactically, Q is responsible for interrogative syntax (auxiliary inversion, *wh*-movement). Semantically, Q takes a set of alternative propositions $\{p_1, \ldots, p_n\}$ and adds an additional alternative $\overline{p_1 \cup \ldots \cup p_n}$. Its output, however, is not just this enriched set of propositions, but rather a context change potential, a function from contexts to contexts, which adds the derived set of propositions as a new question under discussion. That is, Q, and Force heads in general, make a transition from propositional content to a context update function that encodes the effects of a speech act.

    Conjunction can express generalized intersection, at the propositional level and below, but also function composition, at the speech act level. This means that entire ForcePs can be conjoined, yielding the desired result for (6). Disjunction can only express generalized union, meaning that entire ForcePs cannot be disjoined: taking the union of two update functions would not yield another update function. We assume that this tension is resolved in cases like (4) by across-the-board (ATB) movement of Q to a position that c-commands the disjunction. This yields the desired interpretation for (4) and also explains why both disjuncts look like questions: before the ATB movement they both contain a Q operator triggering auxiliary inversion. We assume that movement of this kind only happens if necessary for interpretability. This way we do not derive spurious readings for conjunctive cases like (6) (see Homer (2010, 2011) and Iatridou & Zeijlstra (2010) for similar approaches to movement of intensional verbs to scope out of anti-licensing environments).

    Ciardelli et al.'s example (2) is now treated just like (4): ATB movement is necessary for interpretability and yields the desired reading. The fact that speech acts cannot be disjoined is still part of the explanation of the oddness of (1b), as in Krifka's account, but it is no longer the full story because the interpretability clash can be overcome by ATB movement. Following Ciardelli et al., we assume that the sentence is odd for pragmatic reasons: in brief, it is difficult to construe a common conversational goal that all resolutions of the two disjoined questions would serve. Thus, the account retains Krifka's idea that questions *qua* speech acts cannot be disjoined. However, it can also explain the grammaticality of cases which at face value do seem to involve question disjunction, and is able to derive their interpretation.

References. Ciardelli et al. (2015). *Inquisitive semantics*. Haida & Repp (2013). *Disjunction in wh-questions*. Hirsch (2016). *Disjoined questions as mention-some questions*. Homer (2010). *Epistemic modals: High ma non troppo*. Homer (2011). *As simple as it seems*. Iatridou & Zeijlstra (2010). *Modals, negation and polarity*. Krifka (2001). *Quantifying into question acts*. Rizzi (1997). *The fine structure of the left periphery*. Szabolcsi (1997). *Quantifiers in pair-list readings*.