**1. Background: acceptability puzzle**

Wh-questions can be conjoined but they cannot always be disjoined (Szabolcsi 1997):

- (1) Who did you marry and where do you live?
(2)#Who did you marry or where do you live?

But some disjoined WhQs are fine (Ciardelli et al., 2015; Hirsch, 2017):

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

Potential approaches to this puzzle:

- Syntactic** route: conjunction and disjunction simply have different syntactic properties.
- Semantic** route (Szabolcsi 1997): questions as partitions; the union of two partitions does not yield another partition.
- Speech acts** route (Krifka 2001): questions as speech acts, which can be conjoined (sequenced) but not disjoined.
- Pragmatic** route (Ciardelli et al., 2015): questions can be disjoined, but (2) is odd for pragmatic reasons: it is difficult to construe a single decision problem which makes the resolutions of both disjuncts relevant.

Approaches 1, 2, 3 can capture the contrast in (1) vs. (2), but not (2) vs. (3).

The debate has focused so far on *wh*-questions. We argue that **non-*wh*-questions** shed new light on the issue. We focus on three types of non-*wh*-questions:

- | | |
|---|--------------------|
| (4) Does Mary speak Spanish [↑] | polar |
| (5) Does Mary speak Spanish [↑] and does she speak French [↑] | conjunctive |
| (6) Does Mary speak Spanish [↑] or does she speak French [↑] | disjunctive |

In all the examples, [↑] indicates rising intonation.

- ▷ Syntactically and in terms of their intonational pattern, (5) and (6) look like coordinations of PolQs, but their semantics is significantly different.

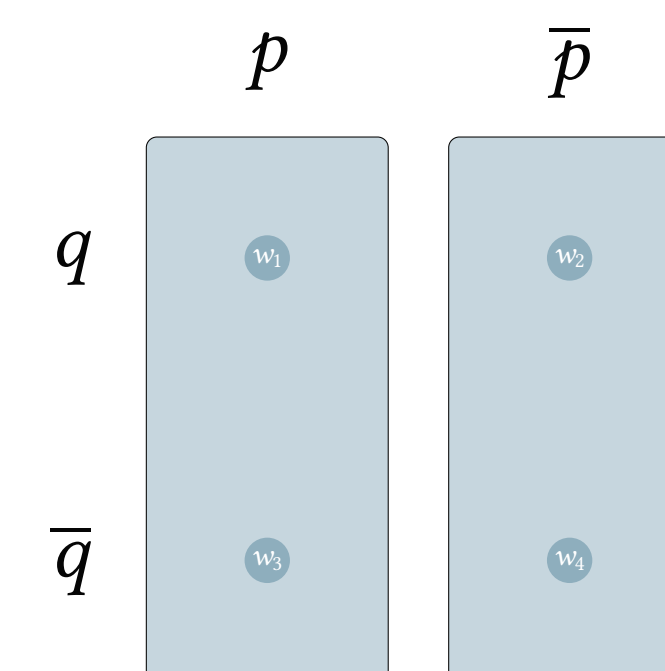
2. PolQs

A simple PolQ as in (4) can be resolved in two ways:

- (i) by establishing that Mary speaks Spanish (*p*), or
(ii) by establishing that she doesn't ($\neg p$).

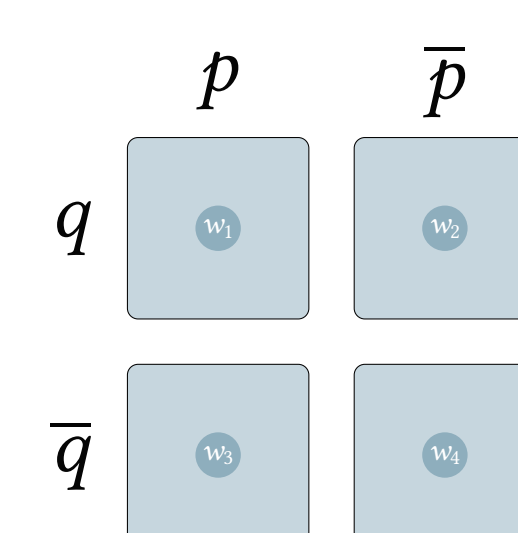
We assume that the negative alternative is introduced by a question operator $?$.

$$(7) ? \rightsquigarrow \lambda P. \{P, \neg P\}$$

**3. Conjoined PolQs**

The question in (4) can be resolved in four ways:

- (i) Mary speaks both
(ii) Mary speaks only Spanish
(iii) Mary speaks only French
(iv) Mary speaks neither.

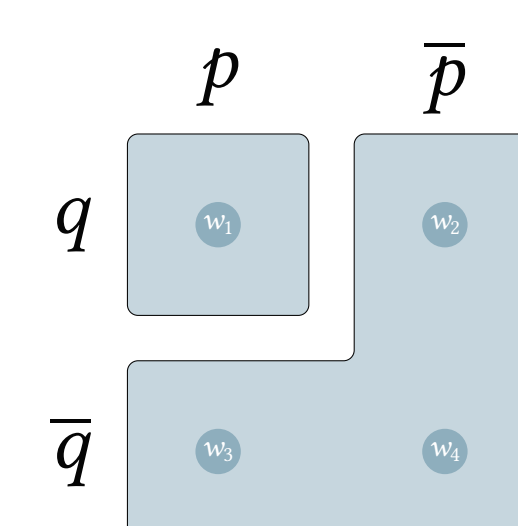


This can be derived by assuming that (4) is a conjunction of PolQs, where conjunction corresponds to (pointwise) intersection:

$$(4) \rightsquigarrow ?P \cap ?Q$$

Crucially, (4) does not correspond to $?$ applied to a conjunction:

$$(4) \not\rightsquigarrow ?(P \cap Q)$$

**4. Disjoined PolQs**

The question in (5) can be resolved in three ways:

- (i) Mary speaks Spanish
(ii) Mary speaks French
(iii) Mary speaks neither.

The disjunction itself contributes the first two alternatives, while the third alternative is added by the $?$ operator:

$$(5) \rightsquigarrow ?(P \cup Q)$$

Crucially, (5) does not correspond to a disjunction of PolQs:

$$(5) \not\rightsquigarrow ?P \cup ?Q$$

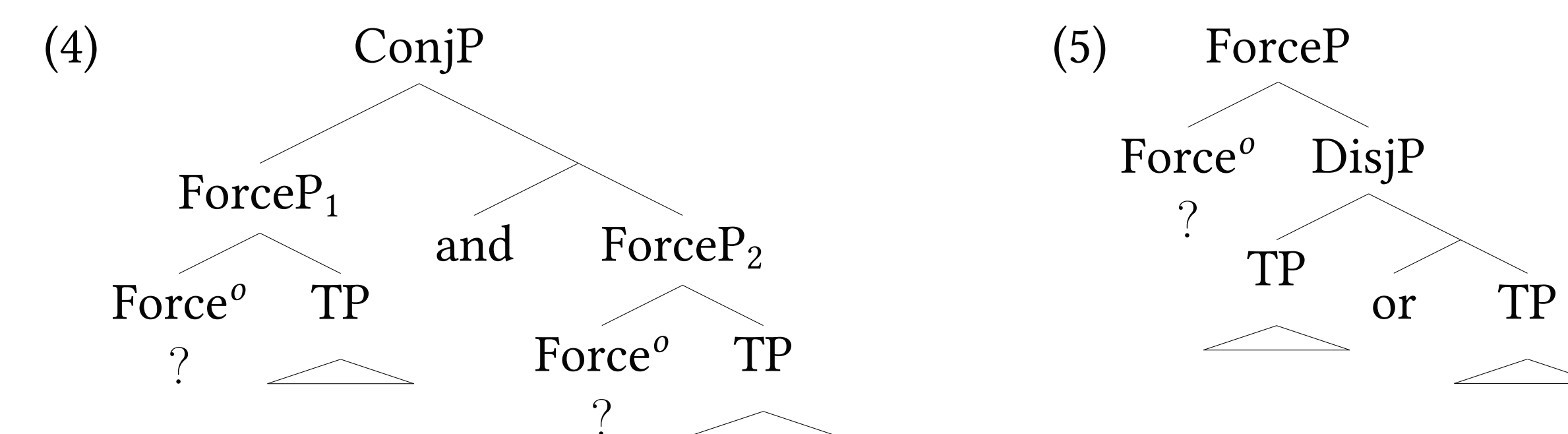
- (5) A: Does Mary speak Spanish[↑] or does she speak French[↑]
B: She does not speak Spanish *not a resolution*
B': She does not speak French *not a resolution*

The same point can be made based on mixed polar/*wh*-interrogative:

- (6) When is the bus coming and can Sue pick us up at the bus stop?
(7) A: When is the bus coming or can Sue pick us up at the bus stop?
B: The bus isn't coming *not a resolution*
B': Sue can't pick us up *not a resolution*
B'': Sue will pick us up *resolution*

5. The puzzle: missing readings

- ▷ In (4) we have a question operator in each conjunct, but in (5) the question operator scopes over the disjunction.
▷ Therefore, (4) is a conjunction of two PolQs, but (5) is not a disjunction of PolQs.



While the contrast we saw in (1-3) concerned **acceptability**, the puzzle here is to account for **missing readings**.

Potential approaches:

- Pragmatic** route: unclear how to extend to the missing readings puzzle, since all alternatives of $?P \cup ?Q$ are relevant w.r.t. an easily construable decision problem.
- Semantic** route: It has been proposed that each alternative in a question meaning must correspond one-to-one with a cell in the partition that represents the underlying decision problem (Fox, 2018). This constraint cannot be satisfied by $?P \cup ?Q$.
▷ However, it is not clear why decision problems always have to be partitions; think of mention-some scenarios.
- Commitment** route: $?$ does not add the negative answer in the semantics; rather, it signals lack of speaker commitment to the informative content of the sentence, which pragmatically licenses the negative answer (Westera 2017, cf. Rudin 2019).
▷ This can capture that $?$ seems to scope over the disjunction, but cannot directly account for the contrast between conjunction and disjunction.
- Speech act** route cannot account for the contrast between (2) and (3), but can potentially solve the missing readings puzzle: $?$ both responsible for addition of complement alternative as well as illocutionary force.

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6. Analysis in terms of speech acts (building on Krifka 2001)

Crucial assumptions:

- ▷ ForcePs express speech acts; in particular, $?$ turns its prejacent into a speech act.
▷ Speech acts are functions mapping one discourse context to another.
▷ Discourse contexts are not simple set-theoretic objects; they cannot be disjoined.

This could be implemented as follows (Farkas & Bruce 2010; Roelofsen & Farkas 2017):

- (8) A **discourse context** C is a triple $\langle A, T, CS \rangle$, where
a. A is the set of discourse participants;
b. T is a stack of props, representing the Table.
c. CS is a function mapping each participant $a \in A$ to a set of props that a is publicly committed to.

- (9) **Updating** a discourse context with φ , $C[\varphi]_a$, means:

- Adding $\llbracket \varphi \rrbracket$ to T .
- Adding $\cup \varphi$ to $CS(a)$.

- ▷ At the propositional level and below, conjunction expresses generalized intersection.
▷ At the speech act level, conjunction expresses function composition: a conjunction of ForcePs corresponds to consecutive update with each conjunct:

- (10) Updating a context with φ and ψ , $C[\varphi \circ \psi]_a$, means:

- Adding $\llbracket \varphi \rrbracket$ and $\llbracket \psi \rrbracket$ to T consecutively.
- Adding $\{\cup \varphi, \cup \psi\}$ to $CS(a)$.

- ▷ Speech act disjunction is impossible. Taking the union of two update functions would not yield another update function. Taking the union of the output contexts generated by the two disjuncts would not yield another output context either.
▷ If disjunction can only express generalized union, it follows that full ForcePs cannot be disjoined.

7. Embedding

In embedded environments a disjunction of two PolQs is ruled out as well:

- (11) John wonders whether or not Mary speaks Spanish
 \rightsquigarrow wonder(j, ?P)
- (12) John wonders whether or not Mary speaks S. and whether or not Mary speaks F.
 \rightsquigarrow wonder(j, ?P \cap ?Q) *or equivalently:* wonder(j, ?P) \wedge wonder(j, ?Q)
- (13) John wonders whether or not Mary speaks S. or whether or not Mary speaks F.
 \rightsquigarrow wonder(j, ?P) \vee wonder(j, ?Q)
 $\not\rightsquigarrow$ wonder(j, ?P \cup ?Q)

- ▷ To extend our account to embedded interrogatives, we need to assume that speech acts can be embedded (cf. McCloskey 2006, Krifka 2014).

- ▷ We have to assume an operator to resolve the mismatch this creates:

$$(14) \text{wonder} [Op [? [\text{whether Mary speaks French}]]]$$

- ▷ The operator Op takes a speech act and turns it into a set of propositions.

- (15) $Op \rightsquigarrow \lambda A. Tab_{C^0[A]}$ where
a. $C^0[A]$ is the initial discourse context updated with speech act A , and
b. Tab_C is the intersection of all proposition sets on the Table, i.e. the proposition set $\cap \{P \mid P \text{ on } T_C\}$

- ▷ Op cannot just be inserted anywhere; otherwise disjoining ForcePs would become possible again. To ensure this, Op could be seen as part of the embedding predicate.

REFERENCES Ciardelli et al. (2015). *Inquisitive Semantics*. Farkas & Bruce (2010). *On Reacting to Assertions and Polar Questions*. Fox (2018). *Partition by Exhaustification: Comments on Dayal 1996*. Haida & Repp (2013). *Disjunction in wh-questions*. Hirsch (2017). *Disjoining questions*. Krifka (2001). *Quantifying into question acts*. Krifka (2014). *Embedding Illocutionary Acts*. Roelofsen & Farkas (2017). *Division of Labor in the Interpretation of Declaratives and Interrogatives*. Rudin (2019). *Intonational Commitments*. Szabolcsi (1997). *Quantifiers in Pair-list Readings*. Westera (2017). *Exhaustivity and Intonation*.