Inquisitive Semantics

Part 2/3: Wh Questions and Existentials

The Arctic University of Norway, May 2019

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It is an old insight that disjunctions and existentials are closely related. But in Inquisitive Semantics, the relationship is especially close, since both are sources of inquisitiveness, prior to any complementation or completion.

Existentiality is also a key to modeling 'mention-some' wh questions without any indefinite or cardinal source in the sentence.

The book (Ciardelli, Groenendijk and Roelofsen 2019) is less explicit about existentiality than about disjunction, however, so we will have to speculate and stipulate some.

1 Sources of existentiality I: Determiners

The usual sources of existentiality in grammar are determiners like *a(n)*, *some*, *any*, *at least one*. Consider a simple sentence with *some*:

(1) a. you recognize some of these people

Before complementizers ($!$, $\langle ? \rangle$) or 'completion markers' apply, (1a) has the logical representation (1b), which, if there are exactly three individuals in the domain, l, r and m (for left, right and middle), is equivalent with (1c):

b. $\exists x\, Ryx$

c. $Ryl \vee Rym \vee Ryr$

To illustrate, consider 8 worlds – w_1–w_8 – such that you recognize l in w_1–w_4, you recognize m in w_2, w_3, w_5, and w_6, and you recognize r in w_3, w_4, w_6, and w_7; in w_8 you recognize none (disregarding the plural for simplicity).

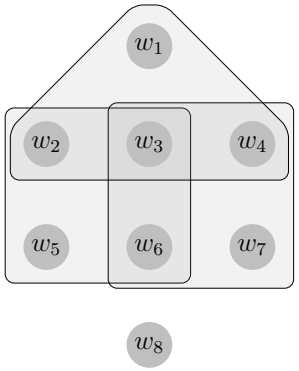


Figure 1: $\exists x\, Ryx$

This shows an inquisitive issue with three *alternatives* – maximal elements.

Now for the sentence to be uttered as a declarative, it must be supplemented with the complementizer $!$:

(2) a. I recognize somebody.

b. $!\,(\exists x\, Rix\,)$

The effect is to flatten the issue – forming the power set over the union over it – so that the boundaries vanish and the alternatives melt into one:

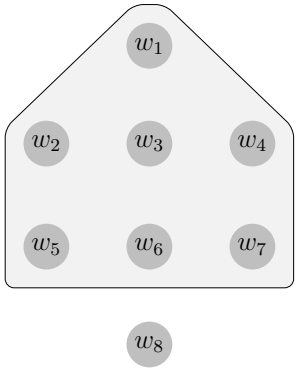


Figure 2: $!\,(\exists x\, Rix\,)$

On the other hand, for the sentence to be uttered as a polar interrogative, it must be supplied with ? over and above !:

(3) a. Do you recognize any of these people?
b. $?!(\exists x\, Ryx)$

The effect is to throw in the 'pseudo-complement' – the set of world sets that do not intersect with any member, as depicted in Figure 3:

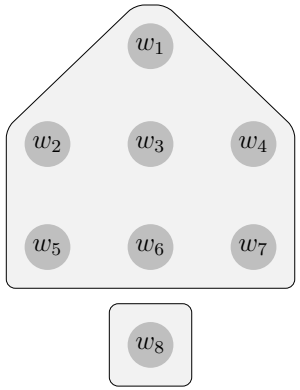


Figure 3: $?!(\exists x\, Ryx)$

This extra alternative corresponds to the resolution "No, I do not."

2 Sources of existentiality II: wh questions I: mention-some

Just like alternative questions were long resistant to well-motivated analysis, so were mention-some readings of wh questions (see Xiang 2016: 37–70).

Many of the examples of mention-some questions in the literature involve indefinites and/or possibility modals:

(4) Who can lend Björn a vacuum cleaner?

But neither seems to be a necessary ingredient. A response to (5) like "A new axe↓" might not imply that an axe is all you would like.

(5) What would you like for your birthday?

Let us assume that (6a) also has a mention-some reading. The proposal in Inquisitive Semantics is then to ascribe the logical representation (6b) to it.

(6) a. Who of these people do you recognize?
b. $\exists x\, Ryx$

This is (1b) again, and the meaning is the issue depicted in Figure 1.

It is not clear how the logical representation (1b)=(6b) is derived; Ciardelli, Groenendijk and Roelofsen (2019: 101) refer to Champollion, Ciardelli and Roelofsen (2015) for discussion in a lengthy footnote.

However, it is difficult to see how, in the absence of a falling intonation, one can stop the completion marker OPEN adding ? – resulting in (6c):

c. $?(\exists x\, Ryx)$

And then the meaning is not the issue depicted in Figure 1 but the meaning depicted in Figure 4 (cp. the difference between Figure 2 and Figure 3):

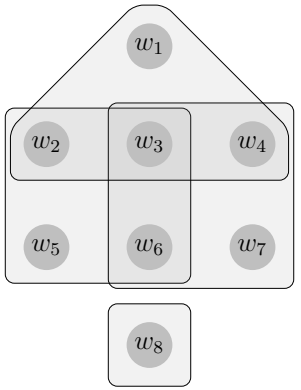


Figure 4: $?(\exists x\, Ryx)$

The difference between this issue and the issue in Figure 1 is that the latter is informative, entailing[1] that you do recognize at least one of those people, whereas the issue depicted in Figure 4 has "None" as a resolving response.

[1]or ideally presupposing, but that is a more complex story; Ciardelli, Groenendijk and Roelofsen (2019: 82) refer, *i.a.*, to Ciardelli, Groenendijk and Roelofsen (2012).

Whether wh questions trigger existential presuppositions is a much-debated issue; Abusch (2010) called them 'soft' presupposition triggers. An optional ? would provide a neat way of modeling the vascillation.

3 Interlude: mention-some polar questions?

It is not immediately clear why in a polar question like (3a), repeated below, $\exists$ scopes under !, when in a mention-some wh question like (6a) it doesn't, and seeing that neither $\forall$ in a mention-all wh question (see section 4) nor $\vee$ in an alternative question (see 1st installment, example (4) and Figure 3) scopes under ! (we will return to these issues in section 5).

(3) a. Do you recognize any of these people?
b. $?\,!\,(\,\exists\, x\, Ryx\,)$

If the ! is not obligatory here, (3a) could get the logical representation (6c), expressing the issue depicted in Figure 4.

(6) c. $?\,(\exists\, x\, Ryx\,)$

A resolving response would be not (just) "Yes" but, say, "I recognize the one in the middle."

This is not as far-fetched as it may seem; there is a long line of research in pragmatics (see, for example, Kiefer 1980) and in computational linguistics (see, for example, Kaplan 1983, Hirschberg 1985) on 'cooperative response', whereby, say, a polar question is answered as if it were a wh question.

Kiefer notes (1980: 112) that "Existential questions containing an indefinite pronoun may be interpreted as wh-questions under certain circumstances", citing these examples:

i. Does anyone know this person?
('Who knows this person?')
ii. Has anything happened?
('What has happened?')

It would be neat if Inquisitive Semantics were to predict that polar questions with indefinites have a reading shared with corresponding mention-some wh questions, exploiting the intrinsic inquisitiveness of existentiality. As we will see in section 5, this depends on an option for $\exists$ to escape the scope of !.

4 Wh questions II: mention-all

Inquisitive Semantics ascribes another logical representation to (6a): (6d).

(6) d. $\forall x\, ?\, Ryx$

If there are exactly three individuals in the domain, l, m and r, this is equivalent with (6e):

e. $?\, Ryl \wedge ?\, Rym \wedge ?\, Ryr$

The ensuing issue is the intersection of the issue expressed by the question "Do you recognize l", the issue expressed by the question "Do you recognize m" and the issue expressed by the question "Do you recognize r".

This issue is a set of sets of worlds with 8 maximal members, all singletons, as depicted in Figure 5.

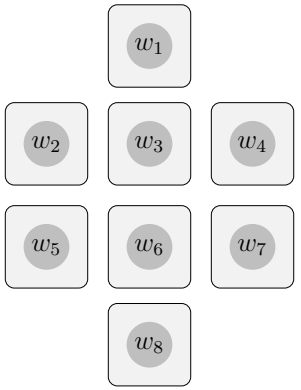


Figure 5: $\forall x\, ?\, Ryx$

This analysis corresponds to the analysis given by Groenendijk and Stokhof (1984) ('Partition semantics').

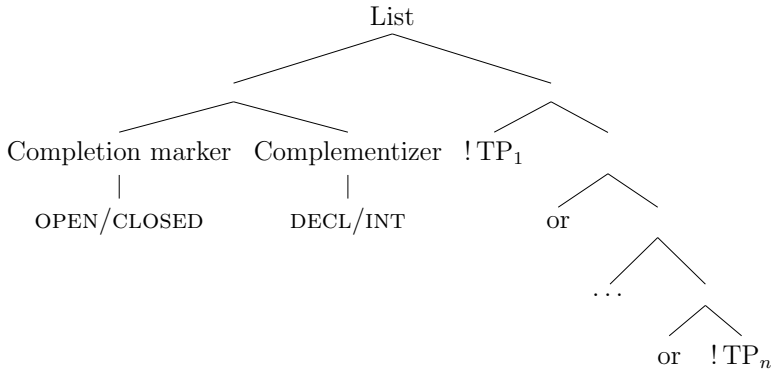
A resolving response is, for example, "I only recognize the one in the middle" – and a response like "I recognize the one in the middle" will amount to that if it is common understanding that the question has the mention-all sense.

And in fact, the information state expressed by that response is ... $\{w_5\}$.

5 Excursus on Logical Forms

What syntax is provided by Ciardelli, Groenendijk and Roelofsen (2019) is the following tree (pp. 99ff.) (slightly modified for perspicuity):

(7)



Thus in a manner of speaking, the sentence radical(s) start(s) out as non-inquisitive – the ! in (7) is the logical translation of a 'clause type marker' $C_{\text{DECL/INT}}$, translated as ! whether it is declarative or interrogative.

The "or" in (7) is the disjunction of alternative questions or open disjunctive questions (see 1st installment, examples (4), (14)).

As alluded to above (section 3), it is unclear how the existential quantifier in mention-some and the universal quantifier in mention-all wh questions come to scope above ! – (8) and (9) are non-simplified versions of (6b) and (6d):

(8) $\exists x\,!\,Ryx$

(9) $\forall x\,?\,!\,Ryx$

The universal quantifier in (8) even scopes over the ? complementizer.

We can spec- and stipulate that the source of $\exists x$ and $\forall x$ is the wh element, which merges at some adjoined site or in some specifier position internally.

- For the former, we could interpolate an adjunction between the mother of $!\,\text{TP}_1$ and the root (List),
- for the latter we could contemplate something similar only higher up, or postulate a specifier to the completion marker phrase on the left.

But these are open issues, the more so since the left periphery in (7) is not only underspecified but relatively non-standard.

Recall from section 3 that since existentials are intrinsically inquisitive, it might seem to be predicted that a polar question with an existential has a reading in common with the analogous mention-some wh question. But to derive that reading, a way for ∃ to escape the scope of ! must be found, and this seems more difficult to motivate when its source is an indefinite than when it is a wh word.

➔ Next installment: Propositional attitudes: knowing and wondering; non-inquisitive and inquisitive complements

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