snippets

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De re *readings of nested* which-*phrases in embedded questions*

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It is well known that *which*-phrases give rise to *de re/de dicto* ambiguity (Groenendijk & Stokhof 1982, 1984, Rullmann & Beck 1998, Sharvit 2002, among others). For example, the *de re* reading of (1) doesn't entail that the speaker's son knows that the relevant books are Russian novels.

(1) My son knows which Russian novels I haven't opened.

Suppose I reserve a part of my bookshelf for Russian novels, and my son doesn't know what kind of books they are or who wrote them, but knows which ones I haven't opened (e.g., because they are clean). In this situation (1) is true under the *de re* reading. The observations here and below hold for other question-embedding predicates like *ask, wonder, tell,* etc., but I will focus on *know* for reasons of space.

Adding a prepositional phrase to the *which*-phrase does not matter, as in (2).

(2) My son knows which novels by Russian authors I haven't opened.

The complex *which*-phrase here has a number of readings, but crucially, there is a reading where everything in the *which*-phrase is *de re* (which I call a 'completely *de re* reading'). Only under this reading is (2) true in the above situation.

I observe that the completely *de re* reading disappears when the PP is also a *which*-phrase (a construction Heim 1994 calls 'nested *which*-phrases'; see also Elliott 2015). Thus, (3) is not true in the situation given above.

(3) My son knows which Russian novels by which authors I haven't opened.

Standard views of *de re/de dicto* ambiguity of *which*-phrases do not offer a straightforward account of this (see von Stechow 1996:73 for related discussion). In fact, assuming that all novels have authors, they cannot even distinguish the completely *de re* readings of (1) and (3). Specifically, Karttunen's (1977) theory and its descendants would analyze the completely *de re* readings of the embedded questions in (1) and (3) as follows:

(4) a. $\{\ \lambda w'.\neg \text{open}_{w'}(\text{spkr},x)\ :\ \text{Russian-novel}_@(x)\ \}$
   b. $\{\ \lambda w'.\neg \text{open}_{w'}(\text{spkr},x)\ :\ \text{Russian-novel}_@(x) \land \exists y\ [\text{author}_@(y) \land \text{by}_@(x,y)\ ]\ \}$

Since all novels have authors, these two sets are equivalent. Consequently, (3) is predicted to be true in the above context where (1) is, contrary to fact. An analogous problem arises under other theories such as Groenendijk & Stokhof's (1982, 1984)

partition semantics, according to which the embedded questions in (1) and (3) are translated into:

(5) a. $\lambda w.\ \{\ w'$: $\{x$: Russian-novel$_w(x) \wedge \neg$open$_w($spkr,$x)\}$

$=$

$\{x$: Russian-novel$_w(x) \wedge \neg$open$_{w'}($spkr,$x)\}\ \}$

   b. $\lambda w.\ \{\ w'$: $\{<x,y>$: Russian-novel$_w(x) \wedge$ author$_w(y) \wedge$ by$_w(x,y) \wedge$
$\neg$open$_w($spkr,$x)\}$

$=$

$\{<x,y>$: Russian-novel$_w(x) \wedge$ author$_w(y) \wedge$ by$_w(x,y) \wedge$
$\neg$open$_{w'}($spkr,$x)\}\ \}$

This observation suggests that *de re* readings of *which*-phrases in embedded questions are constrained somehow. In particular, it seems that each *wh*-phrase must bind a variable in the body of the question, so to speak, so that it is not merely functioning as an indefinite. This would rule out (4b)/(5b). However, it is unclear where in the grammar this constraint should be enforced.

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