Meaning, Reference & Modality. Assignment 3

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Tuesday, November 24, 2009

Exercise 1

Both hold. If phi can be repeated twice and produce an output assignment, then it shows that phi does not prohibit outputs as is the case when phi |/= phi, which occurs when phi binds a variable in such a way that free occurrences of it in phi no longer hold. But if phi ^ phi is satisfiable, this cannot be the case.

If that is not the case then phi must be idempotent, so that after uttering it twice it can be uttered for a third time.

Although perhaps a self-referential sentence could be imagined like this:

"I have not said this sentence twice"

.. which could be truthfully uttered twice, yet not a third time. However, such a sentence does not seem possible in dynamic predicate logic.

Exercise 2

A structural difference between these examples and the ones in the paper is that in these examples the dimes are existentially quantified, whereas the donkeys are universally quantified. The parking meter is satisfied with only one dime.

We can give these sentences an intuitively correct interpretation by adding a definition for the implication, instead of defining it in terms of conjunction and negation:

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[[phi -> psi]] = { <g, h> | h = g & there is a k: <h, k> in [[phi]]
                        -> there is a j: <k, j> in [[psi]] }
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(the difference being that k is existentially quantified instead of universally, as in the standard donkey sentence interpretation)

This solution also works for example (4) because only the definition of implication is affected, not that of the quantifiers.

Exercise 3

It is consistent yet not coherent. It is consistent because it might be the case that we do not know who Alfred is. Suppose we are in a state with the following possibilities (Coreference & Modality, p. 10):

- i: a denotes d, I(P) = {}
- i': a denotes d', I(P) = {d}

Both possibilities remain after the first two conjuncts, but after the third only the first remains. Since there is still a possibility left, the conjunction is consistent.

However it is not coherent, because there is no state which supports this conjunction. To see this, notice that to make the second conjunct true in some state, this state should always have a possibility where I(P) is non-empty (someone has done it). In this possibility, 'a' will refer to some object not in I(P), whereas x will have been assigned some object in I(P). But then, after the third conjunct, this possibility has to go, and thus the sequence is not coherent.

Exercise 4

These views are consistent. Just as Kripke argues that it is not a priori known that Hesperus is Phosphorus (epistemic), while it is necessary that they are equal (ontological).
Perhaps these views can be made consistent by letting the different modal operators rangs over two different indices of worlds, in a 2-dimensional semantics. Horizontally would be the ontological distinctions, vertically the epistemic. The operator M affects only the rows, the box and diamond affect the columns. Names are rigid in each row, but non-rigid in the columns.

Exercise 5

The examples are handled by conceptual covers, which specify a way of identifying individuals in a world. Ralph has two different conceptions of Ortcutt, which is why he has the paradoxical beliefs. Ralph's beliefs do not have to be inconsistent, as long as there are two different conceptual covers in operation. This also goes for the speaker, since the conceptual covers are selected pragmatically, if they are available and needed.

Exercise 6

1. The last translation is redundant because the first conjunct can be seen as an instance of the principle LIn: x_n = y_n -> []x_n = y_n
Also, a conceptual cover by definition has to specify an unique way of identifying each individual in a domain.

2. A conceptual cover with the non-rigid concept "lambda w [Ortcutt]w" to cross-identify Orcutt. This means that whatever the world, Ortcutt refers to Ortcutt in that world.