De Re vs. *De Dicto*, Part 1: The Classic 'QR' Approach, and its Problems [1]

1. The Basic Facts

(1) **The Classic Observation**
Sentences like the following can be understood in (at least) two very different ways.

a. John believes that Mary kissed a fisherman.

(2) **The *De Dicto* Reading**

a. Situations Characterized by *De Dicto* Reading

Mary tells John the following "I kissed a fisherman at the party last night."

b. Possible Paraphrase of *De Dicto* Reading

John believes that Mary kissed someone, and *he believes that the person she kissed was a fisherman.*

c. Possible Formal Statement of The Truth-Conditions

$\forall w' \in \text{Beliefs}(\text{John}, w_0)$: $\exists x$. x is a fisherman in w' & Mary kissed x in w'
For every world w' in the belief-worlds of John, there is some fisherman in w' who kisses Mary in w'

(3) **The *De Re* Reading**

a. Situations Characterized by *De Re* Reading

John saw Mary kissing our friend Bill at the party, and – as we both know (though John doesn't) – Bill is a fisherman.

b. Possible Paraphrases of *De Re* Reading

John believes Mary kissed *a particular person*, and this person actually happens to be a fisherman (though John might not know this).

c. Possible Formal Statement of the Truth-Conditions

$\exists x$. x is a fisherman in w_0 & $\forall w' \in \text{Beliefs}(\text{John}, w_0)$: Mary kissed x in w'
There is an (actual) fisherman x such that in all of John's belief worlds, Mary kissed x.

[1] These notes are based upon mateial in von Fintel (2007; Chapter 6, Chapter 7).

(4) **About the Terminology**

a. *De Dicto* = 'About what's said'

- (Vaguely) The belief is 'about what's said' by the subordinate clause.
- The subject of "believe" would agree with *the very words chosen* to express the propositional object of belief.

b. *De Re* = 'About the thing'

- (Vaguely) The belief is 'about the thing' described in the subordinate clause.
- The subject of "believe" would recognize *the thing itself* that the subordinate clause describes (but wouldn't necessarily agree with the words chosen to describe that thing)

This ambiguity isn't just a property of the verb "believes"…
… Rather, it occurs with <u>any</u> intensional operator!!!

- von Fintel (2007) discusses the ways in which *modal* sentences can exhibit this ambiguity
- We can see from cases like the following that this ambiguity also appears in *conditionals*

(5) **The *De Re / De Dicto* Ambiguity in Conditionals**

a. <u>Sentence:</u>
If an in-law of mine dies, I'll inherit a fortune.

b. <u>The *De Re* Reading (Most Salient/Natural)</u>
$\exists$x. x is an in-law of mine in w_0 & $\forall$w' [x dies in w' $\rightarrow$ I inherit a fortune in w']

There is some specific in-law of mine (Aunt Hilda) who has the following property: if they die, then I will inherit a fortune.

(*I.e.,* if a *certain* (actual) in-law of mine dies, I will inherit a fortune)

b. <u>The *De Dicto* Reading (Less Salient/Natural)</u>
$\forall$w' [$\exists$x. x is a relative of mine in w' & x dies in w' $\rightarrow$ I inherit a fortune in w']

If the following is ever true "An in-law of mine has died", then I will inherit a fortune.

(*I.e.*, if *any* in-law of mine [no matter who I marry] dies, I will inherit a fortune.)

2. The Classic QR Account of the Ambiguity

(6) **Core Observation**

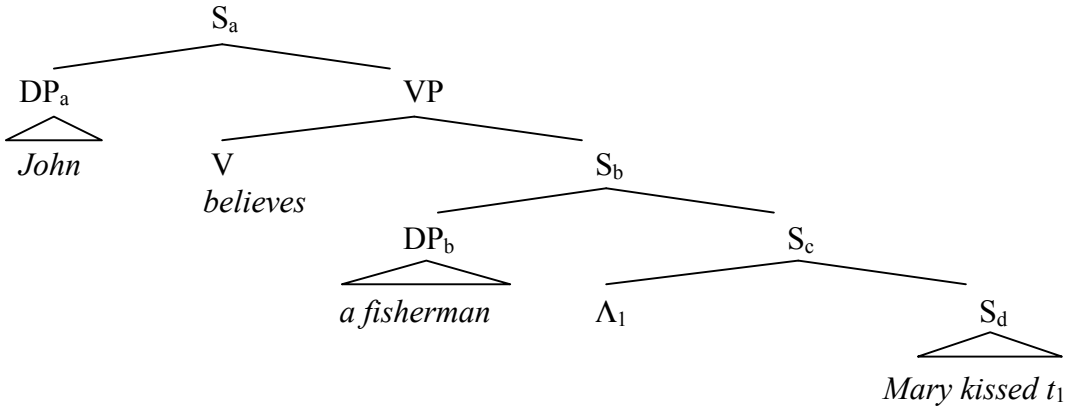
Our rule of QR is sufficient to derive the ambiguity observed above.

- For our purposes, we will restrict our attention to "belief sentences" like that in (1a).
- Parallel arguments can be made regarding conditionals like that in (5a).

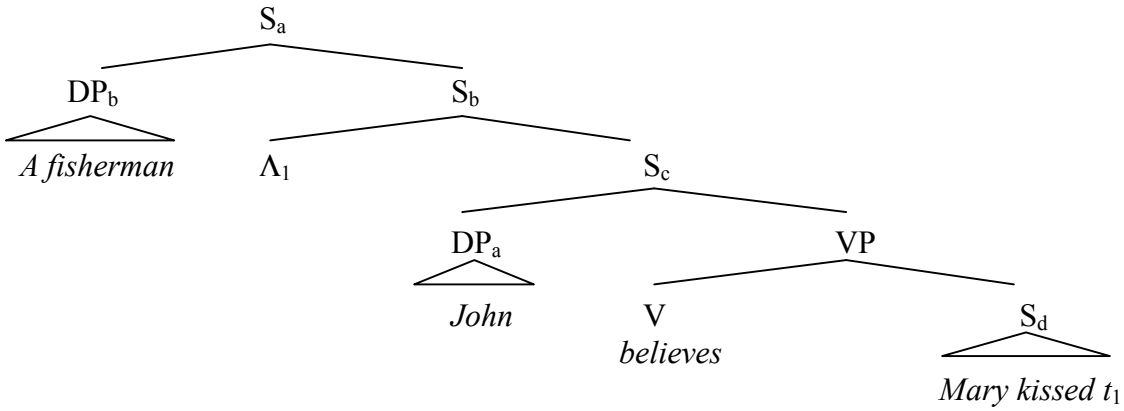
If we permit QR to move an indefinite beyond a finite subordinate clause, then our syntactic theory predicts that a sentence like (1a) could be assigned either of the LFs in (7):

(7) **Possible LFs for Sentence (1a)**

a. QR Moves Indefinite to a Position Inside the Subordinate Clause



b. QR Moves Indefinite to a Position *Outside* the Subordinate Clause



As shown below, our semantics will assign to the LF in (7a) the truth-conditions in (2c).

Thus, our system predicts that sentence (1a) will admit of the *de dicto* reading in (2)

(8) **Derivation of *De Dicto* Reading from LF (7a)**

i. $[[S_a]]^{w,g} = 1$ *iff* (by FA)

ii. $[[VP]]^{w,g}([[John]]^{w,g}) = 1$ *iff* (by Lex.)

iii. $[[VP]]^{w,g}(John) = 1$ *iff* (by IFA)

iv. $[\ [[believes]]^{w,g}(\lambda w'\ [[S_b]]^{w',g})\ ](John) = 1$ *iff* (by Lex.)

v. $[\ [\lambda p.\lambda x.\forall w'' \in Beliefs(x,w): p(w'') = 1](\lambda w'\ [[S_b]]^{w',g})\ ](John) = 1$ *iff* (by LC x3)

vi. $\forall w'' \in Beliefs(John,w): [[S_b]]^{w'',g}$ *iff* (by FA)

vii. $\forall w'' \in Beliefs(John,w): [[DP_b]]^{w'',g}([[S_c]]^{w'',g})$ *iff* (by FA)

viii. $\forall w'' \in Beliefs(John,w): [\ [[a]]^{w'',g}([[fisherman]]^{\mathbf{w''},g})\ ]([[S_c]]^{w'',g})$ *iff* (by Lex.)

ix. $\forall w'' \in Beliefs(John,w): [\ [\lambda P.\lambda Q.\exists x.\ P(x)=1 \ \&\ Q(x)=1]([[fisherman]]^{\mathbf{w''},g})\ ]([[S_c]]^{w'',g})$ *iff* (by LC)

x. $\forall w'' \in Beliefs(John,w): [\lambda Q.\exists x.[[fisherman]]^{\mathbf{w''},g}(x)=1 \ \&\ Q(x)=1]([[S_c]]^{w'',g})$ *iff* (by Lex.)

xi. $\forall w'' \in Beliefs(John,w): [\lambda Q.\exists x.$ [$\lambda y.$ y is a fisherman **in w''**$](x) = 1$
$\&\ Q(x)=1]([[S_c]]^{w'',g})$ *iff* (by LC)

xii. $\forall w'' \in Beliefs(John,w): [\lambda Q.\exists x.$ x is a fisherman **in w''** $\&\ Q(x)=1]([[S_c]]^{w'',g})$ *iff* (by Rule for Lambdas)

xiii. $\forall w'' \in Beliefs(John,w): [\lambda Q.\exists x.$ x is a fisherman **in w''** $\&\ Q(x)=1](\lambda y.[[S_d]]^{w'',g(1\rightarrow y)})$ *iff* (by FA, LC, Rule for Traces)

xiv. $\forall w'' \in Beliefs(John,w): [\lambda Q.\exists x.$ x is a fisherman **in w''** $\&\ Q(x)=1]$
($\lambda y.$ Mary kissed y in w'') *iff* (by LC x 2)

xv. **$\forall w'' \in$ Beliefs(John,w): $\exists x.$ x is a fisherman in w'' & Mary kissed x in w''**

In all of John's belief worlds w', there is some x such that x is a fisherman in w' and Mary kissed x in w'.

As shown below, our semantics will assign to the LF in (7b) the truth-conditions in (3c).

Thus, our system predicts that sentence (1a) will admit of the *de re* reading in (3)

(9) **Derivation of *De Re* Reading from LF (7b)**

i. $[[S_a]]^{w,g} = 1$ *iff* (by FA)

ii. $[[DP_b]]^{w,g}([[S_b]]^{w,g}) = 1$ *iff* (by FA)

iii. $[\ [[a]]^{w,g}([[\text{fisherman}]]^{\mathbf{w},g})\ ]([[S_b]]^{w,g}) = 1$ *iff* (by Lex.)

iv. $[\ [\lambda P.\lambda Q.\exists x.\ P(x)=1 \ \&\ Q(x)=1]([[\text{fisherman}]]^{\mathbf{w},g})\ ]([[S_b]]^{w,g}) = 1$ *iff* (by LC)

v. $[\lambda Q.\ \exists x.[[\text{fisherman}]]^{\mathbf{w},g}(x) = 1 \ \&\ Q(x)=1]([[S_b]]^{w,g})$ *iff* (by Lex.)

vi. $[\lambda Q.\exists x.\ [\lambda y.$ y is a fisherman **in w**$](x) = 1 \ \&\ Q(x)=1]([[S_b]]^{w,g})$ *iff* (by LC)

vii. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1]([[S_b]]^{w,g})$ *iff* (by Rule for Lambdas)

viii. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1](\lambda y.[[S_c]]^{g(1\to y)})$ *iff* (by FA, Lex.)

ix. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1](\lambda y.[[VP]]^{w,g(1\to y)}(\text{John}))$ *iff* (by IFA)

x. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1](\lambda y.[\ [[\text{believes}]]^{w,g(1\to y)}(\lambda w'\ [[S_d]]^{w',g(1\to y)})\ ](\text{John}))$
iff (by Lex.)

xi. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1]$
$(\lambda y.[\ [\lambda p.\lambda x.\forall w'' \in \text{Beliefs}(x,w): p(w'') = 1](\lambda w'\ [[S_d]]^{w',g(1\to y)})\ ](\text{John}))$ *iff* (by LC x3)

xii. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1]\ (\lambda y.\ \forall w'' \in \text{Beliefs}(\text{John},w): [[S_d]]^{w'',g(1\to y)}\ )$
iff (by FA, LC, Rule for Traces)

xiii. $[\lambda Q.\exists x.$ x is a fisherman **in w** $\&\ Q(x)=1]\ (\lambda y.\forall w'' \in \text{Beliefs}(\text{John},w):$ Mary kissed y in w'')
iff (by LC x2)

xiv. **$\exists$x. x is a fisherman in w & $\forall$w'' $\in$ Beliefs(John,w): Mary kissed x in w''**

There is an (actual) fisherman x such that in all of John's belief worlds, Mary kissed x.

So, our theory of QR predicts the well-known '*de-re/de-dicto*-ambiguity'…

End of story, right?...

3. A Problem for the Classic QR Account of the Ambiguity

Consider sentence (10a) in the situation described in (10b).

(10) **The 'Third Reading' of Subordinate Indefinites**

a. John believes that Mary kissed a fisherman.

b. The Scenario
- John, Mary and I are at a party thrown by the local fisherman.
- **John and Mary don't know that the party is being thrown by fishermen.**
- The fisherman throwing the party are all dressed in tuxedos.
- **John and Mary don't know that the people they see in tuxedos are fishermen.**
- John heard from someone he trusts that Mary was kissing one of those people dressed in a tuxedo.

c. The Judgment:
Sentence (10a) has an interpretation where it is true in Scenario (10b).

(11) **The Core Question**

What are the truth-conditions of (10a) under the reading where it is T in situation (10b)?

a. It's Not the *De Dicto* Reading

(i) *De Dicto* Reading:

∀w'∈ Beliefs(John,w_0): ∃x. x is a fisherman **in w'** & Mary kissed x in w'

(ii) *De Dicto* Reading is False in Scenario (10b)

John has no idea that the people in tuxedos are fishermen, and so the people that Mary kisses **in his belief worlds** needn't be fishermen **in his belief worlds**.

b. It's Not the *De Re* Reading

(i) *De Re* Reading

∃x. x is a fisherman in w_0 & ∀w' ∈ Beliefs(John,w_0): Mary kissed **x** in w'

(ii) *De Re* Reading is False in Scenario (10b)

John doesn't think of any ***specific* fisherman** x that Mary kissed x. Thus, there is no fisherman x such that Mary kissed x in *all* John's belief worlds.

(12) **A Possible Candidate**

∀w'∈ Beliefs(John,w_0): ∃x. x is a fisherman **in w_0** & Mary kissed x in w'

*In all of John's belief worlds, there is some x such that x is a fisherman **in the actual world**, and Mary kissed x in w'.*

(13) **The Truth-Conditions in (12) Hold in Scenario (10b)**

- Let w' be any of John's belief worlds in Scenario (10b).
- Clearly, w' is a world where Mary kisses someone.
- Also, it's clear that w' is a world where Mary kisses someone from **the group of people at the party dressed in tuxedos in w_0.**
- Since those people are identical to **the fishermen in w_0**, it's clear that w' is a world where Mary kisses someone from **the fishermen in w_0** .
- Consequently, in any of John's belief worlds w' in Scenario (10b), there is some x such that Mary kisses x in w' and **x is a fisherman in w_0**
- **Thus, (12) holds true in scenario (10b)**

Accepting that (12) is a possible reading of Sentence (10a), can our 'QR' account on its own predict the possibility of that reading?...

NO! And for very principled reasons…

- To see this, let us first reflect a bit further on the nature of the ambiguity in (2) and (3):

(14) **Two Ways in Which the 'Classic' *De Dicto* and *De Re* Readings Differ**

a. The Specificity of the Indefinite

Does the indefinite 'refer to' a specific entity that exists across all belief worlds?

b. The 'Transparency' of the Indefinite

Is the 'descriptive content' (i.e., 'NP') of the indefinite interpreted relative to the actual world, or relative to the subject's belief worlds?

(15) **The Characteristic Properties of the *De Re* Reading**

a. The Indefinite is Specific
There is a specific entity described by the indefinite that the subject's beliefs are 'about'; this entity is asserted to exist in all the subject's belief worlds.

b. The Indefinite is Transparent
The descriptive content of the DP is interpreted relative to the actual world.

(16) **The Characteristic Properties of the *De Dicto* Reading**

a. The Indefinite is Non-Specific
*There needn't be a specific entity that exists in **all** the subjects belief worlds.*

b. The Indefinite is Non-Transparent (Opaque)
The descriptive content of the DP is interpreted relative to the subject's belief worlds. (The descriptive content of the DP is a part of the subject's 'belief-state').

(17) **Core Prediction of the 'QR Account'**

The properties in (14) are intrinsically linked.

a. Specific Indefinites Must be Transparent

If the DP is specific, then it has scope *above* "believe".
Consequently, the NP is interpreted relative to the actual world, and not relative to the subject's belief worlds.

b. Non-Specific Indefinites Must be Opaque (Non-Transparent)

If the DP is non-specific, then it has scope *below* "believe".
Consequently, the NP is interpreted relative to the subject's belief worlds, and not relative to the actual world.

(18) **Central Problem for the 'QR Account' (of Transparency)**

- The transparency of a DP is *not* essentially linked to its specificity.
- Contrary to the prediction in (17b), it *is* possible for a non-specific indefinite to receive an opaque (non-transparent) reading.
- This possibility is shown by the existence of reading (12) for sentence (10a).

Again, this is not simply a special property of "belief sentences". Such 'non-specific, transparent' readings occur with *any intensional operator*...

(19) '**Non-Specific, Transparent' Readings of Indefinites inside Conditionals**

a. Intuitively True Conditional
If some rich people were poor, there would be fewer rich people.

b. *De Re* Reading (True, but Not Intended)

∃x. x is rich **in w_0** & ∀w' [x is poor in w' → there are fewer rich people w']

There are some specific, real-world rich people who are such that if they were poor, there would be fewer rich people.

c. *De Dicto* Reading (Antecedent is Contradictory)

∀w' [∃x. x is rich **in w'** & x is poor **in w'** → there are fewer rich people in w']

*In any world w', if there are rich people **in w'** who are poor **in w'**, then there are fewer rich people in w'.*

d. The Intended Interpretation

∀w' [∃x. x is rich **in w_0** & x is poor **in w'** → there are fewer rich people in w']

*In any world w', if there are rich people **in w_0** who are poor **in w'**, then there are fewer rich people in w'.*

- The indefinite in the intended interpretation is *non*-specific.
- However, in the intended interpretation, the indefinite is *transparent*!

(20) **Central Question / Goal**

How can we augment our semantic system so that an indefinite can have the following properties simultaneously:

a. The quantificational force of the indefinite is within the scope of the intensional operator.

b. The NP of the indefinite is *not* interpreted relative to the worlds quantified over by the intensional operator (but rather relative to the actual world).