

Locating Hidden Quantifiers in *De Re* Reports*

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Abstract

The present paper is a contribution to the debate on the nature of quantification over modes of presentation in *de re* attitude reports. I show in Section 3 that the “universal” readings of *de re* reports with the quantifier *no* cannot result from a special “universal” reading of the attitude verb, contra a recent proposal by Charlow and Sharvit [3] reviewed in Section 2. Then I outline an account which has the advantages of Charlow and Sharvit’s and of Santorio’s [15] accounts, but in addition can handle “universal” readings (Section 4). The account is then shown to extend to another class of examples [3] discusses (Section 5).

The main feature of my account is that the attitude verb does not bind concept generator variables; this work is relegated to the special operator, crucially lower in the structure.

1 The concept generator theory

A prominent problem in the semantics of *de re* attitude reports is that of *double vision*. As already Quine [12] and Kaplan [6] noticed, in case an attitude holder is acquainted with a given object in more than one way, there is no contradiction in (1) and (2) being simultaneously true.

- (1) Ralph believes that Orcutt is a spy.
- (2) Ralph believes that Orcutt is not a spy.

Kaplan’s solution is to quantify existentially over “vivid names” Ralph has for Orcutt. Assuming that he has two if he has encountered Orcutt twice and does not identify the person he met on those two occasions, we indeed get non-contradictory denotations for (1) and (2):

- (1′) $\exists n_1(\text{VIVIDNAME}(n_1, \mathbf{r}, \mathbf{o}) \wedge \forall w \in \text{DOX}(\mathbf{r}, @).[\text{spy}_w(n_1)] \equiv \mathbf{1}$
- (2′) $\exists n_2(\text{VIVIDNAME}(n_2, \mathbf{r}, \mathbf{o}) \wedge \forall w \in \text{DOX}(\mathbf{r}, @).[\neg \text{spy}_w(n_2)] \equiv \mathbf{1},$

where $\text{DOX}(\mathbf{r}, @)$ is the set of Ralph’s doxastic alternatives at the actual world $@$. Whereas Kaplan’s idea can be given a more epistemic twist (in terms of acquaintance functions instead of vivid names) and—at some cost—a compositional implementation [21, 20], there is something it cannot (straightforwardly) account for (e.g. bound *de re*, see below).

1.1 *De re* using concept generators

A more powerful theory of acquaintance-based *de re* ascription which allows for *in situ* compositionality was pioneered by Percus and Sauerland [10]. Their primary goal was to develop a plausible analysis for *de se* and *de re* attitude reports, but later “bound *de re*” readings were discovered, which can be successfully analysed using the means they devised.

Percus and Sauerland presented a strong argument in favour of there being a structural difference between *de se* and *de re* reports. To demonstrate this, they used what I shall call the *only*-test, which will also be employed in a key argument in Section 3 of the present paper; so let me introduce it in some detail. First, consider the following scenario.

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Scenario 1. *John, Bill and Sam are running for president. Once they all get drunk and sit down to watch the debates. John fails to recognise himself on the screen but still thinks: “I will win”. Bill does not recognise himself and says, pointing to his own image, “This guy will win and I will lose”. Sam recognises only John and thinks: “That guy will win”.*

In this scenario each of John and Bill has some kind of acquaintance-based mode of presentation i of himself s.t. he believes the value of f_i^1 will win the election. However, (3) has a true reading in Scenario 1.

(3) Only John _{i} thinks that he _{i} will win the election.

Why is *only* “insensitive” to Bill’s also having a relevant belief? The reason is, presumably, that the part of the sentence following *only John* is ambiguous, and one of the LFs corresponding to it gets interpreted as a condition only John satisfies. Therefore, a *de se* report differs from the corresponding *de re* reports not only in the sort of the acquaintance function evoked but also in the LF it has; *only* generates one true reading of (3) for each LF satisfied by its sister DP.

Percus and Sauerland’s hypothesis was that the difference lies in the use of a *concept generator* (CG) variable in the case of *de re*. An (x, w) -acquaintance-based) concept generator G is a function of the type $\langle e, se \rangle$ which, for each individual y s.t. x is acquainted with y in the world w , provides the unique acquaintance function (individual concept) f s.t.:

- $f(w) = y$;
- for all $v \in \text{DOX}(x, w)$, $f(v) = z$, where z is the unique individual to which the Lewisian [7] centre $c(v)$ is acquainted in the same way x is acquainted to y at w .

To bind CG variables in *de re* reports, the lexical entry for an attitude verb should look like

(4) $\llbracket \text{believe} \rrbracket^g = \lambda w. \lambda \mathcal{P}. \lambda x. \exists^{\text{for } x \text{ in } w} \langle G_1, \dots, G_n \rangle. \forall v \in \text{DOX}(x, w) : \mathcal{P}(G_1, \dots, G_n, v) \equiv \mathbf{1}$,

where \mathcal{P} is a function from n -tuples of CGs to propositions. The use of **sequences** of CGs is motivated by the possibility of “multiply *de re*” reports. As can be seen, the length of the CG sequences the verb quantified over depends on the number of *de re* occurrences of DPs within the attitudinal clause. (Without sequences, one would have to say that attitude verbs are type-flexible, taking as arguments functions of the type $\langle \langle e, se \rangle, \dots, \langle e, se \rangle, \langle s, t \rangle \rangle$ depending on the number of different *de re* occurrences within the attitude clause.)

This much said, the two LFs corresponding to the two readings of (3) may be outlined.²

- (3') a. *De se* LF (true reading in Scenario 1):
 $\llbracket \text{Only John} \rrbracket \lambda_1 [x_1 \text{ believes } \lambda_2 [c(w_2) [\text{will_win-}w_2]]]$
- b. *De re* LF (false reading in Scenario 1):
 $\llbracket \text{Only John} \rrbracket \lambda_1 [x_1 \text{ believes } \lambda_3 [\lambda_2 [\llbracket G_3 c(w_2) \rrbracket w_2] [\text{will_win-}w_2]]]]$

1.2 Bound *de re*

Let us now turn to bound *de re* readings, which, although they “were discovered several years after [Percus and Sauerland]’s concept generator theory was formulated, ...are clearly the strongest piece of evidence in its support” [15]. In several recent publications [2, 18, 3] attention has been brought to cases such as

¹Instead of acquaintance relations, I prefer to speak in terms of acquaintance functions [16, 3], which are functions $f_i : D_s \mapsto D_e$ yielding, for each world $w \in D_s$, the unique individual (if any) of whom the given individual has the i th mode of presentation. Being of the type $\langle s, e \rangle$, acquaintance functions are individual concepts.

²I will generally omit the abstractor over worlds in the matrix clause. The treatment of *de se* is simplified.

- (5) Olympia thinks she burgled herself.
 (6) John believes that every_i female student loves her_i mother.

A plain *de re* (or “simple bound”) reading for (5) would be true if Olympia thought, looking at the image of a girl in a candid camera video, “That girl burgled into her own apartment!”, the girl being actually Olympia herself. Alongside with this reading, another *de re* one is found:

Scenario 2. *Olympia is watching a candid camera video featuring a₁ girl breaking into an apartment. The portrait of the₂ (female) owner can be seen on the wall. Olympia thinks: “This₁ girl burgled into that₂ girl’s apartment!” In fact the video documents the drunken Olympia breaking into her own apartment, where her portrait hangs.*

This is the “bound *de re*” reading for (5). Although not without complications (cf. the papers cited above), it can be generated from the following LF:

$$(5') \text{ Olympia } \lambda_1 [x_1 \text{ thinks } \lambda_{(3,4)} [\lambda_2 [[[G_3 \text{ c}(w_2)] w_2] [\text{burgled-}w_2 [[G_4 \text{ c}(w_2)] w_2]]]]]$$

Here both the subject and the complement of the verb are “CG phrases”, and the two CG variables are not coindexed. Therefore, the verb *believes* quantifies over pairs of CGs, to the effect that Olympia-the-burglar may be presented to the attitude holder under a mode of presentation different from how Olympia-the-owner is presented to her. This does not contradict the coindexing of the DPs embedded into CGs.

Likewise, (6) has a true reading in the following circumstances.

Scenario 3. *John is shown two sets of pictures. In each set, every relevant female student (Mary, Sally and Sue) is pictured exactly once. John, who does not know that he is only dealing with three girls and that those girls are students, points to Mary’s picture₁ from the first set, then to Mary’s picture₂ from the second one, and says: “This₁ girl likes that₂ girl’s mother”. The same then repeats for the other girls.*

The LF for the “bound *de re*” reading, with *every female student* moved by Quantifier Raising (QR), is as in (6’), @ being the dedicated index for the actual world.

$$(6') \text{ John } \lambda_1 [x_1 \text{ believes } \lambda_{(3,4)} [\lambda_2 [\text{every female_student-@}] \lambda_5 [[[G_3 x_5] w_2] [\text{loves } [[G_4 x_5] w_2] \text{'s_mother}]]]]]$$

2 Charlow and Sharvit on “universal” readings

As we have seen, the original version of the CG theory endows attitude verbs with existential quantificational force over (sequences of) CGs, and that’s for good reason: not only does (3) on its *de re* reading require no more than there being **some** mode of presentation of John for himself under which he believes himself to be winning; as witnessed by Scenario 4, the same goes for (7), where John has to possess, for each actual female student, **some** mode of presentation under which he takes her to be French [3].

- (7) John believes that every female student is French.

Scenario 4. *John is shown two sets of photographs. In each set, every relevant female student (Mary, Sally and Sue) is pictured exactly once. John, who does not know that he is only dealing with three girls and that those girls are students, points consecutively to Mary’s picture from the first set, to Sally’s picture from the second one and to Sue’s picture from the second set. Then he says: “Those girls are French”.*

Things become different, however, once a negative determiner appears in the place of *every*: as Charlow and Sharvit claim, (8) requires for its truth that John have the relevant belief under **all** salient modes of presentation he has for each girl.

(8) John believes that no female student is French.

The sentence (8) is false in Scenario 4 but would be true if John proclaimed that none of the six photos depicted Frenchwomen. In other words, in certain contexts (see also Section 5) attitude verbs seem to quantify universally over (sequences of) CGs.

Assuming the denotation for *believe* given in (4) and the syntax of *de re* reports as presented in [10, 3], there is no way to generate this “universal” reading. Among possible ways to deal with this empirical challenge, Charlow and Sharvit chose to stipulate the lexical ambiguity of attitude verbs. E.g. *believe* in their analysis becomes the realisation of two different items, which I will label as *believe*_∃ and *believe*_∀. To the former corresponds the entry in (4); the latter has the semantics in

(9) $\llbracket \text{believe}_{\forall} \rrbracket^g = \lambda w. \lambda \mathcal{P}. \lambda x. \forall^{\text{for } x \text{ in } w} \langle G_1, \dots, G_n \rangle. \forall v \in \text{DOX}(x, w) : \mathcal{P}(G_1, \dots, G_n, v) \equiv \mathbf{1}$

While this semantics indeed captures the data Charlow and Sharvit present, it is rather stipulative: one would definitely like to derive the “universal” flavour from the fact that it is manifest with downward entailing quantifiers. In what follows, I will argue that the ambiguity approach is not even empirically adequate, and then suggest a more uniform analysis.

3 Against the “universal” *believe*

Even if the universal reading is strongly dispreferred with DPs other than downward-entailing quantifiers, one would expect it to show up in cases where it would be the only true reading of a sentence. My strategy in this section will be to show that this is not the case; accordingly, I will conclude that there is no such thing as the universal version of attitude verbs’ denotations.

To see the argument, consider the following scenario.

Scenario 5. *Paul, Ralph and Sam watch a certain talent search show on a daily basis. One day they all take notice of a gifted singer, Alfred, and of the judge called Bill. The next day they are all fascinated by a great juggler, Mr. Adams, and fancy a remarkable strict judge who is called Mr. Brown.*

When asked about their expectations, the three fans respond as follows. Paul says: “Bill will vote for Alfred and Brown for Adams”. Ralph says: “Bill will vote for Alfred”. Sam says: “Both Bill and Mr. Brown will vote for each of Alfred and Mr. Adams”.

Unbeknownst to the three, Alfred is the same person as Adams and Bill is Brown.

Here is a chart summarising the beliefs of the three watchers:

Paul	Alfred	Adams	Ralph	Alfred	Adams	Sam	Alfred	Adams
Bill	+		Bill	+		Bill	+	+
Brown		+	Brown			Brown	+	+

In Scenario 5, Sam is the only one who has the belief of the form “[*x* will vote for *y*]” under all relevant pairs of modes of presentation: $\langle \text{Bill}, \text{Alfred} \rangle$, $\langle \text{Bill}, \text{Adams} \rangle$, $\langle \text{Brown}, \text{Alfred} \rangle$ and $\langle \text{Brown}, \text{Adams} \rangle$. The theory which stipulates the existence of *believe*_∀ predicts that Sam will be the only one to verify the reading of (10) where *believes* is resolved as *believes*_∀:

(10) Only Sam believes Bill Brown will vote for Alfred Adams.

Therefore, despite Paul and Ralph verifying **another** reading of *believe Bill Brown will vote for Alfred Adams*, where *believes* is resolved as *believes*_∃, (10) should have a true reading in Scenario 5. (As mentioned above, the *only* test is assumed to detect all available readings of the structure over which [*only* DP] scopes.) However, no such reading is available.

The conclusion I draw from this observation is that in cases where the universal reading comes to prominence,³ it is most likely an effect of the interaction between the negative determiner and the quantifier over modes of presentation (or CGs); cf. the equivalence familiar from first-order logic: $\neg\exists x\phi \Leftrightarrow \forall x\neg\phi$. The problem is to demonstrate how such interaction is possible; on the current assumptions concerning the syntax of attitude reports [10], there is no way to put a quantifier over CGs into the scope of a negative determiner within the embedded clause. The next section contains a proposal which provides for this scope ordering.⁴

4 The proposal: an intermediate location

4.1 Desiderata

Summing up the desiderata for a successful account of *de re*, one finds at least the following requirements.

1. To correctly handle “double vision” scenarios. This forces the quantifier over modes of presentation, whatever its concrete realisation, to scope above the embedded negation.
2. To yield both the *de se/de dicto* and the *de re* reading of attitude report where *only* associates with focus on the matrix subject. Hence, the quantifier over modes of presentation is restricted to positions below the matrix subject (ruling out e.g. existential closure at the discourse level, as done for indefinites in some dynamic settings).

³An additional observation supporting this conclusion is that no cases have so far been found where both the “existential” and the “universal” reading are available for a single sentence.

⁴An anonymous reviewer suggests that I should be more explicit about how Maier’s [8] DRT-based account fares on the discussed data. Maier’s key idea is that a referential expression (such as a proper name or a definite) triggers a presupposition which projects to the global context; whenever this projection involves crossing the boundary of an attitude clause, another presupposition appears to the effect that the attitude holder must stand in an acquaintance relation to the denotation of the definite. If the definite’s presupposition is projected, the definite gets a *de re* reading; if the presupposition remains *in situ*, a *de dicto* reading.

In this setting, Percus and Sauerland’s [10] examples like (3) are given two representations (p. 403) depending on whether the acquaintance presupposition projects, with the acquaintance relation “bound to equality” (*de se*), or remains *in situ*, which is truth-conditionally equivalent to the *de re* reading. In the case of *de re*, the acquaintance relation should be allowed to covary with the value of the matrix subject (which can be quantificational, as in

- (i) Every candidate believes that he will win the election.

This means that there should be a variable at the acquaintance relation name, bound by the matrix subject, which precludes global accommodation (“trapping” of the presupposition).

Given this, it is unclear how to represent the dependence of quantification over modes of presentation on the **embedded** subject, as in (7). This would be possible if quantified embedded subjects could QR out of the attitude clause and take scope over the whole attitude report. The latter option, however, is shown to be unavailable by Charlow and Sharvit [3]:

- (iii) John is certain that no female student_{*i*} likes her_{*i*} mother.
 Cannot mean: #‘For no female student *x*: John is certain that *x* likes *x*’s mother’

Once such long-distance movement is impossible, the acquaintance presupposition accommodated at the embedded level still scopes over the embedded subject. In my account the position of Δ is below the (short-distantly QRed) embedded subject, which solves the problem.

3. To offer an analysis of “bound *de re*” pronouns, either reflexives or possessives. The existence of such cases means that multiple modes of presentation are in principle available for a given DP within a single attitude clause.
4. To provide a replacement for the “universal reading” of attitude verbs in the case of negative quantifiers. The easiest way to do so would be to show that the effective scope ordering is $\neg\exists$, which is equivalent to $\forall\neg$.

The last requirement is *prima facie* puzzling: traditionally, it is the attitude verb that is assumed to quantify over (sequences of) CGs, but the verb outscopes the embedded subject. Therefore there is no straightforward way to switch the order of the quantifier over CGs and the negation built into the denotation of the negative quantifier.

4.2 Satisfying the desiderata

The proposal of the present paper is to split the job done by the attitude verb into two parts. The usual “displacement” part, i.e. binding the possible world (or situation) parameter, will be left to the verb, whereas quantification over CGs will be relegated to a special operator (call it Δ), whose position is **immediately below** the material generated by Quantifier Raising in the embedded clause, i.e. exactly below the lowest of the indices binding the traces of QRed DPs. Here is the LF for (7) we obtain:

$$(7') \quad \text{John } \lambda_1 [x_1 \text{ believes } \lambda_2 [[\text{every female_student-@}] \lambda_3 [\Delta [[[G_\alpha x_3] w_2] \text{ is_French-}w_2]]]]$$

Naturally, *every female student* undergoes Quantifier Raising to avoid type mismatch. For proper names such as *Ortcutt* this might seem unnecessary, but I will assume they also undergo QR. The reason is that, as Santorio [15] notes, a DP embedded into a “CG phrase” does not c-command anything outside that phrase, so it is unclear why (11) is ungrammatical on any reading that preserves coindexing (as no violation of Condition C is predicted).

$$(11) \quad * \text{Ralph believes that he}_i \text{ likes Ortcutt}_i.$$

To formulate the semantics of Δ , assume with Santorio [15] that alongside with the usual assignment parameter g responsible for the evaluation of (individual) variables, there is another assignment parameter h whose sole role is to evaluate CG variables. (This is done for technical reasons; in my formulation nothing important hinges on it but the semantics of Δ as a h -switcher is easier to formulate.) Indices subject to interpretation in terms of h are represented by Greek letters.

$$(12) \quad \text{SEMANTICS OF } \Delta \text{ (first take):}$$

$$\llbracket \Delta \rrbracket^{g,h} = \lambda\phi. \exists h'. \llbracket \phi \rrbracket^{g,h'} \equiv \mathbf{1}$$

$$(13) \quad \text{SEMANTICS OF CG VARIABLES:}$$

$$\llbracket G_\alpha \rrbracket^{g,h} = \lambda x. \lambda w. [h(\alpha)](x)(w)$$

Given (12) and (13), the interpretation of the LF in (7') should be as in

$$(14) \quad \forall w \in \text{DOX}(\mathbf{j}, @) (\forall x (\mathbf{female_student}_@ (x) \rightarrow \exists h (\mathbf{french}_{w_2} ([h(\alpha)](x)(w))))).$$

The quantifier over h -assignments scoping below the universal quantifier over students correctly predicts the possibility that for each actual female student, John has a different mode of presentation under which he believes her to be French. On the other hand, the semantics for (8) will look like

$$(15) \quad \forall w \in \text{DOX}(\mathbf{j}, @) (\neg \exists x (\mathbf{female_student}_@ (x) \wedge \exists h (\mathbf{french}_{w_2} ([h(\alpha)](x)(w))))),$$

precluding John from having, for any of the actual female students, any mode of presentation under which he takes her to be French, as desired.

The proposed modification naturally captures bound *de re* readings: just like in Percus and Sauerland’s version, they are generated by using different CG variables for the coreferential DPs. Moreover, a feature the present account shares with that of Santorio is that no type-flexibility of attitude verbs is needed; in the particular implementation offered above, even quantification over sequences is never evoked (as CG variables remain free and are interpreted by the h -assignment, which is in turn manipulated by Δ).

4.3 A complication

As it stands, the proposal outlined above gives rise to the sort of overgeneration noticed (with reference to an earlier paper [14]) in Santorio’s [15] (where it is called “long-distance binding”): if allowed to be evaluated by any h they like, CG variables will make reference to acquaintance functions which belong not to the attitude holder herself. E.g. (16) will then be predicted to have a true reading if, in Mary’s opinion, John believes that some x , who is the value of **Mary’s** acquaintance function for Ortcutt, is a spy. The indexing which leads to the incorrect reading is given in (17).

(16) Mary thinks that John thinks that Ortcutt is a spy.

(17) * Mary $\lambda_1[x_1$ thinks $\lambda_{2,\alpha}[$ John $\lambda_3[x_3$ thinks- w_2 $\lambda_{4,\beta}[[[G_\alpha$ Ortcutt] w_4] is_spy- w_4]]]

What is needed to avoid the problem is to ensure in some way or other that the value of G_α is among John’s acquaintance functions. Additionally, one would like to rule out variants of (17) where the world argument of G_α is @ or w_2 instead of w_4 . Note that the latter situation is not unimaginable: once trans-world existence is granted, something which is the value of John’s acquaintance function $[h(\alpha)](\llbracket \text{Ortcutt} \rrbracket)$ in the doxastic alternatives of **Mary’s** (or, for that matter, in the actual world) may easily be a spy in **John’s** doxastic alternatives.

The latter predicament may be resolved by leaving the world argument of G_α unsaturated and making the verb take such an intensional argument,⁵ but this route is undesirable for the reasons of uniformity: we would not be happy with the verb taking an extensional subject in case there is no CG and an intensional subject in case there is one, and uniformly requiring intensionality would perhaps be too complex. I will have to leave this part of Santorio’s problem unsolved. (One could however use Santorio’s own apparatus to fix it.)

As for the first task, namely to make sure that only the closest attitude predicate contributes a holder whose acquaintance functions may be assigned by h to a CG variable, we may account for it by putting a part of the h -related duty back to the attitude verb. More specifically, let the verb quantify over h -assignments, imposing a restriction on them:

(18) $\llbracket \text{believes} \rrbracket^{g,h} = \lambda p. \lambda x. \lambda w. \forall h' [\forall \alpha \forall y. [h'(\alpha)](y) \text{ is an acquaintance function for } x]$.
 $\forall w' \in \text{DOX}(x, w). \llbracket p \rrbracket^{g,h'}(w) \equiv \mathbf{1}$.

Now we have to modify the semantics for Δ given in (12):

(12') SEMANTICS OF Δ (second take):
 $\llbracket \Delta \rrbracket^{g,h} = \lambda \phi. \exists h' \in \text{PERM}(h). \llbracket \phi \rrbracket^{g,h'} \equiv \mathbf{1}$,
 where $\text{PERM}(h)$ is the set of permutations of h , i.e. the assignments differing from h at most in which acquaintance function they assign to which index, but crucially **not** in their definedness conditions.

⁵Cf. the explanation of a similar restriction on transparent readings of predicates, known as Generalisation X [9], in [17] (pp. 446–447).

With the help of this definition, we retain a quantifier over h -assignments within the scope of QRed DPs (which is needed to handle “universal” readings) and at the same time transmit the restrictions from the attitude verb to this lower quantifier.

4.4 Related proposals

It is not as if the stipulation of silent operators in positions similar to that of Δ were unprecedented in the literature. For instance, Podobryaev [11] suggests a pair of covert operators \oplus and \otimes in order to handle the behaviour of pronouns in the presence of *imposters*, i.e. non-pronominal expressions which are able to obtain 1st- or 2nd-person semantics. Such an operator, with the semantics as in

$$(19) \llbracket \oplus \rrbracket^g = \lambda\phi. \llbracket \phi \rrbracket^{g'},$$

where g' is like g except that all values of g' for the indices of the form $\langle i, \textcircled{1} \rangle$, where i indicates coreference and $\textcircled{1}$ the first person feature, are set to “undefined”,

may occupy the position between the attitude verb and the lexical content of the attitude clause. Moreover, the splitting move I made when I detached quantification over (chains of) CGs from verbs has its precursor in Shklovsky and Sudo’s [19], where the monstrous operator in Uyghur was argued to mingle into the embedded clause, thus freeing the matrix verb from the parameter-shifting duty.

Additionally, a somewhat looser analogy may be drawn between my Δ and Asudeh and Giorgolo’s [1] silent “unit” operator η , whose function is to abstract over the perspective index (and which is used in perspective-sensitive contexts such as *Lois Lane loves _____* to generate ambiguities).

5 The behaviour of *only*

We have so far ignored the second point raised by Charlow and Sharvit [3] in support of the existence of universal readings. The point is that a *de re* report with *only X* as the embedded subject requires for its truth that the attitude holder lack the corresponding attitude w.r.t. **any** mode of presentation she has of any of X ’s alternatives (in the sense of [13]):

$$(20) \text{ John believes that only Mary is French.}$$

Scenario 6. *John is given six photos: two of Mary, two of Sally and two of Sue. He thinks those may be six different girls and says...*

- a. ^{OK} ...pointing to **both** pictures of Mary’s, “Those girls are French, the others aren’t”
- b. [#] ...pointing to **one** of Mary’s pictures and **one** of Sue’s, “Those girls are French, the others aren’t”

The reason why the problem emerges is that the existential construal of attitude verbs leads to the following (simplified) configuration of the quantifier over (sequences of) CGs and *only*:

$$(21) \dots \exists G \dots [\text{only Mary}] \dots \text{is French.}$$

The order in (21) that the reading in (20b) should be available: indeed, in (20b) there is an acquaintance function for John s.t. *only Mary* yields a value x of this function s.t. x is French; although Sue is also believed *de re* to be French by John, she is so believed under a **different** acquaintance function.

Having pointed out the problem, we can now easily see how the re-ordering of quantifiers I have proposed above helps: now it is Δ , not *believes*, that supplies the existential quantifier over CGs, and Δ 's syntactic position is below those of QRed DPs in the attitude clause. Therefore, instead of the unwelcome (21), the quantifier over *h*-assignments (i.e. the denotation of Δ) nevertheless ends up within the scope of *only*:⁶

$$(22) \text{ John believes } \lambda w[\text{[only } C \text{] Mary}]_i \lambda_i[\Delta [\text{[} G x_i \text{] } w \text{ is French }]] ,$$

thus yielding the truth conditions in

$$(23) \text{ 'In all worlds compatible with what John believes, no } x \text{ except for Mary is s.t. there is an acquaintance function } f \text{ for John s.t. } f(x) \text{ is French'} ;^7$$

thus it cannot be that John also has a mode of presentation, even if a different one, under which he ascribes Frenchhood to Sally.

At least the most disastrous lapses of the existential analysis of attitude verbs are thus remedied by changing the location of the CG-quantifier; some issues remain, however. First, what happens if Scenario 6 is modified as follows?

Scenario 7. *John is given six photos: two of Mary, two of Sally and two of Sue. He thinks those may be six different girls and says...*

*c. ...pointing to **one** of Mary's pictures, "This girl is French, the others aren't"*

The difference from Scenario 6 here is, obviously, that John does not ascribe Frenchhood to anyone except for Mary, under any mode of presentation; in contrast to (20a), however, John does not ascribe it to Mary under **all** modes of presentation he has for her. Is (20) true in such a scenario? The question requires further study, and the negative answer would mean that the present account is incomplete: something will then have to be said about the residual universality that remains unexplained by the reordering of quantifiers I propose.

Second, I have assumed that *only* forms a constituent with *Mary* in (20b) and they are QRed together; even granted that this is a plausible option, it is unclear whether one should allow for combinations such as [*only* [*G Mary*] *w*]. If QRed above Δ , such a constituent would have a free variable *G* in it, so the LF would not be interpretable. But what if *Mary* alone were QRed out of this structure? (Luckily, movement out of focus with which *only* associates may be impossible at all [4].)

6 Conclusion

The aim of the present paper was two-fold. First, I pointed to an empirical problem faced by Charlow and Sharvit's [3] account of the "universal" readings of attitude reports. The problem arises in the cases where we would expect *only* to discriminate between the "existential" and the "universal" reading; the latter unexpectedly fails to arise. Second, I suggested that quantification over modes of presentation takes place not at the level of the attitude verbs but lower in the structure, specifically below the QRed arguments within the subordinate clause.

⁶This is so even if, as Charlow and Sharvit assume (p. 34), "the presuppositions triggered by *only* can be accommodated in the scope of the attitude à la Heim [5]". Without postulating Δ , one would have to argue that the presupposition of *only* has to be accommodated globally; I will not, however, go as far as to call that route impossible: it may be, after all, that the *de re* reading of the focus constituent somehow forces global accommodation.

⁷Recall that in Section 4.3 we endowed attitude verbs with a quantifier over *h*-assignments. It quantifies vacuously, so the preference towards universal force (as opposed to existential) may have seemed unmotivated to the reader. Now that we get to cases involving *only*, existential force would make my analysis vulnerable to Charlow and Sharvit's criticism regarding the readings of (20).

The discussion above left several questions unresolved. For one thing, I did not explain how the empirically desirable restrictions on world pronoun indexing come about; for another thing, more work is needed on the scenarios verifying reports with *only*.

As for other perspectives, I believe, perhaps a bit paradoxically, that a general theory of *de re* ascription may eventually do away with concept generators: applying the CG technique to reflexives leads to binding-theoretic problems [18], and the observed range of readings is hard to account for [2]. This suggests that treating reflexives as arity-reducing operators may be more productive than assigning indices to them. Then “bound *de re*” should be reinterpreted as *de re* readings of the predicate whose arity is reduced and are no longer strong evidence for the CG theory. A more detailed discussion of the issue should wait for another occasion.

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