On the roads to *de se*[*]

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Abstract It is rather uncontroversial that there are different ways to report *de se* attitudes, but there is still disagreement about the number and the nature of the different mechanisms at work. Following Anand (2006), I distinguish three types of *de se* reporting: one a special case of *de re*, another expressed by shifted indexicals, and a third expressed by dedicated *de se* pronouns. For the first two I propose reductions to *de re* and *de dicto* reporting, respectively, couched in a dynamic framework where presupposition resolution takes center stage. For the third, I part ways with all current proposals in offering what is essentially a *de re* analysis of dedicated *de se* pronouns. I motivate this radical departure with examples of *de se* pronouns binding *de re* reflexives, as recently brought into the spotlight by Charlow (2010) and Sharvit (2010).

Keywords: attitude reports; de dicto, de re, de se; shifted indexicals; presupposition; control; reflexives

1   Introduction

Sentences that report what someone thinks, wants, hopes etc. are called *attitude reports*. They typically take the form of an attitude verb that relates an individual and a proposition: x believes/hopes/... (that) φ. Linguists and philosophers have long studied logical distinctions between different modes of reporting and their linguistic correlates. The best known is the distinction between *de re* and *de dicto*. In a *de dicto* report the complement clause expresses a proposition toward which the reported speaker is claimed to have a certain attitude. On a *de dicto* reading of (1), for instance, John is ascribed a desire to date whoever wins a certain TV competition:

(1)   John wants to date the winner of America's Next Top Model.

But this report has a second reading where what he wants is to date Chelsey, who we happen to know has just become America's Next Top Model. On this *de re* reading, John's attitude is directed toward an actual, specific individual (the *res*). Crucially, the *de re* ascription is felicitous even if John himself is unaware of Chelsey's participation in the show; the definite description is then merely the reporter's way of picking out that individual.

What makes *de re* attitudes interesting is that someone can have different, seemingly inconsistent *de re* attitudes about the same *res*. In particular, John can have a *de re* attitude about himself without realizing that it is about himself, for instance when he points to a TV screen saying, "That guy has to lose", without realizing he's looking at a recording of himself. This is an instance of a *de re* belief about oneself as a third person, and it can be reported with a normal *de re* report like *John hopes that he himself will lose*. *De se* beliefs, in contrast, are beliefs about oneself as oneself, i.e. beliefs that the ascribee himself would express in the first person.[1]

Languages have a number of different ways to report *de se* attitudes. There is considerable debate about the number and the nature of the different mechanisms at work. According to Anand, for instance, there are three distinct 'routes to *de se*', exemplified by the classic examples in (2):

(2)   a.   Kaplan believes that his pants are on fire.   [Kaplan 1989]
        b.   ǰon ǰəgna nə-ññ yɨl-all.
            'John$_i$ says that I$_i$ am a hero.'   [Amharic, Schlenker 2003]
        c.   Pavarotti crede di essere in pericolo.
            'Pavarotti believes to be in danger.'   [Italian, Chierchia 1989]

For the first two routes, I propose reductions to *de re* (section 3.1) and *de dicto* (section 3.2), respectively. These reductions are couched in a dynamic framework where presupposition resolution takes center stage (section 2). In this I follow my earlier proposals (esp. Maier 2010), but I add some new supporting evidence and illustrations.

For the third route, I part ways with all current proposals in proposing a route 1, *de re*, analysis of dedicated *de se* pronouns. I motivate this radical departure with examples of *de se* pronouns binding *de re* reflexives, as recently brought into the spotlights by Charlow (2010) and Sharvit (2010).

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1 In fact, *de se* naturally extends beyond the first person to other forms of irreducible indexicality. However, in this paper I will restrict attention to the first person case.

2   Presupposition and the *de re* / *de dicto* distinction

The *de re*/*de dicto* ambiguity allows a natural formalization in terms of presupposition resolution: local resolution of a presupposition triggered inside an attitude corresponds to *de dicto*, global to *de re*. In addition, Quine (1956) and Kaplan (1968) showed that *de re* ascription requires a descriptive mode of presentation, given by the actual acquaintance relation between subject and *res*. Combining these insights, I propose an analysis where presuppositions that move out of an attitude operator trigger an acquaintance presupposition that searches the context for an appropriate mode of presentation for the attitude's *res*.

2.1   Presupposing *res*

In this section I discuss a classic scope paradox known to plague simple scopal accounts of the *de re*/*de dicto* distinction. I apply the argumentation of Romoli & Sudo (2009) to bring out the superiority of a presuppositional version of the scope theory.

Bäuerle's (1983) scope paradox exploits the interaction between an indefinite and a universal quantifier inside an attitude report. Keshet (2008:31) presents the following Americanized version:

> A man named George is passing a bus and hears a woman with a distinct South Carolina accent yelling from inside: "I love all y'all!" Unbeknownst to him, the entire Boston Red Sox team is on the bus, on their way to a game. Additionally, the woman is not from South Carolina, at all, but rather she is from Tennessee.

(3)   George thinks a woman from South Carolina loves every Red Sox player.

On the intended[2] reading of (3), the existential takes wide scope over the universal (one woman has the property of loving every player). On the other hand, the universal quantifier is *de re* (George doesn't know they are Red Sox players), and the existential *de dicto* (we know the woman is not from South Carolina). This is impossible on the scopal account that equates *de re* and *de dicto* with wide and narrow scope, respectively.

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2 As pointed out to me by Itamar Francez and Janneke Huitink, the inverse scope reading where the existential takes scope under the universal is weaker, and hence also true in the context sketched. Moreover, that reading is not paradoxical: $\forall x\, RedSoxplayer(x) \rightarrow believe(g)[\exists y\, SCwoman(y) \wedge love(x,y)]$. This would be a plausible reading of *George thinks every Red Sox player is loved by some woman from South Carolina*. Still, given the context (3) surely expresses the stronger reading: one woman loves all players. To support this intuition, note that we can pick up the discourse referent representing this woman in George's doxastic state with, *He thinks she's hot*.

The standard solution is to replace the scope theory with a more finegrained analysis in terms of intensional variables. All descriptive expressions carry an explicit world variable and attitudes can bind these, yielding *de dicto* readings, or leave them open for a *de re* reading. The intended readings of the scope paradoxes above are easily captured in this system, because *de re/de dicto* is now independent of quantifier scope:

(4)   George thinks λw a woman$_w$ [from South Carolina]$_w$ loves$_w$ every [Red Sox player]$_{w_0}$.

The intensional system however runs into the opposite problem: overgeneration. Only very few of the theoretically possible world indexings are ever instantiated. To narrow it down a number of grammatical constraints on world indexing have been proposed (Sauerland 2001; Keshet 2008).

For instance, the *presuppositional DP constraint* (Keshet 2008) says that the world variables of non-presuppositional DPs must be bound by the nearest lambda: i.e. *de dicto*. This captures the contrast in (5): the numerical quantifier in (5a) has a strong, presuppositional reading which licenses *de re* construal, but *there are* in (5b) forces a weak, non-presuppositional construal, which can only be read *de dicto*:

(5)   a.   Mary believes three professors are still in college.   [Keshet 2008]
       b.   #Mary believes there are three professors still in college.

The *DP-in-DP constraint* (Romoli & Sudo 2009) says that DPs that contain smaller DPs can only be read *de re* if the embedded DP is also *de re*. This is needed to rule out the indexing in (6b), which would incorrectly make (6a) felicitous:

(6)   Unicorns don't exist, but Mary thinks she saw a unicorn the other day. Also,

       a.   #Mary thinks [$_{DP_1}$the man who likes [$_{DP_2}$the unicorn]] is a woman.
                                                                    [Romoli & Sudo 2009]

       b.   Mary thinks λw the man$_{w_0}$ who likes the unicorn$_w$ is a woman$_w$.

These and other indexing constraints seem ad hoc on the intensional variables account. Yet they all follow naturally from a presuppositional account of the *de re/de dicto* distinction. The presuppositional account is like the naïve scopal account except that scope is not just a matter of syntactic movement or structural ambiguity, but derived in a dynamic semantic/pragmatic framework from the independently motivated presupposition resolution mechanisms. Definites trigger presuppositions that want to project out of the local triggering context, unless the discourse context prefers local resolution. The end result of a global resolution with respect to an attitude operator is simply a wide scope representation, i.e. *de re*. Local resolution gives narrow scope, *de dicto* outputs.

The presupposition theory I am going to need uses the representational frame-work of DRT (van der Sandt 1992). In this framework, a syntactic module called the *construction algorithm* turns a sentence into a *preliminary DRS*. Next, the seman-tic/pragmatic *resolution algorithm* connects this preliminary representation to the common ground representation, yielding an updated common ground as output.

Take the ambiguous report from the introduction:

(7)   John wants to date the winner of America's Next Top Model.

We represent presuppositions in preliminary DRSs's as dashed boxes:

(8)
WANT(j):
```
date(j,x)
┌ ─ ─ ─ ─ ─ ─ ┐
│      x      │
├ ─ ─ ─ ─ ─ ─ ┤
│  antmwin(x) │
└ ─ ─ ─ ─ ─ ─ ┘
```
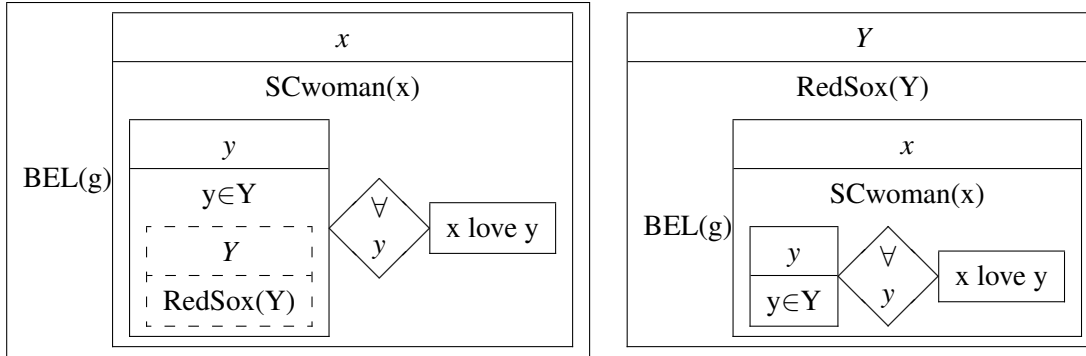
Resolution starts by trying to *bind* the presupposition. If we assume an empty initial common ground, there is no salient ANTM winner to bind to, so we must *accommodate*. Global accommodation gives the wide scope output (9a), while local accommodation gives narrow scope:
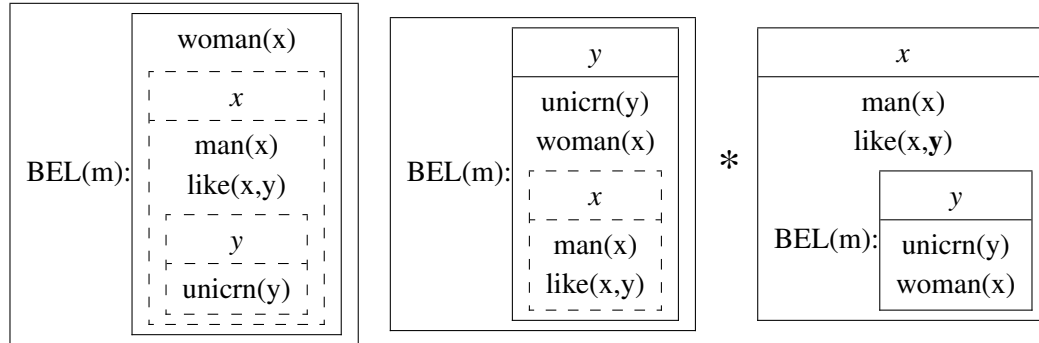
(9)   a.
```
┌──────────────────┐
│        x         │
├──────────────────┤
│    antmwin(x)    │
├──────────────────┤
│ WANT(j): date(j,x)│
└──────────────────┘
```
b.
```
          ┌──────────────┐
          │      x       │
WANT(j):  ├──────────────┤
          │  antmwin(x)  │
          │   date(j,x)  │
          └──────────────┘
```

The advantage of the presuppositional account is that the *de re*/*de dicto* distinction is reduced to the central dynamic mechanism of presupposition resolution. Moreover, presupposition theory shows a way out of the scope paradoxes. To see this, note that strong quantifiers in DRT presuppose their domains. In this way, the quantificational force of *every* remains in situ, while its domain, the set of Red Sox players, is analyzed as a presupposition that can be interpreted *de re*:

(10)   George thinks a woman from South Carolina loves every Red Sox player.

BEL(g) $\left[\begin{array}{c} x \\ \hline \text{SCwoman}(x) \\ \hline \boxed{\begin{array}{c} y \\ \hline y \in Y \\ \hline \boxed{\begin{array}{c} Y \\ \hline \text{RedSox}(Y) \end{array}} \end{array}} \; \langle \forall y \rangle \; \boxed{\text{x love y}} \end{array}\right]$ BEL(g) $\left[\begin{array}{c} Y \\ \hline \text{RedSox}(Y) \\ \hline \boxed{\begin{array}{c} x \\ \hline \text{SCwoman}(x) \\ \hline \boxed{\begin{array}{c} y \\ \hline y \in Y \end{array}} \; \langle \forall y \rangle \; \boxed{\text{x love y}} \end{array}} \end{array}\right]$

The advantage over the intensional variables theory is that we don't need any of the stipulative indexing constraints. The presuppositional DP constraint is a giveaway. The nested DP constraint falls out as a case of what van der Sandt (1992) calls 'trapping': if the embedded DP is resolved locally, global resolution of the containing DP is blocked because it would create unbound variables.

(11)   #Mary thinks [$_{DP_1}$the man who likes [$_{DP_2}$the unicorn]] is a woman.

BEL(m): $\left[\begin{array}{c} \text{woman}(x) \\ \hline \boxed{\begin{array}{c} x \\ \hline \text{man}(x) \\ \text{like}(x,y) \\ \hline y \\ \hline \text{unicrn}(y) \end{array}} \end{array}\right]$ BEL(m): $\left[\begin{array}{c} y \\ \hline \text{unicrn}(y) \\ \text{woman}(x) \\ \hline \boxed{\begin{array}{c} x \\ \hline \text{man}(x) \\ \text{like}(x,y) \end{array}} \end{array}\right]$ $*$ $\left[\begin{array}{c} x \\ \hline \text{man}(x) \\ \text{like}(x,\mathbf{y}) \\ \hline \text{BEL(m):} \boxed{\begin{array}{c} y \\ \hline \text{unicrn}(y) \\ \text{woman}(x) \end{array}} \end{array}\right]$

2.2   Presupposing acquaintance

The account of 2.1 fixes some shortcomings of the naive scope theory, but leaves some more substantial vulnerabilities wide open. In previous work I've shown how presupposition theory can be called on yet again to solve the so-called puzzle of double vision and related phenomena involving *res* that are known under different guises. Quine illustrates the problem with the well-worn example of Ralph, who is acquainted with a gray-haired man whom he considers "rather a pillar of the community"—certainly no spy. However, we know that this man is really the spy B.J. Ortcutt. So we can report Ralph's *de re* belief as (12a). At the same time, Ralph is acquainted with a suspicious figure with a brown hat that he glimpsed in a dark alley. Crucially, we, but not Ralph, are aware that the object of this second belief is the same Ortcutt, so (12b) is also true:

(12)   a.   Ralph believes Ortcutt is not a spy.
        b.   Ralph believes Ortcutt is a spy.

In the theories discussed so far, (12a) and (12b) cannot both be true. To resolve the paradox we need to take into account the *modes of presentation* of a *res*: Ralph believes of Ortcutt *as the gray-haired guy* that he's not a spy, but he believes of Ortcutt *as the guy in the alley* that he is a spy. The relevant modes of presentation are given by a *relation of acquaintance* between subject and *res*: Ralph is acquainted with Ortcutt as the guy in the alley and he believes that the person he is so acquainted with is a spy. For convenience I'll abbreviate $P(\imath v.\ R(i,v))$ ("the person I am R-acquainted with has property P") as P_R, where the i in the definiens denotes the *de se* "center", the subject of consciousness, of the attitude.
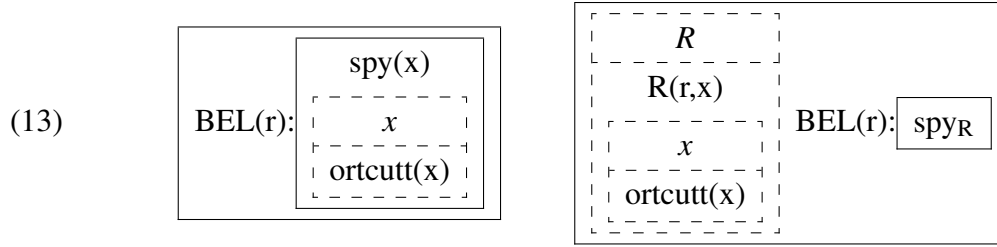
I have argued elsewhere against the standard solution where the syntax of *de re* reporting introduces existential quantification over acquaintance relations, which in turn determine modes of presentation. Instead, in my view, a *de re* report triggers an *acquaintance presupposition* that wants to be bound globally, but can occasionally accommodate or resolve locally.[3]

The next step is to combine this with the insight of 2.1 that *de re* itself comes about by global resolution of a definite presupposition. Technically, the mechanism of acquaintance presupposing is best built into the resolution algorithm:[4] if a presupposition, during its search for an antecedent along its projection path, crosses an attitude boundary, it triggers the introduction of an acquaintance presupposition that will also try to find an antecedent, in this case, an acquaintance relation between subject and *res*. The intuition is that attitudes are a special type of embedding—not only is their model-theoretic semantics intensional, they also affect presupposition resolution in a special way in order to avoid creating 'singular propositions' (responsible for Ortcutt failures).
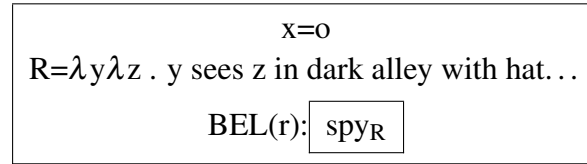
I illustrate the framework with (12b) (details in Maier 2010). First, a definite (the name *Ortcutt*) triggers a presupposition that projects out of its local context. In its projection path it crosses an attitude operator, which triggers the creation of an acquaintance presupposition relating subject and (presuppositional) *res*, and corresponding adjustment of the belief content (*spy(x)* becomes spy_R).

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3 In earlier work (e.g. Maier 2010) I motivate my use of Van der Sandt's representational, dynamic theory of presuppositions, by showing how solving puzzles with quantified and iterated attitudes in particular requires a unified theory of binding and both global and non-global accommodation.

4 Technically, rather different formalizations are possible. For instance, we could try to build acquaintance presuppositions into the preliminary presuppositional representation of all definites (or all definites inside attitudes) in such a way that they would usually resolve trivially and disappear, unless an attitude boundary is crossed. Since this would still require that attitude embeddings treat presuppositions differently than other embeddings, I opt for the most economical option.

(13)

$$\text{BEL}(r): \boxed{\begin{array}{c} \text{spy}(x) \\ \fbox{x} \\ \text{ortcutt}(x) \end{array}}$$

$$\text{BEL}(r): \boxed{\begin{array}{c} \boxed{R} \\ R(r,x) \\ \fbox{x} \\ \text{ortcutt}(x) \end{array}} \quad \text{BEL}(r): \boxed{\text{spy}_R}$$

Now we bind the original *res* presupposition to the contextually given Ortcutt (x=o), and look for a salient perceptual relation between Ralph and Ortcutt as antecedent for R. By a process of higher-order unification (Maier 2006) we can extract from the context the relation of seeing someone in a dark alley with a hat. Binding R to that gives us the proper output, where the belief ascribed to Ralph is that the guy in the alley is a spy:

$$\boxed{\begin{array}{c} x=o \\ R=\lambda y \lambda z \,.\, y \text{ sees } z \text{ in dark alley with hat}\dots \\ \text{BEL}(r): \boxed{\text{spy}_R} \end{array}}$$

3   Two basic routes to *de se*

Equality is an acquaintance relation, so *de se* is a subspecies of *de re* (Lewis 1979). In addition, there are languages where *de se* interpretations can come about by local, *de dicto* resolution of an indexical. In either case it seems no dedicated *de se* syntax is necessary, against the received view.

3.1   Route 1: *de se* as *de re*

Pronouns trigger presuppositions that have to be bound, so *John thinks he's a hero* ascribes to John a *de re* belief about himself. In this case, subject and *res* coincide, so we can get *de se* truth conditions by binding the *de re* acquaintance relation to equality.

   An important constraint on acquaintance resolution says that, whenever subject and *res* coincide, as above, this binding to equality is the preferred option. Only if the context makes available another self-acquaintance relation (e.g. for Kaplan's (2a), *man seen on TV* – who unbeknownst to Kaplan is Kaplan himself) can we bind to that to get the (non-*de se*) *de re* reading.

   With this constraint in place, the presuppositional account is exceptionally well suited to deal with puzzles involving quantified *de re* reports. I illustrate the system by applying it to Anand's (2006) version of Percus & Sauerland's (2003) puzzle involving quantified reports in mixed *de re/de se* contexts.

Let's go back to the ANTM context. Imagine Chelsey, Jane and Ann being shown the results of their latest photoshoot. Chelsey takes a look and sobs, "I can't do it, it's over for me." We can report her *de se* belief as in (14a). Jane and Ann do not suffer such lack of self-confidence. Not recognizing themselves in their photos, but not liking what they see, they each exclaim something like "Ugh, she looks awful! She'll be eliminated for sure!" Without realizing it, Jane and Ann thus express *de re* beliefs about themselves, which we can felicitously report, somewhat tongue-in-cheek, as in (14b-c).

(14) a. Chelsey thinks she'll be eliminated.
      b. Jane thinks she'll be eliminated (but she doesn't realize it).
      c. Ann thinks she'll be eliminated (but she doesn't realize it).

Zimmermann has noted that in such a mixed *de re*/*de se* scenario (15a) is felicitous: intuitively, every girl has a (*de re*) belief that she herself should be eliminated. Anand, following Percus & Sauerland, notes that (15b) is false, because (intuitively) although one might say that Jane and Ann do not have beliefs about themselves, surely we cannot deny that Chelsey thinks she'll be eliminated.[5]

(15) a. Each girl thinks she'll be eliminated.
      b. #No girl thinks she'll be eliminated.

Now Chelsey, the pessimistic one, is indeed voted out, leaving Ann and Jane. In this reduced context, the universal report is still true, but, interestingly the negative report becomes felicitous as well:

(16) a. Each girl thinks she'll be eliminated.
      b. Neither girl thinks she'll be eliminated.

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5 Additionally, we have the following unquantified intuitions (Hotze Rullmann p.c.):
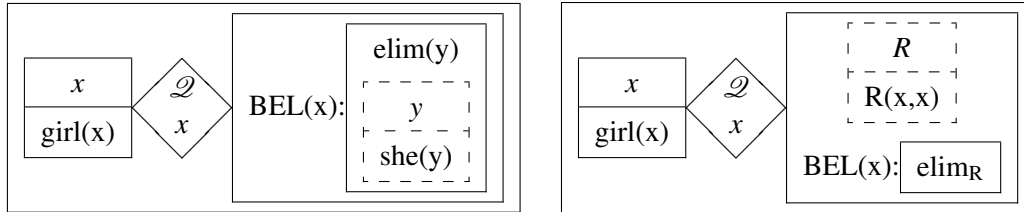
(i) a. #Chelsey thinks she won't be eliminated.
     b. {Ann/Jane} thinks she won't be eliminated.

The acceptability of (ib) is straightforwardly derived by global binding of R to equality, the default resolution. As for (ia), binding to equality does lead to falsity, and there is no other salient self-acquaintance to bind to. However, according to the anaphoric theory of presupposition we should then consider global accommodation. The result would be a rather weak reading: $\exists R [R(c,c) \wedge thinks(c): [\neg elim_R]]$. This is already true if we can find one self-acquaintance under which Chelsey thinks she won't be eliminated. If we add to the scenario that Chelsey looks at another picture of herself which she does not recognize and says, "Well, I will be eliminated, but SHE will not" the global accommodation reading of (ia) would seem to come out true. But then, if the mistaken self-identity is made explicit in such a way, (ia) actually becomes entirely felicitous. In sum, I'm not sure about the felicity conditions of (ia) and whether or not the global accommodation option is problematic (and if so, whether it may be excluded on other pragmatic grounds).
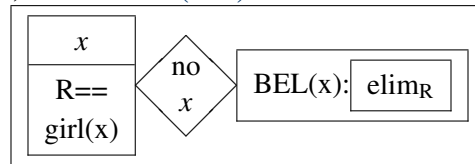
Apparently, *de se* is more than just one among the many possible *de re* reports about the self: all three beliefs in the scenario above are *de re* about oneself, yet only Chelsey's *de se* belief has the power to falsify the negative report.

This is, in essence, what leads Percus & Sauerland (2003) to postulate a dedicated, syntactic *de se* LF: (16b) is true under the 'think-*de se*' LF, but (15b) is false with both the general *de re* LF (for none of the girls there is an acquaintance relation...) and the dedicated think-*de se* LF (none of the girls have a *de se* belief...). Indeed, simply assimilating *de se* to *de re* under the acquaintance of equality cannot give us the truth of (16b).
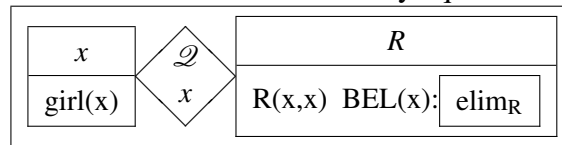
The presuppositional reduction that I propose, however, is slightly more sophisticated than that. It can account for the facts reported above, without postulating a special *de se* LF. The universal sentences follow the following resolution path: the pronoun *she* moves up to get bound by the quantifier, which triggers the introduction of an acquaintance presupposition featuring the quantified variable as subject and *res*. Given this dependence on the non-global quantified variable, it is trapped inside the quantifier:

$$
\boxed{\;\boxed{\begin{array}{c} x \\ \hline girl(x) \end{array}}\;\diamond^{\mathcal{D}}_{x}\; \boxed{\text{BEL}(x):\; \boxed{\begin{array}{c} elim(y) \\ \dashbox{\begin{array}{c} y \\ \hline she(y) \end{array}} \end{array}}}\;}
\qquad
\boxed{\;\boxed{\begin{array}{c} x \\ \hline girl(x) \end{array}}\;\diamond^{\mathcal{D}}_{x}\; \boxed{\dashbox{\begin{array}{c} R \\ \hline R(x,x) \end{array}}\;\; \text{BEL}(x):\; \boxed{elim_R}}\;}
$$

Now we try binding R to equality first. The result is false for (15a,b) and (16a) in the associated contexts, but true for (16b):

$$
\boxed{\;\boxed{\begin{array}{c} x \\ \hline R{=}{=} \\ \hline girl(x) \end{array}}\;\diamond^{\text{no}}_{x}\; \boxed{\text{BEL}(x):\; \boxed{elim_R}}\;}
$$

For the first three we look for other antecedent R's, but given the local trapping, there are none, so we have to accommodate, locally (global is out because of trapping, intermediate accommodation is truth-conditionally equivalent to local in this case):

$$
\boxed{\;\boxed{\begin{array}{c} x \\ \hline girl(x) \end{array}}\;\diamond^{\mathcal{D}}_{x}\; \boxed{\begin{array}{c} R \\ \hline R(x,x)\;\; \text{BEL}(x):\; \boxed{elim_R} \end{array}}\;}
$$

This output is true for (15a) and (16a), but (16b) is still false. At this point we've exhausted the resolution options, and we have established exactly the observed pattern.

To conclude this discussion it would be interesting to compare it with Anand's analysis, for he too denies Percus & Sauerland's conclusion that there is a special

de se LF at work here. In his words, what the data tells us is that the acquaintance relation of equality, i.e. the *de se* "can never be taken off the table." I'm inclined to disagree. Having first established that acquaintance relations are best analyzed as contextually determined, more specifically, as presuppositions (Abusch 1997; Aloni 2000; Maier 2006), it is clear that under contextual pressure, equality can indeed be taken off the table. A simple *de re* report like (2a) or (14b) can be true in a mistaken identity scenario precisely because the equality/*de se* preference gets overruled, under considerable contextual pressure. In my view *de se* is indeed more difficult to ignore than any other acquaintance. In global contexts there is the preference alluded to above. But local contexts, such as a quantifier's restrictor in the examples above, will not often provide sufficient information to extract any meaningful acquaintance relation, so indeed equality then becomes the only option short of accommodation. This works because equality is the 'universal acquaintance': everyone is always self-identical. Binding to equality in a local context does not require anything more than a discourse referent denoting a person, because we can safely assume that everybody is always acquainted with the person she is, as the person she is.
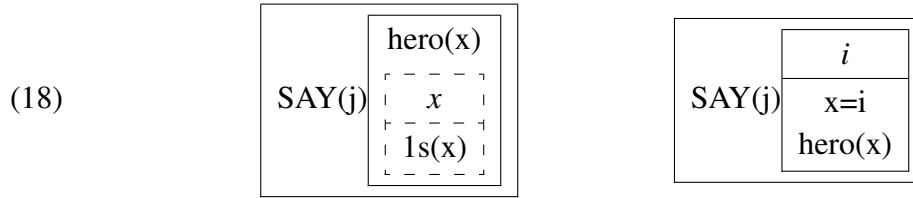
3.2   Route 2: *de se* as *de dicto*

According to Kaplan (1989), English *I* is an indexical and hence directly referential: it always refers to the one who utters it. This is not true in all languages. For example, in Amharic (Schlenker 2003; Anand 2006) and Zazaki (Anand & Nevins 2004), first person forms embedded in attitude and/or indirect speech reports can refer to the attitude holder instead of the actual speaker:

(17)   ǰon ǰəgna nə-ññ   yɨl-all
       John hero be.PRES-1s say-3sm
       'John says he's a hero'   [Amharic, Schlenker 2003]

The phenomenon whereby an embedded first person refers to its local attitude center rather than to the actual speaker is known as 'shifted indexicality'. Crucially, as Schlenker and Anand have shown, shifted indexicals are necessarily interpreted *de se*: (17) is false if John said "That guy on TV is a hero!", without realizing he is pointing at an image of himself. For detailed discussion of these data in light of Kaplan's 'prohibition of monsters', see Anand 2006 and Schlenker 2011.

   Shifted indexicals like the first person in (17) pose a challenge for the route 1 analysis of *de se* as *de re*: *de re* means global resolution of *I*, which gets us only the reading where John is talking about me. In my 2006 thesis I nonetheless tried to force shifted indexicals down the *de re* route. But given the presuppositional analysis of the *de re*/*de dicto* distinction, a much simpler *de dicto* analysis presents itself (cf. Maier 2010). The second route to *de se* then consists in binding shifted Amharic *I*

locally to the implicit attitude center (*i*):

(18)

$$\text{SAY(j)} \begin{array}{|c|}\hline \text{hero(x)} \\ \begin{array}{|c|}\hline x \\ \hline 1s(x) \\ \hline \end{array} \\ \hline \end{array} \qquad \text{SAY(j)} \begin{array}{|c|}\hline \begin{array}{|c|}\hline i \\ \hline x=i \\ \hline \text{hero(x)} \\ \hline \end{array} \\ \hline \end{array}$$

The new data below vindicate the *de se*-as-*de dicto* approach. The argument involves, again, the phenomenon of trapping: if a presupposition triggered inside a larger DP is bound *de dicto* it forces the larger DP to be read *de dicto* as well. Reducing indexical shift to *de dicto* resolution thus predicts that shifting the possessor in (19) leads to a *de dicto* reading of the larger DP, which is pragmatically unacceptable. This prediction is borne out; only the unshifted reading is available:

(19) ləmma ya ask'əyyami-w makina-yə k'ondʒo nəw al-ə
      Lemma that ugly-DEF   car-my   beautiful be.3m say.PF-3m
      'Lemma said that ugly car of {mine/*his} is beautiful' [Amharic, M. Amberber p.c.]

In sum, the second route to *de se* is characterized by an indexical, analyzed as a presupposition, that gets bound by the local attitude center. To make this work we assume these centers to be present in every attitude representation. Finally, to prevent shifted readings for English *I*, every analysis needs to stipulate a crosslinguistically variable 'monster prohibition parameter'. In our framework the most natural place for such a parameter is in the presupposition resolution algorithm: English indexicals must have widest possible scope, while Amharic ones consider local options as well.[6,7]

4 *De se* pronouns

The two distinct ways of deriving *de se* truth conditions presented above exhaust the possibilities offered by standard presupposition resolution: a presupposition triggered inside an attitude can either resolve globally, yielding *de re* (= *de se* if the acquaintance presupposition gets bound to equality), or locally, yielding *de dicto* (= *de se* if the original definite was a first person indexical). In this section we look at another class of *de se* ascription that differs from route 1 *de se* in being unambiguously *de se*, and from route 2 *de se* in involving no first person

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6 This is in line with the growing recognition of a more finegrained distinction between various kinds of presupposition-like projection behaviors (Beaver, Roberts, Simons & Tonhauser 2011).

7 Maier (2009) derives the often observed restriction on indexical shift to attitude contexts from a two-dimensional representation and semantics of direct reference.

indexicals (shifted or otherwise). Eventually, I propose a slight modification of route 1 to capture the data, including a surprising interaction between control and overt reflexives.

4.1 PRO and logophors

De se readings can also come about through the use of dedicated *de se* pronouns. In English we find these in control structures like (2c) (repeated below):

(20)   Pavarotti crede di essere in pericolo.
        ≈ Pavarotti believes to be in danger.

Reports like this are unambiguously *de se*: (20) is false if Pavarotti is watching himself on TV and exclaims, "That guy is in danger!" The *de se* pronoun here is the unpronouced subject of the embedded clause, PRO, which is said to be *controlled* by the matrix subject (a case of what syntacticians call 'obligatory subject control').

In some West-African languages, logophoric pronouns (Clements 1975) appear to be the overt realizations of *de se* pronouns (Schlenker 2003; Anand 2006):

(21)   ó so pé oun   r'i John
        he say that 3sg.LOG see John
        he said he saw John   [Yoruba, Anand 2006:56]

Again, this sentence is only felicitous if the reported utterance was in the first person (e.g. "Hey, I saw John!").

For the purposes of this paper I will disregard putative further examples of *de se* pronouns, such as (some) long-distance reflexives and (some) third person pronouns in dream reports. Moreover, I will ignore the so-called '*de re* blocking effect' (Anand 2006), the apparently syntactic restriction against dedicated *de se* pronouns occurring in the c-command domain of a *de re* pronoun in a report.[8] The point I want to make about *de re* and *de se* pronouns in this paper involves PRO and English reflexives, for which, given the positional restrictions on PRO, the supposed blocking configurations never arise. I will leave it for future research whether and what syntactic restrictions should be incorporated to account for overt *de se* pronouns in other languages and in dream reports.

Given that there are ways to unambiguously express *de se* truth conditions, the question arises, can we somehow assimilate this type of *de se* reporting to route 1 or route 2 derivations, or do we need to postulate an entirely new third route? The

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8 Although the judgments are rather delicate (Anand reports that 10 out of 25 English speakers were not subject to the blocking effect with 'dream report third person *de se* pronouns' at all), Anand uses them to motivate his syntactic third route to *de se*.

latter option is prevalent in the *de se* literature, usually in the form of a syntactic (non-presuppositional) 'shortcut' in which PRO refers directly to, or is syntactically bound by, the attitude center. Below I present a new presuppositional take on the neglected first option: PRO, like *he*, is a third person pronoun that gets bound outside the attitude, creating a *de re* acquaintance presupposition in the process.

4.2 *De se* pronouns and reflexives

First let's discuss some problems for the alternative analyses. A route 2 analysis is refuted by considering the semantic features of PRO and logophors. Unlike Amharic *I* the *de se* pronouns discussed in the literature all seem to agree with their matrix antecedent. For the African logophoric pronouns this is clear: in third person reports, logophors are all glossed as bearing third person features. As for controlled PRO, we can't see its features directly, but we can visualize them by letting PRO bind a local reflexive (cf. Schlenker 2003):

(22)   John hopes PRO to buy {himself/*myself/*herself} a car.

Even if John thinks he's a woman (or hopes to become one), and the reflexive is read *de se* (the preferred but not the only reading, see below), we have to use the masculine, third person form. Now, according to Binding Theory, a reflexive must be bound locally, in this case by PRO. Furthermore, binding requires matching features, so the route 2 analysis, where *de se* is derived from a first person pronoun, cannot work for PRO.

The commonly accepted route 3 is harder to refute. However, the recent interest in constructions like (22), where PRO binds a reflexive, (inadvertently) provides some counter evidence. In the relevant examples a PRO-bound reflexive is interpreted *de re* (Heim 1994; Charlow 2010; Sharvit 2010). Take Charlow's journal editor who doesn't recognize her own paper, but thinks it should be accepted:

(23)   Molly wants PRO to accept a paper by herself.

We can even add a *de re* expressive and use the trapping argument of (19) to reaffirm that *de re* reflexive in these cases still amounts to global resolution:

(24)   Molly wants to publish that stupid old paper of herself.

In this case, Molly doesn't think the paper is stupid, nor does she realize it is her own. If the PRO-bound reflexive were somehow to remain inside the attitude, it would trap the expressive yielding only a nonsensical full *de dicto* interpretation (Molly wants to publish a paper that she believes to be stupid, old and her own).

So, in (23) and (24): (i) PRO is *de se*; (ii) PRO binds *herself*; (iii) *herself* is *de re*; and (iv) *de re* requires global resolution. This is puzzling when you follow a standard route 3 account of *de se* PRO as a nonpresuppositional entity that lives inside the report clause: how come the local PRO doesn't bind and trap the reflexive inside the attitude? To answer this question, existing accounts are forced to modify Binding Theory. After the initial observations and formulations of this puzzle by Heim and Charlow, Sharvit has recently proposed just such a radical modification of Binding Theory. In her revision a special kind of covaluation is stipulated to hold between local, *de se* PRO and global, *de re* reflexive.
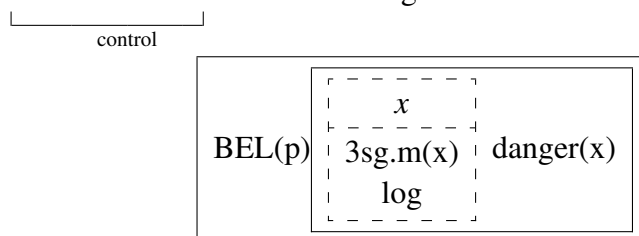
In the next section I propose a more conservative solution which reconciles standard Binding Theory with (i)–(iv). The trick is to handle *de se* pronouns via (a restricted) route 1 derivation.

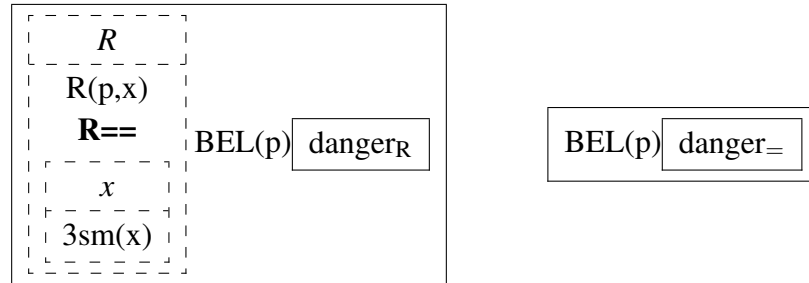## 4.3   Proposal: syntactically restricted *de re* resolutions

The proposal now on the table is that dedicated *de se* pronouns like PRO and African logophors are to be treated essentially like regular third person pronouns. In particular, dedicated *de se* pronouns trigger presuppositions that get bound outside the attitude. The difference is that PRO and logophors bear a feature *log* that tells the resolution algorithm to add a restriction to equality to the acquaintance presupposition that gets triggered by its *de re* resolution. To see how this works we will go through the key examples discussed above.

The starting point of the analysis is that PRO triggers a pronominal presupposition with an additional *log* feature. Its semantic features it inherits from the matrix subject via the syntactic control relation, as brought out by the discussion of (22) above. I assume that establishing the relevant control relation and the subsequent transfer of features from matrix subject (or object) to PRO is a purely syntactic affair. In DRT that means that these mechanisms are built into the construction algorithm. So when the semantic/pragmatic resolution process starts, PRO already bears a third person feature, immediately barring a local route 1 resolution to the belief center:

(25)   Pavarotti believes PRO to be in danger.

The presupposition has to be bound globally/*de re*, to its controller Pavarotti. Cross-

ing the attitude, it triggers the introduction of an acquaintance presupposition. The effect of the *log* feature is to instruct the resolution algorithm that any acquaintance presupposition generated by it carries a restriction to equality. Technically, the part of the algorithm dealing with acquaintance presupposition generation must check for the presence of log-features. Concretely, resolution of the preliminary DRS in (25) proceeds as in (26). We bind x to p and R to = and get exactly the *de se* output.

$$
\boxed{
\begin{array}{l}
\boxed{\begin{array}{l}
\fbox{R} \\
R(p,x) \\
\mathbf{R==} \\
\fbox{x} \\
3sm(x)
\end{array}}\ \text{BEL}(p)\ \boxed{danger_R}
\end{array}}
\qquad
\boxed{\text{BEL}(p)\ \boxed{danger_=}}
$$

At this point, I should follow Anand's (p.c.) suggestion and compare the current approach with a prima facie similar PRO-as-*de re* approach due to Schlenker (2003:95-96) (who in turn credits a suggestion by B. Schein). Schlenker briefly discusses the possibility of analyzing control structures as general *de re* by "simply adding in the logical form a predicate that specifies the nature of the acquaintance relation [so that] 'Smith hopes PRO to be elected' is true if and only if Smith hopes, of Smith, that he should be elected, under the description (the acquaintance relation): 'I'." The feature *log* in the current proposal seems to play precisely the role of such an acquaintance predicate. Beyond this general characterization, however, our proposals diverge substantially. Schlenker splits up the features of PRO: there's a first person feature that gets interpreted locally (like Amharic *I*, i.e. route 1), but gender gets interpreted globally (*de re*, i.e. route 2). In my proposal, this "unsettling" (p.96) feature splitting is avoided: PRO shares all features with its global antecedent. In addition, *log* is interpreted as a resolution restriction on acquaintance relations.[9]

    Now, on to the more interesting examples, involving reflexives. I assume reflexive binding, like control, is taken care of in syntax. In DRT terms, the reflexive's local antecedent is identified during the construction of the preliminary DRS. Note that the construction algorithm now requires modules for establishing both control and local binding relations.

(26)   John hopes PRO to buy himself a car.
                control   binding

    What the data on PRO-bound *de re* reflexives teaches us is that pre-semantic

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9 Nonetheless, my approach does owe a great debt to discussions with Philippe Schlenker.

binding does not preclude projection behavior. In (23), the bound reflexive appears to move up and create an acquaintance presupposition of its own:

(27)   Molly wants PRO to accept a paper by herself.

control   binding

Reflexives, I propose, trigger *syntactically restricted presuppositions*. A reflexive like *herself* triggers a presupposition that must corefer with its syntactically determined local antecedent. The syntactic binding relation sketched in (27) thus ties the reflexive's presupposition to PRO's in the preliminary DRS:

(28)   WANT(m):

$$\boxed{\begin{array}{c} x \text{ publish } y \\ \boxed{\begin{array}{c} x \\ 3sg.f(x) \\ \mathbf{log} \end{array}} \boxed{\begin{array}{c} y \\ 3sg.f(y) \\ \mathbf{y=x} \end{array}} \end{array}}$$

Normally such a restriction leaves little room for the presupposition resolution process, but here the local antecedent is itself a presupposition, so when PRO moves out of the attitude, it drags the reflexive with it. Eventually both end up bound to *Molly*, but not before each has introduced its own acquaintance presupposition:

(29)

$$\boxed{\begin{array}{c} \boxed{\begin{array}{c} R \\ \mathbf{R==} \\ \boxed{\begin{array}{c} x \\ 3sg.f(x) \end{array}} \end{array}} \boxed{\begin{array}{c} R' \\ R'(m,y) \\ \boxed{\begin{array}{c} y \\ 3sg.f(y) \\ \mathbf{y=x} \end{array}} \end{array}} \text{WANT(m)} \boxed{_R\text{publish}_{R'}} \end{array}}$$

Note how the acquaintance presupposition (R) created by PRO is restricted to equality, while that created by the bound reflexive (R') remains unconstrained. This explains why PRO must be read *de se* while the bound reflexive need not be. As with all route 1 *de re* pronouns, there will still be a principled preference for *de se* resolution (cf. 2.2), which we can see operating in (22). In an explicit mistaken identity context like (27), however, this preference will be overruled and we get a *de re*/non-*de se* reading.

   The rest of the derivation is trivial. First bind x to its controller m (in turn bound to the contextually salient Molly). Then we can only bind y to m and R to =. R' will be bound to the salient relation of reviewing a paper of oneself:

(30)

$$\boxed{\begin{array}{c} \text{R'(m,m)} \\ \text{R'}=\lambda x \lambda y. \text{ x reviews paper of y} \\ \text{WANT(m):} \boxed{=\text{publish}_{R'}} \end{array}}$$

This output captures the desired reading: a *de se* PRO with contextually *de re* reflexive. More specifically, from (30) we can read off that Mary's want-worlds are those where the agent/center publishes the paper she just reviewed.

5 Conclusion

The *de re*/*de dicto* ambiguity is best described in terms of presupposition: *de dicto* is local, and *de re* is global resolution of a definite with respect to an attitude operator. The latter case, global resolution, is a little more complicated with attitudes than with extensional operators, in that, whenever a presupposition projects out of an attitude, it leaves behind a local mode of presentation to be resolved by a global acquaintance presupposition linking the report's subject to its *res*.

If subject and *res* coincide, the acquaintance presupposition defaults to equality, which leads to *de se* truth conditions. This is the first route to *de se*. As a challenging test case, I've shown how this pragmatic derivation of *de se* as a subtype of *de re* makes the right predictions in some quantified attitude reports, without resorting to a dedicated *de se* LF.

The phenomenon of shifted indexicality, as found in Amharic and other languages, shows another route to *de se*. I've provided new evidence for an analysis in terms of a local, *de dicto* resolution of the Amharic first person indexical.

A third type of *de se* reports is exemplified by African logophors and controlled PRO in infinitival reports. I proposed an analysis where these *de se* pronouns are treated as regular 'route 1' pronouns, except for the fact that they carry a special feature that tells the resolution algorithm that accompanying acquaintance presuppositions must be equality. This forces the observed unambiguous *de se* interpretation, without the need for deleting the third person features in the semantics.

This analysis of *de se* pronouns leads to a novel solution to a puzzle involving *de se* PRO binding *de re* reflexives. As for reflexives, I assume that they trigger presuppositions that are pre-semantically tied to their local syntactic antecedents. In the puzzle's configuration we then get two presuppositions triggered inside the attitude: the first, PRO, resolves globally, and its acquaintance relation must be equality; the second, the reflexive, is tied to the first and hence must also project to find its antecedent. The acquaintance presupposition generated by this latter resolution, however, is not restricted to equality.

References

Abusch, Dorit. 1997. Sequence of tense and temporal de re. *Linguistics and Philosophy* 20(1). 1–50. doi:10.1023/A:1005331423820.

Aloni, Maria. 2000. *Quantification under Conceptual Covers*: ILLC/University of Amsterdam dissertation. http://staff.science.uva.nl/~maloni/tesi.html.

Anand, Pranav & Andrew Nevins. 2004. Shifty operators in changing contexts. In *Proceedings of SALT XIV*, 1–18. Ithaca, NY: CLC Publications.

Anand, Pranav. 2006. *De De Se*: MIT dissertation.

Bäuerle, Rainer. 1983. Pragmatisch-Semantische Aspekte der NP-Interpretation. In M. Faust, R. Harweg, W. Lehfeldt & G. Wienold (eds.), *Allgemeine Sprachwissenschaft, Sprachtypologie und Textlinguistik*, 121. G. Narr.

Beaver, David, Craige Roberts, Mandy Simons & Judith Tonhauser. 2011. What projects and why. In *Proceedings of SALT XX*, Cornell: CLC Publications.

Charlow, Simon. 2010. De re anaphors. Poster presented at SALT 20. http://www.sfu.ca/linguistics/salt20/PresenterMaterials/Charlow_poster.pdf.

Chierchia, Gennaro. 1989. Anaphora and attitudes de se. In *Semantics and contextual expression*, Dordrecht: Foris.

Clements, George. 1975. The logophoric pronoun in Ewe: Its role in discourse. *Journal of West African Languages* 10. 141–177.

Heim, Irene. 1994. Puzzling reflexive pronouns in de se reports. http://semanticsarchive.net/Archive/mVkNjZlY.

Kaplan, David. 1968. Quantifying in. *Synthese*, 19(1-2). 178–214. doi:10.1007/BF00568057.

Kaplan, David. 1989. Demonstratives. In Joseph Almog, John Perry & Howard Wettstein (eds.), *Themes from Kaplan*, 481–614. New York: Oxford University Press.

Keshet, Ezra. 2008. *Good intensions: Paving two roads to a theory of the de re/de dicto distinction*: MIT dissertation.

Lewis, David. 1979. Attitudes de dicto and de se. *The Philosophical Review* 88(4). 513–543. http://www.jstor.org/stable/2184843.

Maier, Emar. 2006. *Belief in Context: Towards a unified semantics of de re and de se attitude reports*: Radboud University Nijmegen dissertation. http://www.narcis.info/publication/RecordID/oai:repository.ubn.ru.nl:2066/29861.

Maier, Emar. 2009. Proper names and indexicals trigger rigid presuppositions. *Journal of Semantics* 26. 253–315. doi:10.1093/jos/ffp006.

Maier, Emar. 2010. Presupposing acquaintance: a unified semantics for de dicto, de re and de se belief reports. *Linguistics and Philosophy* 32(5). 429–474. doi:10.1007/s10988-010-9065-2.

Percus, Orin & Uli Sauerland. 2003. On the LFs of attitude reports. In Matthias

Weisgerber (ed.), *Proceedings of Sinn und Bedeutung 7*, 228–242. Konstanz.

Quine, Willard V. O. 1956. Quantifiers and propositional attitudes. *Journal of Philosophy* 53. 101–111.

Romoli, Jacopo & Yasutada Sudo. 2009. De re / de dicto ambiguity and presupposition projection. In Arndt Riester & Torgrim Solstadt (eds.), *Proceedings of Sinn und Bedeutung 13*, 425–438. Stuttgart.

van der Sandt, Rob. 1992. Presupposition projection as anaphora resolution. *Journal of Semantics* 9(4). 333–377. doi:10.1093/jos/9.4.333.

Sauerland, Uli. 2001. Correlates of the de re and de se distinction, Presentation at the *Workshop on Bound Pronouns, Comparative Syntax and Semantics of Semitic Languages*. USC.

Schlenker, Philippe. 2003. A plea for monsters. *Linguistics and Philosophy* 26. 29–120.

Schlenker, Philippe. 2011. Indexicality and de se reports. In Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds.), *Handbook of Semantics*, Mouton de Gruyter. https://files.nyu.edu/pds4/public/Schlenker-Indexicality_and_De_Se.pdf.

Sharvit, Yael. 2010. Covaluation and unexpected BT effects. *Journal of Semantics* 28(1). 55–106. doi:10.1093/jos/ffq012.

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