

# Suppositional projects and subjectivity\*

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## 1 Inside, outside, and epistemic state

We are looking down upon the ocean from a cliff. The water is rough and cold, yet there are some swimmers riding the waves. “Just imagine swimming in that water” says my friend, and I know what to do. ‘Brr!’ I say as I imagine the cold, the salty taste, the tug of the current, and so forth. Had he said “Just imagine yourself swimming in that water” I could comply in another way to: by picturing myself being tossed about, a scrawny body bobbing up and down in the foamy waste.” (Vendler, 1982, p. 161)

The quote above sketches rather evocatively an intuitive distinction between two kinds of imagination: an inherently imagistic one (wherein Vendler’s counterpart is an object of visual perception) and an experiential one (informed by the bodily experiences of the counterpart). Vendler doubly avers that these two kinds of imagination are grammatically differentiable – the imagistic one is forbidden in contexts with a PRO (i.e., null) subject. Since the observations of Morgan (1970) and Chierchia (1989), PRO in attitudinal environments has been linked with *de se* ascription,<sup>1</sup> and Vendler’s identification of PRO with necessarily experiential imagination leads to a natural question of how experiential imagination and *de se* ascription are to be yoked.

Since Vendler’s observation, a variety of kinds of *de se* ascription have been advanced. Alongside what might be called the experiential *de se* above, Recanati (2007) and Ninan (2008) have discussed the explicit *de se*, where identification with a counterpart is via some external percept (e.g., recognition of one’s visual form), Higginbotham (to appear) has discussed the thematic *de se*, where reference to the self is via a thematic relation to an event, and Stephenson (2007b) has

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<sup>1</sup>In what follows, when I use PRO, it should be understood as obligatory control in attitude contexts. As is in Chierchia (1989); Landau (2000); Jackendoff and Culicover (2003), there are many instances of control which do not show obligatory *de se* ascription.

discussed the epistemic *de se*, where the modal base of epistemic modals is constrained by the *de se* center’s doxastic state.

From a linguistic perspective, the fundamental question, given the distinctions mentioned above, is how they ramify into constructions and lexical items. Some (e.g., Recanati and Higginbotham) have argued that the sensitivities they diagnose in particular structures point to a deep representational necessity – that, e.g., PRO is inextricably linked with experiential *de se*. In other work, I have tried to show that, ultimately, such connections do not relate PRO and particular readings, but what it means to be *de se* for a particular attitude.<sup>2</sup> Others theorists (e.g., Ninan) argue that the existence of certain readings diagnose a representational deficiency – that our representations of *de se* are too coarse-grained to adequately differentiate the content of attitudinal states. As I will try to argue in this paper, the coarse-grained linguistic representation of *de se* is, in fact, a virtue.

My empirical goal in this paper is to attend to the evidence for *de se* multiplicity that has arisen for suppositional attitudes (e.g. *suppose, imagine, pretend*). Three issues will be considered. The first is the putative contrast in the Vendler quote above, given in (1) below. I will argue that the experiential quality of PRO subjects is merely tendential, contrary to Vendler’s intuition, but in line with Walton (1990).

(1) SUPPOSITIONAL PERSPECTIVE

- a. Just imagine yourself swimming in that water. experiential or imagistic
- b. Just imagine PRO swimming in the water. experiential only

I will then turn to Williams’s (1973) famous Napoleon case (“Imagine being Napoleon”), which has been taken by some to involve a complete sublimation of the self (what Recanati has termed the implicit *de se*). I will argue that this is also merely a tendency, one which is wrapped up in the purpose of a particular act of supposition. This purpose, or, borrowing a term from Williams, “suppositional project” will lead to a concrete analysis of suppositional attitudes as counterfactual updates by the suppositional project.

With the semantics of such attitudes in hand, I will then consider how epistemic perspective is guided in suppositional contexts. The framing puzzle here is Yalcin’s (2007) contrast between epistemic modals and doxastic attitudes (e.g., *believe*), wherein one can say (2a) without pain of contradiction, but not (2b) below.

(2) SUPPOSITIONAL CONTRADICTION

- a. Suppose [it is raining but you don’t believe it is].
- b. # Suppose [it is raining but it might not be].

(2) raises serious problems for an account which grounds the licensing of epistemic modals in *de se* perspective, like that advocated in Stephenson (2007b). Nonetheless, Stephenson (2007b) attempts to use (2) to argue for a further experiential/non-experiential distinction in supposition.<sup>3</sup> Because of how finely articulated the proposal is, I spend some time showing that cannot work.

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<sup>2</sup>Thus, I have argued in Anand (2010) that the peculiarities of *remember gerundives* is a product of what memory *de se* is, not a result of link between PRO and Immunity to Error Through Misidentification (Recanati, 2007) or thematic *de se* Higginbotham (2003).

<sup>3</sup>The spirit of this approach is advocated by, e.g., (Barnett, 2009)

My final point of attention will be the puzzle for *de se* ascription Ninan (2008) notes for suppositionals. Since Lakoff (1972), it has been known that oneiric scenarios can allow for two counterparts to the attitude holder – the dream-self, from whose perspective the dream is experienced (i.e., the implicit or experiential *de se* ) and the bodily counterpart, as in Lakoff’s famous example below.

(3) I dreamed that I was Brigitte Bardot and that I kissed me.

Ninan observes that the agentive character of supposition can render the bodily counterpart *de se* as well, insofar as a conscious suppositional attitude holder is able to, in real time, form a *de se* correspondence with the bodily representation. Consider the minor variant of (3) in (4).

(4) I imagined that I was Brigitte Bardot and that I kissed me.

I will close by arguing that the multiple *de se* puzzle is ultimately not one that language seems sensitive to. That is, it treats (3) and (4) alike, and hence, our semantics for ascription need not be as fine-grained as attitudinal content itself.

## 2 Grammatical connections between *de se* and experience

### 2.1 Inside and outside

Considerable attention in the contemporary literature on imagination has focused on the degree to which imagination is imagistic, experiential, and of the self. In the quotation at the outset, Vendler presents two kinds of self-imagination, one which he identifies with the visual perception of an observer and the other with simulation of the bodily sensations that one would have in the water. Though I called the latter experiential, both are, in fact, sensorial percepts.<sup>4</sup> The main difference is that only in the latter is the percept irreducibly that of the individual involved in the event in question. Following Williams (1973) and Peacocke (1985) these two perspectives will be termed outside and inside, respectively.

On first blush, any connection between outside perspective and *de se* seems questionable, given that the inside perspective aligns closely with typical descriptions of doxastic *de se* as a form of self-location. Further, as Vendler suggests, PRO in imagination contexts seems to track inside perspective rather closely (unlike an overt subject). However, the distinction Vendler draws above is not universally shared. Already in Peacocke (1985) it is noted that for some speakers *imagine being on a horse* admits an outside imagistic interpretation of looking at oneself on a horse. Walton (1990) quite directly argues that outside interpretations are possible:

Imagining *de se* is not always imagining from the inside....When Gregory imagines playing in a major league baseball game and hitting a home run, he may imagine this from the inside, imagine feeling in his hands the shock of the bat connecting with the ball, and so on. But suppose he imagines hitting the home run from the perspective of a spectator in the stands. He visualizes the scene from that point of view, and his imagination of the field includes Gregory as he slams the ball over the center field fence and rounds the bases. (Walton, 1990, p. 31)

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<sup>4</sup>It is this that leads Peacocke’s (1985) General Hypothesis that “to imagine is always at least to imagine, from the inside, being in some conscious state.” Peacocke is crucially not connecting *de se* to experience.

Walton argues that the content of Gregory's imagination is at least "weakly *de se*", insofar as he is aware during the imaginative process that he is watching himself (that is, watching someone who has the same body that he *de se* knows he has). Though I share Walton's intuition, such judgments are not universal. However, I suspect that two issues interfere in his original example: first, he deliberately includes the perspective of a spectator; second, there is a salient inside perspective. Removing any possibility of inside consciousness, as in the examples below (where the counterpart is conceived of as either unconscious or dead), does not seem to result in ungrammaticality:<sup>5</sup>

- (5) Mary imagined being buried, unconscious, under a pile of snow inches away from the rescue team.
- (6) John imagined being mourned only by his poodles after a violent death.
- (7) Ronald imagined receiving an elaborate posthumous centenary celebration.

Importantly, such examples degrade if Mary, John, and Ronald above are not aware they are imagining themselves, answering Recanati's (2007) challenge that Walton's example was not *de se*. I thus take it that Walton was correct to identify such uses as *de se*.<sup>6</sup> As with Walton's example, the cases above are strongly imagistic: the attitude holders are presumably imagining how such events would appear from the outside. But need such examples be encoded in perceptual content at all? Indeed, White (1990) observes that even putative cases of imagination from the inside need not have the experiential qualities that Vendler describes: one may imagine giving up all one has for love without imagining particular experiences; one may simply imagine that certain facts hold (e.g., broken family relations). I suspect that the same is true with Walton scenarios. In (8) below, for instance, I do not believe that the addressee is being asked to imagine witnessing any generic consideration, merely to take it as a point of fact in the imagined scenario. Similarly, Walton asks us to consider imagining having a rare blood type, which again does not seem experiential *per se*.

- (8) Imagine being considered one of the most important theorists after you die.

In sum, while I agree that ordinarily imagination described with a PRO gerundive complement proceeds such that it a) defaults to the inside and b) is imagistic otherwise, I suspect that both of these are simply defaults regarding how we set up imaginative projects. For our purposes, this means that the linguistic representation of *de se* is insensitive to inside/outside distinctions. I will thus assume that for index *i*, the *de se* center AUTH(*i*) simply denotes an individual in WORLD(*i*), but that there is no commitment about whether the center's inside perspective is privileged in any way.<sup>7</sup>

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<sup>5</sup>Though see Nagel for a clear sense that the PRO form with death is obligatorily inside: "for it is just as impossible to imagine being totally unconscious as to imagine being dead, (though it is easy enough to imagine oneself, from the outside, in either of those conditions)" (Nagel, 1971, p. 75).

<sup>6</sup>Vendler famously argues that cases without experiential content are not instances of imagination, but examples of some kind of pragmatic coercion. It is difficult to respond to such an argument, but for our purposes, the *de se* question is sufficient to determine to what extent the *de se* and the experiential necessarily track each other.

<sup>7</sup>There are many complications here I do not understand. My own sense is that self-action predicates (e.g., predicates of self-grooming, facial expression, or experiencer constructions) overwhelmingly favor an inside, experiential interpretation, more akin to a grammatical necessity than a strong preference:

- (i) Imagine {dressing for the party, frowning, feeling jealous, waking up}.

A related question is why the overt gerundive subject changes intuitions so strongly. One likely reason is that they

## 2.2 Imaginative projects

What then are these imaginative projects we set up? The term itself is due to Williams (1973), who compares the content and behavior of two imaginers, both of whom imagine killing the Prime Minister. One imaginer deliberately imagines the P.M. is Lord Salisbury, but the other mistakenly believes Salisbury is P.M. Though the experiential content of their imagination is identical, Williams points out that their projects, their goals in imagining, are distinct. What Williams' example demonstrates is that imaginative content is traceable to both doxastic sources and to the imaginative project. For the accidental Salisbury killer, that Salisbury is P.M. is true in her doxastic alternatives, and it thereby projects into the imaginative content unimpeded. For the deliberate Salisbury killer, the proposition is true in the indices compatible with her imaginative project, but not her doxastic alternatives.

The above suggests that the content of imaginative experience can be understood as form of counterfactual update of an attitude holder's doxastic state by the imaginative project.<sup>8</sup> My goal in this paper is not to argue for a particular counterfactual semantics, so I will make radical simplifications in what follows. I will assume that a doxastic state is a set of worlds that will be denoted by  $DOX_{x,i}$  for attitude holder  $x$  in index  $i$  and that likewise an imaginative project corresponds to  $PROJ_{x,i}$ , the set of worlds determined by the consistent set of propositions that comprise  $x$ 's imaginative project. Then, denoting the operation of belief revision by  $*$ , we have the following denotation for *imagine*.<sup>9</sup>

$$(9) \quad \llbracket \text{imagine} \rrbracket^{c,i,g} = \lambda p_{st} \lambda x. \exists PROJ [\forall i' \in (DOX_{x,i} * PROJ_{x,i}) p(i')].$$

I have assumed that the imaginative project is quantified over, though its quantificational status is in the same murky terrain as *de re* acquaintance relations. Regardless, the imperative *Imagine swim-*

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admit a *de re* reading that the PRO subject does not, but, presumably, in Vendler's initial description, the addressee's *de re* relation would be the same bodily counterpart description I appealed to for a non-inside *de se*. At a purely technical level, they could be distinguished if non-inside *de se* is represented, like inside *de se* in terms of the value of the center of the index, and the overt subject allows a pure *de re* bodily counterpart relation. As in section 4, the *de se* nature in such cases would arise from extra-representational knowledge that people know their own form usually.

There is, however, another possibility that is worth serious consideration. Walton (1990) argues that imagining a proposition, an object, and an event are distinct acts, and that in imagining an object, one constructs a mental image of the object. With that in mind, it is possible that *Imagine yourself swimming* is structurally ambiguous between a gerundive structure and an adjunct modification structure (analogous to: *Imagine yourself – while swimming*), where the latter is actually responsible for imagination from the outside. If this is the case, the relative ambiguity of the overt subject forms would actually follow from the availability of this alternate structure.

This issue is not raised in the body of the text because my intuitions on what follows are highly unreliable, and the limited number of speakers I have consulted are highly divergent. The adjunct modifier structure should not permit extraction from the adjunct as in (7); thus, one should get only an inside interpretation. My sense is that such examples allow an outside interpretation:

- (ii) Who did you imagine yourself smiling at?
- (iii) Off what beach did you imagine yourself swimming?

<sup>8</sup>The idea is hardly not novel; Nagel (1974) and Peacocke (1985) both appeal to our doxastic state as the basis for imaginative experience and Walton (1990) emphasizes how our imaginative experiences are filled out by the “mental furniture” that come from non-occurrent thoughts. Finally, Ninan (2008) describes suppositional attitudes a subset of counterfactual attitudes (which includes verbs of wishing).

<sup>9</sup>Here revision is assumed to operate on states, not bases; this is for reasons of simplification.

*ming in that water* instructs the addressee to construct an imaginative project *PROJ* which, when its content is added to her doxastic state, is contained in the proposition  $\{i' : swim'(AUTH(i'))(i')\}$ .

As the imaginative project is not overtly represented, its nature is not clearly diagnosable from sentential structure, and is ultimately resolvable in cases such as the imperative uses under discussion by attending to contextual relevance: whether one should actively entertain a particular identity of the P.M. or not is ultimately something to be negotiated based upon the conversational purpose of the imaginative project. I suspect that this vagueness is behind much of the controversy surrounding Williams' infamous introduction of *imagining being Napoleon*. Williams himself argued that the only sensible reading for this imaginative project is to reduce oneself to a Cartesian ego, having "no body, past, or character" (Williams, 1973, p. 71) In contrast, Peacocke (1985) argues that imagination's experiential character prevents us from truly imagining being another. Whether or not such cases exist, it is clear that alongside them are more conventional interpretations, wherein *Napoleon* is (pre-theoretically) meant as a stand in for certain properties (e.g., various conquests, policies, etc.). The question I want to raise is whether the Cartesian reading and the property readings are in fact distinct. Given that imaginative projects are not made explicit by sentences alone, asking someone to imagine being Napoleon could induce a range of attendant propositions in the imaginative project about the center (e.g., place of birth, personality, ...). Thus, the Cartesian reading could simply be the result of a long train of distinctions the *de se* self is asked to take up in the imaginative project. For example, consider the sentences below. In (10c), the addressee is being asked to consider being Obama essentially occupationally, as in (10a). But in (10b), in which the addressee is being asked to empathize with a particular decision, she is invited to engage much more fully with Obama's personality. The central point of this triple is that without knowledge of the purpose of the imagination, one cannot track what is to be part of the imaginative project.

- (10) a. Imagine being the U.S. president surveying the Gulf oil spill. What would you do?
- b. Imagine being Obama, surveying the Gulf oil spill. Your slowness to react would come from your desire to assimilate all the facts, no?
- c. Imagine being Obama, surveying the Gulf oil spill. I think that you'd react a bit more quickly than he did, no?

Despite such considerations, there have been attempts to systematically distinguish the Cartesian readings from others. In section 4, we will consider Ninan's (2008) distinct semantic structures for the two readings. Higginbotham (p.c.) has suggested that the Cartesian reading arises in fact from the linguistic structure of arbitrary control, invoked for instances of PRO that appear to be generically bound, as in (11)

- (11) Visiting {one's, your} relatives is rarely rewarding.

Higginbotham's proposal then, is that (12) should be analyzed an instance of (13):

- (12) Imagine being Napoleon.
- (13) Imagine what it would be like if one were Napoleon.

As shown in (11) and (13), arbitrary PRO is capable of binding the generic pronouns *you* and *one*. The account thus predicts that Cartesian imagination should correlate with the appearance of these generic anaphors. The data is mixed. In imperative and modal contexts, this appears to be correct:

- (14) Imagine never knowing one's place in the world.
- (15) ? I asked them to imagine watching one's parents fall out of love.

But in episodic contexts, such forms are systematically bad, despite the ability of episodic contexts to support the Cartesian reading:

- (16) # He imagined never knowing one's place in the world.
- (17) # He imagined watching one's parents fall out of love.
- (18) He imagined being Napoleon.

The patterns above suggest to me that Cartesian readings are not supported by arbitrary PRO as conventionally understood. That generic anaphors are licensed in modal cases of these environments is, as far as I know, a surprise, and one worthy of attention. However, it does not alone explain the availability of the Cartesian readings. Instead, alongside the observations in (10), I suggest that the Cartesian reading is ultimately contextually supported.

Though I have only considered imagination in the present discussion, I assume that supposition in general involves a counterfactual semantics with contextually-supported suppositional projects (consider cases such as *Suppose you are Napoleon*; I believe the same Cartesian readings are possible). This is not to downgrade potential distinctions between supposition, imagination, and pretense, but to emphasize how alike they are with respect the issues on the table in the present paper.

### 3 On the epistemic horizons of supposition

In the previous section, we considered to what extent PRO is linked to a particular type of *de se* perspective in suppositional contexts. In this section, I will take up an inverse question: to what extent is a particular lexical item restricted to the *de se* counterpart's limitations? Our guide through this question, the suppositional puzzle in (2), is ultimately a puzzle about how belief and epistemic modality can come apart. It thus serves as a challenge to systems in which the two are inextricably linked. One such system is that developed in Stephenson (2007a), in which epistemic modals are analyzed as doxastic attitudes with *de se* attitude holders. In order to respond to (2), Stephenson (2007b) and Stephenson (2009) invoke the inside/outside distinction above; to the extent these appeals work, they would potentially provide new evidence for what it means to be *de se*.

Stephenson's approach is couched roughly within the framework of Lasersohn (2005), which was developed to formalize the perspectival information in subjective expressions (i.e., predicates which show sensitivity to some – often unnamed – experiencer), like (19), where the experiencer for *fun* is left implicit.

- (19) The ride was fun.
- (20)  $[[\text{fun}]^{c,i,g} = [[\text{fun for } x_n]^{c,i,g}, \text{ if } g(n)=\text{JUDGE}(i).$

Lasersohn argues that predicates of personal taste (PPTs) like *fun* in (20) are fixed by the novel JUDGE coordinate of the evaluation index, as shown above. In Stephenson (2007a), this system is

extended to epistemic modals. The core idea of this proposal is to treat epistemics as subjective doxastics, as below:<sup>10</sup>

$$(21) \quad \llbracket \text{must} \rrbracket^{c,i} = \lambda p. \forall i' \in \text{DOX}_{\text{JUDGE}(i),i}[p(i)].$$

$$(22) \quad \llbracket \text{believe} \rrbracket^{c,i} = \lambda p \lambda x. \forall i' \in \text{DOX}_{x,i}[p(i)].$$

$$(23) \quad i = \langle \text{center}, \text{world}, \text{time}, \text{judge} \rangle$$

Hence, in contexts where the attitude holder is the judge, these should behave identically. In unembedded environments, this appears to be true (whence cases of Moore's Paradox). The quandary for this proposal raised by (2) is that they do not in suppositional environments. Under attitudinal embedding, Stephenson assumes that the judge co-varies with the *de se* center:

$$(24) \quad \llbracket \text{think} \rrbracket^{c,i} = \lambda p \lambda x. 1 \text{ iff } \forall i' \in \text{DOX}_{x,i}[p(i')], \text{ where } i' \text{ is of the form } \langle x', w', t', x' \rangle, \text{ where } x' \text{ is who } x \text{ self-identifies as in } w'.$$

This amounts to a prediction that epistemics are obligatorily interpreted *de se*. At an intuitive level, this seems accurate, given the paraphrases one might give for the implicit perspectives in the PPT and epistemic modal sentences below:

(25) (John thinks) This food is tasty [for John].

(26) (John thinks) it might be raining [according to John].

Furthermore, the claim is apparently borne out if one tests for a *de re* interpretation. In the example below, we are invited to consider a mistaken self-identity scenario, and, indeed, an epistemic claim from the perspective of Sam *de re* seems deviant.

(27) *Context: Sam lies on camera about water on the moon, and then watches his televised address while drunk (etc.) He thinks to himself, "Wow, that idiot thinks there might be water on the moon. People sure are stupid about science."*

# Sam thinks there might be water on the moon. (Stephenson, 2007b, p. 130, ex. 11)<sup>11</sup>

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<sup>10</sup>The semantics may not be quite identical, given the evidential restrictions on the use of *must*. Note however, that expressions of belief are perhaps equally questionable in cases of direct perception. Consider a situation in which the speaker is standing in the rain.

(iv) It's raining.

(v) [#]It must be raining.

(vi) I believe it's raining.

<sup>11</sup>Stephenson's full scenario (now out of date!): Sam is a spokesperson for NASA who is frustrated at what he sees as a lack of scientific understanding among the general public and, especially, the media. He decides to vent his frustration by announcing false discoveries to journalists in some of his frequent television interviews. He starts small by saying that a black hole has been found 100 light years away, then saying that a new satellite is forming around Mars. Then, on a particularly prominent talk show, he announces that there is evidence of water on the moon. This creates a media frenzy, his supervisors catch on to what he is doing, and first thing the next morning he is fired. In despair and determined to forget his stupidity, he goes home and drowns his sorrows in alcohol. He gets so drunk that when he switches on the T.V. and happens to see a clip of his own interview announcing the possibility of water on the moon, he doesn't recognize the man as himself. He thinks to himself, "Wow, that idiot thinks there might be water on the moon. People sure are stupid about science."

Note, however, that the entire setup of this exercise rests on the assumption that epistemic modals are, in fact, sensitive to the perspectives of individuals. If, instead, they were sensitive to  $DOX_{x,i}$  directly, we would arrive at the same deviance to (27), but without any appeal to an individual necessarily determining the epistemic’s quantificational domain. This is precisely the account that will be advocated for here, in line with Yalcin (2007) as well as antecedents, e.g., Hacquard (2006) Macfarlane (2006), and Veltman (1996).

### 3.1 Inside and outside, revisited

Let us return to the suppositional puzzle, in (1) below. Under a *de se*-judge account, it should be clear why the contrast is unexpected: given that epistemics are simply the judge-sensitive versions of doxastic attitudes, they should behave alike in contexts where the imaginer has *de se* knowledge of herself. Presumably, imperative cases such as those in (2) are instances of such a paradigm.

- (28) a. Suppose [it is raining but you don’t believe it is].  
 b. # Suppose [it is raining but it might not be].

Starting from the assumption that (28a) can be given a semantics that does not create a contradiction, Stephenson proposes that what fouls up (28b) is that the non-modalized clause is actually interpreted as part of the *de se* counterpart’s beliefs. The desired deviance is thus a product of contradictory beliefs. The crucial tool that will effect this split is the inside/outside distinction, here cached out in terms of to what extent a propositional complement’s denotation is sensitive to the judge coordinate of the index – *judge variant* propositions are sensitive to the coordinate, and *judge insensitive* are not:

- (29)  $p$  is *judge variant* [ $JV(p)$ ] iff  $\exists x, j_1, j_2, w, t$  s.t.  $p(\langle x, w, t, j_1 \rangle) \neq p(\langle x, w, t, j_2 \rangle)$ .  
 $p$  is *judge invariant* [ $JI(p)$ ] otherwise.

Judge variance is ultimately reducible to whether any lexical items within the proposition are sensitive to the judge parameter. Minimally, PPTs and epistemics may induce judge variance, but Stephenson (2007b) argues that the licensing of obligatorily controlled PRO is likewise judge dependent. As we shall see this last assumption leads to a problem for the account.

Importantly, however, the embedded proposition in (28a) lacks any such judge sensitive item; it thus is judge invariant, or construed via supposition from the outside. For present purposes, that merely means that the embedded proposition is translated as follows:

- (30)  $\lambda i'.rain'(\text{TIME}(i'))(\text{WORLD}(i')) \wedge$   
 $\forall i'' \in DOX_{\text{ADDR}(c),i'}[\neg rain'(\text{TIME}(i''))(\text{WORLD}(i''))]$

The above says: It is raining in the world of evaluation, but the addressee’s counterpart in that world does not think so.<sup>12</sup>This thus allows for the felicity of (28a).

Recall that adding *might* will render a proposition *JV*, and thus subject to supposition from the inside. As it stands, this will not yield a contradiction for the embedded proposition under consideration. Indeed, the proposition is identical, save the requirement that the supposer is supposed to consider her *de se* beliefs.

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<sup>12</sup>Strictly speaking, the doxastic alternatives will be interpreted relative to an individual read *de se*. It is unclear whether that should make the proposition judge variant, as the relationship between a Quinean center and a *de se* judge is never made absolutely explicit.

$$(31) \quad \llbracket \text{it's raining but it might not be} \rrbracket^{c,i} = \lambda i' \text{rain}'(\text{TIME}(i'))(\text{WORLD}(i')) \\ \wedge \exists i'' \in \text{DOX}_{\text{JUDGE}(i'),i'}[\neg \text{rain}'(\text{TIME}(i''))(\text{WORLD}(i''))].$$

Is this suppositionally possible? At an intuitive level, it would seem that supposition in general allows us to fracture our attention to that of the world under suppositional consideration as well as the beliefs of our identified counterparts. That is, I would submit that the characteristic experiential perspective that typifies supposition from the inside does not necessarily delimit the epistemic horizons of the suppositional project itself – it is quite easy to imagine *being ignorant of your true father's identity* or *obliviously insulting someone*, etc. That is, it is quite possible to adopt the inside perspective of an individual while knowing that she is incorrect. To produce contradiction, Stephenson assumes a quasi-dynamic principle requiring judge-variance before composition.<sup>13</sup>

(32) Local *JV* Requirement:

If  $z$  imagines from the inside that  $p \wedge q$ , then  $z$  must imagine from the inside that  $p$  and imagine from the inside that  $q$ . (Stephenson, 2007b, p. 189)

The operator rendering judge variance amounts simply to interpreting  $p$  as [must  $p$ ]:

$$(33) \quad \llbracket \text{INSIDE} \rrbracket^{c,i} = \lambda p_{s,t}. \forall i' \in \text{DOX}_{\text{JUDGE}(i),i}[p(i')]$$

Given INSIDE, we will derive a contradiction as contradiction of the center's beliefs: in the suppositional project she believes that it is raining and that it may not be raining.

$$(34) \quad \llbracket \text{INSIDE}(\text{it's raining}) \text{ but might not be raining} \rrbracket^{c,i} = \lambda i'. \\ \forall i'' \in \text{DOX}_{\text{JUDGE}(i'),i'}[\text{rain}'(\text{TIME}(i''))(\text{WORLD}(i''))] \wedge \\ \exists i'' \in \text{DOX}_{\text{JUDGE}(i'),i'}[\neg \text{rain}'(\text{TIME}(i''))(\text{WORLD}(i''))].$$

Thus, the system engenders a contradiction, but only by assuming that imagining from the inside must constrain doxastic perspective. Of course, this caveat is true solely when dealing with a *JJ* proposition. Were the first clause in (28b) to have had a judge sensitive item (like another modal, a PPT, or PRO), INSIDE would not have been induced and, presumably, a contradiction would not have arisen. That is, if both clauses contain judge sensitive items, the difference between epistemic modals and doxastics should vanish. It does not. Consider the contrasts below. In (35), both clauses contain subject controlled PRO. Assuming *possibly* functions is judge sensitive, we can replicate the original contrast in these environments. It is possible, however, given the unclarity on the relation between Quinean centers and judges, that PRO is simply co-referent with the judge in attitude contexts, but receives its value from a distinct coordinate of the index. Thus, in (36) the formerly judge invariant clause gains a PPT. Again, we replicate the original contrast between doxastics and modals (note that this example has an overt epistemic modal).

(35) a. Imagine winning the election and thinking you lost.

<sup>13</sup>Saebo (2008) noticed that this is a general problem for index based accounts of judgment, provided they do not employ a local principle to ensure that small clause predicates under conjunction are uniformly *JV*.

(1) John finds the vase beautiful (\*for Mary) and delicate.

Saebo advocates in favor of Stojanovic's (2008) distinguished variable analysis of judgment, which may see type differences. Note, however, that the problems for PRO subjects will persist under this account.

- b. # Imagine winning the election and possibly losing it.
- (36) a. Imagine buying a tasty apple from an elf and thinking that there are no elves.
- b. # Imagine buying a tasty apple from an elf and that there might be no elves.

In essence, the account must somehow produce an implicit *must* on any clause lacking a modal, but the principle in (32) does not suffice. There is one potential repair to the system that would produce the desired contradiction. Stephenson proposes that the inside/outside distinction is actually manifest in two senses of suppositional predicates. Assuming that, the denotation of inside supposition could contain INSIDE, as below:

$$(37) \quad \llbracket \text{imagine}_{\text{inside}} \rrbracket^{c,i,g} = \lambda p_{st} \lambda x. \forall i' \in \text{DOX}_{x,i} [\text{INSIDE}(p)]$$

Assuming transitivity of the doxastic accessibility relation,  $\llbracket \text{INSIDE}(\text{might}(p)) \rrbracket = \llbracket \text{might}(p) \rrbracket$ . However, given what has already been said, it seems questionable to me to assume that inside perspectives force belief; there are many cases where they clearly do not. In what follows, I will suggest that, unfortunately, this is precisely what a system that connects doxastics and epistemics so intimately is forced to do.

### 3.2 On Direct Perceptual Evidence

Stephenson (2009) proposes to alter the denotation of imagining from the inside so that it need not require Local Subjectivization as follows:

$$(38) \quad z \text{ imagines}_{\text{SUBJ}} p \text{ is true iff in all alternatives compatible with what } z \text{ imagines in } w \text{ at } t \text{ there is direct perceptual evidence for } p. \\ \llbracket \text{imagine}_{\text{SUBJ}} \rrbracket^{c,i,g} = \lambda p \lambda z. \forall i' \in \text{IMG}_{z,i} [\text{DPEF}(p)(i')].$$

The content of “direct perceptual evidence for” (DPEF) is not made substantially clearer in this work, but there are several possible properties at issue: the presence of some evidence for a proposition, awareness of the evidence, acceptance of the evidence, and correctness of the evidence. I have summarized these possibilities below:

$$(39) \quad \text{Evidence: there is some perceptual evidence } E \text{ in favor of } p \text{ in } w \\ \text{DPEF}(p)(i) \Rightarrow \exists i' \in \text{EVID}(E)(i) [p(i')]$$

$$(40) \quad \text{Awareness: } x \text{ believes that the evidence is in favor of } p \text{ in } w \\ \text{DPEF}(p)(i) \Rightarrow \exists i' \in \text{DOX}_{\text{JUDGE}i,i} \exists i'' \in \text{EVID}(E)(i') [p(i'')]$$

$$(41) \quad \text{Belief: } x \text{ believes } p \text{ in } w \\ \text{DPEF}(p)(i) \Rightarrow \forall i' \in \text{DOX}_{\text{JUDGE}i,i} [p(i')]$$

$$(42) \quad \text{Veridicality: } p \text{ is true in } w^{14} \\ \text{DPEF}(p)(i) \Rightarrow p(i)$$

We have already observed above that Belief will lead to a contradiction, but at the cost of reducing supposition from the inside to a quasi-doxastic. None of the remaining principles will lead to a contradiction. Let me schematize the results of application of DPEF to (35) above.

<sup>14</sup>This is the only principle that is true for direct perception verbs (Barwise and Perry, 1981); it will not produce a contradiction.

- (43) Imagine winning the election and possibly losing it.
- (44) In imagination alternatives: DPEF ( $\text{win} \wedge \exists\text{-DOX}(\text{lose})$ )
  - a. Belief: DOX ( $\text{win} \wedge \exists\text{-DOX}(\text{lose})$ )
  - b. Evidence: there is evidence that ( $\text{win} \wedge \exists\text{-DOX}(\text{lose})$ )
  - c. Awareness: DOX there is evidence that ( $\text{win} \wedge \exists\text{-DOX}(\text{lose})$ )
  - d. Veridicality:  $\text{win} \wedge \exists\text{-DOX}(\text{lose})$

Clearly, Veridicality has no teeth, since it amounts to the original attitudinal quantification. Evidence suffers from two problems. First, it is unclear if it causes a contradiction. Is there a contradiction if there is evidence for some proposition as well as for someone's belief in that proposition?<sup>15</sup> It does not seem so, though Stephenson argues that such a source of perceptual evidence is rather unimaginable (hence, the seeming contradiction is actually due to such imagistic impossibility). Perhaps such is the case for instances of raining and belief about raining, but I would submit that for certain psychological states, it is quite easy to conceive of evidence for both someone's psychological state and her own opinion of her psychological state. Thus, consider an individual who has an audible tic when she is angry; it seems quite possible to imagine perceptual evidence of her anger and her own sense of her mental state. That is, it is possible to imagine the following:

- (45) Imagine being angry and thinking you're not.

Nevertheless, the use of an epistemic triggers the contradiction again:

- (46) # Imagine being angry and possibly not being angry.

The replication of the doxastic-epistemic contrast suggests that implausibility isn't the source of the infelicity. I believe that a similar argument holds for Awareness as well. First, note that for Awareness to be distinct from Belief, I will assume that belief in the existence of evidence is not equivalent to acceptance of evidence; the latter will lead to a contradiction via Belief. Thus, I will assume that  $\text{Awareness}(p) \leftrightarrow \forall i' \in \text{DOX}_{x,i} \exists ev [\forall i'' \in \text{EVIDENCE}_{ev,i'} p(i'')]$ . In other words, I will treat evidence as providing a quantificational domain for a covert epistemic modal, along the lines of *according to* conversational backgrounds. With that in mind, being aware of (potentially unreliable) evidence of one's mental state and one's opinion of one's mental state is not contradictory for the same reason that such evidence is not contradictory.

The only way that Awareness could engender a contradiction would be by entailing that the *de se* center actually believed the proposition in question, which would reduce to Belief (note again, that we would need some mechanism to differentiate doxastics from modals in such instances). As I have argued above, forcing belief into supposition is undesirable in handling a large number of suppositional contexts, in which the epistemic horizon of the *de se* center is not equivalent to that of the suppositional project itself.

In many suppositional cases, identification with the epistemic perspective of an individual does seem accurate. Stephenson provides the following illustrative examples:

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<sup>15</sup>Though in what follows I assume for the sake of argument that we are hunting for a concrete object or particular perceptual state which simultaneously provides evidence for both the proposition and the belief, such a restriction is too strong, given examples such as *Imagine that it might be raining in California and there might be life on Mars.*

(47) Imagine that it might be raining, but you're not sure.

(48) Imagine that the butler must be the murderer, but you have no way to prove it.

These seem to fit quite naturally with a limited epistemic horizon, such as that enforced by (37). However, while such cases are natural, they do not seem requisite with an epistemic. Consider (49) below, where the uncertainty in (47) has been replaced with incorrect certainty. This is not contradictory, though application of doxastic quantification should render it so.

(49) Imagine that it might be raining, but you're convinced otherwise.

One explanation for these facts would be to adopt Lyons's (1977) objective/subjective distinction for epistemic modality, where the subjective is to be identified with the doxastic state of the judge (or *de se* center), and the objective with the suppositional project. Such flexibility is licensed in the frameworks of Macfarlane (2006) and Yalcin (2007), where epistemics are sensitive to a modal base parameter of the evaluation sequence. Within Yalcin's particular system this would be cached out by replacing the last coordinate of the evaluation sequence not with the imagination alternatives, but with the doxastic alternatives of the *de se* center within each imagination alternative ( $DOX_{AUTH(i'),i'}$ ):

(50)  $\llbracket \text{imagine}_{subj} p \rrbracket^{c,i,S,g} = \lambda p_{st} \lambda x. \forall i' \in IMG_{x,i} \llbracket p \rrbracket^{c,i',DOX_{AUTH(i'),i'},g} = 1.$

(51)  $\llbracket \text{imagine}_{obj} p \rrbracket^{c,i,S,g} = \lambda p_{st} \lambda x. \forall i' \in IMG_{x,i} \llbracket p \rrbracket^{c,i',IMG_{x,i},g} = 1.$

Such an interpretation of the subjective and objective imagination captures the feeling in (47) that the *de se* center's epistemic state is at issue, but without requiring that any embedded propositions are implicitly modalized. However, with this freedom comes a corresponding failure to account for the suppositional contradiction in (2), precisely as the judge sensitive system does: there is no modal in the first conjunct of the embedded proposition, so it will not be evaluated with respect to the information state argument.<sup>16</sup> A similar problematic example is (52) below, which the system would likewise predict to be correct under subjective supposition:

(52) # Imagine that it might be raining, but you're wrong (i.e., it's not).

Instead of proliferating the senses of imagination, in capturing (47) I would like to pursue a similar strategy to that advocated above for Napoleon sentences: make reference to the unmentioned suppositional project. In particular, I would like to argue that the following pragmatic assumption operates as a default in supposition:

(53) DOXASTIC COMPETENCE: If propositional content  $p$  is asserted to hold in index  $i$ , assume the *de se* center knows it (i.e.,  $DOX_{AUTH(i),i} \subseteq p$ ).

The basic intuition behind Doxastic Competence is that unless there is contradictory information, listeners assume that counterfactual updates do not render the *de se* center ignorant. Consider (54) below. Despite the variety of properties one is asked to imagine having, out of the blue, I contend there is a strong sense that the *de se* self is in on the information. Explicit statement that

<sup>16</sup>This system would predict an outright contradiction with objective supposition as well, however.

the *de se* center is ignorant of this information (such as in the case of *not knowing X*) cancels this assumption.<sup>17</sup>

- (54) Imagine being {a plumber, a lottery winner, a descendant of Alexander the Great, surveilled by the government}.

I contend that this is what is responsible for the acceptability of (47) and (49). In both cases, the indicies resulting update by the suppositional project admit an index in which it is raining. However, the two sets differ as to whether the *de se* center in those indicies believes that rain is possible. In (47), the lack of any signal otherwise leads the listener to assume Doxastic Competence as part of the suppositional project. In contrast, (49) explicitly alerts the reader otherwise. Thus, the “subjective” use of the epistemic in (47) is ultimately a matter of filling out certain details of the suppositional project.

Such details aside, I fully endorse Yalcin’s own solution to the suppositional puzzle – like other attitudes imagination simply makes available the same modal base for use by epistemic modals and evaluation of the proposition. The revised denotation for imagine is below:

- (55)  $\llbracket \text{imagine } p \rrbracket^{c,i,S,g} = \lambda p_{st} \lambda x. \exists PROJ [\forall i' \in (DOX_{x,i} * PROJ_{x,i}) \llbracket p \rrbracket^{c,i',g,DOX_{x,i} * PROJ_{x,i}}] = 1.$

## 4 Suppositionals, Counterfactuals, and Multiples

### 4.1 Inside, Multiplied

In section 2, we considered two ways of being construed *de se*, inside and out, but I argued that language is not sensitive to this distinction (at least regarding the licensing of PRO). When coupled with the Cartesian *de se* of imagining oneself as another, this predicts the simultaneous availability of both inside and outside *de se* in the same imaginative project. And indeed, such cases do occur, as in the following variation of Lakoff’s (1972) famous dream example:

- (56) I imagined that I was Brigitte Bardot and I kissed me.

The above sentence seems to most naturally describe an imaginative project in which the attitude holder is aware that she is kissing her own bodily counterpart, and it occurs because, in contrast to dreams, one has conscious access to both one’s doxastic state and the indices of the imaginative experience. However, although the coarseness of *de se* I have been advocating admits both kinds of centers, the representation of indices does not (there is only one center for a given index). In order to capture this, Ninan (2008) proposes to that the center of an index be replaced with a world-dependent assignment.<sup>18</sup> That is, an index is of the form  $i = \langle w, t, g \rangle$ , where  $g$  is a partial

<sup>17</sup>I am being deliberately vague on how world knowledge and relevance interact with Doxastic Competence, in part because the judgments are quite delicate. One reasonable alteration would be to say that hearers assume normal behavior (including knowledge) on the part of counterfactual counterparts. Hence, under a such a view, the likelihood of knowledge about descentance or surveillance would be lower than that of one’s occupation or blood type; consider similarly being asked to imagine *being a diabetic in the bronze age*. If such judgments are reliable, it would suggest that Doxastic Competence is simply a law-like principle of the base world doxastic background, and that the counterfactual updates are done with an eye to not violating these laws (Veltman, 2005).

<sup>18</sup>This will amount to the domain of the embedded DRS.

assignment.<sup>19</sup> Content and accessibility are extended naturally. Propositions are sets of these expanded indices. The content of an attitude is given by a triple of a *matrix index*, a proposition, and an assignment over acquaintance relations, as in  $\langle i, \{i'\}, h_R \rangle$ , where the  $\text{ASSIGNMENT}(i)$  provides all the individuals the attitude holder is acquainted with in  $\text{WORLD}(i)$  and  $\text{ASSIGNMENT}(i')$ ,  $\text{ASSIGNMENT}(i)$ , and  $h_R$  all share domains. Let us assume the convention that  $\text{ASSIGNMENT}(i')(0)$  always maps to the inside center and  $\text{ASSIGNMENT}(i')(1)$  always to the outside center (if present). Then the the embedded clause in (56) above is representable as follows:

(57)  $[x_0 \text{ was B.B. and } x_0 \text{ kissed } x_1]$

This gives rise to the set of indices  $\{\langle w', t', g' \rangle : g'(0) \text{ is Brigitte Bardot in } w' \text{ and } g'(0) \text{ is kissing } g'(1) \text{ in } w'\}$ . While the imaginative indices assign different entities to 0 and 1, for the matrix index  $i = \langle w, t, g \rangle$ ,  $g(0) = g(1) = \text{AUTH}(c)$  (i.e., the attitude holder). Thus, because this theory replaces the center with a structurally richer object, it allows for us to represent the two *de se* selves in imagination. Furthermore, the contrast between an attitude holder who knowingly imagines her bodily counterpart and one who does not can be captured as a distinction in content; only in the latter is  $g(1)$  employed.

Although a theory of mental content may wish to capture such distinctions representationally, I would like to argue that language does not show this type of sensitivity. In particular, I do not believe that in cases such as (56), *de se* from the outside is considered at all. First, I am unaware of any language which possesses a distinct morphological form for imagination from the outside. Many languages possess distinct *de se* anaphora (see Anand (2006) for discussion), but in all such cases the anaphor picks out the inside center alone (in cases such as (56)); the outside center is simply handled pronominally (as far as I know).

We may show something similar in English by considering a *de se* diagnostic that Percus and Sauerland (2003a) introduced. Percus & Sauerland note that while it is possible to quantify over *de se* and non-*de se* readings of pronouns, it is also possible to individuate the *de se* reading alone. Consider the sentences in (58), under a scenario in which both Mary and Susan have dreams of their winning a prize, but only Mary has an inside perspective. In such cases, it is acceptable to quantify over both attitude holders (as Zimmerman (1991) noted), but, interestingly, it is also acceptable to single out the *de se* reading alone, as in (58b).

- (58) Scenario: Mary dreams from the inside that she won the prize. Susan dreams that her bodily counterpart won the prize.
- a. Both Mary and Susan dreamed that they won the prize.
  - b. Only Mary dreamed that she won the prize.

Now, when we switch from dreams to imagination, Susan's bodily counterpart could be *de se* or not; that is, she could be imagining herself from the outside. In such cases, do we see the same sensitivity? I do not believe so, since (59b) is a fair bit worse than (58b).<sup>20</sup>

<sup>19</sup>In what follows, I will elide the technical details of Ninan's theory somewhat (e.g., remove discussion *res* movement) for perspicuity.

<sup>20</sup>It is worth asking how this diagnostic fares with respect to the questions in Section 2. With the scenario in question, I believe we see a strong contrast between true non-*de se* interpretations and the two types of *de se*. However, as shown in (0c), concentrating on Mary's inside *de se* experience is not impossible (especially when contrasted with imagining that), in contrast with Susan's. The acceptability of doing this is only heightened with the experiencer

- (59) Scenario: Mary and Susan both imagine from the inside that they are Brigitte Bardot. Mary imagines that she is kissing herself from the outside. Susan imagines that she is kissing herself non-*de se*.
- a. Both Mary and Susan imagined that they were Brigitte Bardot.
  - b. ?? Only Mary imagined that she was kissing herself.

I take this contrast as indication that the *de se* nature of outside imagination is not relevant in instances with multiple *de se* perspectives. That is, language treats imagination alongside dreaming, and we do not need the power of multiple centers afforded by Ninan's theory. This is not to say that dreams and suppositions are identical – the availability of an outside *de se* in the latter shows that. But I would contend that ultimately this follows from principles outside the attitude itself. During an event of dreaming, we ordinarily understand the attitude holder to be ignorant of her identity in the actual world; it is only upon awakening and recognizing her bodily form that she can reconstitute her experience in terms of her bodily awareness. Thus, she forms an outside *de se* belief in virtue of reflection regarding the content of her perception. This seems relatively uncontroversial. I suggest that imagination is not so far removed from this picture. The distinction is that our conscious awareness of the nature of the actual world may allow us to attend to these percepts in real-time, thereby creating the *de se* component. In a sense, the proposal is that the *de se* character of outside imagination in the cases in question is to be understood in line with why sentences such as *I think that I am the winner*. are necessarily *de se*: it is impossible to knowingly reference oneself in an attitude simultaneous with the speech act in a *de re* fashion.

Although the linguistic evidence for multiple centers is not yet available, there is one additional observation that Ninan makes which argues in favor of, if not multiple centers, an assignment-dependent view of suppositional attitudes. Ninan points out that in counterfactual attitudes such as suppositionals and wishes, it is possible to cancel the relation by which an attitude holder is *de re* acquainted with an individual. Hence, consider Quine's (1953) Ralph, who sees Ortcutt in some dodgy locale, and is acquainted with him by this visual perception (ignore that he is also acquainted with him in another setting). As Ninan points out, it is possible to for Ralph to imagine not being acquainted with Ortcutt *qua* dodgy locale, and for us to report it:

- (60) Ralph imagined never being acquainted with Ortcutt.

As Ninan points out, this is a problem for a descriptive theory of *de re* like that advocated by Kaplan (1969)– since Ralph's imagination indices necessarily cancel the relation by which he ac-

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constructions mentioned above (e.g., consider replacing the predicates with *tasting a delicious truffle*).

- (vii) Scenario: Mary imagines from the inside that she won the prize. Susan imagines from the outside that her bodily counterpart won the prize. Jane imagines that her bodily counterpart won the prize.
- a. # Mary, Susan, and Jane all imagined winning the prize.
  - b. Only Mary and Susan imagined winning the prize.
  - c. Both Mary and Susan imagined **that** they won the prize, but only {?Mary, #Susan} imagined **winning** the prize.

If these judgments are reliable, they suggest that there is an asymmetry between inside *de se* and outside *de se*, but not one clearly connected with a particular morphological form. One clear possibility is that, as Stephenson suggests, there is a distinctly subjective *imagine*, which is necessarily experiential. This predicts that properties which resist an experiential perspective (e.g., *having an undiagnosed aneurism*, *having a long-lost sister*) will show less sensitivity to *only* quantification.

quainted with Ortcutt, how can there be a relation which connects them in the imaginative indices? Ninan proposes that the assignment-based indices above can furnish a solution to this problem. The idea is essentially to stipulate a connection between mappings given by  $\text{ASSIGNMENT}(i)$  and  $\text{ASSIGNMENT}(i')$  so that they correspond in the appropriate way. While mechanistically this is successful in accounting for (60), it obscures the precise nature of the correspondence between the assignments. A comparison with Ninan's two-dimensional account of (60) makes this point somewhat clearer. The idea (as discussed in section 1) is that supposition is anaphoric to a doxastic state. Ninan proposes that suppositional content is two-dimensional, involving pairs of doxastic alternatives and their corresponding suppositional alternatives. Here is Ninan's two-dimensional theory of *de re*:

- (61)  $x$  imagines *de re* in  $w$  that  $y$  is  $F$  iff there is an acquaintance relation  $R$  such that:
- a.  $x$  bears  $R$  uniquely to  $y$  in  $w$ , and
  - b. every  $\langle\langle x', w' \rangle, \langle x'', w'' \rangle\rangle$  compatible with what  $x$  imagines in  $w$  is such that there is a unique  $y'$  in  $w'$  such that  $x'$  bears  $R$  to  $y'$  in  $w'$ , and  $y'$  is  $F$  in  $w''$

The earlier problem for a descriptivist theory of *de re* is handled by ensuring that: a) the acquaintance relation  $R$  holds in the matrix index and doxastic alternatives but b) that the correspondence between Ortcutt's doxastic counterparts and imagination counterparts is given by transworld identity. Thus, Ninan's account does not lose the descriptivism that underlies *de re* interpretation; it simply ensures that it is evaluated with respect to the underlying doxastic attitude. I believe that this insight is fundamentally correct: in a very real sense, *de re* interpretation should be grounded in an attitude holder's doxastic state, regardless of the kind of attitude it is.<sup>21</sup> The same holds for counterfactuals in general. Consider a *bona fide* counterfactual under a doxastic attitude in (62).

- (62) Ralph believed that if Ortcutt had gotten sick, he would have never seen him.

This too, assuming *Ortcutt* is to be read *de re*, would be problematic for a descriptivist account of *de re*, naively understood. The nested intensional structure results in a doxastic set of indices  $DOX$  and a set determined counterfactual update,  $COUNT$ . Assuming Ralph is acquainted with Ortcutt via the relation  $observe(y, i)$ , which holds iff  $AUTH(i)$  sees  $y$  at the dodgy place in  $WORLD(i)$ . Then *de re* ascription entails that in each index  $i \in COUNT$ , we evaluate  $iy[observe(y, i)]$  in place of *Ortcutt*. However, in  $COUNT$  this definite description will fail to denote. One natural reply is to interpret Ortcutt *de re* with respect to the doxastic attitude, and hence interpret the definite description with respect to  $DOX$ . A similar move is advocated by, e.g., Percus (2000) for the analysis of definite descriptions in unembedded counterfactuals such as (63). Percus' proposal is that in such cases the definite is evaluated with respect to the matrix index  $i@$ .

- (63) If the person I saw in the bar had been sick, I wouldn't have seen him.

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<sup>21</sup>Based on (64), I will develop something functionally more complex. However, if (64) can be explained away, it would suggest that *de re* interpretation in general could be radically simplified: in place of requiring that the acquaintance relation be satisfied in the attitude index, we would require it to be satisfied in the doxastic index that generates the attitude index. For non-counterfactual bouletics, the problem in (60) does not arise because there is a point in time in each bouletic index corresponding to the attitude holder's now at which the relation in question holds. However, note that this follows precisely because it also holds in the attitude holder's doxastic alternatives.

What differentiates (60) from (62) and (63) is that the “higher” index is not syntactically available. Ninan’s two dimensional analysis in (61) may thus be understood as the lexical encoding of the strategy one would naturally pursue in (62). What unifies all of the above accounts is how they handle counterparts in the counterfactual indices – they simply assume identity across doxastic indices and corresponding counterfactual indices. In this sense, they are all Russellian in treatment of *de re*, at least inside counterfactual environments. Quine’s double identity cases were designed to show that such simple-minded analyses could not deal with instances in which an individual has two distinct correspondents in an attitudinal state. The same is true for counterfactuals, including suppositional contexts. Suppose that Ralph learns that his two vivid characters are in fact the same individual. Then he may, in fact, imagine that they are not:

- (64) Ralph imagined that the man in the bar and the man in the opera house were different people, and that he was acquainted with neither of them.

This replicates the puzzle for (60). Note that the problem here is not for an assignment-based view *per se* – one could have the two descriptions above represented by distinct variable indices that were then assigned to the same individual in each doxastic index. The problem is that in the imagination indices, we can no longer simply assume identity with some individual provided by the doxastic assignments; we need a correspondence between the assignments provided by *DOX* and those provided by *COUNT*.

In the case of doxastic attitudes, that correspondence is provided by acquaintance relations. For counterfactuals, it is much harder to provide a satisfying account of transworld counterparts (see Arregui 2009 for some discussion on this issue). Counterparts in counterfactual environments are in part stipulative – I may imagine that one of my vivid characters is stripped of all of her essential properties and still wonder what she would be like. The process of my counterfactual reasoning itself is responsible for the notion of identity.<sup>22</sup> I suggest that the stipulation at the heart of Ninan’s proposal is ultimately reducible to this – counterfactual identity *is* (at our level of understanding) determined via stipulation, is sharp contrast to identity across a doxastic attitude. With respect to suppositionals, some component of the theory must capture that stipulation. In Ninan’s semantics, that component is the notion of compatibility with what is imagined. But we may be more explicit about it. *De re* interpretation à la Kaplan involves the presence of an acquaintance relation  $R(x, i)$  which uniquely specifies the *res* in the index of evaluation; as we saw above, this can be understood in terms of an individual concept,  $f_R = \lambda i. \iota x R(x, i)$ , picking out the individual in a given index which matches the relation. Following Percus and Sauerland (2003b); Anand (2006), we may represent this compositionally by embroidering logical forms with a “concept generator” function  $G$  that delivers the appropriate acquaintance relation for a given individual the attitude holder is acquainted with. This is schematized below:

- (65) a. Ralph believes that Ortcutt is a spy.  
 b. Ralph believes that  $G_{dox}(\text{Ortcutt})$  is a spy.  
 c.  $G_{dox}(\text{Ortcutt}) = f_{dodgy} = \lambda i. \iota x [\text{AUTH}(i) \text{ sees } x \text{ in } \text{WORLD}(i)]$

Although the individual concepts delivered are cached out in terms of comprehensible acquaintance relations, there is nothing about the system that forbids stipulation; that is, there is nothing

<sup>22</sup>This is, in essence, Kripke’s (1980) argument that transworld identity may be stipulated in cases of modal reasoning.

preventing the individual concept from being a mapping from indices to individuals which cannot be given a closed form representation like  $f_{dodgy}$ .

- (66) a. If the person I saw in the bar had been sick, I wouldn't have seen him.  
 b. If  $G_{count}$ (the person I saw in the bar) had been sick, I wouldn't have seen him.

$$c. G_{count}(\text{the person I saw in the bar}) = \begin{bmatrix} i_1 \mapsto a_1 \\ i_2 \mapsto a_2 \\ i_3 \mapsto a_3 \\ i_{@} \mapsto m^{23} \end{bmatrix}$$

Given such an analysis, the logical form for (62) would involve composition of the two types concept generators above (note that  $G_2$  below stipulates based upon Ralph's doxastic alternatives):

- (67) Ralph believed that if  $G_{count}(G_{dox}(\text{Orcutt}))$  had gotten sick, he would have never seen him.

Correspondingly, I would like to propose that the concept generator  $G_{sup} = G_{count} \circ G_{dox}$  is what is employed in supposition. Like the counterfactual  $G_{count}$ ,  $G_{sup}$  has a stipulative component, responsible for connecting doxastic and suppositional counterparts. Thus, for each suppositional index  $i''$ ,  $G_{sup}(\text{Orcutt})(i'')$  will pick out what  $G_{count}$  maps  $G_{dox}(\text{Orcutt})(i')$  to for some doxastically accessible index  $i'$ :<sup>24</sup>

- (68) For a given attitude holder  $x$  in index  $i$ ,  
 $G_{sup}(y) = f_y$ , s.t.  
 $\forall i'' \in DOX_{x,i} * PROJ_{x,i}[f_y(i'') = \iota y'' \exists i' \in DOX_{x,i} G_{count}(G_{dox}(y)(i'))(i'') = y'']$

While the above may seem monstrous, I take it as an unpacking of hidden components of Ninan's own analysis. And in that unpacking, what I have been arguing is that the assignment-based view of indices is not, in fact, the solution to the *de re* puzzle in (60); rather, that comes from the fact that the correspondence between assignments is stipulated, something that we independently acknowledge is a component of counterfactual modality. I believe that Ninan is very much correct that (60) is a problem for a purely acquaintance-based account of *de re* attitudes. The problem, however, is not that the representation of indices is too impoverished. Indeed, Ninan's assignments may be seen as the range of concept generators, and in that sense the systems are almost expressively equal.<sup>25</sup> The extension to previous systems that Ninan provides, then, is actually the stipulative component that arises for counterfactuals in general.

## 5 Conclusion

In this paper I have argued for a distinction between the content of suppositional attitudes and suppositional attitude ascriptions. Despite the range of ways in which we can be *de se* acquainted with ourselves, I have argued that natural language does not make fine distinctions. It is important

<sup>23</sup>Where  $m = \llbracket \text{the person I saw in the bar} \rrbracket^{c,i,g}$ .

<sup>24</sup>If we assume that individuals are world-bound, then the existential is enough to guarantee uniqueness. If we do not, then we will need to constrain the quantification to only consider doxastic indices  $i'$  accessible to the imaginative index  $i''$ .

<sup>25</sup>Note that a single concept generator cannot handle double identity cases, as there are two concepts for a given individual. A quantificational generalization of the approach presented here can, however.

in closing to make clear that I am not claiming that such distinctions cannot be represented linguistically at all, merely that the representation of *de se* itself is not sensitive. To appreciate this, consider the sentence below:

(69) Imagine what it would feel like to swim in the water.

In this case, I agree that imagination from the outside is not possible, as can be seen by considering the cases from section 2. To the extent that (70) is acceptable, it seems to require consciousness after death.

(70) # Imagine what it would feel like to receive an elaborate posthumous centenary celebration.

The responsibility for this difference is the clearly experiential predicate *feel*, which forces an inside interpretation (along with constructional co-indexation of the controller of PRO and the implicit feeler). Thus, necessarily inside interpretations are not forbidden by natural language, they are simply not the product of what is responsible for *de se* reference. In that light, the fact that *imagine* does not force an inside *de se* perspective is perhaps a lexical quirk; there could be, lurking in some corner of the grammar, a counterpart lexical item that targets experience directly, something rather like *remember*.

I have argued that the counterfactual nature of supposition is responsible for two of the oddities previously mentioned – the ability to sublimate oneself to a Cartesian ‘I’ and their violations of a simpleminded descriptivist theory of *de re*. In considering the latter, I suggested that cases of simultaneous inside and outside *de se* should be understood as arising from the spectatorial quality of supposition (Williams, 1973), wherein one reflects on a certain content. This view ultimately admits a view of supposition that I believe fits better with its apparent flexibility, allowing, as Walton mentions, a movement back and forth between perspectives. Consider the following fictitious discourse:

(71) I imagined being celebrated posthumously on my 100th birthday, becoming the subject of a lengthy documentary project. I imagined making my film, then reviewing it, appreciating how well I captured my optimism. I imagined sitting down with me for an interview, quizzing me about my knowledge of my policies, watching the interview at home, remembering how much I liked my previous work, and buying tickets to see the film in my hometown.

This discourse does not strike me as incoherent in anyway, though it does involve a succession of shifts of inside perspective, all the while allowing seeming *de re* reference. But, assuming that there are distinct inside and outside centers, the former of which results in losing any clear notion of oneself, how can we explain the ability to use a first person pronoun to refer back to a previous imagistic experience? In contrast, if we assume each perspective shift is a novel counterfactual update, the use of the 1st person pronoun throughout is simply traceable to a series of stipulated correspondences between the center before an update and an individual in an index post update. That is, all uses of *I* are licit because there is a way of tracing the correspondent in each counterfactual index back, via a center or not, to the attitude holder herself. What remains for the above analytical sketch is to make good on a key desideratum of the proposal advanced here: to provide

a clear account of what it means for a centered index to update in a way that shifts centers. My operating assumption has been that it should function alike with temporal shifts, but this assumption merits critical scrutiny.

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