

## Careful What You Wish

Dilip Ninan has raised a puzzle for centered world accounts of de re attitude reports extended to accommodate what he calls “counterfactual attitudes.” As a solution, Ninan introduces multiple centers to the standard centered world framework, resulting in a more robust semantics for de re attitude reports. However, while the so-called multi-centered world proposal solves Ninan’s counterfactual puzzle, this additional machinery is not without problems.

In **Section 1**, I present a standard centered world treatment of attitude reports with applications to de se, de dicto, and de re attitudes. In **Section 2**, I introduce the extension of this account to counterfactual attitudes which Ninan targets with his puzzle. I then pose the counterfactual puzzle and present Ninan’s multi-centered world solution, emphasizing similarities and differences between multi-centered and centered world accounts of attitude reports. In **Section 3**, I argue the counterfactual attitude *wishing* falls under the purview of the multi-centered proposal, but that the proposal generates false predictions for certain plausible wish reports. I canvass responses, ultimately concluding Ninan’s proposal requires substantial revisions.

### **Section 1: Centered Worlds and Counterfactual Puzzles**

In this section, I motivate and present the standard centered world account of belief, illustrating how centered worlds are used to characterize de se and de dicto beliefs, and when supplemented with acquaintance relations, de re beliefs. While not a full presentation of the centered world account, features presented suffice for generating the counterfactual puzzle of **Section 2**.

#### *Centered Worlds and Attitudes De Se*

Lois Lane may believe she has brown hair, that some inhabitant of Metropolis is a supervillain, and that her coworker Clark Kent is, among other things, not very strong.<sup>1</sup> One tradition in the philosophy of language treats the content of beliefs of agents like Lois as sets of

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<sup>1</sup>I stick with belief as a paradigmatic propositional attitude in **Section 1** and **Section 2**, but everything I say about belief can be transposed to desire; desire is discussed in detail in **Section 3**.

possible worlds compatible with what the agents believe.<sup>2</sup> David Lewis famously argued mere sets of possible worlds were too coarse-grained to adequately characterize the contents of agents' *de se* beliefs, or beliefs "about oneself when one thinks of oneself in a characteristically first-person way."<sup>3</sup> Lewis, building on the possible worlds tradition, proposed a more fine-grained treatment of belief content – as sets of compatible *centered worlds*, which are ordered triples  $(w', t', x')$  consisting of a world  $w'$ , time  $t'$ , and an individual  $x'$  existing at that world and time who represents the believing agent. Many contemporary semanticists have followed suit, at least in spirit.<sup>4</sup>

Lewis's centered world treatment of *de se* belief can be illustrated by considering Lois's belief about herself at time  $t$  in world  $w$  that she has brown hair. According to Lewis's proposal, a centered world  $(w', t', x')$  is *compatible* with what Lois believes at  $t$  in  $w$  just in case  $x'$  has at  $t'$  in  $w'$  all the properties Lois believes *de se* she has at  $t$  in  $w$ . For example, a centered world  $(w', t', x')$  where  $x'$ , the representative of Lois at  $t'$  in  $w'$ , has brown hair, is compatible with Lois's belief at  $t$  in  $w$  that she has brown hair. Compatible centered worlds form the content of Lois's belief, which is a set of centered worlds called a *centered proposition*. If Lois believes she has brown hair at  $t$  in  $w$ , then every centered world  $(w', t', x')$  compatible with what Lois believes at  $t$  in  $w$  is such that Lois's representative  $x'$  has brown hair at  $t'$  in  $w'$ , and the content of Lois's belief is the centered proposition, or set of centered worlds:

$$(1) \{(w', t', x') \mid x' \text{ has brown hair at } t' \text{ in } w'\}^5$$

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<sup>2</sup>See (Hintikka, 1962) and (Stalnaker, 1984) for influential proponents.

<sup>3</sup>See (Lewis, 1979) for the initial presentation; (Ninan, 2012a, pg. 1-16) for summary, and (Ninan, 2012b, pg. 2) for the description of *de se* attitudes quoted here.

<sup>4</sup>See (Liao, 2012) and (Holton, 2015) for discussion. Notably absent are Lewis's claims that: (i) all beliefs and desires are ultimately *de se*; (ii) to bear an attitude to content is to self-ascribe properties (Lewis, 1978, pg. 156); and (iii) attitudes are functions over possible objects (credence functions for beliefs; value functions for desires). See (Lewis, 1981) for the details of (iii). Of the three, (iii) should, perhaps, be included in the Lewis-inspired treatment of attitudes presented here, but I ignore this detail in what follows as orthogonal to the main argument.

<sup>5</sup>I represent propositions set-theoretically, to be read: A world, time, and individual such that the individual has (a given property) at that time and world.

A centered proposition is true at a centered world  $(w', t', x')$  just in case  $(w', t', x')$  is a member of the centered proposition, and Lois believes a centered proposition just in case the centered proposition is true at each of the centered worlds compatible with what Lois believes. Hence, (1) is true at a centered world  $(w', t', x')$  just in case  $(w', t', x')$  is a member of (1), and Lois believes (1) at  $t$  in  $w$  just in case every centered world  $(w', t', x')$  compatible with what Lois believes is a member of (1).<sup>6</sup>

Similar remarks apply to other de se beliefs Lois might have.

### *Attitudes De Dicto and De Re*

The beliefs listed for Lois included that some inhabitant of Metropolis is a supervillain, and that Clark Kent is not strong. These beliefs track a standard attitudinal distinction between *de dicto* and *de re* belief, which is reflected in Lewis's centered world treatment of attitudes.<sup>7</sup> The former are, broadly, thoughts agents have about states of affairs, while the latter are thoughts agents have about specific individuals.<sup>8</sup> Lewis observed de dicto attitudes are easily accommodated with centered worlds. To illustrate, the content of Lois's de dicto belief at  $t$  in  $w$  that some inhabitant of Metropolis is a supervillain is the centered proposition:

(2)  $\{(w', t', x') \mid \text{some inhabitant of Metropolis at } t' \text{ in } w' \text{ is a supervillain}\}$

This proposition is true at a centered world  $(w', t', x')$  just in case  $(w', t', x')$  is a member of the proposition, and Lois believes (2) at  $t$  in  $w$  just in case every centered world  $(w', t', x')$  compatible with what Lois believes is included in (2). Other de dicto beliefs Lois has are characterized similarly.

De re attitudes, on the other hand, require something more than centered worlds. To see why, consider that an agent may have multiple distinct de re beliefs about a single individual, and yet these distinct de re beliefs may be in conflict. Lois, for instance, may believe her coworker Clark

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<sup>6</sup>If we also assume Lois does have brown hair at  $t$  in  $w$ , then the centered world  $(w, t, \text{Lois})$  is a member of (1), in which case (1) is true at  $(w, t, \text{Lois})$ , and hence, Lois's belief is true *simpliciter*.

<sup>7</sup>It is worth noting the de dicto/de re distinction could also be illustrated by Lois's belief that some inhabitant of Metropolis is a supervillain (cf. Quine: "Orcutt believes someone is a spy"). I use distinct beliefs for clarity.

<sup>8</sup>More could be said about the distinction between de dicto/de re attitudes. The locus classicus is (Quine, 1956), but see (Mckay & Nelson, 2014) for a summary of current debates.

is not strong while also believing Clark is strong.<sup>9</sup> Suppose Lois sees an individual throwing burglars around with little effort one night, and subsequently forms a belief she might express as “He is strong.” Suppose also that Clark helped Lois move a few weeks earlier, where she saw Clark struggling to lift furniture, and subsequently formed a belief she might express as “Clark is not strong.” If we also suppose Clark and the individual Lois sees throwing around burglars are the same, a problem arises when modeling Lois’s beliefs about Clark with only centered worlds. Every centered world compatible with what Lois believes at  $t$  in  $w$  is such that Lois’s representative believes at  $t'$  in  $w'$  that Clark’s representative is both strong and not strong. Yet, there is no centered world compatible with this belief. Then Lois believes an empty centered proposition, i.e. nothing.<sup>10</sup> This means either Lois correctly reports a belief, but the content of her belief is empty, or Lois incorrectly reports her belief. Neither option is palatable. Hence, centered worlds alone generate false predictions about plausible belief reports.

Motivated in part to solve such problems, Lewis proposed *de re* belief be understood as beliefs about individuals relative to *acquaintance relations*. Lewis thought of acquaintance relations as “relations apt for reliable transmission of information”, where there is causal and epistemic dependence between agents and the objects of their *de re* beliefs.<sup>11</sup> Contemporary views of acquaintance relations, again following in spirit rather than letter, relax these dependence constraints, allowing acquaintance relations to be any relation that underwrites an agent’s ability to have a thought about an object.<sup>12</sup> Examples might include ‘remembers struggling to lift furniture’, or ‘heard of under the name of “Superman”’. Acquaintance relations permit treating agent’s beliefs

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<sup>9</sup>We also assume that Lois is rational, and so does not willingly hold inconsistent beliefs.

<sup>10</sup>(Ninan, 2012a, pgs. 10-11)

<sup>11</sup>(Lewis, 1979, pg. 155)

<sup>12</sup>See (Hawthorne & Manley, 2012) for problems associated with requiring epistemic and causal dependency constraints for acquaintance relations.

about an object as, roughly, beliefs about the object under different ways of thinking of the object. Treating de re beliefs as relativized to acquaintance relations leads to the following:

- (i) An agent  $x$  believes at  $t$  in  $w$  that  $y$  is  $F$ , relative to acquaintance relation  $R$ , iff:
  - a.  $x$  bears  $R$  uniquely to  $y$  at  $t$  in  $w$ , and
  - b.  $x$  believes de se (at  $t$  in  $w$ ) that the thing to which he/she bears  $R$  is  $F$ <sup>13</sup>

Moreover, with acquaintance relations and centered worlds, we can characterize Lois's distinct beliefs about Clark without generating an empty centered proposition. Suppose Lois bears an acquaintance relation  $K$  to Clark, where  $K$  is the relation  $x$  bears to  $y$  iff  $y$  is the unique individual  $x$  sees struggling to lift furniture, with respect to which she believes Clark is not strong. From (i), the content of Lois's belief that Clark (relative to  $K$ ) is not strong is:

- (3)  $\{(w', t', x') \mid \text{the individual } x' \text{ saw struggling to lift furniture at } t' \text{ in } w' \text{ is not strong at } t' \text{ in } w'\}$

Where all of the centered worlds  $(w', t', x')$  compatible with what Lois believes at  $t$  in  $w$  are such that the individual to whom  $x'$  bears  $K$  at  $t'$  in  $w'$  is not strong at  $t'$  in  $w'$ . That is, when Lois believes (relative to  $K$ ) that Clark is not strong she believes the individual to whom she bears  $K$  is not strong. Now suppose Lois bears acquaintance relation  $S$  to Clark, where  $S$  is the relation  $x$  bears to  $y$  iff  $y$  is the unique individual  $x$  sees throwing burglars around with ease, with respect to which Lois believes Clark is strong. The content of Lois's belief that Clark (relative to  $S$ ) is strong is thus:

- (4)  $\{(w', t', x') \mid \text{the individual } x' \text{ sees throwing burglars around with ease at } t' \text{ in } w' \text{ is strong at } t' \text{ in } w'\}$

Where all of the centered worlds  $(w', t', x')$  compatible with what Lois believes at  $t$  in  $w$  are such that the individual to which  $x'$  bears  $S$  at  $t'$  in  $w'$  is strong at  $t'$  in  $w'$ . In other words, when Lois believes (relative to  $S$ ) that Clark is strong she believes the individual to whom she bears  $S$  is strong. Centered propositions (3) and (4) are compatible as there are centered worlds where  $x'$  is

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<sup>13</sup>(Ninan, 2012a, pgs. 11-12).

acquainted with distinct individuals, one  $x'$  sees struggling with furniture and the other  $x'$  sees throwing burglars around with ease. Hence, they may both be included in a centered proposition which Lois believes, i.e. Lois may believe at  $t$  in  $w$  that Clark (relative to  $K$ ) is not strong and that Clark (relative to  $S$ ) is.

More could be added to the centered world treatment of attitudes, but the presentation here of centered world treatments of *de se*, *de dicto*, and *de re* beliefs suffices for our purpose.<sup>14</sup> We turn next to counterfactual attitudes, which lead to trouble for the centered world account.

## Section 2: Ninan's Counterfactual Puzzle and Solution

In this section, I present Ninan's counterfactual puzzle for certain centered world treatments of attitudes, his multi-centered world solution, and multi-centered characterizations of *de se*, *de dicto*, and *de re* attitudes. While not a full presentation of Ninan's account, the presentation suffices for the objections of **Section 3**.

### *Minimal Constraints and the Counterfactual Puzzle*

Lewis's centered world proposal has traditionally been restricted to characterizing propositional attitudes such as belief. Recently, however, Dilip Ninan has posed a puzzle for applications of the centered world account to what he calls *counterfactual attitudes*, such as imagining, wishing, and hoping.<sup>15</sup> Counterfactual attitudes are distinguished from propositional attitudes in that the former are attitudes agents can take towards content they know is false, while the latter are, broadly speaking, attitudes agents may not take towards content they know is false. Lois cannot, for instance, believe she is flying through Metropolis like Superman, while acknowledging she is unable to fly. In contrast, Lois can imagine that she is flying through Metropolis like Superman, while acknowledging she is, in fact, unable to fly in such a manner. Indeed, it seems Lois can imagine

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<sup>14</sup>This includes both content and criticism. See (Cappelan & Dever, 2013) and (Magidor, 2015) for objections to (centered) possible world treatments of attitudes. Ninan's proposal avoids much standard criticism, though a notable exception is the so-called "granularity problem" discussed in **Section 3**.

<sup>15</sup>(Ninan, 2012a, pg. 2)

nearly anything about herself, the world, or others. Ninan's puzzle trades on this somewhat unrestricted nature of the counterfactual attitude imagining, and in particular on de re imagining. Stated simply: straightforward application of the centered world treatment of de re attitudes to de re imagining generates false predictions, since agents may coherently de re imagine content in which acquaintance relations and properties attributed by the imagining agent to the object of her imagining are in conflict.

The point may be illustrated by example. Suppose upon Lois's first acquaintance with Clark she bears one and only one acquaintance relation  $Q$  to Clark, where  $Q$  is the relation  $x$  bears to  $y$  iff  $y$  is the unique individual  $x$  sees standing by the window in her office at the Daily Planet. Plausibly, Lois may have imagined upon meeting Clark that he was flying through the air on the other side of her office window. Then at  $t$  in  $w$ , Lois imagines Clark (relative to  $Q$ ) is flying through the air outside her office window. Applying the centered world treatment of de re attitudes to accommodate Lois's imagining, the content of her attitude is thus:

- (5)  $\{(w', t', x') \mid \text{the individual } x' \text{ sees standing by the window at } t' \text{ in } w' \text{ is flying outside the office at } t' \text{ in } w'\}$

That is, Lois imagines Clark is standing by her window and flying through the air outside her office window. However, since the acquaintance relation  $Q$  directly conflicts with the property Lois imagines Clark to have, there are no worlds compatible with what Lois imagines, i.e. the centered proposition Lois believes is empty. Yet, Lois could plausibly imagine this scenario. Hence, straightforwardly applying the centered world treatment of de re attitudes to imagining generates false predictions for plausible imagining reports.

### *The Multi-centered World Account*

In diagnosing the cause of the counterfactual puzzle, Ninan observes that while the centered world account stipulates representatives at times and worlds that may share little similarity

with the agents and objects of de re attitudes, acquaintance relations nevertheless require a minimal constraint hold between agents and objects across worlds and times compatible with an agent's attitude. For example, on the centered world proposal, Lois and Clark (relative to K) had stipulated representatives at  $t'$  in  $w'$  who may have shared few properties with Lois or Clark, respectively, at  $t$  in  $w$ . Nevertheless, the acquaintance relation K was a relation holding between Lois and Clark at  $t$  in  $w$ , and also between their respective representatives at any world and time compatible with Lois's de re attitude. Ninan identifies this minimal constraint as the cause of the counterfactual puzzle, as Lois may de re imagine that Clark (relative to K) has some property incompatible with K. As a remedy, Ninan recommends removing this minimal constraint when treating counterfactual attitudes. In its place, Ninan proposes expanding the centered world account's stipulation of representatives for agents in centered worlds to permit stipulation of representatives for individuals to whom agents bear de re attitudes.<sup>16</sup> On the centered world proposal when Lois believed something about Clark relative to an acquaintance relation, compatible centered worlds were those centered on Lois's stipulated representatives at each world where each representative bears the same acquaintance relation and attributes the same properties to Clark's representative as Lois does herself. On Ninan's proposal, compatible worlds are those centered on *both* Lois's stipulated representative *and* Clark's stipulated representative at each world, where Lois's representative attributes the same properties to Clark's representative as Lois herself does. Importantly, on Ninan's proposal acquaintance relations play no role in determining representatives in the content of Lois's de re imagining. Rather, representatives of agents and the objects of de re attitudes are stipulated by fiat.

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<sup>16</sup>Extending centered world accounts to multiple centers was anticipated by (Austin, 1990) and (Chalmers, 2003), who take multiple centers to be regions of sensory experience. Ninan, in contrast, understands multiple centers to be external objects. See (Pryor, 2016) for a more recent proposal comparable to Ninan's.

To capture these ideas formally, Ninan treats centers not merely as individuals, but as combinations of individuals and acquaintance relations, called *individual-acquaintance pairs*:

Individual-Acquaintance Pair =<sub>def</sub> An ordered pair  $(y,R)$  such that  $x$  bears acquaintance relation  $R$  to  $y$  at  $t$  in  $w$

For example, Lois's bearing acquaintance relation  $K$  to Clark at some  $t$  in  $w$ , is reflected by individual-acquaintance pair  $(Clark,K)$ . Additionally, since Lois likely bears an array of acquaintance relations to individuals at  $t$  in  $w$ , Ninan introduces the notion of an agent's *acquaintance set*:

Acquaintance Set =<sub>def</sub> A set  $A$  of individual-acquaintance relation pairs is agent  $x$ 's acquaintance set at time  $t$  in world  $w$  iff  $A$  contains all and only those pairs  $(y,R)$  such that  $x$  bears  $R$  to  $y$  at  $t$  in  $w$

Lois may, for example, at  $t$  in  $w$ , bear acquaintance relations  $K$  and  $S$  to Clark, and acquaintance relation  $Q$  to her Daily Planet coworker Jimmy Olson, each represented in her acquaintance set by individual-acquaintance pair members:  $(Clark,K)$ ,  $(Clark,S)$ , and  $(Jimmy,Q)$ , respectively. Members  $(Clark,K)$  and  $(Clark,S)$  reflect distinct ways in which Lois is acquainted with Clark, while  $(Jimmy,Q)$  reflects a way in which Lois is acquainted with Jimmy Olson. In attitudinal content each member of an agent's acquaintance set is identified with a stipulated individual. Ninan captures this idea formally by defining what he calls a *tagging function* from individual-acquaintance pairs in an acquaintance set to the domain of individuals.

Tagging Function =<sub>def</sub> A function  $f$  is a tagging function iff the domain of  $f$  is an acquaintance set, and there is a world-time pair  $(w,t)$  such that the range of  $f$  is included in the set of individuals that exist at  $t$  in  $w$ <sup>17</sup>

As illustration, if we assume Lois's acquaintance set consists only of individual-acquaintance pairs  $(Jimmy,Q)$ ,  $(Clark,K)$ , and  $(Clark,S)$ , and that Lois imagines something at  $t$  in  $w$  concerning Jimmy

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<sup>17</sup>(Ninan, 2012a, pp. 10-11)

relative to Q, and Clark relative to K and relative to S, then the tagging function defined over Lois's acquaintance set may be characterized as the set:

$$(6) \{((\text{Jimmy}, Q), x'), ((\text{Clark}, K), y'), ((\text{Clark}, S), z')\}$$

With Lois's acquaintance set as the domain:

$$(7) \{(\text{Jimmy}, Q), (\text{Clark}, K), (\text{Clark}, S)\}$$

And the set of individuals existing at t in w as the range:

$$(8) \{x', y', z'\}$$

Where  $x'$  is the individual stipulated as representing Jimmy relative to Q,  $y'$  is the individual stipulated as representing Clark relative to K, and  $z'$  is the individual stipulated as representing Clark relative to S.

Definitions in hand, Ninan expands the notion of a centered world to that of a *multi-centered world*  $(w, t, f)$ , which is a triple consisting of a possible world  $w$  a time  $t$  and tagging function  $f$ .<sup>18</sup>

Multi-centered worlds  $(w', t', f')$  are *compatible* with an agents' attitude at  $t$  in  $w$  just in case:

- (ii) The domain of  $f$ :  $\{(y_1, R_1), \dots, (y_n, R_n)\}$  is  $x$ 's acquaintance set at  $t$  in  $w$ ; and
- (iii)  $f'(y_1, R_1), \dots, f'(y_n, R_n)$  stand at  $t'$  in  $w'$  in all the relations that  $x$  imagines at  $t$  in  $w$ , that  $y_1$  (relative to  $R_1$ ),  $\dots$  and  $y_n$  (relative to  $R_n$ ) stand in

With the content of agents' attitudes being a *multi-centered proposition*, a set of compatible multi-centered worlds. Concerning the counterfactual attitude of imagining in particular, an agent imagines at  $t$  in  $w$  a multi-centered proposition just in case all the multi-centered worlds compatible with what the agent imagines at  $t$  in  $w$  are included in the multi-centered proposition.<sup>19</sup> De re imagining is characterized as:

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<sup>18</sup>(Ninan, 2012a, pg. 17)

<sup>19</sup>We might add: if Lois imagines a multi-centered proposition at  $t$  in  $w$ , the Lois's imagining is true *simpliciter* just in case the multi-centered world  $(w', t', f'(\text{Lois}, I))$  is a member of the centered proposition Lois believes. We examine the acquaintance relation of identity, represented by "I", below.

- (iv) An agent  $x$  de re imagines at  $t$  in  $w$  that  $y$  (relative to  $R$ ) is  $F$  just in case every centered world  $(w',t',f')$  compatible with what  $x$  imagines at  $t$  in  $w$  is such that  $f'(y,R)$  is  $F$  at  $t'$  in  $w'$

Thus, Ninan's added machinery permits an intuitive characterization of de re imagining while removing the minimal constraint imposed by acquaintance relations that generated the counterfactual puzzle for centered worlds.

And removing this minimal constraint removes the puzzle, as illustrated by the following example. Consider Lois once again seeing Clark for the first time and only bearing  $Q$  to Clark. Every multi-centered world  $(w',t',f')$  compatible with what Lois imagines at  $t$  in  $w$  is such that Lois's representative sees  $f'(\text{Clark},Q)$  flying outside the office at  $t'$  in  $w'$ . The tagging function  $f'$  evaluates the individual-acquaintance pair  $(\text{Clark},Q)$ , and returns an individual existing at  $t'$  in  $w'$ . Importantly, *acquaintance relations pose no constraint* on the representative of Clark returned by the tagging function. Rather, the individual returned by the tagging function is determined by stipulation. In other words, the pair  $(x',y')$ , where  $x'$  is Lois's representative at  $t'$  in  $w'$  and  $y'$  is returned by the tagging function at  $t'$  in  $w'$ , need have little in common with the pair  $(\text{Lois},\text{Clark})$  at  $t$  in  $w$ . As a result, there are multi-centered worlds compatible with Lois's imagining, i.e. worlds where Lois's representative at  $t'$  in  $w'$  imagines  $y'$  flying outside the office, regardless of  $Q$ . The content of this imagining is:

- (9)  $\{(w',t',f') \mid f'(\text{Clark},Q) \text{ is flying outside the office at } t' \text{ in } w'\}$

Where  $f'(\text{Clark},Q)=y'$ . Since there are multi-centered worlds compatible with Lois's imagining, (9) is non-empty. As this very example was used to present the counterfactual puzzle, this result suggests the multi-centered world proposal avoids the problem.

### *De Dicto, De Se, and Belief*

De dicto attitudes are handled as before on the centered world proposal, modulo the additional machinery, but what of de se attitudes which originally motivated centered worlds?

Ninan introduces the *acquaintance relation of identity* (denoted in what follows by “I”) to characterize the first-person attitudes of agents. Ninan treats de se attitudes as a special case of de re attitudes under the acquaintance relation of identity, where each agent bears this relation uniquely to themselves. The content, for example, of Lois’s de se belief at t in w that she has brown hair is the set of multi-centered worlds:

$$(10) \quad \{(x', t', f') \mid f'(Lois, I) \text{ has brown hair}\}$$

Where each center has brown hair. Similarly, the content of Lois’s de se imagining at t in w that she has red hair is the set of multi-centered worlds:

$$(11) \quad \{(x', t', f') \mid f'(Lois, I) \text{ has red hair}\}$$

Where each center has red hair.<sup>20</sup> What of de re belief? Ninan suggests acquaintance relation constraints should remain as usual when characterizing agents’ de re beliefs.<sup>21</sup> This is plausible, as relaxing acquaintance relations for counterfactual attitudes reflects an intuitive difference between attitudes agents may take towards content they do not know is false, e.g. belief, and content they know is false, e.g. imagining. The multi-centered world proposal then appears to provide a general framework for modeling both beliefs and imaginings which avoids the counterfactual puzzle.

As with the centered world treatment of attitudes, more could be added to the multi-centered world proposal, but the presentation here suffices. We turn next to the counterfactual attitude *wishing*, which leads to trouble for the multi-centered world proposal.

### Section 3: The Unsatisfiable Wish Objection and Responses

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<sup>20</sup>A *prima facie* objection should be deflected here. Given two distinct agents a and b, no multi-centered world compatible with what a believes at t in w is compatible with what b believes at t in w, since I is unique to each acquaintance set. Hence, agents never believe the same content. In response, Ninan claims agents may share the same acquaintance relations (other than I). Let both a and b believe de re of individual s (relative to S) that s is F. Then the multi-centered worlds compatible with what a believes are incompatible with what b believes, but may nevertheless be in the multi-centered proposition:  $\{(w', t', f') : F(s, S) \text{ is } F \text{ at } t' \text{ in } w'\}$  both a and b believe (Ninan, 2012b).

<sup>21</sup>(Ninan, 2012a, pgs. 14-15)

Ninan claims *wishing* is a counterfactual attitude which can be characterized by multi-centered worlds, though he provides neither support for this claim nor analysis of the attitude.<sup>22</sup> Since my objections in this section rely on properly fitting this attitude in the multi-centered world framework, I first distinguish wish reports from *prima facie* related desire reports in terms of use and content, then examine how desires may fit with Ninan’s characterization of propositional attitudes, and wishes with counterfactual attitudes. I next examine plausible wish reports for which the multi-centered world account makes false predictions. Finally, I consider two responses on Ninan’s behalf: rejecting the problematic wish reports as genuine, or accepting them but introducing a “null individual” to his account to accommodate them. I argue neither option is palatable.

### *The Hallmark of Wishing*

Wishing is, perhaps more so than imagining, a poorly understood attitude.<sup>23</sup> “Wish” often appears as a synonym for “desire” in discussions of propositional attitude reports, which is unsurprising as they share similarities concerning both the reports and contents of the reports.<sup>24</sup> Concerning reports: When wish reports follow desire reports with the same content, wish reports are plausibly understood to add emphasis to the desire report, but to otherwise be the same attitude. For example, were Lois to report a desire that she become manager of the Daily Planet, a follow-up wish that she become manager might suggest she is merely repeating her desire report with emphasis rather than reporting a change in attitude. Relatedly, wish reports may plausibly be understood as desires agents take as unlikely to be satisfied. If Lois believed becoming manager was extremely unlikely, for instance, she may nevertheless desire it, but report the desire as a wish to emphasize how unlikely she takes it to be that the desire will be satisfied. Concerning content: It

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<sup>22</sup>Ninan claims dreaming and hoping are also in purview (Ninan, 2012a, p.20; Ninan, 2012b, p.10).

<sup>23</sup>Reviewing the philosophical literature reveals some recent, brief, discussion: (Arpaly & Schroeder, 2013) and (Schroeder, 2004); but see (Menger, 1939), (Wheatley, 1958), (Anscombe, 1957), and (Searle, 1983). Linguistics literature reveals more recent interest, in particular (Heim, 1992), (Percus & Sauerland, 2003), and (Song, 2016).

<sup>24</sup>Discussion of desire as a propositional attitude is also infrequent. See (Braun, 2015; Fara, 2013; Lycan, 2012; Nolan, 2006) for some recent work, though none of these authors distinguishes wishing and desiring as proposed here.

seems mistaken to treat the content of an agent's desire as true or false. More plausibly, the content of an agent's desire is *satisfied* or not.<sup>25</sup> We might similarly say the content of an agent's wish is satisfied or not, as the content of an agent's wish is not truth-apt.<sup>26</sup>

Despite the superficial similarities, there are good reasons to think desiring and wishing are distinct attitudes. First, while desires may be dispositional or occurrent, wishes seem, in every case, occurrent.<sup>27</sup> Presumably, we have any number of desires which we do not occurrently think about, while it seems implausible that we have wishes which we do not occurrently think about. Second, and relatedly, desires seem more closely linked to motivations for actions than wishes. Were Lois to report a desire to become manager at the Daily Planet, one might appropriately ask how she intends to ascend the managerial ladder. If instead, Lois reported a wish to become manager at the Daily Planet, a request for Lois's plan of action may be inappropriate. Desire reports by an agent suggest the agent has a plan in mind to satisfy the desires. Often wish reports suggest the reporting agent has no plan of action in mind to satisfy the wish.<sup>28</sup> Adventurous Lois might wish that she had the ability to fly through the air like Superman without having any plan to satisfy the wish. Third, continuing the preceding point, in some cases a wish report suggests the reporting agent believes there *is no* plan of action they might take to satisfy the wish, i.e. the wish is *unsatisfiable*. Lois might, for example, wish she had asked Clark out for coffee last week, while believing there is no way for this wish to be satisfied. In contrast, were Lois to report a desire that she had asked out Clark last week, we might doubt whether she genuinely believed there was no way to satisfy the desire, since agents seem to desire things they think are at least satisfiable. This feature of desire seems well-described by Hume who writes, "...we are no sooner acquainted with the impossibility of satisfying

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<sup>25</sup>Though common characterizations of desire contents end up treating satisfaction as something like truth. See (Nolan, 2006; Lewis, 1979) for characterizations of desire, and (Lycan, 2012) for discussion of "semantic satisfaction".

<sup>26</sup>More naturally: the content of a wish can be *fulfilled* or not. I stick with satisfaction in what follows.

<sup>27</sup>See (Schroeder, 2015) for discussion of dispositional and occurrent desires.

<sup>28</sup>(Schroeder, 2004) observes certain objections to action-based theories of desire are moot if considered wishes.

a desire than the desire itself vanishes.”<sup>29</sup> Such a claim makes little sense if desires may be for known unsatisfiable content. We could perhaps add to Hume’s claim that we might be acquainted with the impossibility of satisfying a wish, and yet wish nonetheless.

The preceding observations suggest desiring and wishing are distinct, but related, attitudes, and attributing one or the other to an agent may explain certain of that agent’s behaviors.<sup>30</sup> When we attribute a desire to Lois that she become manager of the Daily Planet we mean, intuitively, Lois is disposed to behave in a way that is explained by her having such a desire. If we assume Lois knows she can, in principle, become manager of the Daily Planet, then Lois working late, filling in for coworkers, uttering “I desire to be manager of the Daily Planet”, etc., may be explained by attributing to Lois such a desire. Similarly, when we attribute a wish to Lois that she be able to fly like Superman through Metropolis, we mean, roughly, Lois behaves in such a way that is explained by her having such a wish. Indeed, certain of Lois’s behaviors may be explained even if we assume Lois knows her wish is unsatisfiable, e.g. expressing sadness when discussions turn to superhuman flight, daydreaming about flying through Metropolis, uttering “I wish I could fly through the air like Superman”, etc.

That agents may wish for unsatisfiable content seems a hallmark of the attitude, and sharply distinguishes wishing from the related attitude of desiring. This distinction between these attitudes is even sharper on further reflection. Consider, each of the preceding two examples remained within the realm of logical possibility, though the second was, we may assume, outside the realm of physical possibility for Lois.<sup>31</sup> However, wishing need not be constrained to logical possibility.<sup>32</sup> Out of frustration perhaps, having struggled and failed many times in her life to imagine a round

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<sup>29</sup>(Hume, *Treatise*, Introduction, pg. vii); I read the “impossibility” in the passage to be logical impossibility. See (Brett & Paxman, 2008) for discussion of potential puzzles such a reading raises for Hume.

<sup>30</sup>Ninan motivates imagining similarly, i.e. by explaining behavior (Ninan, 2012a, pg. 1-2). For similar discussion of desire see (Lewis, 1979, pgs. 528-533); for desire and wish see (Arpaly & Schroeder, 2013, pg. 115-116).

<sup>31</sup>More specifically, impossible with respect to the physical laws governing the humans of Lois’s world.

<sup>32</sup>(Menger, 1939) and (Wheatley, 1958) demur, claiming agents are simply confused. As discussed below, I disagree.

square, Lois may simply wish to see such a “naked and brazen” contradiction, rather than continue to struggle to imagine the impossible object.<sup>33</sup> That is, Lois may wish there was a round square while acknowledging her wish is unsatisfiable because such an object is impossible.<sup>34</sup> As above, when we attribute the wish to Lois that she see a round square we mean, roughly, Lois behaves in a way that may be explained by her having such a wish, e.g. daydreaming about the potential fame associated with such an incredible discovery, irritation whenever discussing her failed attempts at imagining such a thing, uttering “I wish I could see a round square on my desk”, etc. The plausibility of this scenario suggests wishing is significantly less constrained than the related attitude desiring.<sup>35</sup>

#### *Wishing as a Counterfactual Attitude*

As indicated above, Ninan counts wishing as a counterfactual attitude, but says little else about it. He says even less about desire. Thus, it is not clear if he would follow tradition and treat desire as a propositional attitude, or if he would buck tradition and treat desire as a counterfactual attitude. I find the dissimilarities above sufficient to distinguish desire and wishing as distinct attitudes, with desire as traditionally understood, and wishing as counterfactual. Ninan’s understanding of propositional and counterfactual attitudes provides a framework in which to make this distinction. For Ninan, what distinguishes propositional attitudes from counterfactual attitudes is whether agents are ignorant or informed with respect to attitude content. Propositional attitudes are attitudes concerning what agents *do not know*, while counterfactual attitudes are attitudes concerning what agents *do know*. When applied to attitudes with truth-apt content, such as belief and imagining, the former are attitudes agents can take towards content they *do not know is false* and

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<sup>33</sup>See (Priest, 2005, pg. 128). Moreover, Lois does not wish to see a line, i.e. round square from the side (Barwise, 1997).

<sup>34</sup>See (Berto, 2012) and (Priest, 2016) for related discussion emphasizing conceiving rather than wishing.

<sup>35</sup>Thanks to an anonymous reviewer at *Philosophia* for urging I clarify the points outlined in this paragraph.

the latter are attitudes agents can take towards content they *know is false*.<sup>36</sup> As observed above, applying this framework to the propositional attitude belief, and the counterfactual attitude imagining gets the right results. For application entails agents may not believe, but may imagine, content they know is false.

Straightforwardly applied to the propositional attitude desire, however, (substituting satisfied/unsatisfied for true/false) entails agents cannot desire content they know is unsatisfied. This does not seem the right result. Lois desires to become manager, at least in part, because she is not yet manager.<sup>37</sup> To accommodate this, we need make only a slight adjustment, treating desire as an attitude agents take towards content they *do not know is satisfied*. This allows agents to desire content they know is unsatisfied, but rules out desiring content they know is satisfied, which seems the right result.<sup>38</sup> Straightforwardly applying Ninan's framework to the counterfactual attitude wishing entails agents may wish content they know is unsatisfied.<sup>39</sup> This characterization falls a bit short of our observations concerning wishing, since plausibly agents may wish *unsatisfiable* content, not merely *unsatisfied* content. Fortunately, Ninan's characterization of counterfactual attitudes leaves room for attitudes agents may take towards content they *know is impossible* or *know is unsatisfiable*, since agents who know content is impossible (unsatisfiable) presumably know the content is false (unsatisfied). Ninan, in fact, examines this feature of his framework while discussing putative imaginings of impossible content, though he ultimately rejects that agents imagine the impossible, claiming it more likely agents are confused over what they take themselves to be imagining.<sup>40</sup> Rejecting that agents genuinely imagine impossible content seems defensible, but there

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<sup>36</sup>The notion of falsity here is falsity *simpliciter*. In other words, an agent may believe at t in w content they do not know is false *simpliciter* at t in w. Similarly, an agent may imagine at t in w content they know is false *simpliciter* at t in w.

<sup>37</sup>See similar observations in (Prinz, 2008), e.g., "...one cannot desire what one believes is already the case."

<sup>38</sup>I have reservations, but desire is not my focus. See (Lycan, 2012) and (Schroeder, 2009), for worries that "semantic satisfaction" is inadequate. My worries about wishing, I think, are similar to Lycan's concerns about desire.

<sup>39</sup>That is, satisfaction *simpliciter*, i.e. an agent may desire at t in w content they do not know is satisfied at t in w. Similarly, an agent may wish at t in w content they know is unsatisfied at t in w, or, as we will see, unsatisfiable.

<sup>40</sup>See (Ninan, 2012a) for discussion.

is no reason to think the rejection applies to *every* counterfactual attitude. Case in point, wishing seems a candidate attitude agents may take towards content they know is impossible, or more appropriately, unsatisfiable, without confusion, as evidenced by our example concerning Lois’s wish for a round square. Indeed, that Lois is not confused about the content of her unsatisfiable wish gains plausibility if we agree with Ninan that agents cannot imagine the impossible, since in the accompanying story Lois’s wish was motivated out of frustration at having tried and failed to do just that. Since it is implausible that Lois is confused over what she takes herself to wish in this scenario, rejecting Lois’s wish for that reason is unmotivated. Moreover, since it is plausible Lois may wish for unsatisfiable content, we take the application of Ninan’s framework to the counterfactual attitude wishing to entail agents may wish content they *know is unsatisfiable*.

*A Puzzle about Wish*

Characterizing the counterfactual attitude of wishing in the preceding manner, however, generates false predictions on the multi-centered world proposal, which may be illustrated by three examples. The first is already familiar, though we make a simplifying assumption for clarity.<sup>41</sup> Suppose Lois at  $t$  in  $w$ , having failed to imagine a round square on several occasions and acknowledging the impossibility of such an object, out of frustration wishes there was such a thing, expressing her wish as: “I wish there was a round square.” This is plausibly read as a de dicto wish for a state of affairs such that there is a round square.<sup>42</sup> Every multi-centered world  $(w', t', f')$  compatible with Lois’s wish is such that there is a round square at  $t'$  in  $w'$ . Hence, the content of Lois’s de dicto wish is:

$$(12) \quad \{(w', t', f') \mid \text{there is a round square at } t' \text{ in } w'\}$$

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<sup>41</sup>In particular, we assume Lois de dicto wishes there was a round square rather than the more complicated de re wish that she sees one, though content of the latter is empty too: Suppose  $S$  is the acquaintance relation  $x'$  bears to  $y'$  iff  $y'$  is the unique individual  $x'$  read of named “Round Square” (cp. Ninan, 2012a, pg. 34; recall,  $S$  may lack causal and epistemic constraints). Then for some  $s$ ,  $(s, S)$  is a member of Lois’s acquaintance set (otherwise, the wish is de dicto). Then the content of Lois’s de re wish at  $t$  in  $w$  is:  $\{(w', t', f') \mid f'(Lois, I)$  sees round square  $f'(s, S)$  at  $t'$  in  $w'\}$ , i.e. empty.

<sup>42</sup>One may prefer a de re reading. This will not help. For the content of Lois’s de re wish at  $t$  in  $w$  that object  $s$  (relative to some acquaintance relation  $S$ ) is round and square is:  $\{(w', t', f') \mid f'(s, S)$  is round and square at  $t'$  in  $w'\}$ , i.e. empty.

However, the multi-centered proposition is empty since nothing is both round and square, i.e. there is no  $y'$  in the domain of individuals such that  $y'$  is round and square at  $t'$  in  $w'$ . Since it is plausible for Lois to wish there was a round square, the multi-centered account generates a false prediction.

Second, suppose Lois spent her years as a graduate student working on Hilbert's program attempting to prove Peano Arithmetic complete. Crushed after Gödel published his incompleteness theorems, and observing she had spent years toiling towards an impossible goal, Lois may legitimately wish her work had been directed at an obtainable target. Lois might express herself as "I wish Peano Arithmetic was complete." This is plausibly read as a de dicto wish for a state of affairs such that Peano Arithmetic was complete.<sup>43</sup> Every multi-centered world  $(w', t', f')$  compatible with what Lois wishes at  $t$  in  $w$  is such that Peano Arithmetic is complete at  $t'$  in  $w'$ . Then the content of Lois's wish is:

$$(13) \quad \{(w', t', f') \mid \text{Peano Arithmetic is complete at } t' \text{ in } w'\}$$

This multi-centered proposition is empty since there is no possible world in which Peano Arithmetic is complete. Yet, this too seems a plausible wish report, where attributing this wish to Lois may explain certain behaviors, e.g. frustration when reflecting on time wasted, fantasizing about how her life might have turned out had she worked towards an achievable goal, uttering "I wish Peano Arithmetic was complete", etc. Since it is plausible for Lois to wish that Peano Arithmetic was complete, the multi-centered world account again generates a false prediction.

Third, suppose Lois at  $t$  in  $w$ , near the end of her life, becomes convinced the world would have been better had she never existed, expressing her conviction as: "I wish I had never existed."<sup>44</sup>

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<sup>43</sup>One may prefer a de re reading as (Cresswell & von Stechow, 1982), who allow agents to bear acquaintance relations to numbers, and perhaps theories. This will not help. For the content of Lois's de re wish at  $t$  in  $w$  that Peano Arithmetic (relative to an acquaintance relation, say,  $P$ ) is complete would be:  $\{(w', t', f') \mid f'(\text{Peano Arithmetic}, P) \text{ is complete and incomplete at } t' \text{ in } w'\}$ , since Lois knows Peano Arithmetic is incomplete. But this is empty.

<sup>44</sup>See (Nolan, 2006) for a similar objection targeting centered world accounts of desire. See (Feit, 2010) and (Turner, 2010) for responses; the latter inspires some of the rebuttal on behalf of Ninan below.

This appears best understood as a de se attitude. Every multi-centered world  $(w', t', f')$  compatible with Lois's de se wish at  $t$  in  $w$  is such that  $f'(Lois, I)$  never existed at  $t'$  in  $w'$ . Then the content is:

$$(14) \quad \{(w', t', f') \mid f'(Lois, I) \text{ never existed at } t' \text{ in } w'\}$$

However, this multi-centered proposition is empty since there is no multi-centered world compatible with the center not existing. For the multi-centered account, compatibility is largely determined by the properties attributed by the agent of the attitude. Since there must be a stipulated representative of Lois in worlds compatible with her de se wish, and noting the attributed property at each evaluated world is that the center never existed, the multi-centered proposition is empty.

However, this seems a plausible wish report, where attributing this wish to Lois may explain certain of her behaviors, e.g. resentment towards her parents, regret when thinking about existence, uttering “I wish I had never existed”, etc.<sup>45</sup> Since it is plausible for Lois to wish that she had never existed, the multi-centered account yet again generates a false prediction.

#### *Replies and Responses*

Ninan might avoid the trouble by rejecting the problematic wish reports as confusions on the part of the agent involved, or might alleviate the trouble by introducing a unique “null individual” into the domain of individuals. I take each in turn. First, much as Ninan rejects putative imaginings of impossible content as cases of agents being confused about what they take themselves to be imagining, Ninan might reject each problematic wish as similarly confused.<sup>46</sup> Concerning Lois's wish that she never existed, Ninan might perhaps respond that Lois is actually wishing she had some other property, a wish the multi-centered world proposal could accommodate. Likewise, when Lois reports wishing Peano Arithmetic was complete or that there was a round square, she is actually wishing for states of affairs within the realm of logical possibility.

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<sup>45</sup>See (Nolan, 2006, pg. 669-671) for detailed discussion of behaviors that may be explained by such an attribution.

<sup>46</sup>An example of imagining impossible content, which parallels those considered by Ninan, would be Lois imagining that she is identical to Napoleon, but Napoleon is not identical to Lois. See (Ninan, 2008, pp.72-73) for discussion.

It is less clear in these latter cases what alternatives Lois may be wishing for, but the point is the same: Lois is mistaken in her reports, so they should not be treated as genuine, and so the multi-centered world proposal should not accommodate them.

To be sure, each of us likely has incompatible beliefs or desires among our entire set of beliefs or entire set of desires at a given time, yet presumably no one explicitly and knowingly believes or desires impossible content.<sup>47</sup> Plausibly, no one explicitly and knowingly imagines impossible content either. Were Lois to report she imagined a round square, skepticism is a natural response. We might wonder what Lois *means* by, for instance, the terms “round” and “square”. Nevertheless, while it may be plausible to reject putative imaginings for impossible content as perhaps confused, I find it much less plausible to reject a comparable wish report for unsatisfiable content for that reason. Were Lois to report a parallel wish that there was a round square, skepticism is not quite so natural a response. Indeed, coupling with Lois’s admitted failures at imagining a round square suggests she is not at all confused about the content of her wish. Parallel remarks apply to Lois’s wish that Peano Arithmetic was complete, and that she had never existed. In the former, assuming the details of the accompanying story suggests Lois, as a student of Hilbert’s program, is well aware of what she wishes. In the latter case, it seems safe to assume Lois knows precisely what she wishes, while adding, perhaps, that she is in an unfortunate state of mind. In none of these examples then is Lois confused about the content of her wish. Hence, rejecting Lois’s wishes for unsatisfiable content on grounds of confusion seems the wrong way to go.<sup>48</sup>

Turning to the second response, Ninan might introduce a null individual to the domain of possible individuals to accommodate the problematic wish reports. Ninan considers introducing a null individual as a potential solution to a different problem. He observes since the multi-centered

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<sup>47</sup>This observation motivates much literature on fragmentation. See (Lewis, 1986) and (Stalnaker, 1984) for early discussion, and (Egan, 2008) and (Greco, 2015) for more recent discussion.

<sup>48</sup>Cp. (Wittgenstein, 1958, pg. 39) – If I claim to imagine King’s College being on fire, it does not make much sense to ask me if I am sure it is *King’s College* that I am imagining. The point seems more forceful when transposed to wishing.

world proposal's tagging function is total, each individual-acquaintance pair of an agent's acquaintance set is mapped to some individual, and so individuals are represented in compatible multi-centered worlds even if they do not exist there. In more detail, assume Lois has in her acquaintance set two individual-acquaintance pairs (Lois,I) and (Clark,Q). Let Lois imagine at t in w that she has red hair. The content of this imagining is:

$$(15) \quad \{(w',t',f') \mid f'(Lois,I) \text{ has red hair at } t' \text{ in } w'\}$$

However, since the tagging function is total, (Clark,Q) is mapped to something in multi-centered worlds compatible with what Lois imagines, though Lois's imagining has nothing to do with anyone other than herself. To avoid this result, Ninan suggests individual-acquaintance pairs not explicitly represented in attitude content be mapped to the null individual which represents the individuals of the pairs as not existing. Ninan only gestures at this patch, however, considering it an *ad hoc* solution to the problem.

But perhaps he *should* introduce the null individual, since it may help with the problematic wish reports. To see how, consider first Lois's wish report that she had never existed. Employing the null individual, the content of Lois's wish might be characterized as:

$$(16) \quad \{(w',t',f') \mid f'(Lois,I) \text{ at } t' \text{ in } w'\}$$

Where (Lois,I) is mapped to the null individual. (16) would then be a non-empty set of multi-centered worlds centered on the null individual. Unfortunately, there is no multi-centered world in which the null individual will make a difference concerning Lois's de dicto wishes. However, it is open to Ninan to treat Lois's problematic de dicto wishes as having empty content, while treating Lois's problematic de se wish as centered on the null individual. This would allow Ninan to treat each problematic wish report as genuine while distinguishing the problematic de se wish from the other two: a tidy result.

Nevertheless, there is another worry lurking. For the contents of Lois's de dicto wishes end up identical, i.e. the empty set. Additionally, Lois's de dicto wishes end up identical to the content of many other unsatisfiable wishes, e.g. that Fermat's Last Theorem is false. Hence, Lois wishing one amounts to Lois wishing the other. Yet, surely Lois may wish that Peano Arithmetic is complete without thereby wishing there was a round square, or that Fermat's Last Theorem is false. To be fair, being unable to distinguish certain impossible (unsatisfiable) content is not a problem unique to the multi-centered world proposal, as centered world treatments of attitudes are notoriously susceptible to this so-called granularity problem.<sup>49</sup> Transposed to the multi-centered world treatment of wish, the granularity problem is, simply put, that distinct wish reports come out identical, since their contents are identical. Given how common and intractable the granularity problem is for centered world accounts of attitudes, perhaps Ninan can rest knowing he is in good company with a tough problem.<sup>50</sup> However, noting the multi-centered world proposal is designed to accommodate both propositional and *counterfactual* attitudes, the objection is especially salient for Ninan. Indeed, insofar as Ninan accepts wishing as a counterfactual attitude, the granularity problem seems less a merely tough problem, and more a *reductio* of his multi-centered world treatment of counterfactual attitudes.<sup>51</sup>

In sum, rejecting wishes for unsatisfiable content as confused appears untenable, and though adding the null individual to the multi-centered world proposal distinguishes certain problematic wishes from others, Ninan's proposal nevertheless runs afoul of the granularity problem. Given the purview of the proposal, biting this bullet seems particularly unappetizing.

#### Section 4: Conclusion

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<sup>49</sup>I follow (Barwise, 1997), and more recently (Berto, 2010) in calling the problem by this name.

<sup>50</sup>See (Magidor, 2015) for a summary of failed responses to the problem.

<sup>51</sup>Ninan might consider impossible worlds to accommodate unsatisfiable content, as does (Berto, 2014) for *conceiving*. Supplementing with impossible worlds avoids other problems plaguing centered world accounts too, e.g. logical omniscience (e.g. any believing agent believes every necessary truth). I hope to pursue this in future work.

I presented the standard centered world account of attitude reports, as well as the counterfactual puzzle that follows from extending the account to counterfactual attitudes. I then presented a multi-centered world solution to the puzzle, which appears to provide an adequate treatment of belief and imagining reports. After distinguishing wishes from desires conceptually, and on Ninan’s propositional and counterfactual attitude framework, I presented three plausible wish reports that lead to false predictions for the multi-centered world proposal. Canvassing possible revisions to the proposal revealed it susceptible to the well-known granularity problem, which seems especially salient when treating wish reports. I conclude that Ninan’s claim that the multi-centered world proposal adequately characterizes counterfactual attitudes should be understood as, at present, mere wishful thinking.

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