

# Varieties of Centering and *De se* Communication

Dirk Kindermann\*

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**ABSTRACT.** There has recently been a wave of attempts to make sense of the role of *de se* thoughts in linguistic communication. A majority of the attempts assume a Perryan or a Lewisian view of *de se* thought. Views with these assumptions, I suggest, come in four varieties: uncentering (Egan, 2007; Kölbel, 2013; Moss, 2012), recentering (Heim, 2004; Weber, 2012), multicentering (Kindermann, 2014; Ninan, 2010b; Torre, 2010), and no centering (Kaplan, 1989; Perry, 1979). I argue first that all four varieties of centering are committed to what I call a shifting operation on the hearer's part. I argue second that, against common assumption, there is no real choice to make between the views. By showing that attempts to establish an advantage for some view over the others fail across the board, I make the case for neutralism regarding the varieties of centering – the claim that coverage of the empirical data is exactly the same for each view, and that the views are broadly equal in simplicity and elegance.

**KEYWORDS.** *De se* attitudes, Self-location, Assertion, Communication, Centered Worlds, Multicentered Worlds, Pronouns, Kaplan, Lewis, Perry

## I Introduction

*De se* attitudes are attitudes about oneself when one thinks of oneself in the first-person way. They are attitudes one typically expresses by using first-personal pronouns (*I/me/my*).<sup>1</sup> According to Lewis (1979a), *de se* attitudes motivate a property account of the objects of attitudes: for Ann to believe *de se* that she won the lottery is for her to *self-ascribe* the property of having won the lottery. For Ann to believe that Ann won the lottery is for

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\*[dirk.kindermann@gmail.com](mailto:dirk.kindermann@gmail.com) | September 2014

<sup>1</sup> A narrow class of *de se* attitudes are those expressible with first-personal pronouns. A wider class includes attitudes expressible with context-sensitive expressions such as *here, there, this, that*, and *de nunc* attitudes expressible with, e.g., *now, then* or simply the present tense. I will focus my discussion on the narrow class, but submit that my claims hold, *mutatis mutandis*, for the wider class, too.

her to self-ascribe the property of inhabiting a world in which Ann won the lottery.<sup>2</sup> On an essentially equivalent and increasingly popular way of talking, properties are, or determine, sets of centered worlds—where a centered world is modelled by a tuple of a possible world  $w$  and a center, e.g., a person  $x$  at a time  $t$ :  $\langle w, t, x \rangle$ .<sup>3</sup> To believe *de se* that she won the lottery is for Ann to have a belief with the *centered worlds content* in (1).

- (1)  $\{\langle w, t, x \rangle: x \text{ won the lottery in } w \text{ at } t\}$  – the set of all individuals  $x$  who won the lottery in world  $w$  at time  $t$ .

On this way of talking, belief is *self-location*: for Ann to believe *de se* that she won the lottery is for the set of centered worlds compatible with who/what/where/when she thinks she might be (the possibilities she takes to be live possibilities for her current situation) to be a subset of (1).

It is well known that these objects of *de se* attitudes aren't the kinds of things that are shared in communication.<sup>4</sup> If Ann's assertion of *I won the lottery* were to communicate the property of having won the lottery, then a trusting and understanding hearer would come to believe this property. He would self-ascribe the property of having won the lottery; i.e. he would come to believe (1), which is for him to believe *de se* that he won the lottery. But, of course, what the hearer in fact comes to believe is that Ann, the speaker, won the lottery.

Recently, several proposals have been made to complement Lewis' property view of *de se* attitudes with an account of the communication of *de se* attitudes. The proposals come in three varieties.

1. **Uncentering:** The content communicated by an assertion of *I won the lottery* is an uncentered standard proposition<sup>5</sup> – if Ann is the speaker, it is the proposition that Ann won the lottery. The communicated proposition is not identical with the property believed by the speaker. Proponents of uncentering are Egan (2007, 2010), Feit (2008, 109), Kölbel (2013), Moss (2012), and arguably Moltmann (2010, 2012) and Pearson (2012).
2. **Recentering:** An assertion of *I won the lottery* expresses the property believed by the speaker. Hearers come to believe a different property – they recenter, i.e. they

<sup>2</sup> I'm ignoring Lewis' descriptivist account of *de re* belief in favour of the 'singular proposition' view that seems more popular among contemporary proponents of a centered worlds account of belief. (For a good presentation of Lewis' view, see Ninan (2012a).)

I'm also going to ignore temporally *de se* thoughts – thoughts about one's location in time – and temporally *de se* aspects of thought throughout. Otherwise it would be more accurate to say that to believe that Ann won the lottery is for her to self-ascribe the property of being at a time such that Ann won the lottery.

<sup>3</sup> Alternatively, centers may be thought of as locations in space and time, modelled by a quadruple  $\langle t, x, y, z \rangle$ . See Liao (2012) for a discussion of some differences between thinking of centered worlds in terms of world-time-individual triples and world-spacetime location pairs.

<sup>4</sup> For an early presentation of the problem, see Stalnaker (1981, 146-7).

<sup>5</sup> A note on terminology: I will use 'proposition' to mean the same thing as 'content', viz. whatever plays (some of) the roles propositions are supposed to play: being the objects of thought, the objects of assertions, a semantic value of sentences, the bearers of truth and falsity, etc. My use of 'proposition' is thus intended to be neutral with respect to the nature of propositions. By a 'standard proposition' I mean a possible worlds proposition, or some object whose truth in fact varies at most with possible worlds.

*infer* another property from the assertion and its expressed property – for instance the property of being addressed by someone who won the lottery. Recentering has been developed in detail by [Weber \(2012\)](#) and is sketched in [Heim \(2004\)](#) and [Feit \(2008, 108\)](#).

3. **Multicentering:** An assertion of *I won the lottery* communicates a multicentered content, i.e. a property of a *group* of individuals – very roughly, the property of being a group whose speaker won the lottery. Multicentering has been endorsed by [Ninan \(2010b\)](#), [Torre \(2010\)](#), and [Kindermann \(2014\)](#).

It is usually thought to be an advantage of Lewis' classic rival, the account of *de se* attitudes held by [Perry \(1977, 1979\)](#) and [Kaplan \(1989, 530-5\)](#), that it preserves the shareability of *de se* attitude contents in communication. On this account, *de se* attitudes are attitudes towards standard propositions, entertained under a first-personal mode of presentation (MOP). *De se* communication is thought to require no departure from the simple and elegant account of communication as the transmission of the object of the attitude from speaker to hearers (call it the *transfer model of communication*).

4. **No centering:** The content communicated by an assertion of *I won the lottery* is an uncentered standard proposition – if Ann is the speaker, it is the proposition that Ann won the lottery. The communicated content is the content of the speaker's *de se* attitude.

At first sight, the four views may appear to be substantially different theories of *de se* communication, not least because they present competing hypotheses about the objects of communication and their interaction with the speaker's and hearers' attitudes. Against this common impression, I will argue for *neutralism* regarding the varieties of centering. The neutralist claim is that everything that can be done by one view can also be done by the others; that the views cover exactly the same empirical data and do so in equally simple ways; and that the choice between the views is a matter of (theoretical) taste and prior commitments. Neutralism does not imply that there is nothing at all at stake here, only that the choice can't be based on considerations of empirical correctness and accompanying concerns about simplicity and elegance. The choice will have to be the result of a more complicated 'weighing of the costs and benefits' discussion that is likely to draw on the views' commitments on issues beyond the explanation of communication.

The motivating thought for neutralism is that each view has the resources on hand to mimic the predictions of the others. This isn't surprising once we realise that the views can all be formulated based on a single framework — e.g., Kaplanian two-dimensional semantics ([Kaplan, 1989](#)), which is explicitly adopted by at least one proponent of each view (section 2).<sup>6</sup> It is even less surprising once we see that all views must appeal to what I call a SHIFTING operation on the part of the hearer (section 3).

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<sup>6</sup>[Egan \(2007, 2010\)](#) for uncentering, [Weber \(2012\)](#) for recentering, and [Ninan \(2010b\)](#) and [Kindermann \(2014\)](#) for multicentering

I will start by introducing the Kaplanian framework and will formulate uncentering, recentering, and no centering in the framework (section 2). (I will postpone the treatment of multicentering until section 7 to keep the discussion manageable.) In sections 3 through 6, I will consider arguments that aim to give some view(s) an edge over the others – arguments from the indirectness of communication, from assertability, disagreement, same-saying, and propositional anaphora. I will make the case for neutralism by arguing that these attempts fail because each of the views can avail itself of the resources the other views bring to the table, so that the empirical data leaves the views in a factual tie. Of course, I cannot rule out that there is some empirical data that may break the tie, but I hope to show that the kinds of co-opting moves should readily apply to other kinds of linguistic data. I will finally consider multicentering’s promise of presenting an empirically distinguishable alternative, and will argue that it, too, is on a par with its rivals as regards empirical coverage and simplicity (section 7). I close by exploring two avenues for further research that may provide reasons to favour some views over others (section 8).

## 2 Three Views of *De Se* Communication

By a ‘view of communication,’ I have in mind a theory that takes a stand at least on the bearers of the following functional roles and their relations.

- $MC_S$  = the mental content of the speaker, which she intends to communicate
- $AC$  = the content asserted by the speaker
- $MC_H$  = the mental content the hearer acquires as a result of successful communication
- the relationship between the sentence used in the context of utterance and the asserted content  $AC$

A satisfying theory of communication will have to do a lot more than provide an account of the bearers of these functional roles and their relationship. For present purposes, however, an account of the above will count as a ‘view of communication.’ I will assume that it is part of the joint task of syntax, semantics and pragmatics to specify the relationship between a sentence used in a context of utterance and the asserted content. In what follows, I will focus on the contribution of semantic theory, leaving aside syntactic questions and adducing pragmatics only where the views require appeal to more than literal content.<sup>7</sup>

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<sup>7</sup>I assume that semantics can do the lion share of the explanatory work, and that a Gricean picture of pragmatics is on the right track (Grice, 1975).

## 2.1 A Kaplanian Framework

Let's start with the relationship between a sentence used in a context of utterance and the content expressed by an assertion of the sentence. All of the views of communication I wish to discuss – uncentering, recentering, no centering (and multicentering in section 7) – can be formulated in a Kaplan-style two-dimensional semantic framework. This is not to say that every version of each view is committed to a Kaplanian framework. Only the majority of current proposals are thus committed.<sup>8</sup> To facilitate comparison, however, it will be helpful to stick to those versions that share a Kaplanian point of departure.

Kaplan (1989) distinguishes between two kinds of linguistic meaning. The *character* of an expression (after disambiguation) is the expression's standing meaning, i.e. that aspect of its meaning that doesn't change from context of use to context of use (again, ignoring ambiguity). Thus, when Ann says *I'm a physician* and Bob says *I'm a physician*, there is a sense in which their utterances have the same meaning – they have the same character. But there is also a sense in which they don't have the same meaning, since Ann means that *she*, Ann, is a physician, and Bob means that *he*, Bob, is a physician. *Content* is meaning in this second sense. In Kaplan's words, content is 'what is said' by a sentence on a particular occasion of use; it is Kaplan's proposal for the role of asserted content (AC). Sentences in context can have the same character but different contents (as in the above example). They can also have different characters but the same content. For example, when Ann says *I'm a physician* and Bob says to Ann *You're a physician*, their utterances have different characters but the same content.

It will be helpful to sharpen these notions. The compositional semantics is given by a recursively defined interpretation function that maps an expression, a context  $c$ , and an index  $i$  to an extension. We'll write it like this:  $\llbracket - \rrbracket^{c,i}$ . Let a context  $c$  be given by a centered world  $\langle w, t, x \rangle$  of the world, time, and agent of the concrete occasion of speech. An index  $i$  is a tuple of parameters such as world, time, individual, and more.<sup>9</sup> For the formulation of the shared semantic framework, we'll stipulate that the index has at least world, time, and individual parameters.<sup>10</sup> The interpretation function maps sentences to truth or falsity, relative to the choice of context and index. The character of an expression is a function from a context to the expression's content at the context. An expression's

<sup>8</sup>Egan (2007, 2010), Weber (2012), Ninan (2010b), and Kindermann (2014) explicitly adopt the Kaplanian framework. Perry (1979, p. 21, n. 6), while endorsing structured propositions, acknowledges the kinship of his distinction between objects of belief and 'belief states' (or ways of believing, or modes of presentation), and Kaplan's semantic distinction between character and content. Since the features of structured propositions that distinguish them from their coarse-grained truth-conditions – understood as sets of possibilities – do not play a significant role for *de se* communication, I will ignore this difference between Perry and other centering views. Kaplan (1989), who endorses no centering, embraces structured propositions but assigns sentences sets of possibilities as contents in his formal semantics.

Finally, note that the semantic framework in Kaplan (1989) differs from the framework presented here in a few important details such as the formal conception of context and the kinds of parameters in the index.

<sup>9</sup>Kaplan uses the term 'circumstances of evaluation' in lieu of 'index' to indicate that the parameters are the circumstances against which the expression's content is evaluated. Since the framework should be neutral with respect to any notion of content that bears explanatory weight, I will use the more neutral 'index' (cf. Lewis (1980)).

<sup>10</sup>For the views which only need fewer parameters, the 'idle' parameter in the framework won't make a difference.

content at a context, according to Kaplan, is what I will from now on call its *horizontal content*. It is a function from an index to an extension. Both the character and horizontal content of an expression can be defined from the interpretation function in the following way.<sup>11</sup>

- Horizontal content of sentence  $S$  at  $c =_{\text{df.}} \lambda i. \llbracket S \rrbracket^{c,i}$ <sup>12</sup>

$$= \lambda \langle w, t, x \rangle. \llbracket S \rrbracket^{c, \langle w, t, x \rangle}$$

$$= \{i: \llbracket S \rrbracket^{c,i} = \mathbf{I}\}$$

$$= \{\langle w, t, x \rangle: \llbracket S \rrbracket^{c, \langle w, t, x \rangle} = \mathbf{I}\}$$
<sup>13</sup>
- Character of  $S =_{\text{df.}} \lambda c. [\lambda i. \llbracket S \rrbracket^{c,i}]$ <sup>14</sup>

The character of an expression can be represented by a two-dimensional matrix, with contexts on the vertical axis and indices on the horizontal axis. In the matrix, the expression's horizontal content at a context is represented by a horizontal row. Here is an example of the character of a random sentence  $S$ , where '1' stands for truth and '0' for falsity.

S	$i_1$	$i_2$	$i_3$	...
$c_1$	1	1	1	
$c_2$	1	1	0	
$c_3$	1	0	0	
...				

There are other notions of content definable from the interpretation function that may serve the purpose of asserted content.<sup>15</sup> One that will play an important role on the centering views is *diagonal content*. In the matrix, diagonal content is represented by the grey cells along the top-left to bottom-right diagonal. The diagonal content of a sentence is the content that is true at a context  $c$  if and only if the sentence is true at  $c$  and the index  $i_c$  determined by  $c$  (the world (and time, individual, ...) of  $c$ ). In other words, diagonal content is the content that says that the sentence is true. The diagonal content of *I won the lottery* is the content that says something like *the speaker of  $c$  won the lottery at the world (time etc.) of  $c$* . To know the diagonal content of a sentence is to know in which contexts a sentence can be used to say something true.

- Diagonal content of sentence  $S =_{\text{df.}} \lambda c. \llbracket S \rrbracket^{c,i_c}$ 

$$= \lambda \langle w, t, x \rangle. \llbracket S \rrbracket^{\langle w, t, x \rangle, \langle w, t, x \rangle}$$

$$= \{c: \llbracket S \rrbracket^{c,i_c} = \mathbf{I}\}$$

$$= \{\langle w, t, x \rangle: \llbracket S \rrbracket^{\langle w, t, x \rangle, \langle w, t, x \rangle} = \mathbf{I}\}$$

<sup>11</sup> See Westerståhl (2012) for discussion.

<sup>12</sup> Read: 'the function from an index  $i$  to the extension (truth value) of  $S$  at context  $c$  and index  $i$ '

<sup>13</sup>  $\{i: \llbracket S \rrbracket^{c,i} = \mathbf{I}\}$  is the characteristic set of the function  $\lambda i. \llbracket S \rrbracket^{c,i}$ . The two formulations are essentially equivalent, and I will use both.

<sup>14</sup> Read: 'the function from a context  $c$  to the function from an index  $i$  to the extension of  $S$  at  $c$  and  $i$ '

<sup>15</sup> See Lewis (1980) and Ninan (2010a) for discussion.

Note that diagonal content, as defined, is centered worlds content. But this does not imply that all diagonal content is *interesting de se* content. Following Egan (2006, 107), it will be useful to call a centered worlds content *p interesting* just in case there is a world  $w$  and pairs  $\langle t_1, x \rangle, \langle t_2, y \rangle$  of individuals inhabiting  $w$  at times  $t_1$  and  $t_2$ , respectively, such that  $p$  contains  $\langle w, t_1, x \rangle$  but not  $\langle w, t_2, y \rangle$ . Otherwise call it boring. Interesting centered worlds contents distinguish between individuals-at-times in the same world, boring contents don't. To believe *de se that I am lost* is to have a belief with an interesting centered worlds content; to believe *that snow is white* is to have a belief with a boring centered worlds content. Boring centered worlds contents are equivalent to possible worlds propositions.<sup>16</sup>

Finally, let's get the meanings of the expressions in place that we need to handle some examples of *de se* communication. Proper names receive a directly referential semantics,<sup>17</sup> pronouns a roughly Kaplanian semantics,<sup>18</sup> and a verb phrase like *be in aisle five* will be treated as a one-place predicate.

- $\llbracket I \rrbracket^{c,i} = x_c$  (the speaker of  $c$  as given by  $c = \langle w_c, t_c, x_c \rangle$ )
- $\llbracket \text{you} \rrbracket^{c,i} =$  the intended addressee of  $x_c$  in  $w_c$  at  $t_c$
- $\llbracket \text{Rudolf Lingens} \rrbracket^{c,i} =$  Rudolf Lingens
- $\llbracket \text{be lost} \rrbracket^{c,i} = \lambda y. y$  is lost in  $w_i$  at  $t_i$
- $\llbracket \text{be in aisle five, floor six, of Main Library, Stanford} \rrbracket^{c,i} = \lambda y. y$  is in aisle five, floor six, of Main Library, Stanford in  $w_i$  at  $t_i$

For illustration, consider the horizontal contents of the sentences *I am lost* and *Rudolf Lingens is lost* as used by Lingens in context  $c$ .

- (2) a. I am lost.  
b.  $\lambda i. \llbracket I \text{ am lost} \rrbracket^{c,i} = \{i: \text{Lingens is lost in } w_i \text{ at } t_c\}$
- (3) a. Rudolf Lingens is lost.  
b.  $\lambda i. \llbracket \text{Rudolf Lingens is lost} \rrbracket^{c,i} = \{i: \text{Lingens is lost in } w_i \text{ at } t_c\}$

<sup>16</sup>See Nolan (2006), however, for an objection to this claim.

<sup>17</sup>The arguments in this paper do not rely on any particular semantics for proper names, given just the assumption that all proponents of the views under discussion share one semantics. A descriptivist semantics would serve the purpose (and would be closer to Lewis' own view), but for simplicity, I will assume that proper names are directly referential.

<sup>18</sup>The Kaplanian treatment of English first-personal pronoun *I* as an indexical is most probably false, but it is a familiar one that will ease understanding of the main issues of this paper. I'm certain that all of the views below can be formulated on the basis of the more accurate assignment of meaning to *I* relative to a variable assignment function and the meanings of presuppositional phi-features, even if this will require some changes (cf. Heim & Kratzer (1998) and Heim (2005) for an exposition, and Harbour et al. (2008) for recent literature). I will here stick with the familiar Kaplanian picture endorsed by many centering views.

(2a) and (3a) have the same horizontal content as used by Lingens in  $c$ , namely that Rudolf Lingens is lost. They differ, however, in diagonal content:

- (2) a. I am lost.  
 c.  $\lambda c. \llbracket \text{I am lost} \rrbracket^{c, i_c} =$   
 $\{c: \text{the speaker of } c \text{ is lost in } w_c \text{ at } t_c\} =$   
 $\{\langle w, t, x \rangle: x \text{ is lost in } w \text{ at } t\}$  (the set of centered worlds whose center is lost at the time and world)
- (3) a. Rudolf Lingens is lost.  
 c.  $\lambda c. \llbracket \text{Rudolf Lingens is lost} \rrbracket^{c, i_c} =$   
 $\{c: \text{Lingens is lost in } w_c \text{ at } t_c\} =$   
 $\{\langle w, t, x \rangle: \text{Lingens is lost in } w \text{ at } t\}$  (the set of centered worlds such that Lingens is lost at the time and world)

## 2.2 Three Varieties of Centering

With the shared framework in place, we can now formulate the three views of *de se* communication that I will focus on: uncentering, recentering, and no centering. (Wait for multicentering until section 7.)

By ‘*de se* communication,’ I mean narrowly any linguistic communication in which speakers use first-personal or second-personal pronouns. If we think of the *de se* more broadly as involving attitudes expressible with locationally and temporally context-sensitive expressions, ‘*de se* communication’ includes their use in communication as well. For simplicity, however, I will here focus on first-personal and second-personal pronouns (cf. fn. 1). The cases of *de se* communication I will discuss do not presuppose that there is a unique and distinctive phenomenon worth calling the *de se*. However, since we are interested in accounts of communication from Lewisian and Perryan perspectives on *de se* attitudes, I will from now on speak of *de se* communication as the communication of *de se* attitudes.

**(I) Uncentering.** Lingens believes *de se* that he is lost and intends to communicate his belief to a librarian. He says *I am lost*. On the uncentering view, Lingens’ mental content (MC<sub>S</sub>) is the interesting centered worlds content *LOST*.

- (4) *LOST*:  $\{\langle w, t, x \rangle: x \text{ is lost in } w \text{ at } t\}$

Note for the moment that *LOST* is the diagonal content of *I am lost*. But *LOST* isn’t what Lingens communicates according to uncentering. Instead, the asserted content (AC) is the uncentered, or boring, horizontal content of (2a) in Lingens’ context.

- (2) a. I am lost.  
 b. Horizontal content of (2a):  $\{\langle w, t, x \rangle: \text{Lingens is lost in } w \text{ at } t\}$



If Lingens' hearer understands and trusts Lingens, she will come to believe the horizontal content ( $MC_H$ ). Thus,  $AC = MC_H$ , but  $MC_S \neq AC$  and so  $MC_S \neq MC_H$ . The uncentering view has the advantage of conservativeness: it is closest to the standard Kaplanian direct reference view of 'what is said' by a sentence involving *I*.<sup>19</sup>

**(II) Recentering.** Lingens has a *de se* belief with the content *LOST* ( $MC_S$ ). The recentering view holds fast to the plausible idea that speech is the expression of belief: what Lingens asserts is also *LOST*, the diagonal content of *I am lost*. This accounts for the relation between the sentence used and the asserted content. But *LOST* isn't what Lingens' hearer comes to believe. What she comes to believe is something like the *de se* content *being addressed by someone who is lost*. The hearer arrives at her belief by *recentering*: she infers her belief from the asserted content and her relation to the speaker. In general, recentering is an operation that takes a centered content  $p$  and relation  $R$  and outputs a centered content  $q = \{\langle w, t, x \rangle: x \text{ bears relation } R \text{ uniquely to } y, \text{ and } p(w, t, y)\}$ , where  $R$  is a relation by which the hearer believes to be uniquely related to the speaker. In our example, the hearer may simply identify Lingens by the relation *being addressed by*. If she understands what Lingens asserts, she will recenter by inferring *RE-LOST*.

(5) *RE-LOST*:  $\{\langle w, t, x \rangle: x \text{ is addressed by someone who is lost in } w \text{ at } t\}$

Thus on the recentering view,  $MC_S = AC$ , but  $AC \neq MC_H$  and so  $MC_S \neq MC_H$ .<sup>20</sup>

<sup>21</sup> Uncentering and recentering preserve the Lewisian account of belief as self-location. It forces them to partially give up on the transfer model of communication, on which a single content travels from speaker's head to hearers' heads. On neither view is the speaker's *de se* mental content identical to the asserted content *and* the hearer's mental content. The Perry-Kaplan no centering view, in contrast, has been taken to preserve the simple transfer model of communication (a claim I will contest later).

<sup>19</sup>Egan (2007, 2010) endorses the uncentering view in a Kaplanian framework. Kölbel (2013); Moss (2012) are also uncenterers, but it isn't clear what they want to say about the connection between the semantics (of pronouns) and asserted contents. In what follows, I will concentrate on Egan as the main proponent of the uncentering strategy.

<sup>20</sup>For details of the view in a Kaplanian framework, see Weber (2012); see also Heim (2004). Note that recentering's endorsement of diagonal content as asserted content requires the conceptual distinction between compositional semantic value – the object which combines with intensional operators such as *possibly* and *necessarily* in the composition of a sentence's semantic value – and asserted content – the object expressed by a speaker in assertive speech acts. Diagonal content may play the assertion role but it is not the kind of object that is the input to intensional operators in the Kaplanian framework. For discussion and arguments in favour of the distinction, see Lewis (1980), Ninan (2010a, 2012b), and Rabern (2012).

<sup>21</sup>There is conceptual room for a recentering view that burdens the speaker, not the hearer, with the cognitive task of recentering. This view assumes that speakers express the very contents they intend their hearers to accept. For instance, in the above example, the asserted content of Lingens' utterance would be *RE-LOST*, the result of the speaker's recentering on their own belief content ( $MC_S$ ). This view bears a significant disadvantage to its recentering brother, as it requires a form of content pluralism: Given that hearers are related to the speaker in different ways and may thus come to believe different contents as a consequence of successful communication, a single speech act must express multiple contents, as many as there are (potential) hearers. Thus consider an assertion of *You are my best friend*, accompanied by the speaker's pointing to one person among a group of hearers, all of whom the speaker intends to inform about her preference. See Weber (2012, §6) for further discussion.

(III) **No centering.** According to Perry, the structure of belief states broadly corresponds to the structure of meaning. The object of belief is a horizontal content, the ‘belief state’ (or mode of presentation, MOP) corresponds to an expression’s character. Contents of *de se* beliefs and of their expression in speech are shared in successful communication. This gives the following simple picture: Lingens’ mental content ( $MC_S$ ) is the horizontal content of *I am lost* as used by Lingens.

- (2) a. I am lost.  
b.  $\{\langle w, t, x \rangle: \text{Lingens is lost in } w \text{ at } t\}$

The character of *I am lost* is a function from contexts (the centered world of the speaker/believer) to horizontal contents (the object of belief). Lingens’ hearer comes to believe (2b) in successful communication, but this isn’t for her to have a *de se* belief: She doesn’t come to believe it under the same mode of presentation as Lingens (corresponding to the sentence’s character). Instead, she comes to have a *de te* belief – she believes (2b) under a second-personal mode of presentation.

### 3 Indirectness and Shifting

This sets the stage for the discussion of arguments that aim to give some centering view(s) an edge over the others. I will first consider an argument in favour of no centering that appeals to considerations of simplicity and elegance, and will turn to arguments from empirical data in sections 4 – 6. The case for neutralism will emerge as we will come to see that the views can all avail themselves of the same resources to account for the data, and that advantages of simplicity are evenly distributed over the views.

Here is the argument from indirectness in favour of no centering. No centerers may want to claim that their view is the simplest and most elegant view of communication, as it preserves the core idea of the transfer model: that there is a single content believed by the speaker, expressed in speech, and believed by the hearer in successful communication — namely horizontal content. Both the recentering and uncentering views have to add complexity by giving up on the identity of speaker’s mental content, asserted content, and hearer’s mental content. This makes communication ‘indirect’. Consider the recentering view: Speakers speak only about themselves (they express properties of themselves), and hearers, equally interested only in themselves, have to *derive* information concerning themselves (properties they believe themselves to have). But communication isn’t indirect — a fact the no centering view and the direct transfer model capture.<sup>22</sup>

This argument, I suggest, rests on too simple assumptions about *de se* communication. To get a fuller picture of what the views of *de se* communication need to explain, it will be helpful to consider a concrete case. I’ll introduce the case, then run through recentering’s account of the case, and finally discuss what uncentering and no centering need to say. It will turn out that uncentering and no centering must introduce indirectness, too, to fully account for *de se* communication.

<sup>22</sup>Stalnaker (1981, 146-7) points out the indirectness of a view that is essentially the recentering view.

### 3.1 The Hearer Challenge

Consider Lingens, who despite having studied a detailed map of the Stanford library is lost and wishes to exit the library. A sympathetic librarian tells him (6).

(6) You are in aisle five, floor six, of Main Library, Stanford.

If Lingens understands (6) and trusts the speaker, he is now in a position to exit the library, given the knowledge acquired from the map he read. Since he also has the desire to exit the library, he is likely to start moving towards the exit. At the very least, his doxastic state has changed to allow for verbal behaviour Lingens had not previously been in a position to produce. After being told (6), Lingens is in a position to assert (7).

(7) I am in aisle five, floor six, of Main Library, Stanford.

In contrast, (6) by itself doesn't seem to put the amnesiac Lingens in a position to assert (8).

(8) Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford.

Now consider the opposite scenario in which Lingens is told (8) (but not (6)). Despite Lingens' background knowledge and desire, understanding (8) and trusting the speaker does not put Lingens in a position to exit the library. For all he knows, it is Rudolf Lingens, not himself, who is in aisle five, floor six, of the Stanford library. Upon hearing (8), Lingens is more likely to stay put than to start moving towards the exit. The successful communication of (8) puts Lingens in a position to assert (8) himself, but it doesn't put him in a position to assert (7).

The challenge for views of *de se* communication is to explain the difference in the communicative impact of (6) and (8) on the hearer's doxastic state and her dispositions for (verbal) behaviour. Why is it that receiving information from the *you*-assertion of (6) disposes Lingens to start moving and puts him in a position to assert (7), but receiving information from the *Rudolf Lingens*-assertion of (8) does not have those effects (yet may have others)?

### 3.2 The Views on the Hearer Challenge

Let's start with how the recentering view explains the difference in communicative impact of (6) and (8).

**(I) Recentering.** On the recentering view, the librarian's assertion of *You are in aisle five, floor six, of Main Library, Stanford* in (6) expresses her belief content (MC<sub>S</sub>), as given by the sentence's diagonal content.

(9)  $\{(w, t, x) : x \text{'s addressee is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

Lingens understands the assertion by recentering on the asserted content. The recentering can be described in three steps, here presented as a reasoning process of the hearer. (It isn't an ambition of the recentering view – in fact of any of the views – to describe conscious processes hearers in fact undergo in communication.<sup>23</sup> RECENTERING may be understood as a reconstruction in theory-laden terms of the reasoning process by which a rational hearer could arrive at the cognitive state she is in as a result of successful communication.)

#### RECENTERING

1. Identify. The speaker is in a context in which she can truthfully use the sentence *You are in aisle five, floor six, of Main Library, Stanford* to assert (9). So she is in a context in which her addressee is in aisle five.
2. Relate. I am the addressee of the speaker and her second-personal assertion.
3. Infer. So I am the addressee of someone who is in a context in which her addressee is in aisle five. So I am in aisle five.<sup>24</sup>

If Lingens trusts the speaker, by recentering he ends up with a belief whose content is (10).

(10)  $\{\langle w, t, x \rangle: x \text{ is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

(10) is an interesting *de se* centered worlds content, so Lingens ends up with a *de se* belief about his own whereabouts. His belief in (10) explains why understanding (6) puts him in a position to assert *I am in aisle five, floor six, of Main Library, Stanford*. The diagonal content of this sentence just is (10). Moreover, if Lingens has knowledge of the library's floor plans and the desire to exit the library he finds himself in, coming to believe (10) will dispose him to start moving to the exit. (10) allows him to locate himself in the library and work out the way to the exit.

In contrast, when Lingens understands the librarian's assertion of *Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford*, he identifies (11) as the asserted content and by relating and inferring comes to also believe (11).<sup>25</sup>

(11)  $\{\langle w, t, x \rangle: \text{Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

Believing (11) does not put Lingens in a position to assert *I am in aisle five* because for Lingens, believing (11) isn't equivalent to the *de se* belief *that he is in aisle five*, as expressed by *I am in aisle five* and arrived at by recentering on *You are in aisle five*. Thus, while it enables him to locate Rudolf Lingens, it doesn't enable him to locate himself, so Lingens is still not in a doxastic state that disposes him to start moving to the exit.

<sup>23</sup>Cf. Weber (2012, §6, fn. 15)

<sup>24</sup>See Weber (2012, §5) for more details on the recentering process.

<sup>25</sup>According to the characterisation of recentering above, Lingens comes to believe *being addressed by someone who inhabits a world in which Rudolf Lingens is in aisle five*. So it must be added to the inferring step that Lingens believes that if someone who addresses him inhabits a world, then he inhabits that world as well.

In understanding (6) and (8), Lingens ends up believing different contents ( $MC_H$ ). Given the same background beliefs and desires, this explains the difference in communicative impact between assertions of (6) and (8), as manifest in Lingens' post-communication dispositions to speak and act.

The indirectness of communication, on the recentering model, is manifest in the hearer's need for RECENTERING. As I will argue shortly, uncentering and no centering need to appeal to an interpretation process in the hearer not unlike RECENTERING. All views must posit what I call a SHIFTING operation to explain the hearer challenge.

#### SHIFTING

Hearers come to be in their cognitive state in successful *de se* communication partly in virtue of making assumptions about the speaker's situation, relating themselves to the speaker's situation and inferring information about themselves.<sup>26</sup>

**(II) Uncentering.** On the uncentering view, both (6) and (8) have (11) as their asserted content in Lingens' context.

(11)  $\{(w, t, x): \text{Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

So uncentering can't explain the different communicative impact of (6) and (8) by appeal to asserted content alone. The difference in communicative impact also shows that there is a sense in which the amnesiac Lingens doesn't know that (6) expresses (11) in his context. If he did, uncentering would predict that (6) should also have the communicative effects of (11), removing his ignorance that he is Rudolf Lingens.

According to Egan, Lingens arrives at his understanding of (6) by a process of pragmatic reasoning, for which knowledge of the asserted content isn't required. This process goes along the following lines: The speaker uttered (6); she is in a context in which she can truthfully utter (6), so she is in a context in which her addressee is in aisle five. I'm the speaker's addressee. So I'm in aisle five (cf. Egan's (2010, 280) and (2009, 275 fn. 24)).

This piece of reasoning looks a lot like the three steps of RECENTERING above and is in fact a SHIFTING operation. In the first step, the hearer identifies the assertion's diagonal content, in the second she relates herself to the speaker's context, and in the third, the hearer infers a *de se* centered worlds content she comes to believe. In Lingens' case, this content is the diagonal content of *I am in aisle five*.

For Egan, all communication has pragmatic, self-locating side effects. In understanding (8), Lingens will not only update his beliefs with the asserted content (11) but also gain a self-locating belief by running through the above reasoning. Since the diagonal of (8), however, is not an interesting centered worlds content, his self-locating

<sup>26</sup>To emphasise, SHIFTING is not put forward as an empirical claim about the cognitive processes of hearers in communication but as a representation of how hearers could reason to arrive at the mental state that the views predict them to be in as a result of successful communication.

belief provides no new information. It's just the property of inhabiting a world in which Lingens is in aisle five, which is equivalent to (11).

So uncentering can explain the difference in communicative impact between (6) and (8) by appeal to the different belief contents Lingens acquires as a result of a pragmatic reasoning process. Thus, the crucial explanatory work is done by a SHIFTING operation very much like RECENTERING. Indirectness is a feature of uncentering, too.<sup>27</sup>

**(III) No centering.** Perry and Kaplan predict that assertions of (6) and (8) in Lingens' context express the same uncentered horizontal content, (11).

(11)  $\{(w, t, x): \text{Rudolf Lingens is in aisle five ... in } w \text{ at } t\}$

So the no centering view can't explain the difference in communicative impact just in terms of asserted content. But sentences (6) and (8) differ in their characters. Let's start with (6), which contains the second-person pronoun *you*, whose Kaplanian character corresponds to the second-personal mode of presentation under which the librarian believes the content she wishes to communicate. This second-personal mode of presentation, however, can't be the mode of presentation under which Lingens comes to believe the asserted content, since he comes to have a *de se* belief. How, then, can the no centering view predict the regularity that a hearer's trustful understanding of a sentence involving *you*, and her assumption that she is the addressee of *you*, result in her believing the asserted content under the first-personal mode of presentation?

The view needs some sort of shifting of MOPs corresponding to character. We can again spell it out as a SHIFTING operation in three steps.

#### CHARACTER SHIFTING

1. Identify: The speaker is in a situation in which she can truthfully use the sentence *You are in aisle five* with second-personal character *C* to express the content *p*. So she is in a situation in which her addressee is in aisle five.
2. Relate: I am the addressee of the speaker's second-person claim.
3. Infer: I am in a situation in which I am addressed by someone whose addressee is in aisle five. So I am in aisle five. So I can believe *p* under first-personal MOP *C*'.

In the case of the assertion of (8), Lingens may shift on the character of the asserted sentence, too. But since *Rudolf Lingens* has a stable character on the given semantics, i.e. one that contributes Rudolf Lingens to the horizontal content in every context, the resulting shift is without effect (cf. the role of shifting for (8) on the other views). This explains

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<sup>27</sup>Torre (2010, 106-7) argues that Egan's uncentering view cannot account for Torre's case of *de se* communication, restricting his attention to uncentering's prediction for asserted content, conceived of as that piece of information successful assertions add to the conversation's common ground (cf. Stalnaker (1978)). While Torre stops short of considering the pragmatic resources Egan can use to explain *de se* communication, his objection reveals an interesting fact about uncentering views like Egan's, which combine centered worlds belief content with the idea that the essential effect of assertion is the addition of content to the common ground: Uncentering views like Egan's have to give up the Stalnakerian idea that *all* information-transmitting effects of assertions – pragmatic or semantic – are effects on the conversation's common ground.

the different communicative impact of (6) and (8) on the Perry-Kaplan no centering view. Importantly, no centering like all other views involves a SHIFTING operation in its explanation of the difference in communicative impacts of *de se* communication.

To summarise, the hearer challenge reveals crucial similarities between the views. On all views, the reconstruction of the hearer's interpretation process involves some sort of SHIFTING operation, most explicitly worked out by the recentering view. See Table 1 for an overview of the views' responses to the hearer challenge. The argument from indirectness is self-defeating. The need for a SHIFTING operation introduces indirectness to every view, including no centering. This ubiquity of SHIFTING is evidence that some kind of indirectness is a real feature of the communication with personal pronouns rather than a vice of a single theory. The simple, direct transfer model of communication is incomplete. The transfer model's travelling piece of information, horizontal content, doesn't suffice to explain *de se* communication. The full explanation requires SHIFTING. The simple transfer model of communication has always been too simple.<sup>28</sup>

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<sup>28</sup> *De se* identity confusion cases bear similarities to standard *de re* identity puzzles, so we might expect versions of the hearer challenge to arise with ordinary proper names. Consider an analogue of the hearer challenge. Lois, who doesn't know that Clark Kent is Superman, is likely to be disposed to change her behaviour towards Clark Kent when told (i) but not when told (ii).

- (i) Clark Kent can fly.
- (ii) Superman can fly.

It may *prima facie* seem desirable to provide a unified explanation of *de se* and *de re* versions of the hearer challenge. I am sceptical, however, that unification gives us sufficient reason to directly apply any of the centering strategies to the semantics and pragmatics of proper names. It is widely, if not uncontroversially, held that there are important semantic differences between personal pronouns and proper names (for dissent see, e.g. Pelczar & Rainsbury (1998)). Pronouns linguistically encode a perspective (1st, 2nd, 3rd person), which is responsible for the observed regularities in cognitive significance of the information the hearer acquires (*de se* thought or non-*de se* thought). But on the majority of views, names do not linguistically encode aspects of cognitive significance observed in the above case. Different speakers don't necessarily associate the same cognitively significant aspects with the bearer of the name, and the same name may even for the same speaker be associated with different aspects at different occasions of use (cf. Kripke's Paderewski). As Kit Fine puts it, 'the hearer has no reason to suppose that the speaker will associate the same modes of presentation with the names as himself' (2007, p. 81, n.3 (printed on p. 137)). So with names, there is no particular aspect of cognitive significance attached to the thought hearers will acquire in successful communication which is simply due to their semantic competence. I will have to leave it for future research to work out the applicability of the centering strategies to *de re* communication, in which the hearer's SHIFTING operation cannot proceed from a semantically encoded perspective.

Table 1: Varieties of Centering and the Hearer Challenge

	Uncentering	Recentering	No centering
Hearer Challenge	Recentering on diagonal (pragmatic interpretation)	RECENTERING on diagonal (semantic interpretation)	CHARACTER-SHIFTING

#### 4 Assertability

Let's recap. Uncentering and no centering assign the role of asserted content to the horizontal content in context, recentering to the diagonal content. Together with speaker's and hearers' mental contents, we get the overall picture as displayed in Table 2 below. (HOR stands for 'horizontal content', DIAG for 'diagonal content', and Re-DIAG for the result of the hearer's recentering on diagonal content. Cells in a column have the same shade of grey just in case the same particular content plays the roles of those cells.)

Table 2: Varieties of Centering and Theoretical Roles

	Uncentering	Recentering	No centering
MC <sub>S</sub>	DIAG	DIAG	HOR + Character
AC	HOR	DIAG	HOR
MC <sub>H</sub>	Re-DIAG	Re-DIAG	HOR + Re-Character

Their similarities aside, the views still differ in the objects they assign the role of asserted content (AC), and how they relate asserted content to speaker's and hearers' mental con-



tents ( $MC_S$  and  $MC_H$ ). So we might expect further empirical data that turns on asserted content – the proposition expressed, ‘what is said’ by the utterance – to provide arguments in favour of some and against other views. In this and the subsequent sections, we will look at arguments from assertability, agreement and disagreement, same-saying and propositional anaphora. In each case, it will be reasonably straightforward to see that the views under pressure can co-opt the resources of the apparently favoured view to cover the data. By considering these four kinds of data, I can’t claim to be giving a full defence of neutralism – the claim that coverage of *all* the empirical data is exactly the same for each view. But I hope to make plausible that the kinds of co-opting strategies available to the views will generalise to other kinds of data.

Let’s start with the argument from assertability. It aims to show that recentering, but not uncentering and no centering, can account for intuitive data regarding the assertability of sentences with personal pronouns. Consider once more Rudolf Lingens, who is lost in the Stanford library after reading a detailed biography that covers Lingens’ life until some time just before his current predicament (cf. Perry (1977)). Being an amnesiac, Lingens doesn’t know that he himself is the subject of the biography. But he is aware of his current predicament. Here are (2) and (3) again.

(2) I am lost.

(3) Rudolf Lingens is lost.

There is a sense in which Lingens is in a position to felicitously assert (2) but not (3), assuming that Lingens has no evidence that the subject of the biography is lost. The challenge for views of the communication of *de se* thoughts is to explain the difference in assertability between (2) and (3).

Recentering has a natural and conservative explanation, drawing on Lingens’ epistemic situation: In asserting (2) in his situation, Lingens meets whatever epistemic norm is in place; in asserting (3), he fails to meet the norm. For concreteness, assume that the required epistemic relation is knowledge.<sup>29</sup>

**(KA)** S is assertable by A in context c only if A knows the content asserted by S in c.

In the described case, Lingens knows *de se* that he is lost but he doesn’t know that Rudolf Lingens, the subject of the biography, is lost. On the recentering view, the asserted content of (2) is its diagonal content – roughly, the interesting *de se* content *being lost*. This is the content Lingens knows when he knows *de se* that he is lost. So Lingens’ assertion of (2) meets the knowledge norm (KA). In contrast, the asserted diagonal content, according to recentering, of (3) in Lingens’ context is, roughly, the boring content *being such that the bearer of the name ‘Lingens’ is lost*. Since Lingens lacks this knowledge expressed by (3), his assertion of (3) does not meet (KA).

<sup>29</sup>A weaker epistemic norm that requires only justification, adequate evidence etc. would do, too. We could also just appeal to the Gricean maxim of quality.

Uncentering and no centering can't give this explanation, the argument continues. Both views entail that in Lingens' context, (2) and (3) express the same horizontal content – *being such that Lingens is lost*. But if (2) and (3) have the same asserted content, then appeal to (KA) won't help in explaining the difference in assertability between (2) and (3). So the argument concludes that where recentering produces a natural explanation of the assertability conditions, uncentering and no centering fail to account for the intuitive data.

The argument from assertability rests on the assumption that the epistemic norm of assertion is sensitive only to asserted content. But this assumption isn't sacrosanct. It isn't hard to see that uncenterers and no centerers can avail themselves of the same resources as recenterers, and that they can account for the data in concert with a modified norm of assertion. Uncenterers have diagonal content available on their view, given the shared Kaplanian semantic framework. They can submit that what matters to epistemic assertability is primarily knowledge that one can use that sentence in one's context to say something true. To know in which situations one can say something true with a sentence is to know the sentence's diagonal content. So uncenterers just need to reject (KA) in favour of a modified knowledge norm that requires knowledge of the asserted sentence's diagonal content:

**(KA<sub>D</sub>)** S is assertable by A in context *c* only if A knows the diagonal content of S in *c*.<sup>30</sup>

Appeal to diagonal content is not an *ad hoc* manoeuvre on the uncentering view, since diagonal content just is the mental content of the speaker. Recentering's explanation works equally well on the presumption of (KA<sub>D</sub>). Since the views share the same resources – here, diagonal content – uncentering can easily co-opt recentering's explanatory strategy. They can provide essentially the same explanation of the difference in assertability.

What about Perry-Kaplan's no centering view? On the view, appeal to knowledge of the diagonal contents may seem *ad hoc*, since diagonal contents have so far no explanatory role on the view. However, no centerers can claim that assertability requires knowledge of the asserted content *under the mode of presentation corresponding to the sentence's character*. So Lingens needs to know the horizontal content of (2) under the first-personal mode of presentation to felicitously assert *I am lost*, and he needs to know the same horizontal content under some *Lingens*-mode of presentation to felicitously assert (3). No centerers need the following epistemic norm of assertion.

**(KA<sub>C</sub>)** S is assertable by A in context *c* only if A knows the content expressed by S in *c* under the mode of presentation corresponding to S's character in *c*.

This norm is different from the two above norms, but again, an independent argument against (KA<sub>C</sub>) would be needed to rule out no centering's reliance on this norm. By itself,

<sup>30</sup>The fact that this norm cares about knowledge of some *semantic* content of S may muck up cases in which intuitively, what has to be known is (related to) the pragmatically conveyed content of the sentence in context, where this content differs from what the sentence would literally/conventionally express. I will put this worry aside for the purposes of this paper.

no centering’s explanation of the difference in (2)’s and (3)’s assertability is just as good as the above, and it appeals to resources that the shared Kaplanian framework provides.

Table 3 summarizes which objects each view appeals to in their explanation of assertability conditions. Perhaps recentering’s explanation may seem a bit simpler, a little more natural. It appeals only to asserted content, which is needed in the account of communication anyway. Uncentering draws on a content different from the content that plays the role of asserted content on the view; no centering adduces knowledge of asserted content under a mode of presentation corresponding to the expression’s character. They need two bits of meaning where recentering needs only one. However, as we will see shortly, the views quickly even out vis-à-vis apparent advantages in simplicity.

Table 3: Varieties of Centering and Assertability

	Uncentering	Recentering	No centering
Assertability	Diagonal ≠ AC	Diagonal = AC	Horizontal + MOP/character

## 5 Agreement and Disagreement

It’s a natural initial thought that it is asserted content that is the target of agreement and disagreement. Thus, two parties count as disagreeing just in case one asserts a content that contradicts the content asserted by the other.<sup>31</sup> Proponents of uncentering and no centering may appeal to simple cases of disagreement to support the view that it is horizontal content, not centered diagonal content, that plays the role of asserted content. Consider (12) and (13).

(12) Luis: I should watch *Annie Hall*.  
Matilda: No/I disagree, you shouldn’t. You should watch *Manhattan*.

(13) Luis: I was late for the movie.  
Matilda: ? No/I disagree, I wasn’t. I loved the opening scene.

Judgments that Luis and Matilda felicitously disagree in (12) but not in (13) should be fairly robust. (Note the oddness of ‘No/I disagree’ in (13).) Uncentering and no

<sup>31</sup>Well, it won’t be that easy. What about disagreement in belief? What about the numerous, easy-to-find cases for which this all-too-quick account of disagreement fails? But the point here isn’t to give a final characterisation of disagreement, only to start with a plausible conception of disagreement in conversation for paradigm cases. Personal pronouns by themselves give us little reason to abandon the default conception that covers paradigm cases, so they might be expected to fit the simplified account.

centering can easily predict that there is disagreement in (12) but not (13). The horizontal content expressed by Matilda in (12) – the set of centered worlds in which Luis shouldn't watch *Annie Hall* – is the negation of the horizontal content expressed by Luis's assertion, whereas the horizontal contents expressed in (13) are not in contradiction. In contrast, the centered diagonal contents of their assertions in (12) are not in contradiction, since there are centered worlds in which the center should watch *Annie Hall* and the center's addressee shouldn't. So disagreement, uncenterers and no centerers may conclude, is evidence in favour of their views and against recentering.

But there are two responses available to the proponent of recentering. The first, proposed by Weber (2012, §6), is to reject the idea that disagreement is a matter of contradictory *asserted contents* in favour of an account on which disagreement is a matter of conflicting 'associated contents'. A subject associates with an assertion the content that is the result of her recentering operation on the assertion's asserted content. (The result of recentering on the content of one's own assertion just is the asserted diagonal content.)<sup>32</sup> The contents any single subject associates with the assertions in (12) are contradictory. If this seems *ad hoc*, the second reply available to recenterers is to simply accept that disagreement is matter of conflicting horizontal content. Remember that recenterers can and do adopt the same Kaplanian framework that uncenterers champion. On the recentering view, assertions have horizontal content just as they have diagonal content. And while it would be convenient if the same object linked to a single assertion were to play both the role of asserted content and of the object of agreement and disagreement, we mustn't presuppose that a single object plays both roles.

It isn't hard at this point to see that any of the four views can always co-opt the account of the other to make their predictions, as long as we give up our theoretical prejudice that it is one object that plays the various theoretical roles. But perhaps considerations of simplicity and elegance can guide the way in the end? A view on which one object plays all the roles traditionally associated with propositions is strictly simpler than one that distributes those roles over a number of related bearers.

## 6 Same-saying and Propositional Anaphora

Evidence from reports of same-saying, some of which use expressions serving as devices of propositional anaphora, may be expected to similarly provide an argument for horizontal content playing the role of asserted content. Thus consider the felicity of (14c) and (15c).

<sup>32</sup>There are some worries about this account regarding the use of propositional anaphora constructions such as 'What you said'. Do they pick out the content that the user of 'What you said' associates with the assertion, or do they pick out asserted content? If it picks out asserted content, then on the recentering account, Matilda in (12) may be able to truly say 'I disagree with you, but what you said is true.' If 'what you said' picks out associated content, Matilda cannot truly utter this sentence, but there are some questions about what a hearer like Luis should take the referent of Matilda's 'what you said' to be, since *he* associates a different content with his assertion in (12) than Matilda (cf. fn. 35). Thanks to Torfinn Huvenes for discussion on this point.

- (14) a. Matilda: I loved *Zelig*.  
 b. Luis: You loved *Zelig*.  
 c. Matilda: I just said that.
- (15) a. Matilda (to Frank): I loved *Zelig*.  
 b. Luis (later to Frank): Matilda loved *Zelig*.  
 c. Frank (later to Sid): Matilda and Luis said the same thing.

Same-saying reports are not a particularly reliable diagnostics for asserted content.<sup>33</sup> But we can use them do to this much work for us: As [Stojanovic \(2012, p. 53, exs.11-13\)](#) notes, there is a well-attested and stable ‘sloppy’ reading of the first-person pronoun in same-saying reports. Consider (16).

- (16) a. Alma (to Chris): I am a fool.  
 b. Bruce (to Chris): I am a fool.  
 c. Chris (to Bruce): That’s what Alma said, too.

On the ‘strict’ reading, Chris’ reply in (16c) is false: It reports that Alma said that Bruce is a fool, and that’s not what Alma said. On the true ‘sloppy’ reading, it reports that Alma said about herself that she is a fool (just like Bruce said about himself that he is a fool).

The ‘strict’ reading is easily accounted for on the assumption that ‘that’ in (16c) picks out the horizontal contents of Alma’s and Bruce’s assertions. But the ‘sloppy’ reading is easily accounted for on the assumption that ‘that’ picks out the assertions’ diagonal contents. (16a) and (16b) have the same diagonal content: the set of centered worlds whose centers are fools. So there is then good evidence that sometimes the recenterer’s asserted content – diagonal content – is the object of same-saying reports and the referent of propositional anaphora. A point scored for recentering.<sup>34</sup>

<sup>33</sup>A *locus classicus* for scepticism about same-saying reports as a diagnostic for shared content is [Lewis \(1980, §11\)](#). For recent criticism, see for instance [Cappelen & Hawthorne \(2009, ch. 2\)](#).

<sup>34</sup> Stojanovic also notes that ‘sloppy’ readings do not seem to be as readily available with second- and third-personal pronouns. Consider the following example ([Stojanovic, 2012, p. 53, exs. 17-19](#)):

- (i) a. Prof. Cheng (talking of Alma): She is a fool.  
 b. Chris (pointing at Daisy): She is a fool.  
 c. In reply to Chris: (?) That’s what Professor Cheng said, too.

If it is Kaplanian diagonal content that is picked out by the ‘sloppy’ readings, these should also be available with second- and third-personal pronouns, as well as with other context-sensitive expressions. Indeed, Stojanovic adds that same-saying reports with second- and third-personal pronouns *can* be available. She offers the following example: ‘Suppose that Bruce and Chris had a blind date each on Saturday evening. On Sunday, when Alma asks him how the date went, Bruce tells her, [a] “She was obnoxious.” Later, Chris, talking about his own date, tells Alma, [b] “She was obnoxious.” Alma may then truly reply, [c] “Bruce said that, too.”’ ([Stojanovic, 2012, p. 54, fn. 6](#))

Let me here offer a tentative explanation of the asymmetry between first-personal pronouns and second-/third-personal pronouns in the availability of ‘sloppy’ readings. Successful ‘sloppy’ same-saying reports require that in the reporting context (*c* in our examples), some identifying knowledge of the referents of the pronouns used in the reported assertions is available to the hearers. With first-personal pronouns, knowledge of the standing meaning (character) of the pronoun as well as explicit information about who the reported speaker is (Alma in (16c) above) suffices for knowing who the referents of the two occurrences of *I* in the

Of course, uncenterers and no centerers can and should avail themselves of diagonal content just as recenterers can co-opt horizontal content. But then the views break even with respect to simplicity: either view needs to split the theoretical roles of, on the one hand, object of same-saying<sub>1</sub> and of agreement and disagreement, and on the other hand, object of same-saying<sub>2</sub> over two different kinds of contents, each of which is available on either view.<sup>35</sup> It looks difficult in this situation to get a convincing simplicity-argument off the ground for either view.<sup>36</sup>

Propositional anaphora occurs in other constructions that have played a significant role in related debates on content, such as in ascriptions of simple truth (*That's true*), modalized truth (*That's necessary/possible*), and in tensed truth ascriptions (*That was true, is true, and will always be true*). It should by now be reasonably straightforward to see how the strategy of co-opting the opponent view's resources generalises to this data. This is not to say that there can't be data that may allow us to set apart the views. But I hope the discussion has made it plausible that this kind of data will not arise from our intuitive judgments regarding the communication of *de se* attitudes.<sup>37</sup>

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reported utterances (16a) and (16b) are. In contrast, with second- and third-personal pronouns, knowledge of the pronouns' character as well as information about who the reported speakers are is not sufficient for identifying the referents of the pronouns. In addition, information of the speakers' addressees (for *you*) or of the speakers' demonstrations, or referential intentions, (for *he/she*) is required. When this information is common ground in the reporting context, 'sloppy' readings are available, as in the reporting context of the blind date example.

In Kaplan's terminology, unbound occurrences of first-personal pronouns are pure indexicals (their character is a rule that determines a referent given a context), whereas unbound uses of second- and third-personal pronouns are demonstratives (their characters require an associated demonstration, or the speaker's referential intention, to determine a referent in context). We shouldn't expect the data to be neat and clean here, but the behaviour of other pure indexicals and demonstratives in same-saying reports lends some support to the hypothesis that the asymmetry runs along the line pure indexical/demonstrative. As the reader can check, *today*, *tomorrow*, and (less uncontroversially) *here*, *now* make 'sloppy' readings of same-saying reports easily available, without the need for much extra information in the reported contexts. Demonstratives like *that*, *there*, *then*, in contrast, receive 'sloppy' readings only when the reporting context makes it clear what the referents of the reported demonstrative occurrences are.

<sup>35</sup>Recenterers could, in line with the above strategy for disagreement, account for same-saying<sub>1</sub> in terms of sameness of 'associated contents'. Alma and Bruce say the same thing, in this sense, in case the contents a competent subject would associate the same content with their assertions. But this introduces complications. For what does 'that' in Chris's report *That's what Alma said, too* refer to? The answer is: For subject A, it refers to the content A associates with Alma's and Bruce's assertions, for subject B, it refers to the content B associates with their assertions, and so on. So propositional anaphora effectively makes this version of recentering a content relativist position: the same assertion (e.g. (16c)) has different expressed contents for different interpreters; they recenter on different asserted contents.

<sup>36</sup>Note the replicability of 'strict' and 'sloppy' readings of *said that* reports with *believes that/believe the same thing/believe alike* reports. A common argument for interesting centered belief content appeals to the usefulness of grouping together agents who believe-alike in the sloppy sense – Alma believing that she's a fool and Bruce believing that he's a fool – for the purposes of explaining and predicting similar action given similar desires.

<sup>37</sup>It is another question whether empirical data from standard attitude reports (*John expects that he will buy a Warhol one day*) and reports of *de se* attitudes using (PRO and) infinitival clauses (*John expects to buy a Warhol one day*) can provide evidence for Lewisian or Perryan views of *de se* attitudes. I will have to leave this question for another time.

## 7 Multicentering

The argument for neutralism so far looked at recentring, uncentering, and Perry-Kaplan no centering. I have shelved discussion of a fourth view, multicentering, advanced by [Ninan \(2010b\)](#), [Torre \(2010\)](#), and [Kindermann \(2014\)](#). It's now time to consider this variety of centering. I'll start by introducing multicentering with the degree of detail we'll need to see how multicentering handles the data by using the same co-opting strategies we've seen above.

The basic idea of multicentering is that just like belief has been understood as individual self-location, conversation is to be understood as the project of joint group-location. Where belief has been the self-ascription of individual properties, conversation is the collective self-ascription of group-properties. It is the project of determining which possibilities are live possibilities for the conversational group. Group possibilities are fine-grained; they are represented by multicentered worlds (also called sequenced worlds):  $\langle w, t, \langle x_1, \dots, x_n \rangle \rangle$ , triples of a possible world, time, and an ordered tuple of individuals (one for each conversational participant). It is crucial to distinguish the individual centers:  $\langle w', t', \langle \text{Lingens, librarian} \rangle \rangle$  is a possibility distinct from  $\langle w', t', \langle \text{librarian, Lingens} \rangle \rangle$ . For instance, if  $w'$  is a world in which Lingens is lost but the librarian isn't, then the former multicentered world is a member of (17) but the latter isn't.

$$(17) \text{ } \text{LOST}_T: \{ \langle w, t, \langle x_1, x_2 \rangle \rangle : x_1 \text{ is lost in } w \text{ at } t \}$$

Informally,  $\text{LOST}_T$  is the set of pairs whose first member is lost. On the multicentering view, asserted content is multicentered content. The asserted content of Lingens' assertion of *I am lost* in the context given by  $\langle w_c, t_c, \langle \text{Lingens, librarian} \rangle \rangle$  is  $\text{LOST}_T$ . To make that prediction, however, some additions to the Kaplanian framework as introduced in section 2.1 are necessary. Let a context  $c$  now be given by a *multicentered* world  $\langle w, t, \langle x_1, \dots, x_n \rangle \rangle$  of the world of conversation, a moment in the conversation and the conversational participants; let the index of the interpretation function consist of parameters for world, time, and as many individuals as there are conversational participants:  $\llbracket - \rrbracket^{c,i} = \llbracket - \rrbracket^{\langle w,t,\langle x_1,\dots,x_n \rangle \rangle, \langle w',t',x'_1,\dots,x'_n \rangle}$ . Let a first-personal pronoun refer to the  $x_i$  of the context who occupies the speaker role. Relative to the conversational context  $\langle w', t', \langle \text{Lingens, librarian} \rangle \rangle$ , the multicentering view claims that the content of Lingens' assertion of *I am lost* (AC) is the sentence's *diagonal* content,  $\text{LOST}_T$ .<sup>38</sup>

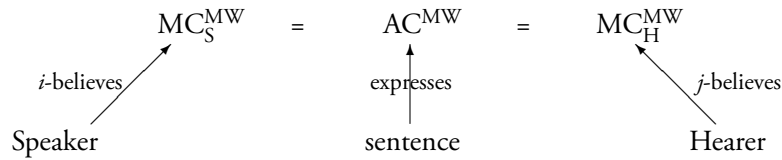
What about the mental content of speaker and hearer? There are two options. On the more radical version of multicentering ([Kindermann, 2014](#)), mental content is also multicentered content. Given a single speech act, speaker's mental content, asserted content, and hearer's mental content are identical. In order to account for the difference in cognitive significance that a content may have for speaker and hearer, radical multicentering introduces different ways of believing the same content: For Lingens to believe  $\text{LOST}_T$  (given the conversational context  $\langle w', t', \langle \text{Lingens, librarian} \rangle \rangle$ ) is for him to 1-believe it:

<sup>38</sup>I'm ignoring theoretical assumptions that ensure that the diagonal is  $\text{LOST}_T$ ; see [Ninan \(2010b\)](#), §3.2 and [Kindermann \(2014\)](#) for details.



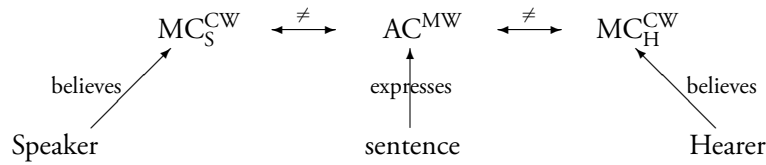
roughly, to believe that he is a member of a group in which he is lost. (The possibilities for the first individual of a sequence are ways for Lingens to be.) For the librarian to believe  $LOST_I$  (given the conversational context  $\langle w', t', \langle \text{Lingens, librarian} \rangle \rangle$ ) is for her to 2-believe it: roughly, to believe that she is a member of a group in which the person addressing her is lost. (The possibilities for the second individual of a sequence are ways for the librarian to be.) So the radical version of multicentering is Lewisian in introducing fined-grained, (multi-)centered content, and it is Perryan in helping itself to ways of believing. It's also on a par with Perry-Kaplan no centering in preserving the transfer model's key assumption: there is a single content traveling from speaker's to hearer's head – but that content is believed in different ways by speaker and hearer. We get the following picture of communication on the radical version of multicentering. (In figures 1 and 2, superscripts 'MW' and 'CW' indicate multicentered and centered contents, respectively.)

Figure 1: Radical multicentering



On the more conservative version of multicentering (Ninan, 2010b; Torre, 2010), asserted content is multicentered content, but mental content is (singly-)centered worlds content. (I will reserve the term 'centered content' for sets of centered worlds with a single center.) The centered worlds contents of speaker and hearers are systematically related to the asserted multicentered content. For Lingens to give expression to his centered worlds belief *that I am lost* in the context  $\langle w', t', \langle \text{Lingens, librarian} \rangle \rangle$  is for him to assert  $LOST_I$ ; for the librarian to understand the assertion and trust Lingens is for her to come to believe the centered worlds content *that I am being addressed by someone who is lost*.

Figure 2: Conservative multicentering



It can be shown that the radical version's account of belief –  $n$ -belief in multicentered content – is technically equivalent to belief in a corresponding centered worlds content



on the conservative version (see below as well as [Ninan \(2010b, 15\)](#) and [Kindermann \(2014\)](#)). That is, a way of believing some multicentered content corresponds to a belief in a corresponding centered worlds content. So the choice between the two options depends on where we are willing to give up a few units of simplicity: in our account of belief as self-and-group-location (introducing ways of believing in multicentered contents) but saving a shared content traveling in communication (radical multicentering); or in our account of communication (accepting relations less simple than identity between  $MC_S$ ,  $AC$ , and  $MC_H$ ) but keeping Lewis' account of belief as self-location (conservative multicentering).

## 7.1 Multicentering and the Hearer Challenge

Let's now turn to the data from *de se* communication. Recall that the hearer challenge is to explain the difference in communicative effects of the librarian's assertions of (6) and (8) on Lingens' doxastic and dispositional state.

(6) You are in aisle five, floor six, of Main Library, Stanford.

(8) Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford.

On both versions of the multicentering view, the asserted contents of (6) and (8) are (18) and (19), given a context  $c = \langle w_c, t_c, \langle \text{Lingens, librarian} \rangle \rangle$ .

(18)  $\{ \langle w, t, \langle x_1, x_2 \rangle \rangle : x_1 \text{ is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t \}$

(19)  $\{ \langle w, t, \langle x_1, x_2 \rangle \rangle : \text{Rudolf Lingens is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t \}$

(18) and (19) are different contents, so an explanation of the difference in communicative impact between (6) and (8) is forthcoming.

On the radical version of multicentering, the librarian and Lingens both believe the asserted content as a result of successful communication, but they do so in different ways. For the assertion of (6) in context  $c$ , in which Lingens occupies the first spot of the sequence, the view says that he comes to 1-believe (18). The librarian, who is in the second spot in  $c$ , 2-believes (18). For the librarian to 2-believe (18) is for her to believe *de te* that (she's a member of a group in which) her addressee is in aisle five. For Lingens to 1-believe (18) is for Lingens to believe *de se* that he's (a member of a group in which he's) in aisle five. They are in different doxastic states, despite their belief contents being the same. The radical multicentering view thus predicts a shift in attitude between speaker and hearer that is analogous to the other views' SHIFTING operations (cf. section 3.2). But does Lingens' 1-believing have the cognitive significance of a *de se* belief that results in the disposition to start moving towards the exit?

It's easier to see that it does if we consider the more conservative version of multicentering, on which mental attitudes have centered worlds contents. Let's start by making more precise the claim that the radical version's notion of  $n$ -belief in multicentered worlds

content is technically equivalent to a corresponding belief in centered worlds content.<sup>39</sup> The basic idea is best stated in property-talk: a multicentered content captures a group-property  $F$  that an individual ascribes of her group in a way that singles her out as the  $n$ -th member of the group. Ascribing group-properties in that way is equivalent to self-ascribing the individual property of being the  $n$ -th member of a group that is  $F$ . And individual properties correspond to centered worlds contents. In other words:

#### MULTICENTERED WORLDS BELIEF AND CENTERED WORLDS BELIEF

In context  $c = \langle w_c, t_c, \langle y_1, \dots, y_u \rangle \rangle$ , agent  $y_n$   $n$ -believes a multicentered worlds content  $\{\langle w, t, \langle x_1, \dots, x_u \rangle \rangle: p(w, t, \langle x_1, \dots, x_u \rangle)\}$  iff

- (i) there are conversation-establishing relations  $R_1 \dots R_u$  in which the members of  $c$  uniquely stand to each other, and
- (ii)  $y_n$  believes the centered worlds content  $\{\langle w, t, x \rangle: \text{there are individuals } x_1, \dots, x_u \text{ such that } x \text{ is uniquely } R_1\text{-related to } x_1, x \text{ is uniquely } R_2\text{-related to } x_2, \dots, \text{ and } x \text{ is uniquely } R_u\text{-related to } x_u \text{ in } w \text{ at } t, \text{ and } p(w, t, \langle x_1, \dots, x_u \rangle)\}$ .

For example, Lingens' 1-believing (18) in his  $c = \langle w_c, t_c, \langle \text{Lingens, librarian} \rangle \rangle$  is equivalent to him having a belief with the centered worlds content (20).

- (20)  $\{\langle w, t, x \rangle: \exists x_1, x_2 \text{ s.t. } x = x_1, x \text{ is addressed by } x_2, \text{ and } x_1 \text{ is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$   
 $= \{\langle w, t, x \rangle: x \text{ is addressed by someone and is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

The librarian's 2-believing (18) is equivalent to her believing the centered worlds content (21).

- (21)  $\{\langle w, t, x \rangle: \exists x_1, x_2 \text{ s.t. } x \text{ is addressing } x_1, x = x_2, \text{ and } x_1 \text{ is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$   
 $= \{\langle w, t, x \rangle: x \text{ is addressing someone who is in aisle five, floor six, of Main Library, Stanford in } w \text{ at } t\}$

The conservative version of multicentering predicts that Lingens and the librarian believe different centered worlds contents, with different cognitive significance. It's not difficult to see that Lingens also comes to believe different centered worlds contents when understanding (6) and (8), given that different multicentered worlds contents are asserted.

(20) is clearly the kind of *de se* content that can figure in an explanation of Lingens' disposition to move towards the exit. Since Lingens' belief in (20) on the conservative version of multicentering is equivalent to his 1-belief of the multicentered worlds content (18) on the radical version, the latter also has an explanation of the relevant disposition. And just as the radical version has an attitude-shift from speaker to hearer built into the account, the conservative version ends up with a mental content of the hearer that she would arrive at by a reasoning process analogous to RECENTERING. She can identify

<sup>39</sup>Cf. Ninan (2010b, 562) and Kindermann (2014)

the asserted multicentered worlds content and infer from it the speaker's corresponding centered worlds belief content; relate herself to the speaker's situation; and infer the centered worlds content that is the object of her own belief. Thus both versions of multicentering join the other views in requiring some SHIFTING operation in their explanation of the cognitive communicative effects of *de se* communication.

## 7.2 Multicentering and Assertability

Recall next the argument from assertability, which asks for an explanation of the difference in assertability between (2) and (3) in the scenario in which Lingens believes that he is lost but not that Lingens, the subject of the biography, is lost.

(2) I am lost.

(3) Rudolf Lingens is lost.

Multicenterers hold that the asserted content is diagonal content, and the multicentered diagonal content of (2) is different from that of (3).

(17)  $\{\langle w, t, \langle x_1, x_2 \rangle \rangle: x_1 \text{ is lost in } w \text{ at } t\}$  [AC of (2)]

(22)  $\{\langle w, t, x_1, x_2 \rangle: \text{Lingens is lost in } w \text{ at } t\}$  [AC of (3)]

Lingens knows (17) but not (22), so appeal to (KA), repeated here, explains the two assertions' difference in assertability.

(KA) S is assertable by A in context c only if A knows the content asserted by S in c.

(Conservative multicenterers will have to apply some interpretation to the norm's right hand side: on the conservative version, it's not ever the asserted content that is believed or known but the content systematically related to the asserted content given the conversational context.)

So multicentering follows recentering's simple strategy of explaining assertibility by appeal to an epistemic norm on which it is the asserted content that matters.

## 7.3 Multicentering, Disagreement, and Same-saying

As regards disagreement, multicentering can adopt the simple strategy that is also available to uncentering and no centering: two speakers disagree in case one asserts a content that contradicts the content asserted by the other. When Matilda in (23c) disagrees with Luis, she asserts the negation of his assertion's content: (23d) in a context in which Luis is the first member of the conversational sequence.

- (23) a. Luis: I should watch *Annie Hall*.  
 b.  $\{\langle w, t, \rangle x_1, x_2 \rangle \rangle: x_1 \text{ should watch } \textit{Annie Hall} \text{ in } w \text{ at } t\}$   
 c. Matilda: No/I disagree, you shouldn't. You should watch *Manhattan*.  
 d.  $\{\langle w, t, \rangle x_1, x_2 \rangle \rangle: x_1 \text{ should not watch } \textit{Annie Hall} \text{ in } w \text{ at } t\}$

However, in order to account for disagreement between speakers in *different* conversations, multicentering's best strategy is to appeal to (multicentered) horizontal content. Given the Kaplanian framework, horizontal contents are readily available and they'll be equally required for some same-saying reports, where reported assertions were made in different conversations. As Kindermann (2012, ch. 6) argues, the assessment of assertions made in other conversations differs from the interpretation of assertions in the same context: the former will always require making adjustments in the interpretation process due to separation in time and location between production and reception. This difference may well motivate taking different (yet related) objects to be the information received by the hearer.

Same-saying reports of the second kind can be retrieved from (16), repeated here:

- (16) a. Alma (to Chris): I am a fool.  
 b. Bruce (to Chris): I am a fool.  
 c. Chris (to Bruce): That's what Alma said, too.

Multicenterers can say the following about the two readings of (16c): The 'strict' reading (same-saying<sub>1</sub>) arises when *that* picks out the (multicentered) horizontal contents of Alma's and Bruce's assertions of *I am a fool*. The 'sloppy' reading must again be accounted for by the assumption that 'that' refers to that aspect of meaning that Alma's and Bruce's assertions have in common. This shared aspect of meaning can't just be identity of multicentered diagonal content: remember that whether the diagonal content of an assertion of *I am a fool* is represented as, roughly,  $x_1$  is a fool or as  $x_2$  is a fool, is a matter of the theoretician's choice of context. If the speaker of *I am a fool* comes first in the context's sequence, it's the former representation, otherwise the latter. Writing this choice into the account of what different assertions of *I am a fool* have in common, multicenterers can say: 'that' in (16c) picks out the equivalence class of multicentered contents that are true of the context of their assertion under exactly the same conditions. For (16c), this is the class of multicentered contents in which the speaker (the slot representing the speaker's possibilities relative to the context of utterance) is a fool.<sup>40</sup>

## 7.4 Multicentering and the Common Ground

The discussion should have made clear that multicenterers can adopt the kind of co-opting strategy familiar from the other centering views. Multicentering thus confirms the neutralist position. It is neither better nor worse off than its centering competitors.<sup>41</sup>

<sup>40</sup>The need for equivalence classes of multicentered contents is due to the fact that the same conversational situation can be represented by multiple sequenced worlds, differing only in the order of the individuals in their sequence. These contexts 'anchor' the representational power of multicentered contents. Without them,  $x_1$  is a fool and  $x_2$  is a fool couldn't be said to represent two distinct circumstances. For details on the multicentering view, see Kindermann (2014).

<sup>41</sup>It may seem that multicentering is empirically distinguishable from the other views because multicentered contents look like they differ in truth conditions from their singly-centered and uncentered counterparts. The thought is that when Lingens says *I am lost*, in a context in which he has one addressee and is the first member of the conversational sequence, the asserted multicentered content that is the set of pairs whose first

Or is it? One might feel that there is an added complexity in multicentering’s account of the facts of *de se* communication, providing sufficient reason to disprefer it to its competitors.

It’s true that multicentering’s model provides a more complex description of individuals’ belief states (or of the interaction of belief states with asserted contents, on the conservative version), and that it works with a formal notion of context that makes more information explicit. But complexity here buys simplicity there. Multicentering’s advantage over the other views is that it allows for the transparent representation of the conversation’s common ground – the information mutually shared by everyone in the conversation. It affords a simpler model of the conversational dynamics. The hearer challenge gives some indication that *de se* information becomes part of the mutually accepted information (not just something hearers and speakers derive in private). On the multicentering view, this information is represented by a tuple of the conversational context and the conversation’s context set, or the set of mutually accepted multi-centered contents. For those attracted to the Stalnakerian idea that the essential effect of assertion is the addition of its content to the conversation’s common ground, it should be a welcome result that multicentering can preserve the idea that all information-transferring effects of assertions are effects on the common ground (cf. Stalnaker (1978)). In contrast, all other centering views need to complicate the representation of the information established in conversation (the ‘conversational scoreboard’ (Lewis, 1979b)). They have to add something to assertion’s effect on the common ground. For instance, recentering and uncentering would require a three-part conversational scoreboard with a common ground (containing, *inter alia*, the horizontal contents of successful assertions) and a list of individual conversational commitments of each speaker (containing the diagonal contents of sentences of one’s own assertions, and the recentered diagonals of the sentences of others’ assertions). Successful assertions, then, would not just add their contents to the common ground, they would also add individual commitments to everyone’s list. So multicentering’s complexity has its payoffs in simplicity and conservativeness in its representation of (the central part of) the dynamics of conversation.

Table 4 summarizes the main features of each of the four views and how they account for the data.

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member is lost can be true only of *pairs* of individuals. The truth conditions require at least *two* individuals to exist for the content to be true. In contrast, neither the singly-centered nor the uncentered contents expressed by Lingens’ assertion of *I am lost* on the other centering views require more than one person (Lingens) to exist in order to be true.

The point is essentially correct but no threat to the neutralist claim. First, for every possible occasion of speech (including soliloquy), multicentered contents are true of that occasion (formally represented as a sequenced world with a sequence with at least one member) just in case the singly-centered and uncentered counterparts of competing centering views are true of that occasion (represented by different formal objects, e.g. singly-centered worlds). Second, multicentering can help itself to ‘null’ individuals in the formalism, or assume an ontology with necessary existents, so that the content that is the set of pairs whose first member is lost, is true of a world  $w_1$  in which only Lingens exists —  $\langle w_1, t, \langle \text{Lingens}, n \rangle \rangle$  (where  $n$  is the ‘null’ individual).

Table 4: Summary of Varieties of Centering

	Uncentering	Recentering	No centering	Radical Multi-Centering	Conservative Multi-Centering
MC <sub>S</sub>	DIAG	DIAG	HOR + Character	DIAG <sub>MC</sub> <i>m</i> -believed	Interesting CW Content
AC	HOR	DIAG	HOR	DIAG <sub>MC</sub>	DIAG <sub>MC</sub>
MC <sub>H</sub>	Re-DIAG	Re-DIAG	HOR + Re-Character	DIAG <sub>MC</sub> <i>n</i> -believed	Re-CW Content
Hearer Challenge	Recentering on diagonal (pragmatic interpretation)	RECENTERING on diagonal (semantic interpretation)	CHARACTER-SHIFTING	Shifting attitudes, from <i>m</i> to <i>n</i>	Recentering, with DIAG <sub>MC</sub>
Assertability	Diagonal ≠ AC	Diagonal = AC	Horizontal + MOP/Character	Diagonal <sub>MC</sub> = AC	Diagonal <sub>MC</sub> = AC
(Dis)agreement & Same-saying <sub>1</sub>	Diagonal ≠ AC	Diagonal = AC	Horizontal + MOP/Character	Diagonal <sub>MC</sub> = AC / Horizontal	Diagonal <sub>MC</sub> = AC / Horizontal
Same-saying <sub>2</sub>	Diagonal ≠ AC	Diagonal = AC	Horizontal + MOP/Character	Equivalence class of Diagonal <sub>MC</sub>	Equivalence class of Diagonal <sub>MC</sub>

## 8 Beyond Neutralism

I have tried to make at least an initial case for neutralism regarding the varieties of centering. Uncentering, recentering, multicentering, and no centering *can* avail themselves of the same moves and resources to answer empirical challenges: for the hearer challenge, it's the appeal to operations of SHIFTING on the hearer's part; for the data from assertability, agreement and disagreement, same-saying and propositional anaphora, it is appeal to horizontal and diagonal content, both available to all views. What the discussion should have highlighted is that successful versions of each of the centering views *must* co-opt

some of their opponents' resources. A centering view that denies any theoretical role to horizontal content will struggle to cover the empirical data, and so will a view that denies any role to diagonal content (or equivalents thereof). Moreover, it should have become clear that the views are able to handle the same range of data with equal simplicity and elegance.

So is there any dispute of substance to be had between proponents of the views, or are the varieties of centering just notational variants? Empirical coverage is certainly not the only substantial criterion of theory choice, and my comparison of the views with respect to their simplicity and elegance has been rough and ready. Moreover, the focus here has been on views of the *communication* of *de se* thoughts. I have deliberately set aside considerations that pertain more closely to the philosophy of mind,<sup>42</sup> and to the semantics and pragmatics of attitude reports (with finite clauses, as in *John believes that he will be a philosopher one day*, and with infinitival clauses, as in *John wants to become a philosopher*). So I wish to leave open that there are still substantial disputes to be had. But I doubt that any knock-down arguments are waiting to be discovered.

This paper is not the place to enter a complicated 'weighing of the costs' discussion, which would take into account the wide range of phenomena that are presumably needed to make overall measurements of simplicity and elegance. Rather, I would like to suggest a different potential route from neutralism. A promising avenue of further inquiry is the productivity of centering views – their extensibility to phenomena related to *de se* communication. If a view can be extended to explain a broader range of phenomena, its power for theoretical unification may give it an edge over other views. I close by briefly mentioning two such phenomena, leaving for further investigation to decide whether any view provides better explanations than the others.

First, extensibility to a theory of belief update. Moss (2012) develops a view of how rational agents update their (*de se*) beliefs over time that is a straightforward application of (her version of) the uncentering view of *de se* communication, in which present and future time slices of the same believer take the roles of speaker and hearer. Given the similarities between the four centering views of communication, we might expect there to be reasonable recentering, multicentering, and no centering alternatives to Moss's view of belief update. Whether or not they are equally good views of belief update is a question for further inquiry.

Second, extensibility to *de se* relativism. Centered worlds content is a popular assumption in many areas of philosophy and especially on relativist views of predicates of personal taste and epistemic modals. Egan's work provides an impressive application of *de se* relativism to various areas of philosophical inquiry. Kindermann (2014) provides a multicentered alternative. Those who think extensibility to areas like judgments of taste or of epistemic modality is a virtue of the view will welcome the discussion of centering alternatives to *de se* relativism.<sup>43</sup>

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<sup>42</sup>We might expect issues concerning the nature of mental content to carve out a helpful line between Lewisian and Perry-Kaplan views. Lewis (1979a, 535-8) and Perry (1979, 12-15) present some early considerations in favour of their respective views over the other.

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