

First-Person Propositions

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Abstract

A central dispute in discussions of self-locating attitudes is whether attitude relations like believing and knowing are relations between an agent and properties (things that vary in truth value across individuals) or between an agent and propositions (things that do not so vary). Proponents of the proposition view have argued that the property view is unable to give an adequate account of relations like communication and agreement. We agree and in this paper we show that the problems facing the property view are much more serious than has been appreciated. We then develop and explore two versions of the proposition view. In each case, we show how facts about the self-ascription of properties may be reduced to facts about propositional belief in conjunction with certain other facts.

1 Introduction

A central dispute in discussions of self-locating attitudes concerns which of the following two accounts we should accept:¹

PROPOSITIONALISM

Attitude relations such as belief and knowledge are two-place relations between a subject and a proposition, an abstract object that does not vary in truth value across individuals.

PROPRIETISM

Attitude relations such as belief and knowledge are two-place relations between a subject and a property, an abstract object that may vary in truth value across individuals.

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¹These two accounts are clearly not exhaustive. In particular, some deny that belief and knowledge are *binary* relations at all. Indeed some, such as Perry [1977, 1979], have maintained that the phenomenon of self-locating attitudes motivates treating attitudes such as belief and knowledge as three-place relations between a subject, a proposition, and something else (a *role* or a *belief state*). We'll have little to say about such views here, and will take as a standing assumption for our discussion that such attitudinal relations are binary.

Lewis [1979] famously argued that self-locating attitudes should lead us to reject PROPOSITIONALISM in favour of PROPRIETISM, while Stalnaker [1981] argued, to the contrary, that the phenomenon of self-locating attitudes does not motivate rejecting PROPOSITIONALISM. In what follows, we'll argue that there are good reasons to prefer PROPOSITIONALISM to PROPRIETISM, and we'll show that there are natural reductive accounts of self-locating attitudes that one can provide by appeal to the propositional relations of belief and knowledge.

In §2, we provide our primary argument against PROPRIETISM and in support of PROPOSITIONALISM. As a generic label, we'll refer to the objects of belief and knowledge as *contents*. Given PROPOSITIONALISM contents are propositions, while given PROPRIETISM contents are properties. In this section, we show that, given PROPRIETISM, there is a large class of cases in which it is impossible for one agent to know, of any content, that their believing it would suffice for agreement with another agent's belief. We argue that this implies that there are many cases in which the proponent of PROPRIETISM incorrectly predicts that a given agent's beliefs must be in principle incommunicable to another agent. These sorts of limitations are not, however, imposed given PROPOSITIONALISM. Since we take it that the limitations on successful communication imposed by PROPRIETISM are not, in fact, witnessed, this seems to us to provide a strong argument against PROPRIETISM and in favour of PROPOSITIONALISM.

In §3, we argue that while there is good reason to endorse PROPOSITIONALISM, and so good reason to deny that *belief* and *knowledge* are relations between an agent and a property, there is also good reason to maintain that there are important psychological relations—which we call *doxastic* and *epistemic self-ascription* respectively—whose objects are properties. We argue, however, that while the PROPRIETIST and PROPOSITIONALIST should both allow that there are such proprietal relations, the PROPOSITIONALIST must maintain that there are certain constraints on self-ascription that the PROPRIETIST is well-motivated to reject.

In §4, we develop two versions of PROPOSITIONALISM and consider their respective merits. In each case, we show how the relations of doxastic and epistemic self-ascription can be analyzed partly in terms of the propositional relations of belief and knowledge. According to the first account, for an agent x to doxastically (epistemically) self-ascribe a certain property p just is for them to believe (know) the de re proposition that x has property p , while, according to the second account, for an agent x to doxastically (epistemically) self-ascribe a certain property p just is for them to believe (know) a particular de dicto proposition. We argue that, on balance, the latter provides a more attractive PROPOSITIONALIST account of self-ascription.

2 Agreement and Communication

One common argument in favor of PROPOSITIONALISM is that PROPRIETISM yields an inadequate account of interpersonal cognitive relations like agreement

and communication.² In this section, we'll argue that PROPOSITIONALISTS are right about these shortcomings of PROPRIETISM. Indeed, we'll argue that the problem of providing an adequate PROPRIETIST account of agreement and communication is, in fact, much more severe than has been appreciated.

We begin by stating certain assumptions that we will hold fixed through the remainder of the paper.

First, we'll assume that propositions form a complete, atomic Boolean algebra. We'll call the atoms of this algebra "world propositions" or "worlds" for short. Any proposition that is not an atom may be represented as a set of worlds. Note that, given this view, a proposition is necessary, in the broadest sense, just in case it is identical to the unique proposition that is true at all worlds. We'll assume a standard S5 logic for this broad form of necessity.

Second, we'll assume that properties also form a complete, atomic Boolean algebra. The atoms of this algebra can be represented by pairs $\langle w, a \rangle$ consisting of a world w and an individual a that exists at w .³ Sometimes we'll refer to such atoms as "centered-possibilities". We'll assume that it is non-contingent which individuals exist, and so we take the class of atoms to be simply the set of pairs $\langle w, a \rangle$ such that w is a world and a is an individual. Properties that are not atoms can be represented by sets of atoms.

Third, in this paper, we'll restrict our discussion to agents whose beliefs and states of knowledge are closed under logical consequence. In a certain sense, such agents know everything that they are in a position to know. Our restriction to such agents, then, will allow us to trade in claims about what individuals could come to know by inference for claims about what agents in fact know.

Note that it follows from this latter assumption together with our preceding assumptions that if PROPOSITIONALISM is true, then an agent's doxastic (epistemic) state may be represented by a single proposition—the strongest propositions she believes (knows)—while if PROPRIETISM is true, then an agent's doxastic (epistemic) state may each represented by a single property—the strongest property she believes (knows).

Finally, we'll assume that if PROPRIETISM is true, then agents may fail to know or to correctly believe, first-personally, who they are. Proponents of PROPRIETISM standardly assume that such ignorance is possible, and we think that this is well-motivated.⁴

²See, for example, [Stalnaker, 1981, 1999, 2008, 2011, 2016].

³If one thinks that a property may be instantiated by different individuals at different times, then one will think that property atoms should instead be represented by world-time-individual triples. Nothing of substance in what follows will turn on this subtle metaphysical issue, and so, if one prefers to think of properties as things that may vary their instantiation profiles over time, then one can take the above to be a harmless simplifying assumption.

⁴Later we'll consider a PROPOSITIONALIST view that, in a certain sense, denies that such first-personal ignorance is possible. In particular, suppose one maintains that for an agent x to believe or know first-personally that they have some property p just is for them to believe or know the proposition that x has property p . Then since each agent x believes and knows the necessary truth that $x = x$, it follows, given this view, that each agent x must believe and know, first-personally, that they are x . So far as we can see, though, if one rejects this sort of connection between an agent x 's first-personal beliefs and states of knowledge and their beliefs in and knowledge of de re propositions about x , then it would seem that, while each

We now turn to the principal topics of this section: communication and agreement. We begin with the mundane observation that individuals are able to successfully communicate their beliefs—both first-personal and non-first-personal—to one another. For example, if Sam believes that Paris is the capital of France, while you are ignorant of this fact, then Sam can communicate this belief to you, and, as a result, you may come to believe an appropriate content, such that, given your respective beliefs, you and Sam agree. And similarly, if Sam believes first-personally that they are sick, while you are ignorant of this fact, then it would seem that Sam can communicate this belief to you, and, as a result, you may come to believe an appropriate content, such that, given your respective beliefs, you and Sam agree.

Successful communication is a means to agreement. While it is natural to talk about agreement as a relation between individuals, such a relation holds between individuals given particular beliefs that they have. We can think of agreement, then, as a relation that holds between possible states of affairs in which given individuals have beliefs with particular contents. We can represent this relation by introducing a binary sentential connective: \equiv_A . Letting $Bel(y, q)$ mean that y has a belief with content q , we can then take $Bel(y, q) \equiv_A Bel(x, p)$ to mean that y 's having a belief with content q constitutes agreement with x 's having a belief with content p . Note that, as we're understanding this relation, $Bel(y, q) \equiv_A Bel(x, p)$ may obtain even if y doesn't in fact have a belief with content q or x doesn't in fact have a belief with content p . Instead, \equiv_A is a relation that may hold between the possible states of affairs $Bel(y, q)$ and $Bel(x, p)$, independent of whether or not they obtain, and that explains why y agrees with x if, in fact, y has a belief with content q and x has a belief with content p .

What is required in order for the relation \equiv_A to obtain? The proponent of PROPOSITIONALISM has a natural and simple answer to this question. In particular, given our assumptions about the structure of propositions, we suggest that the proponent of PROPOSITIONALISM should maintain that for two agents to have beliefs that are in agreement just is for them to have beliefs with the same content. That is, the proponent of PROPOSITIONALISM should endorse:

PROPOSITIONAL AGREEMENT

Necessarily, for any agents x and y and propositions p and q , $Bel(y, q) \equiv_A Bel(x, p)$ just in case $p = q$.

Clearly, believing the same proposition is sufficient for agreement. And, given our assumptions about the nature of propositions, if p and q are distinct, then there is some possibility in which one holds and the other fails to hold. But if p and q may come apart in truth-value, then it would seem that believing one can't constitute agreement with believing the other. Given PROPOSITIONALISM, then, for two agents to have beliefs that are in agreement just is for them to have beliefs with the same content.

agent x believes and knows the obvious truth that $x = x$, such an agent may not believe or know first-personally that they are x .

It is much less clear, however, what the proponent of PROPRIETISM should say is required for the relation \equiv_A to obtain. Consider, for example, the minimal proprietal variant of PROPOSITIONAL AGREEMENT:

PROPRIETAL AGREEMENT (FIRST INCORRECT VERSION)

Necessarily, for any agents x and y and properties p and q , $Bel(y, q) \equiv_A Bel(x, p)$ just in case $p = q$.

To see that this misfires, let p and q each be the property of being Hume. The above principle then tells us that the state of Hume first-personally believing that he is Hume would constitute agreement with the state of some other individual—say Mad Heimson—also first-personally believing that he is Hume. But this is clearly incorrect. For, given the actual facts, Hume’s possible belief is correct—he is Hume—while Heimson’s is not—he is not Hume. But an obvious minimal condition on agreement is that if two individuals’ possible beliefs would be in agreement then it can’t be that one of these beliefs is true and the other false.⁵

In light of this sort of counterexample, a natural thought is that, given PROPRIETISM, agreement should be understood as the guaranteed absence of divergence in truth value. Thus, one may be tempted to endorse:

PROPRIETAL AGREEMENT (SECOND INCORRECT VERSION)

Necessarily, for any agents x and y and properties p and q , $Bel(y, q) \equiv_A Bel(x, p)$ just in case necessarily, y has property q just in case x has property p .

But this too misfires. While the guaranteed absence of divergence in truth value is, we think, a necessary condition for agreement, it would not seem to be sufficient. To see this, again let p and q each be the property of being Hume. The above principle then tells us that for any two individuals distinct from Hume—say Mad Heimson and another individual Mad Marcus—the state of one of them believing, first-personally, that they are Hume constitutes agreement with the state of the other also believing, first-personally, that they are Hume. For, given that distinctness claims are necessary, if true, it follows from the fact that neither Heimson nor Marcus is Hume, that, necessarily, Heimson has the property of being Hume just in case Marcus has the property of being Hume.

⁵This basic worry for PROPRIETISM was first raised by Stalnaker [1981], though he concentrated on the notion of communication rather than agreement. Responses to this worry on behalf of PROPRIETISM have also tended focus on the notion of communication rather than on agreement, rendering them of limited relevance to our present concerns. For example, Heim [2004], Gibbard [2013, Appendix 1] , Kölbel [2013], and Weber [2013] attempt to give accounts of ‘*de se* communication’ on behalf of the PROPRIETIST, but none of these authors provide a general characterization of the notion of agreement. (Weber [2013, 217] provides an account what it is for a pair of utterances to disagree, but it is not straightforward to derive from this an account of the conditions under which a pair of agents agree.) Other accounts of *de se* communication arguably embrace a version of PROPOSITIONALISM insofar as they treat the objects of communication as things that do not vary in truth value across individuals [Ninan, 2010, Torre, 2010, Moss, 2012].

And so, the above principle tells us that in this case Heimson and Marcus's possible states of belief are in agreement. But this strikes us as wrong. For just as Hume and Heimson would disagree about who is Hume, were each to believe, first-personally, that he is Hume, so too would Heimson and Marcus also seem to disagree about who is Hume were each to have such a first-personal belief.

It isn't at all obvious to us what the proponent of PROPRIETISM should say about the conditions under which two agents count as agreeing in virtue of their beliefs. We need not, however, survey all of the possible options. For we can show that any account of agreement that the proponent of PROPRIETISM may provide will have a significant flaw. In particular, we can show that, given PROPRIETISM, there are guaranteed to be certain in principle limitations on the extent to which agents can know, first-personally, that their belief is in agreement with that of another individual. And this, we'll argue, incorrectly predicts that there is a large class of cases in which successful communication is, in principle, precluded. PROPOSITIONALISM, in contrast, doesn't predict the same sorts of in-principle limitations on successful communication. This thus provides a good reason to prefer PROPOSITIONALISM to PROPRIETISM.

We begin by stating two plausible principles concerning agreement and communication.

The fact that agents, in general, can successfully communicate their beliefs to others motivates the claim that, in general, for any belief that one agent may have there is some other possible belief that another agent may have that would suffice for the two to be in agreement. Given PROPRIETISM, then, it seems quite plausible that the following principle holds:

PROPRIETAL AGREEMENT EXISTENCE

For any agents x and y , and any property p , there exists some property q such that $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$.

Successful communication, of the sort that is standardly achieved, does not, however, merely require that there be some content such that the addressee's adopting a belief with that content would suffice for agreement with the speaker's communicated belief—it also requires that the addressee know, of some content, that their believing that content suffices for agreement with the speaker's communicated belief. We assume, then, that the following provides a natural constraint on successful communication:

SUCCESSFUL COMMUNICATION

In a case of successful communication, there is a communicated content p and a content q such that the addressee knows first-personally that their believing q constitutes agreement with the speaker's believing p .

This much we take to be clear. There are, however, two natural ways of understanding the requirement imposed by SUCCESSFUL COMMUNICATION. On one interpretation, the addressee must have de re knowledge of the speaker.

According to this interpretation, if x is the speaker, then successful communication between x and their addressee requires that the addressee know, of some content, that their believing this content suffices for agreement with x 's believing the communicated content. On a second interpretation, the addressee must have a piece of *de dicto* knowledge concerning the speaker. According to this interpretation, successful communication between a speaker and their addressee requires that there be some appropriate mode of presentation of the speaker f such that the addressee knows, of some content, that their believing this content suffices for agreement with f 's believing the communicated content.

We won't try to adjudicate between these two ways of understanding the requirement imposed by SUCCESSFUL COMMUNICATION. Instead, we'll argue that, given either interpretation, the proponent of PROPRIETISM incorrectly predicts that there are certain significant limitations on successful communication.

Let's begin by considering the *de re* interpretation of SUCCESSFUL COMMUNICATION:

SUCCESSFUL COMMUNICATION (DE RE)

In a case of successful communication between a speaker x and an addressee y , there is a communicated content p and a content q such that y knows first-personally that their believing q constitutes agreement with x 's believing p .

For the time being, we'll assume that successful communication requires this condition to be satisfied. Given PROPRIETISM, though, we can show that there is a large class of cases in which this condition is guaranteed to fail. That is, for many agents x and y and propositions p , there is no proposition q such that y can know that their believing q constitutes agreement with x 's believing p . And so PROPRIETISM predicts that there is a large class of cases in which it is, in principle, impossible for one agent to successfully communicate their belief to another.

To see this, first consider the following two extremely plausible principles:

PROPRIETAL ALETHIC AGREEMENT

Necessarily, for any agents x and y and properties p and q , if $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$, then y has property q just in case x has property p .

PROPRIETAL SELF-AGREEMENT

Necessarily, for any agent x and properties p and q , $\text{Bel}(x, p) \equiv_A \text{Bel}(x, q)$ just in case $p = q$.

We've already had occasion to appeal to PROPRIETAL ALETHIC AGREEMENT, and it strikes us as being clearly correct. In particular, this was what established that Hume and Heimson do not agree by each believing that they are Hume. The natural thought here is that any divergence in truth value between two beliefs is sufficient to show that the agents in question are not in agreement in virtue of holding those beliefs.

PROPRIETAL SELF-AGREEMENT also strikes us as being clearly correct. Obviously, the right-to-left direction holds. Each agent agrees with their own belief by having that belief. And the left-to-right direction also seems to be clearly true. For, given our assumptions about properties, any two distinct properties have different possible patterns of application. But if something could instantiate a property p but not a property q or vice versa, then taking oneself to have property p would seem to constitute a different opinion from taking oneself to have property q .

Given these minimal constraints on agreement, we can now show that PROPRIETALISM imposes a significant limit on successful communication.

Given PROPRIETALISM, for an agent to know first-personally that they have some property just is for the agent to stand in the knowledge relation to that property. We'll use the standard device of lambda abstraction to form property-denoting terms. Given PROPRIETALISM, then, for y to know, first-personally, that their believing some content q constitutes agreement with x 's believing some content p just is for y to know $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$.

Our first result establishes that, given PROPRIETALISM, for many agents x , y and contents p , there is no content q such that y knows $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$. In particular, we can show that if an agent y doesn't know whether they are some agent x in one world or some other agent z in another, then there are many contents that x may believe such that there is no content that y could know would suffice for agreement with x 's belief.

FIRST LIMITATIVE AGREEMENT RESULT

Let y 's epistemic state include the following centered-possibilities: $\langle x, w_1 \rangle, \langle u, w_2 \rangle$, where $x \neq u$, and let p be such that $\{\langle x, w_1 \rangle, \langle u, w_2 \rangle\} \subseteq p$ but $\langle x, w_2 \rangle \notin p$. Given PROPRIETAL SELF-AGREEMENT and PROPRIETAL ALETHIC AGREEMENT, it follows that, for each property q , y does not know $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$.

PROOF: We consider two cases:

Case 1: $q \neq p$. Since $q \neq p$, it follows from PROPRIETAL SELF-AGREEMENT that $Bel(x, q) \not\equiv_A Bel(x, p)$ at w_1 . So x lacks the property $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$ at w_1 . Since $\langle x, w_1 \rangle$ is an element of y 's epistemic state, it follows that y does not know $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$.

Case 2: $q = p$. Since $q = p$ and $\langle u, w_2 \rangle \in p$, it follows that u has property q at w_2 . Since $\langle x, w_2 \rangle \notin p$, it follows that x lacks property p in w_2 . So given PROPRIETAL ALETHIC AGREEMENT, it follows that $Bel(u, q) \not\equiv_A Bel(x, p)$ at w_2 . Since $\langle u, w_2 \rangle$ is an element of y 's epistemic state, it follows that y does not know $\lambda z.Bel(z, q) \equiv_A Bel(x, p)$.

The above result shows that if an agent y doesn't know whether they are some agent x in one world or some other agent z in another, then there are

many contents that x may believe such that there is no content that y could know would suffice for agreement with x 's belief. And given this, it follows from SUCCESSFUL COMMUNICATION (DE RE) that if y doesn't know whether they are some agent x in one world or some other agent z in another, then there are many beliefs that x may have that, in principle, x cannot successfully communicate to y .

This strikes us as a bad prediction. For, given PROPRIETISM, there should be many possible cases in which an agent is unsure about who they are. And yet it would not seem that there are, in such cases, significant limitations on the extent to which an agent x may successfully communicate with an agent y , when x happens to be one of the individuals that y thinks that they could be.

Here is an example that illustrates the sort of limitation that holds given the above result. Suppose that the famous amnesiac Lingens is in the Stanford library in the actual world \emptyset , and that another amnesiac Lauben is also in this library in \emptyset . Suppose, moreover, that it's compatible with what Lingens knows that he is either Lingens in \emptyset , Lauben in \emptyset or some other amnesiac Harold in the Harvard library in a world w . And suppose that Lauben believes, first-personally, that either he is Lauben in \emptyset or that he is Harold in w . The above result tells us that, given PROPRIETISM, there is no content that Lingens could know, first-personally, would suffice for agreement with this belief of Lauben's. And so, assuming SUCCESSFUL COMMUNICATION (DE RE), it follows that Lauben's belief that he is Lauben in \emptyset or that he is Harold in w cannot, in principle, be successfully communicated to Lingens.

It seems to us, though, that even if Lingens and Lauben are ignorant of their identities, in the manner that we're imagining, in principle they may still successfully communicate their respective beliefs to one another. For example, if Lingens and Lauben were to speak to one another in the Stanford library, it would seem that Lauben could inform Lingens that he thinks that he is either Lauben in \emptyset or Harold in w , and, given this, Lingens could know what sort of belief would suffice to agree with his interlocutor.

It's worth noting that the problem here turns essentially on the first-personal nature of the relevant knowledge required for successful communication. Thus, consider the following principle:

PROPRIETAL DE RE KNOWLEDGE OF AGREEMENT

For any agents x and y , and any property p , there exists some property q such that y knows $\lambda z.Bel(y, q) \equiv_A Bel(x, p)$.

There is good reason to think that this principle holds. For given PROPRIETAL AGREEMENT EXISTENCE, it follows that for any agents x and y and any property p , there exists some property q such that $Bel(y, q) \equiv_A Bel(x, p)$. Furthermore, it is quite plausible to us that if a claim of the form $Bel(y, q) \equiv_A Bel(x, p)$ is true, it is necessarily true. Given this assumption, and our assumptions about properties, it follows that at any of y 's epistemic possibilities (u, w) , $Bel(y, q) \equiv_A Bel(x, p)$ will hold at w , which implies that y knows $\lambda z.Bel(y, q) \equiv_A Bel(x, p)$. Thus, for any belief that one agent may have, there is some property q such that

the second agent knows, third-personally, that their believing q would suffice for agreement with the first agent's belief.

This sort of third-personal knowledge, though, is compatible with there being various cases in which there is no content q such that a given agent knows, *first-personally*, that their believing q would suffice for agreement with another agent's belief. For example, Lingens may know that *Lingens's* believing q would suffice for agreement with Lauben's belief without knowing whether *his* believing q would suffice.

More generally, the proponent of PROPRIETISM will allow that an agent may know exactly which individuals stand in a given relation without knowing, first-personally, whether they stand in that relation to a given individual x . In particular, if some individual y stands in the relation to x and some individual z does not, then, if one is ignorant of whether one is y or z , then, even if one knows all the facts about which individuals stand in the relevant relation to x , one will not know, first-personally, whether one stands in that relation to x .

The key to the above proof is that while PROPRIETAL AGREEMENT EXISTENCE ensures that for any agents x and y and any property p there exists some property q such that $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$, it follows from PROPRIETAL ALETHIC AGREEMENT and PROPRIETAL SELF-AGREEMENT that it is *not* true that for any agents x and any property p , there exists some property q such that, for *all* agents y , $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$. And so, even if for all individuals x and y and properties p , there is some property q such that y knows $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$, if y doesn't know who they are then they may be first-personally ignorant that they have the property $\lambda z. \text{Bel}(z, q) \equiv_A \text{Bel}(x, p)$.

The above result shows that, given PROPRIETISM, SUCCESSFUL COMMUNICATION (DE RE) imposes a constraint that fails to be satisfied in many actual cases of successful communication. Assuming SUCCESSFUL COMMUNICATION (DE RE), then, it follows from the preceding result that the proponent of PROPRIETISM incorrectly predicts that successful communication between agents x and y is severely constrained in certain cases in which x is one of the individuals that y thinks that they could be.

Given this result, the proponent of PROPRIETISM may naturally maintain that SUCCESSFUL COMMUNICATION (DE RE) doesn't capture the true interpretation of SUCCESSFUL COMMUNICATION. In particular, they may maintain that successful communication between a speaker and their addressee doesn't require the sort of de re knowledge required by SUCCESSFUL COMMUNICATION (DE RE), but instead it merely requires that there be some appropriate mode of presentation of the speaker f such that the addressee knows, of some content, that their believing this content suffices for agreement with f 's believing the communicated content.

Formally, we can think of a mode of presentation f as a function that picks out a unique individual in a possible world. We'll say that f is a mode of presentation of an individual x just in case f as a matter of fact picks out x . In what follows, we'll let $\text{Bel}(y, q) \equiv_A \text{Bel}(f, p)$ mean that y 's having a belief with content q constitutes agreement with f 's having a belief with content p . This proposition is true at a world w just in case the unique x such that $f(w) = x$ is

such that $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$ holds at w . Given PROPRIETISM, then, for y to know, first-personally, that their believing some content q constitutes agreement with the f 's believing some content p just is for y to know $\lambda z. \text{Bel}(z, q) \equiv_A \text{Bel}(f, p)$.

If, then, the proponent of PROPRIETISM is inclined to reject SUCCESSFUL COMMUNICATION (DE RE), we suggest that they should instead accept the following weaker principle:

SUCCESSFUL COMMUNICATION (DE DICTO)

In a case of successful communication between agents x and y , there is a communicated content p , a content q , and a mode of presentation f of x such that y knows first-personally that their believing q constitutes agreement with f 's believing p .

Given this alternative principle, however, the proponent of PROPRIETISM still incorrectly predicts that there is large class of cases in which one agent's belief is, in principle, incommunicable to another agent.⁶ Indeed, we can show that there are such limitations, even in cases in which an agent knows who they are and knows that they are distinct from their interlocutor.

To show this, we'll appeal to a third plausible principle concerning agreement:

MODALIZED PROPRIETAL ALETHIC AGREEMENT

Necessarily, for any agents x and y and properties p and q , if $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$, then, necessarily, y has property q just in case x has property p .

MODALIZED PROPRIETAL ALETHIC AGREEMENT is a strengthening of PROPRIETAL ALETHIC AGREEMENT, but it follows from that weaker principle given a plausible claim discussed above: that truths of the form $\text{Bel}(y, q) \equiv_A \text{Bel}(x, p)$

⁶Indeed, a minor tweak of the FIRST LIMITATIVE AGREEMENT RESULT suffices to establish this. In particular, if we let y 's epistemic state include the following centered-possibilities: $\langle x, w_1 \rangle, \langle z, w_2 \rangle$, where $x \neq z$, let f be an individual concept such that $f(w_1) = x$ and $f(w_2) \neq z$, and let p be such that $\{\langle x, w_1 \rangle, \langle z, w_2 \rangle\} \subseteq p$ and $\langle f(w_2), w_2 \rangle \not\in p$, then given PROPRIETAL SELF-AGREEMENT and PROPRIETAL ALETHIC AGREEMENT, it follows that, for each property q , y does not know $\lambda z. \text{Bel}(z, q) \equiv_A \text{Bel}(f, p)$.

Given this, it follows from SUCCESSFUL COMMUNICATION (DE DICTO), that if an agent is such that every mode of presentation f by which they learn that their interlocutor believes a content p is such that it is both compatible with the agent's epistemic state and p that they are f and compatible with the agent's epistemic state and p that they are not f , then, in this situation, the interlocutor's belief will be such that it cannot be successfully communicated.

Arguably, this is a bad prediction. For it seems plausible to us that communicative success does not depend, in this way, on whether it is an open possibility that one is, in fact, the individual picked out by the conversational modes of presentation that pick out the individual with whom one is communicating. Admittedly, though, such cases are unusual, and one might accept such limitations without too many misgivings. For this reason, we're inclined to think that the result considered below is more probative.

are necessary.⁷

Now given just this minimal constraint on agreement, we can show that PROPRIETISM implies that there are a number of limitations on the conditions under which an agent can know, first-personally, that they are in agreement with another agent under a given mode of presentation. In particular, our second result establishes that, given PROPRIETISM, for many agents x, y , properties p , and modes of presentation f of x , there is no property q such that y knows that their believing q constitutes agreement with f 's believing p .

SECOND LIMITATIVE AGREEMENT RESULT

Let y 's epistemic state include the following centered-possibilities: $\langle u, w_1 \rangle, \langle u, w_2 \rangle$, where $w_1 \neq w_2$. And let f be an individual concept of x and p a property such that: $\{w : \langle f(w_1), w \rangle \in p\} \neq \{w : \langle f(w_2), w \rangle \in p\}$. Given MODALIZED PROPRIETAL ALETHIC AGREEMENT, it follows that, for each property q , y does not know $\lambda z.Bel(z, q) \equiv_A Bel(f, p)$.

PROOF: Consider the two epistemic centered-possibilities for y : $\langle u, w_1 \rangle, \langle u, w_2 \rangle$. Letting q be an arbitrary property, if y knows that they have the property $\lambda z.Bel(z, q) \equiv_A Bel(f, p)$ then it must be that this property is had by u at w_1 and by u at w_2 . We can show that this can't be so, given MODALIZED PROPRIETAL ALETHIC AGREEMENT.

Given MODALIZED PROPRIETAL ALETHIC AGREEMENT, for u to have the property $\lambda z.Bel(z, q) \equiv_A Bel(f, p)$ at w_1 it must be the case that $\{w : \langle f(w_1), w \rangle \in p\} = \{w : \langle u, w \rangle \in q\}$. And for u to have that same property at w_2 it must be the case that $\{w : \langle f(w_2), w \rangle \in p\} = \{w : \langle u, w \rangle \in q\}$. But given that $\{w : \langle f(w_1), w \rangle \in p\} \neq \{w : \langle f(w_2), w \rangle \in p\}$, it follows that at least one of these identities must fail, and so there must be at least one epistemic centered-possibility for y such that the individual in that centered-possibility lacks the property $\lambda z.Bel(z, q) \equiv_A Bel(f, p)$ at the world of that centered-possibility. It follows that, for arbitrary property q , y does not know $\lambda z.Bel(z, q) \equiv_A Bel(f, p)$.

The above result shows that there is no property q such that an agent could know, first-personally, that their believing q would suffice for agreement with f 's believing p , for any mode of presentation f that varies between two of the agent's epistemic centered-possibilities that are alike with respect to their

⁷Proof: Suppose $Bel(y, q) \equiv_A Bel(x, p)$. Then if such truths are necessary, it is necessary that $Bel(y, q) \equiv_A Bel(x, p)$. PROPRIETAL ALETHIC AGREEMENT tells us that it is necessary that if $Bel(y, q) \equiv_A Bel(x, p)$, then y has property q iff x has property p . Given our assumptions about the logic of necessity, it follows from this that if it is necessary that if $Bel(y, q) \equiv_A Bel(x, p)$, then it is necessary that y has property q iff x has property p . Since it follows from our supposition that it is necessary that $Bel(y, q) \equiv_A Bel(x, p)$, it follows that it is necessary that y has property q iff x has property p . So if $Bel(y, q) \equiv_A Bel(x, p)$, then it is necessary that y has property q iff x has property p , which is just what MODALIZED PROPRIETAL ALETHIC AGREEMENT says.

center, and any property p whose pattern of instantiation differs between the two relevant individuals that may be picked out by f at the worlds of those centered-possibilities.

This imposes quite severe constraints on knowledge of agreement. If an agent is certain of who they are but uncertain which individual f picks out, then there is large class of properties p for which there is no property q that the agent could first-personally know would suffice for agreement with f 's belief with content p . In particular, if an agent is certain of who they are but uncertain which individual f picks out, then any property p whose possible pattern of instantiation differs between any two individuals will be such that there is no property q that the agent could first-personally know would suffice for agreement with f 's belief with content p . But, plausibly, any qualitative property p will be such that, for any two individuals x and z , there is some possibility in which x has p but z lacks p . It follows that if an agent is certain of who they are, but uncertain which individual f picks out, then, for any qualitative property p , there is no property q that the agent could first-personally know would suffice for agreement with f 's belief with content p .

This strikes us as a bad prediction. For example, suppose that Lingens is again speaking to Lauben. But this time suppose that Lingens knows that he is Lingens but does not know whether his interlocutor is Lauben or Harold. If Lauben believes that he has some qualitative property—e.g. the property of being tired—then that seems to be the sort of thing Lauben could successfully communicate to Lingens in this scenario. But the above result shows that, given SUCCESSFUL COMMUNICATION (DE DICTO) and MODALIZED PROPRIETAL ALETHIC AGREEMENT, PROPRIETISM conflicts with this possibility.

The proponent of PROPRIETISM, then, predicts that there are significant limitations on the extent to which agents can communicate with each other—limitations that do not seem to be witnessed. The proponent of PROPOSITIONALISM, however, is not forced to predict the same sorts of limitations on successful communication. For the proponent of PROPOSITIONALISM does not predict the same sorts of in principle limitations on the extent to which agents can know, first-personally, that their belief is in agreement with that of another individual, either de re or under a given mode of presentation. To see this, note that, given PROPOSITIONAL AGREEMENT, there is a single answer to the question of which propositional content an arbitrary agent y should believe in order to agree with an agent x 's belief with propositional content p —they should also believe p . Given this, the proponent of PROPOSITIONALISM can endorse SUCCESSFUL COMMUNICATION, on either way of understanding this principle, without predicting the sorts of limitations on successful communication predicted by the proponent of PROPRIETISM.

3 Propositionalism and Self-Ascription

We take the preceding to constitute a strong argument for PROPOSITIONALISM—the claim that *belief* and *knowledge* are propositional relations. However, de-

spite there being good reason to maintain that these particular psychological relations have propositions as objects, we don't want to deny that there are also important psychological relations whose objects are properties. For we think that agents do have distinctive first-personal beliefs and states of knowledge.⁸ And while an agent's first-personal beliefs and states of knowledge have propositions as their objects, such beliefs and states of knowledge nonetheless determine certain relations to properties. We'll say that an agent "doxastically (epistemically) self-ascribes" a property p just in case they believe (know) first-personally that they have p .

In the next section, we'll develop two accounts of which propositions play the role of being the objects of such first-personal beliefs and states of knowledge, and we'll develop two corresponding accounts of doxastic and epistemic self-ascription. In this section, we show that there is a certain constraint on self-ascription that the PROPOSITIONALIST should accept but that is standardly rejected by PROPRIETISTS. Our discussion will focus on doxastic self-ascription, though the same points hold, mutatis mutandis, for epistemic self-ascription.

We'll say that two agents x and y *completely agree* just in case (i) for every content p that x believes there is a content that q that y believes such that x and y are in agreement given these beliefs, and (ii) for every content q that y believes there is a content that p that x believes such that x and y are in agreement given these beliefs. Given this definition, PROPOSITIONAL AGREEMENT entails:

COMPLETE BELIEF AGREEMENT

Necessarily, for any agents x and y , x and y completely agree just in case the strongest proposition that x believes is the same as the strongest proposition that y believes.

Since the proponent of PROPOSITIONALISM should accept PROPOSITIONAL AGREEMENT, it follows that they should also accept COMPLETE BELIEF AGREEMENT.

We next note two principles concerning self-ascription that we think the proponent of PROPOSITIONALISM should also accept. In justifying these principles, we'll appeal to certain plausible claims about the propositions that play the role of being the objects of first-personal beliefs. These claims will be vindicated by both of the accounts developed in the next section.

We take as a minimal assumption that if an agent self-ascribes a property p_1 by believing a proposition q_1 and they self-ascribe a property p_2 by believing q_2 , then they self-ascribe the conjunction of p_1 and p_2 by believing the conjunction of q_1 and q_2 . Given this, it follows from our assumption that an agent's beliefs are closed under logical consequence that, in addition to there being a strongest proposition that an agent believes, there is also a strongest property that an agent self-ascribes.

One principle about self-ascription that we think the proponent of PROPOSITIONALISM should accept is:

⁸See Cappelen and Dever [2013], Magidor [2015], Ninan [2016, 2020], Torre [2018], Shaw [2019], and Torre and Weber [2020] for discussion.

STRONGEST PROPOSITION

If p is the strongest property x self-ascribes, then $p' = \{w : \langle y, w \rangle \in p \text{ for some individual } y\}$ is the strongest proposition x believes.⁹

To see why the PROPOSITIONALIST should accept this, let p be the strongest property that x self-ascribes. First, suppose that $w \in p'$. Then there is a y such that $\langle y, w \rangle \in p$. But, given this, w must be compatible with the strongest proposition that x believes. For, otherwise, there would be a first-personal belief that the agent has, viz., the first-personal belief that they are such that w isn't the case, such that the property that the agent thereby self-ascribes is incompatible with every pair $\langle y, w \rangle$. But then p , the strongest property that x self-ascribes, must be incompatible with every pair $\langle y, w \rangle$, contradicting our supposition that there is a y such that $\langle y, w \rangle \in p$. Next, suppose that $w \notin p'$. Then there is no y such that $\langle y, w \rangle \in p$. But, given this, it must be that for each y , the individual x has some first-personal belief that is incompatible with them being such that they are y in w . We assume that the conjunction of these propositions must be incompatible with w . It thus follows that w must be incompatible with the strongest proposition that x believes.

A second principle about self-ascriptio that we think the proponent of PROPOSITIONALISM should accept is:

COMPLETE PROPRIETAL AGREEMENT

Necessarily, for any agents x and y , and properties p_1 and p_2 , if p_1 is the strongest property that x self-ascribes and p_2 is the strongest property that y self-ascribes and x and y completely agree, then x has p_1 iff y has p_2 .

This principle strikes us as providing a natural constraint on self-ascriptio. It is, in effect, a consequence of PROPRIETAL ALETHIC AGREEMENT which we discussed in the previous section. This principle, moreover, follows given the minimal assumption that, necessarily, if an agent x self-ascribes a property p by believing a proposition q then q holds just in case x has property p .

We take it, then, that the PROPOSITIONALIST should accept all three of the preceding principles. Jointly, however, these principles have a notable consequence concerning self-ascriptio that standard versions of PROPRIETALISM reject.

To see this, consider the following claim:

SAME STATE

Possibly, there are agents x and y and a property p such that p is the strongest property that x self-ascribes and the strongest property that y self-ascribes and x has p and y lacks p .

PROPRIETALISTS, we take it, will generally accept this claim. For example, Lewis [1979, 142–143] takes it that when two agents x and y get their heads into

⁹Stalnaker [2011, 119].

‘perfect match’—that is, when they are, in a certain sense, psycho-functional duplicates—we should say that the strongest property x self-ascribes is identical to the strongest property y self-ascribes. Lewis, moreover, takes it that it is, in principle, possible for two agents to be psycho-functional duplicates, and so, according to Lewis, SAME STATE should hold.

The preceding three principles, however, entail the falsity of SAME STATE.

INCONSISTENCY RESULT

The following are jointly inconsistent: COMPLETE BELIEF AGREEMENT, STRONGEST PROPOSITION, COMPLETE PROPRIETAL AGREEMENT and SAME STATE.

PROOF: Suppose, for *reductio* that all four claims are true. Then by SAME STATE there is a world w at which there is some property p that is the strongest property that x self-ascribes and the strongest property that y self-ascribes and x has p and y lacks p . It follows from COMPLETE PROPRIETAL AGREEMENT that x and y do not completely agree at w . But since, at w , p is the strongest property that x self-ascribes and the strongest property that y self-ascribes, it follows by STRONGEST PROPOSITION that, at w , p' is the strongest proposition that x believes, as well as the strongest proposition that y believes. But since $p' = p$, it then follows from COMPLETE BELIEF AGREEMENT that x and y completely agree at w . Contradiction.

While the PROPOSITIONALIST is well-motivated in accepting that there are proprietial relations of doxastic and epistemic self-ascription, the above result shows that they must maintain that there are certain constraints on self-ascriptive states that the PROPRIETIST may naturally reject.¹⁰ In particular, the preceding result shows that the three principles that we’ve argued the PROPOSITIONALIST should accept jointly entail the following principle which is equivalent to the negation of SAME STATE:

SELF-ASCRIPTIVE SYMMETRY

Necessarily, for any agents x and y and property p , if p is the strongest property that x self-ascribes and the strongest property that y self-ascribes, then x has p iff y has p .

¹⁰Call p a *boring property* just in case, for all individuals x and y and worlds w , we have $\langle x, w \rangle \in p$ just in case $\langle y, w \rangle \in p$ [Egan, 2006, 107]. The PROPRIETIST can understand a *propositional belief* as being a belief whose object is a boring property, and, given this interpretation, we think that the PROPRIETIST should accept STRONGEST PROPOSITION. In addition, we think that the PROPRIETIST should also accept COMPLETE PROPRIETAL AGREEMENT. It is natural, however, for the PROPRIETIST to reject COMPLETE BELIEF AGREEMENT, given the above interpretation of *propositional belief*. For complete agreement between two agents consists in each belief that one agent has being in agreement with some other belief that the other agent has, and vice versa. Now if beliefs are just relations to propositions then, as we’ve argued, COMPLETE BELIEF AGREEMENT seems to be clearly true. However, if one thinks, as the PROPRIETIST does, that propositional beliefs are simply a fragment of the total class of beliefs that an agent may have, then it does not seem particularly plausible that two agents will completely agree just in case they have all of the same propositional beliefs.

This is, at the very least, a surprising claim. For it isn't immediately obvious why it should be impossible for two agents two self-ascribe exactly the same properties without both instantiating all of those properties, or both failing to instantiate at least one of those properties. The two versions of PROPOSITIONALISM that we'll develop in the next section will both ensure that SELF-ASCRIPTIVE SYMMETRY holds, and so, will explain why there is such a joint constraint on agents' self-ascriptive states.¹¹

4 Two Versions of Propositionalism

We turn now to the task of describing two versions of PROPOSITIONALISM and exploring their consequences for the relations of doxastic and epistemic self-ascription. Both of the accounts that follow reduce facts about which properties an agent doxastically (epistemically) self-ascribes to facts about which propositions the agent believes (knows) *together with certain other facts*. A more ambitious project would be to reduce facts about about which properties an agent doxastically (epistemically) self-ascribes solely to facts about which propositions the agent believes (knows). We think, however, that such a project must fail. To see this, consider the following case described in Stalnaker [2016]:

Albert is in the kitchen and Boris is in the basement. Each knows who and where he is, and who and where the other is, so there is no self-locating ignorance. They each know all the same objective facts about their respective locations in the house, but there is still a difference in their epistemic states, a difference in their perspectives on the world. To see that this difference is not reflected in their impersonal beliefs, consider any representation of the contents of their common state of belief... All that matters for the point is that

¹¹It's worth noting that these two accounts also ensure that self-ascriptive states satisfy the following constraint proposed by Stalnaker:

STALNAKER'S CONSTRAINT

For any world w , agent x , property p , and centered possibilities $\langle y, w' \rangle$, $\langle z, w' \rangle$, if p is the strongest property that x self-ascribes in w and $\langle y, w' \rangle$ and $\langle z, w' \rangle$ are both elements of p , then $y = z$.

This principle is equivalent to the ‘PROXY’ principle defended in Moss [2012], and is independent of SELF-ASCRITIVE SYMMETRY.

To see that STALNAKER'S CONSTRAINT does not entail SELF-ASCRITIVE SYMMETRY, let $p = \{\langle z, w \rangle : z = \text{Hume}\}$. Now STALNAKER'S CONSTRAINT does not rule out p 's being the strongest property that both Hume and Heimson self-ascribe. For if $\langle x, w \rangle$ and $\langle y, w \rangle$ are both in p , then $x = \text{Hume} = y$, and so STALNAKER'S CONSTRAINT is satisfied. But such a situation is incompatible with SELF-ASCRITIVE SYMMETRY since Hume has p while Heimson does not.

To see that SELF-ASCRITIVE SYMMETRY does not entail STALNAKER'S CONSTRAINT, let $q = \{\langle z, w \rangle : z = x \text{ or } z = y\}$ (where $x \neq y$). SELF-ASCRITIVE SYMMETRY does not rule out q 's being the strongest property x self-ascribes—it only rules out q 's being the strongest property x self-ascribes if q is also the strongest property x' self-ascribes, for some x' distinct from both x and y . But *any* situation in which q is the strongest property x self-ascribes is incompatible with STALNAKER'S CONSTRAINT, since if w is any world, both $\langle x, w \rangle$ and $\langle y, w \rangle$ will be elements of q even though $x \neq y$.

propositions are things with absolute truth conditions. That is, they are things whose truth conditions are invariant with respect to time, place, and person. Suppose such a representation contained all the information about the beliefs of any person who is in the cognitive state that Boris and Albert are both in. Let x be any person in that state. Where does x believe himself or herself to be? It is clear enough from the description of the scenario that Boris believes he is in the basement and Albert believes he is in the kitchen, but these are further facts that are not reflected in the common set of propositions that is what each of them believes, or in the set of possible worlds that are compatible with the way they take the world to be. [Stalnaker, 2016, 70]

Stalnaker's point here is that if propositions are common currency between agents, then it would seem that there may be two agents, such as Albert and Boris, who believe (know) all the same propositions while differing with respect to which properties they doxastically (epistemically) self-ascribe. Given this, the minimal conclusion to draw is that which propositions an arbitrary agent believes (knows) doesn't itself determine which properties they doxastically (epistemically) self-ascribe.

This point strikes us as being both correct and important. The proponent of PROPOSITIONALISM may, however, accept this conclusion but still maintain that the facts about which properties an agent doxastically (epistemically) self-ascribes are determined by the facts about which propositions they believe (know) *together with certain additional facts*. The two versions of PROPOSITIONALISM that follow will appeal to different sets of additional facts to determine which properties a given agent doxastically (epistemically) self-ascribes given the facts about which propositions they believe (know).

Both versions of PROPOSITIONALISM that we'll describe below are parametric on an initial version of PROPRIETISM. In keeping with our initial assumptions, the version of PROPRIETISM that we'll assume takes the class of propositions to form a complete, atomic, Boolean algebra, and the class of properties to be isomorphic to the class of sets of ordered-pairs $\langle x, w \rangle$, where x is an individual and w is an atomic proposition. To have useful labels, we'll call these classes the "base propositions" and "base properties", and we'll call the propositions that are atoms amongst the class of base propositions "base atoms".¹²

In §4.1, we describe a version of PROPOSITIONALISM that agrees with our initial version of PROPRIETISM about what the space of propositions looks like. According to this account, for an agent x to self-ascribe some property p just is for that agent to believe a particular base proposition. In §4.2, we describe a second version of PROPOSITIONALISM that admits more propositions than our initial version of PROPRIETISM admits. According to this account, it will not in general be true that for an agent x to self-ascribe some property p just is for that agent to believe a particular *base* proposition. While we're inclined

¹²See Caie for a way of intrinsically characterizing the classes of "base propositions" and "base properties".

to think that both accounts have their merits, as we'll indicate, we think that there are certain reasons to prefer the second version of PROPOSITIONALISM to the first.

4.1 De Re Propositionalism

Our first version of PROPOSITIONALISM agrees with PROPRIETISM about the space of propositions and properties. According to both accounts, these are just the classes of base propositions and properties. This version of PROPOSITIONALISM offers a very simple treatment of first-person belief and knowledge: for an agent x to believe (know) first-personally that they have property p just is for x to believe the proposition that x has property p . A first-person belief is just a certain kind of de re belief about oneself.¹³

This view yields a simple account of doxastic and epistemic self-ascription:

DE RE SELF-ASCIPTION

Necessarily, an agent x doxastically (epistemically) self-ascribes a property p just in case x believes (knows) the proposition that x has property p .

On this approach, self-ascribing a property just amounts to believing the de re proposition that ascribes that property to oneself. According to this account, while we can't simply read off of an agent's beliefs (state of knowledge) which properties they doxastically (epistemically) self-ascribe, once we add in the fact about which individual has the beliefs (state of knowledge) in question, then this is enough to determine the relevant facts about self-ascription.

Given DE RE SELF-ASCIPTION, the strongest proposition that an agent believes determines, together with their identity, the strongest property that they self-ascribe. More precisely, DE RE SELF-ASCIPTION entails the following principle:

STRONGEST PROPERTY (DE RE)

Necessarily, for any agent a and proposition p , if p is the strongest proposition that a believes, then the strongest property that a self-ascribes is:

$$\{\langle y, w \rangle : w \in p \text{ and } y = a\}.$$

CLAIM: DE RE SELF-ASCIPTION entails STRONGEST PROPERTY (DE RE)

PROOF: Let p be the strongest proposition a believes. Given DE RE SELF-ASCIPTION, we can show that a self-ascribes

$$\{\langle y, w \rangle : w \in p \text{ and } y = a\}.$$

¹³Schiffer [1978] defends a view along these lines, though he is working within a different theoretical framework.

by showing that a believes

$$\{w' : \langle a, w' \rangle \in \{\langle y, w \rangle : w \in p \text{ and } y = a\}\}.$$

And a believes this proposition iff a believes p which they do.

To see that $\{\langle y, w \rangle : w \in p \text{ and } y = a\}$ is the strongest property a self-ascribes, suppose that a self-ascribes q . It then follows from DE RE SELF-ASCIPTION that a believes $\{w' : \langle a, w' \rangle \in q\}$. Since p is the strongest proposition a believes, $p \subseteq \{w' : \langle a, w' \rangle \in q\}$. So suppose $w \in p$ and $y = a$. Since $w \in p$, $\langle a, w \rangle \in q$. Since $y = a$, $\langle y, w \rangle \in q$. So $\{\langle y, w \rangle : w \in p \text{ and } y = a\} \subseteq q$.

In the preceding section we observed that the proponent of PROPOSITIONALISM should accept SELF-ASCIPTIVE ASYMMETRY. The present account validates this principle. For given this account, it follows that no two agents can be such that the strongest property that one self-ascribes is the same as the strongest property that the other self-ascribes. But, given this, the antecedent of SELF-ASCIPTIVE ASYMMETRY is guaranteed to fail, and thus this principle is guaranteed to be satisfied.

The present account doesn't, however, just entail that no two agents can be such that the strongest property that one self-ascribes is the same as the strongest property that the other self-ascribes. In fact, the present account implies the following stronger joint constraint on self-assertion:

DISJOINTNESS

Necessarily, for any agents x and y and properties p and q , if $x \neq y$ and p is the strongest property that x self-ascribes and q is the strongest property that y self-ascribes, then p and q are disjoint.

CLAIM: DE RE SELF-ASCIPTION entails DISJOINTNESS

PROOF: Let $SA(x, p)$ mean that p is the strongest property that x self-ascribes. Suppose $x \neq y$, $SA(x, p)$, and $SA(y, q)$. And suppose, for *reductio*, that $\langle z, w \rangle \in p \cap q$. Since x believes $\{w : x = x\}$, it follows from DE RE SELF-ASCIPTION that x self-ascribes the property of being x . Since $SA(x, p)$, anything that has property p has the property of being x . Since $SA(y, q)$ it follows via a similar argument, that anything that has property q has the property of being y . Since $\langle z, w \rangle \in p \cap q$, $z = x = y$ which contradicts our assumption that $x \neq y$.

While this version of PROPOSITIONALISM is attractively simple, it also has certain features that one might find objectionable.

We can approach this issue by first observing an important consequence of the present version of PROPOSITIONALISM: for each agent x , there will be many pairs of distinct base properties p and q such that for x to self-ascibe p just is for x to self-ascibe q . For, given our assumptions about propositions, it follows

that if p and q are such that, necessarily, x has p just in case x has q , then the proposition that x has p just is the proposition that x has q . And so, given the above account of self-ascription, for any two properties p and q that necessarily agree with respect to x , necessarily x self-ascribes p just in case x self-ascribes q . But, given our plenitudinous assumptions about the space of properties, for any agent x , there will be many distinct properties p and q such that necessarily, x has p just in case x has q . Such properties will differ with respect to how they treat certain individuals at certain possible worlds, though they will not differ with respect to how they treat x at any world.

A particularly notable consequence of this is that a certain type of first-personal ignorance of one's identity is impossible.¹⁴ Given that there is more than one individual, it follows that, for each individual x , their haecceity, $\{\langle z, w \rangle : z = x\}$, is distinct from the unique necessarily universally instantiated property $\{\langle z, w \rangle : z = z\}$. However, given our assumptions about propositions, it follows that the proposition that x has $\{\langle z, w \rangle : z = x\}$ is identical to the proposition that x has $\{\langle z, w \rangle : z = z\}$ —both are identical to the unique necessary truth. Thus, since each agent believes and knows the unique necessary truth, it follows, given this account of doxastic and epistemic self-ascription, that each agent x is such that they doxastically and epistemically self-ascribe the property of being identical to x . And so, given DE RE SELF-ASCIPTION, it is, in a certain sense, impossible for an agent to fail to be first-personally ignorant about who they are.

This marks a significant difference between this version of PROPOSITIONALISM and PROPRIETISM. For, in general, the proponent of PROPRIETISM may maintain that, for any agent x and any distinct base properties p and q , what is for x to self-ascribe p differs from what is for x to self-ascribe q . And, in particular, proponents of PROPRIETISM standardly maintain that first-personal ignorance of one's own identity is possible—that is, x may fail to self-ascribe the property of being x .

Now the advocate of DE RE SELF-ASCIPTION may allow that an agent could ‘fail to know who they are’ in the sense that they fail to self-ascribe various important properties to themselves. For example, Hume may ‘fail to know who he is’ in the sense of failing to self-ascribe the property of being called “Hume” or the property of being the greatest philosopher of the Scottish Enlightenment, etc.. But Hume can’t ‘fail to know who he is’ in the sense of failing to self-ascribe the property of being Hume.

It’s also worth observing that, not only does this version of PROPOSITIONALISM imply that there are non-trivial constitutive connections between an agent’s self-ascriptions of distinct properties, it also implies that which constitutive connections there are differs between different agents. On this account, then, the nature of proprietal self-ascription for an agent x is essentially different than it is for any distinct agent y .

To see this, let’s say that two properties p and q are “ x -alike” just in case

¹⁴Weber [2015, 651] makes this point as part of a broader case against a similar version of PROPOSITIONALISM.

necessarily x has property p just in case x has property q . The relation of being x -alike is an equivalence relation. We've seen that if two properties p and q are in the same x -alike equivalence class, then, given the present account, necessarily for x to self-ascribe p just is for x to self-ascribe q . If, however, x and y are distinct agents, then the x -alike equivalence classes will differ from the y -alike equivalence classes. For example, the haecceity of x , though not the haecceity of y , is x -alike to $\{\langle w, z \rangle : z = z\}$, while the haecceity of y , though not the haecceity of x , is y -alike to $\{\langle w, z \rangle : z = z\}$. Thus, given this account, which self-ascriptions are necessarily equivalent will differ from agent to agent.

This version of PROPOSITIONALISM, then, differs substantially from PROPRIETISM with respect to which sorts of self-ascriptions are possible for a given agent. Having noted this, though, it is also worth noting that the proponent of this view may, nonetheless, maintain that self-ascriptions of *qualitative* properties function as the proponent of PROPRIETISM maintains. To appreciate this, consider the following natural assumption:

QUALITIATIVE DECOMPOSITION

For any agent x and any distinct qualitative properties p and q , the proposition that x has property p is distinct from the proposition that x has property q .

Given this principle and DE RE SELF-ASCIPTION, it follows that, for any agent x and any qualitative properties p and q such that p does not entail q , x may, in principle, self-ascribe p without self-ascibing q , assuming that x may, in principle, believe the proposition that x has property p without believing the proposition that x has property q .

We assume that the unique necessarily universally instantiated property and the unique necessarily universally uninstantiated property are both qualitative. Let's say that a property p is *contingent* just in case it is distinct from these two properties. Given this, it follows from QUALITIATIVE DECOMPOSITION and DE RE SELF-ASCIPTION that, for each agent x and each contingent qualitative property p , the proposition that x has property p is distinct from the unique necessary truth and the unique necessary falsehood. Thus, unlike haeccesitistic properties, nothing about an agent's x 's self-ascription of contingent qualitative properties follows from DE RE SELF-ASCIPTION and the fact that each agent believes the unique necessary truth and fails to believe the unique necessary falsehood.

DE RE SELF-ASCIPTION provides one natural way of analyzing the proprietal relations of doxastic and epistemic self-ascription by appeal to the propositional relations of belief and knowledge. But, as we've been discussing, the resulting account also has certain features that one may find objectionable. For example, if one is inclined to think that an agent may be first-personally ignorant of which individual they are, then one has reason to reject this version of PROPOSITIONALISM. And if one is inclined to think that the nature of proprietal self-ascription for an agent x is not essentially different from that of any distinct agent y , then one also has reason to reject this account. However, if one is inclined to reject

the present account for these reasons, one need not reject PROPOSITIONALISM altogether.¹⁵ For there is another version of PROPOSITIONALISM that doesn't have these features.

4.2 De Dicto Propositionalism

It is natural for the proponent of PROPRIETISM to maintain that, in principle, an agent may believe any base proposition while being ignorant of which individual they are.¹⁶ The proponent of PROPOSITIONALISM, though, maintains that a first-personal belief about which individual one is must be a belief whose content is a proposition. The natural conclusion to draw, then, for the proponent of PROPOSITIONALISM who agrees with the proponent of PROPRIETISM that an agent's beliefs in base propositions do not determine their haecceitistic self-ascriptions is that the propositions that play such self-ascriptive roles must be additional propositions not included amongst the class of base propositions.

We'll begin our characterization of the second version of PROPOSITIONALISM by isolating the class of propositions belief in which serves to determine which individual a given agent first-personally takes themself to be. It is worth stressing at the outset that while we will pick out this class of propositions in terms of certain roles that they play for certain individuals—in particular, in terms of the roles that these propositions play as the objects of certain first-personal attitudes for certain individuals—these particular roles are ones that the propositions in question only play contingently. It will emerge shortly why this is so.

Our second version of PROPOSITIONALISM assumes that, for any individuals y and z , there is a unique proposition—which we will label “ $I_y = z$ ”—such that, as a contingent matter of fact, for y to doxastically (epistemically) self-ascrbe the haecceity of z just is for y to believe (know) $I_y = z$. We'll say that any proposition $I_y = z$ is a “first-personal haecceitistic proposition”.

Officially, “ $I_y = z$ ” is a mere label for the proposition that, as a contingent matter, plays the role of being the proposition such that for y to believe this proposition is for y to self-ascrbe being identical to z . The labelling, however, suggests a certain decomposition that our account will ultimately sustain and that is useful to bear in mind. Unofficially, one can think of “ $I_y = z$ ” as being composed of the haecceity of z , $\lambda x.x = z$, and a mode of presentation that we can denote by “ I_y ”. $I_y = z$, then, may be thought of as the proposition that is true in a given possibility just in case z is the individual picked out by I_y in that possibility. One can think of I_y as the mode of presentation that, as a contingent matter of fact, plays the role of picking out the individual that y first-personally takes themself to be in a given possibility. We'll call I_y a “first-personal mode of presentation”. We assume that, for each individual y , there is a unique first-personal mode of presentation I_y .

¹⁵One might also (or alternatively) be inclined to reject DE RE SELF-ASCIPTION for the reasons discussed in Ninan [2012, 3-4] and Weber [2015, 650ff.].

¹⁶See, for example, [Lewis, 1979].

Note that it follows from this that if both $I_x = y$ and $I_x = z$ hold at a world w , then $y = z$. For if $I_x = y$ holds at w , then y is the individual picked out by I_x at w , and if $I_x = z$ also holds at w , then z is also the individual picked out by I_x , and so $y = z$.

Now, a function f from the class of first-personal modes of presentation to the class of individuals naturally determines a class of first-personal haecceitistic propositions—namely, the class of propositions $I_y = z$ such that $f(I_y) = z$. Consider, then, such a class determined by an arbitrary *bijective* function between the class of first-personal modes of presentation and the class of individuals. Such a class contains a proposition $I_y = z$, for each individual z and each first personal mode of presentation I_y , and does not contain propositions $I_x = z$ and $I_y = z$, for distinct individuals x and y . If, for example, there were just two individuals, a and b , we would have two such classes, namely the class containing $I_a = a$ and $I_b = b$, and the one containing $I_a = b$ and $I_b = a$. We'll call the conjunction of such a class a “first-personal specification”. Such a proposition determines first personally, for each individual, which individual they are. In our two-individual example, one might think of the first-personal specification $I_a = b \wedge I_b = a$ as the proposition a might express to be by saying, “I am b and you are a .”

A class of propositions forms a partition just in case, when represented as sets of world propositions: (i) each member of the class is non-empty, (ii) the union of the members of the class is identical to the set of world propositions, and (iii) the intersection of any two members of the class is empty. We can now state a general principle that determines the logical relations amongst first-personal haecceitistic propositions:

FIRST-PERSONAL PARTITIONALITY

The class of first-personal specifications forms a partition.

This principle entails a number of obviously desirable claims about the possibility and compossibility of certain propositions.

First, it entails that, for any individuals y and z , the first-personal haecceitistic proposition $I_y = z$ is possible in the broad sense of being entailed by some world proposition. This is desirable insofar as one wants to allow that, in principle, any individual y may self-ascribe being identical to z , for any individual z .

This principle also entails that, for any individuals $y \neq y'$ and $z \neq z'$, the first-personal haecceitistic propositions $I_y = z$ and $I_{y'} = z'$ are compossible in the broad sense of being jointly entailed by some world proposition. We take it that this too is clearly desirable. For just as it would seem that y may believe first-personally that they are z , and some distinct individual y' may believe first-personally that they are some distinct z' , without either thereby believing a contradiction, it would also seem that there need be no contradiction between their respective beliefs. Indeed, in principle, it would seem that they could pool their beliefs without either thereby believing a contradiction.

More generally, this principle entails the compossibility of any class of first-personal haecceitistic propositions that associate distinct haecceities with distinct first-personal modes of presentation. We take it that this is an obvious generalization of the two individual case and may be motivated in exactly the same way.

FIRST-PERSONAL PARTITIONALITY, then, delivers a number of desirable positive verdicts about the possibility and compossibility of first-personal haecceitistic propositions. This principle, however, also imposes constraints on the compossibility of first-personal haecceitistic propositions. In particular, given this principle, it follows that, for any distinct individuals x and y , although both $I_x = z$ and $I_y = z$ are individually possible, they are not compossible. Thus, $I_x = z$ and $I_y = z$ hold at a world w only if $x = y$.

As we'll shortly see, this constraint is required in order for first-personal haecceitistic propositions to play their role in an adequate reductive account of doxastic and epistemic self-ascription. This constraint, though, can be also be motivated more directly. For it ensures that if, for example, Heimson believes first-personally that he is Hume, and Hume also believe first-personally that he is Hume, then the propositions that they believe are incompatible. And this, we think, is quite plausible. For there is a natural sense in which such first-personal beliefs would seem to be incompatible. And this can be explained in a simple and principled manner by appealing to the incompatibility of the contents that are so believed.

Having determined the logical relations amongst first-personal haecceitistic propositions, let us now turn to describing their relations to the class of base propositions. Along with the proponent of PROPRIETISM, the present account assumes:

BASE PARTITIONALITY

The class of base atoms forms a partition.

Let us say that two classes of propositions are “orthogonal” just in case any two members of the respective sets are consistent. In addition to the above two principles, the present account assumes:

ORTHOGONALITY

The class of base atoms and the class of first-personal specifications are orthogonal.

Recall that the proponent of PROPRIETISM maintains that, for each agent, an arbitrary base atom doesn't provide any first-personal information about which individual that agent is. If the proponent of PROPOSITIONALISM accepts this claim, then they should allow that, for any individuals y and z , $I_y = z$ is consistent with each base atom. Furthermore, if an arbitrary base atom doesn't provide us with any information that would, for example, rule out one of us, first-personally, being Hume, or the other, first-personally, being Heimson, so too it would seem that an arbitrary base atom does not rule out the conjunction

of these two claims. More generally, insofar as an arbitrary base atom would not seem to provide any first-personal information about which individual a given agent is, such a proposition would also not seem to provide any information about which consistent conjunctions of first-personal haecceitistic propositions are true. Given this, we should allow that the conjunction of any base atom and any first-personal specification is consistent. This is exactly what ORTHOGONALITY ensures.

Having introduced this account of first-personal propositions, we can now turn to providing an analysis of what it is for an individual to doxastically or epistemically self-ascribe a given property by appeal to the propositional relations of belief and knowledge.

Our accounts of doxastic and epistemic self-ascription will tell us that for an individual y to doxastically or epistemically self-ascribe a property p just is for y to believe or know the unique proposition satisfying some condition. Formally, we can represent this by a three place function, $\Sigma(y, p, w)$, mapping an individual, a property, and a world proposition to the proposition that uniquely satisfies the relevant condition for y and p at w . Fixing y and p , if this function maps world propositions w and w' respectively to the propositions q_w and $q_{w'}$, then, at w , y doxastically (epistemically) self-ascribes the property p by believing (knowing) q_w , while, at w' , y doxastically (epistemically) self-ascribes the property p by believing (knowing) $q_{w'}$. If q_w and $q_{w'}$ are the same proposition, then w and w' are alike with respect to which proposition plays the role of being the proposition such that for y to believe (know) it is for y to doxastically (epistemically) self-ascribe the property p , while if q_w and $q_{w'}$ are distinct propositions, then w and w' differ with respect to which propositions play this role.

Before we provide a general reductive account of self-ascription, let's begin by considering what it is for an individual y to doxastically (epistemically) self-ascribe being a particular individual z . We've said that $I_y = z$ is the proposition that an individual y in fact believes (knows) when they doxastically (epistemically) self-ascribe being z . Whatever our account of doxastic (epistemic) self-ascription is, then, it must deliver this verdict. A natural way to do so is to maintain that for y to doxastically (epistemically) self-ascribe being a particular individual z just is for y to believe (know) $I_y = z$. According to this partial account, we have:

RIGID HAECCEITY SELF-ASCIPTION

For every individual x , haecceity $\lambda y.y = z$, and world proposition w , $\Sigma(x, \lambda y.y = z, w) = (I_x = z)$.

This partial account, however, misfires. To see why, consider the following principles:

SELF-ASCIPTION CORRECTNESS

For every individual x , property p , and world proposition w , if x doxastically self-ascribes p at w , then x 's self-ascription is correct at w just in case x has property p at w .

CONTENT CORRECTNESS

For every individual x , property p , and world proposition w , if x doxastically self-ascribes p at w , then x 's self-ascription is correct at w just in case $\Sigma(x, p, w)$ holds at w .

We take it that SELF-ASCIPTION CORRECTNESS properly characterizes the condition for a given self-ascription to be correct, while CONTENT CORRECTNESS provides a basic constraint on an adequate analysis of doxastic self-ascription.

The problem with RIGID HAECCEITY SELF-ASCIPTION is that, together with the preceding principles, it entails the following falsehood:

(*) For every individual y , haecceity $\lambda x.x = z$, and world proposition w , if y doxastically self-ascribes $\lambda x.x = z$ at w , then the proposition $I_y = z$ holds at w if and only if $y = z$ holds at w .

We can establish the falsity of (*), given the following plausible assumptions. First, that there are at least two distinct individuals y and z . Second, that distinctness claims are necessary if true. Third, that it is possible for y to doxastically self-ascribe $\lambda x.x = z$. And, fourth, that a base atom determines which haecceities y doxastically self-ascribes. Given our first two assumptions we have that $y \neq z$ holds at every world proposition. FIRST PERSONAL PARITIONALITY, however, implies that for any y and z , $I_y = z$ holds at some w . Moreover, ORTHOGONALITY establishes that this proposition is compossible with any base atom. Given our third assumption, we have that it is possible for y to doxastically self-ascribe $\lambda x.x = z$. It follows from this fact, together with the compossibility of $I_y = z$ with each base atom that there is some world proposition w such that y doxastically self-ascribes being z at w and $I_y = z$ holds at w . However, since we have that $y \neq z$ holds at w , it follows that (*) must be false.

Another closely related way of diagnosing what goes wrong with RIGID HAECCEITY ASCIPTION is as follows. SELF-ASCIPTION CORRECTNESS and CONTENT CORRECTNESS motivate the following constraint on Σ :

MATERIAL TRUTH

For every individual x , property p , and world-proposition w , $\Sigma(x, p, w)$ holds at w just in case x has property p at w .

But RIGID HAECCEITY ASCIPTION is incompatible with this constraint, since there is a world proposition w at which $I_y = z$ holds but at which $y \neq z$.

Given this incompatibility, we should conclude that while $I_y = z$ is the proposition that, as a matter of fact, plays the role of being the proposition such that for y to believe (know) it is for y to doxastically (epistemically) self-ascribe $\lambda x.x = z$, this proposition only plays this role contingently.

Let $@$ be the unique true world proposition. To see what non-rigid condition a proposition must satisfy in order for it to play the role of being the proposition such that for y to believe (know) it is for y to doxastically (epistemically) self-ascribe $\lambda x.x = z$, let's begin by noting a few facts about $@$. First, as a basic

constraint on Σ , we have that for every individual y and haecceity $\lambda x.x = z$, $\Sigma(y, \lambda x.x = z, @) = (I_y = z)$. Second, we also have that, for any individuals r and y , $(I_r = y)$ holds at $@$ just in case $r = y$. Given these two facts, it follows that we have:

@-RESTRICTED HAECCEITY SELF-ASCIPTION

For every individual y and r , and haecceity $\lambda x.x = z$, $\Sigma(y, \lambda x.x = z, z, @) = (I_r = z)$ just in case $I_r = y$ holds at $@$.

Thus, if I_r is the first-personal mode of presentation that in fact picks you out, then $I_r = z$ is the proposition that you believe (know) when you first-personally believe (know) that you are z .

Now, we claim that this property should be satisfied not just for the actually true world proposition $@$, but for every world proposition w . That is, we should have:

HAECCEITY SELF-ASCIPTION

For every individual y and r , haecceity $\lambda x.x = z$, and world proposition w , $\Sigma(y, \lambda x.x = z, w) = (I_r = z)$ just in case $I_r = y$ holds at w .

To see why this principle is plausible, consider the following line of thought. Heimson is not Hume. Thus, if Heimson believes the first-personal proposition that they are Hume, then they would mistakenly self-ascribe being Hume. However, suppose that the proposition that Heimson believes when he believes that he is Hume is true. Under this supposition, it seems that if Hume were to believe this very proposition, then Hume would correctly self-ascribe being Hume.

This line of thought, appropriately generalized, supports the claim that while $I_r = z$ as a matter of fact plays the role of being the proposition such that for r to believe (know) it is for r to doxastically (epistemically) self-ascribe $\lambda x.x = z$, were it to be the case that $I_r = y$ is true, then this proposition would no longer play this role for r , but would instead play this role for y . And this is exactly what HAECCEITY SELF-ASCIPTION tells us.

A notable feature that lends support to HAECCEITY SELF-ASCIPTION is that, given this principle, every instance of MATERIAL TRUTH for which the property p is a haecceity will be satisfied.

Having answered the restricted question of what it is for an individual y to doxastically (epistemically) self-ascribe being a particular individual z , we can now generalize this account and say what it is for an individual y to doxastically (epistemically) self-ascribe an arbitrary property p . In particular, the following principle provides the natural generalization of HAECCEITY SELF-ASCIPTION:

DE DICTO SELF ASCIPTION

For every agent y , property p , and world proposition w , $\Sigma(y, p, w) = \{w' : \langle x, w' \rangle \in p, \text{ where } w' \in (I_z = x)\}$, where $I_z = y$ holds at w .

HAECCEITY SELF-ASCIPTION tells us that for an individual y to doxastically (epistemically) self-ascribe a haecceity $\lambda x.x = z$ just is for y to believe (know) that the world is such that the individual picked out by the first-personal mode of presentation I_r , which in fact picks out y , is z . DE DICTO SELF ASCIPTION tells us, more generally, that for an individual y to doxastically (epistemically) self-ascribe a property p just is for y to believe (know) that the world is such that the individual picked out by the first-personal mode of presentation I_r , which in fact picks out y , has property p .

Note that in order for this account to deliver a univocal verdict about which proposition plays the role of self-ascribing p for y at w , it must not be the case that there are distinct first personal modes of presentation I_r and I_q such that both $I_r = y$ and $I_q = y$ hold at w . Thus, this constraint, which is ensured by FIRST-PERSONAL PARTITIONALITY, may be motivated not just by appeal to the plausible thought that such propositions are inconsistent, given that agents who respectively believe them have incompatible beliefs, but also by appealing to the distinctive role in thought that, according to this account, is played by first-personal modes of presentation.

According to the version of PROPOSITIONALISM discussed in §4.1, the facts about which propositions an agent believes (knows) and the facts about the agent's identity together determine all the facts about which properties the agent doxastically (epistemically) self-ascribes. This is not so on the present account, at least given certain plausible assumptions. To see this, let x be some fixed agent whose identity is given, and let y be distinct from x . Let p be a contingent proposition that entails both $I_x = x$ and $I_y = y$ (FIRST-PERSONAL PARTITIONALITY ensures that there is some such p). Finally, assume that there are at least two world propositions w, w' such that: (i) p is the strongest property that x believes in w and in w' , (ii) $w \in (I_x = x)$, and (iii) $w' \in (I_y = x)$. Then according to DE DICTO SELF-ASCIPTION, in w , x self-ascribes being x , since x believes $I_x = x$ in w and I_x picks x out in w . But in w' , x instead self-ascribes being y , since x believes $I_y = y$ in w' and I_y picks x out in w' . Since $x \neq y$, x self-ascribes different properties in w and w' , even though x believes all the same propositions in w and w' .

Instead, on the present account, which properties an agent x doxastically (epistemically) self-ascribes, given a world proposition w , is determined by three things: (i) the facts about which propositions they believe (know), (ii) the facts about x 's identity, and (iii) and the facts about which first-personal haecceitistic propositions hold at w . To see this, it suffices to note that, given DE DICTO SELF-ASCIPTION, the following holds:

STRONGEST PROPERTY (DE DICTO)

Let p be the strongest proposition that x believes in w , and let $w \in (I_z = x)$. Then the strongest property x self-ascribes in w is:

$$\{\langle y, w' \rangle : w' \in p \text{ and } w' \in (I_z = y)\}.$$

CLAIM: DE DICTO SELF-ASCIPTION entails STRONGEST PROPERTY (DE DICTO)

PROOF: That x self-ascribes the above property in w follows from DE DICTO SELF-ASCIPTION, given that p is the strongest proposition x believes in w , and given that $I_z = x$ holds at w . To see that this is the strongest property that x self-ascribes, suppose x self-ascribes q , and let $\langle y, w' \rangle$ be such that $w' \in p$ and $w' \in (I_z = y)$. We want to show that $\langle y, w' \rangle \in q$.

Since x self-ascribes q in w , it follows from DE DICTO SELF-ASCIPTION that, in w , x believes:

$$\{w'' : \langle r, w'' \rangle \in q, \text{ where } w'' \in (I_z = r)\}.$$

Since p is the strongest proposition x believes in w and since $w' \in p$, it follows that $\langle r, w' \rangle \in q$, where $w' \in (I_z = r)$. Since $I_z = r$ and $I_z = y$ both hold at w' , it follows that $y = r$. Thus, $\langle y, w' \rangle \in q$, which is what we needed to show.

The foregoing result also ensures that the present account entails DISJOINTNESS and, thus, the weaker SELF-ASCIPTIVE SYMMETRY.

CLAIM: Given FIRST-PERSON PARTITIONALITY, STRONGEST PROPERTY (DE DICTO) entails DISJOINTNESS

PROOF: Suppose $x \neq y$. Let p be the strongest proposition x believes in w , and let q be the strongest proposition y believes in w . By STRONGEST PROPERTY (DE DICTO), the strongest property x self-ascribes in w is:

$$\{\langle x', w' \rangle : w' \in p \text{ and } w' \in (I_z = x')\}, \text{ where } w \in (I_z = x).$$

And the strongest property y self-ascribes in w is:

$$\{\langle y', w' \rangle : w' \in q \text{ and } w' \in (I_r = y')\}, \text{ where } w \in (I_r = y).$$

To see that these are disjoint, suppose for *reductio* that $\langle s, w'' \rangle$ is in both. Then $w'' \in (I_z = s)$ and $w'' \in (I_r = s)$. It follows from FIRST-PERSON PARTITIONALITY that $r = z$. Since $w \in (I_z = x)$, $w \in (I_r = x)$. Since $w \in (I_r = y)$, it follows that $x = y$, which contradicts our assumption that $x \neq y$.

In the previous section, we noted that, given DE RE SELF ASCIPTION, it follows that, for each agent x , there are distinct base properties p and q such that for x to self-ascribe p just is for x to self-ascribe q . As a particular instance of this phenomenon, we noted that, given this account, it follows that, for each agent x , for that agent to self-ascribe the haecceity of x just is for that agent to self-ascribe the unique universally instantiated property—in each case, the self-ascription is trivial and is equivalent to believing the unique necessary proposition. This marks a sharp difference between that account and PROPRIETISM, and constitutes possible lines of objection to that account.

At first glance, parallel points apply to the present account. But on deeper inspection, the present account's treatment of self-ascriptio is more closely aligned with the PROPRIETIST's. To appreciate this point, it pays to attend closely to the distinction between the class of base properties and the class of properties *tout court*. Let us focus first on the latter.

Given the present account, relative to a world w , for each agent x there are distinct properties p and q such that for x to self-ascibe p just is for x to self-ascibe q . As a particular instance of this phenomenon, for each agent x , if I_r is the first-personal mode of presentation that picks out x at w , then for that agent to self-ascibe, at w , the property of being the individual picked out by I_r just is for that agent to self-ascibe, at w , the unique universally instantiated property—in each case, the self-ascriptio is trivial and is equivalent to believing the unique necessary proposition. To see this, suppose that $I_r = x$ holds at w . Then, if we let $p = \{\langle a, w \rangle : w \in I_r = a\}$, and let $q = \lambda z. T$, it follows, given DE DICTO SELF ASCRIPTION, that $\Sigma(x, p, w) = \{w' : \langle y, w' \rangle \in p \text{ where } w' \in I_r = y\} = \{w : w = w\} = \Sigma(x, q, w)$.

But matters are different when we turn to the class of base properties; here the present account looks rather different from the previous one.

First, given the present account, for any agent x and any distinct base properties p and q , the proposition that x believes in self-ascibing p is distinct from the proposition that x believes in self-ascibing q . Thus, unlike the previous account, the present account does not postulate any constitutive connection between an agent's self-ascibing one base property and any logically independent base property.

To see why this is so we first need to say how we can identify base properties in the larger space of properties postulated by our new account. There is a natural way of doing so. The proponent of PROPRIETISM will represent a given base property p by a set of ordered-pairs whose $\langle x, b \rangle$, whose second element b is a base atom and whose first element x is an individual. Let p' be the set of pairs that the proponent of PROPRIETISM takes to correspond to p . We take p in our new space be to correspond to the set of ordered pairs $\langle x, w \rangle$, where w is a world proposition and x is an individual, such that there is some $\langle x, b \rangle \in p'$ such that w is compossible with b . This mapping provides a natural bijection from the class of sets that represent the base properties, according to the proponent of PROPRIETISM, to a sub-class of the class of properties countenanced by our present account. In our new space, then, the base properties may be identified with those properties whose extensions don't differ between world propositions that agree with respect to which base atom they entail.

Given this identification, it is easy to establish that, given the present account, for any agent x and any distinct base properties p and q , the proposition that x believes in self-ascibing p is distinct from the proposition that x believes in self-ascibing q . Thus, let p and q be distinct base properties, and let I_r be the first-personal mode of presentation that plays the self-ascriptive role for x . Given their distinctness, it follows that p and q have distinct extensions at some atom w , and since p and q are base properties, it follows that their extensions are the same for all w' that agree with w about which base atom they entail.

Let this set be W . Without loss of generality, let z be in the extension of p but not q at w . Thus, z is in the extension of p but not q at all $w' \in W$. Now, given FIRST-PERSONAL PARTITIONALITY, BASE PARTITIONALITY and ORTHOGONALITY, it follows that I_r picks out z at some world $w' \in W$. Given DE DICTO SELF ASRIPTION, then, it follows that the proposition that x believes in self-ascribing p is true at this world w' , while the proposition that x believes in self-ascribing q is false at w' . Thus it follows, for arbitrary distinct base properties p and q and arbitrary individual x , that the proposition that x believes in self-ascribing p is distinct from the proposition that x believes in self-ascribing q . In this respect, the present version of PROPOSITIONALISM is similar to PROPRIETISM.

This result is related to a second notable difference between the present account and the preceding one, namely that the present account predicts that an agent x may be ignorant of their identity, in the sense of failing to self-ascibe the base property of being x . For x to self-ascibe, in world w , the property of being x is for x to believe $I_z = x$, where $w \in I_z = x$. Thus, for x to fail to believe this is simply for some world w' to be compatible with x 's beliefs in w to be such that $w' \notin I_z = x$. FIRST-PERSONAL PARTITIONALITY ensures the existence of such a w' , and nothing in the present account precludes such a world from being compatible with x 's beliefs in w . Note also that the present account allows that an agent x may coherently self-ascibe being y , even when $y \neq x$, i.e. x may self-ascibe being y ($y \neq x$) even when the strongest property x self-ascibes is contingent. On the preceding account, if x self-ascibes being y ($y \neq x$), then the strongest property x self-ascibes is the necessarily uninstantiated property. In these respects, the present version of PROPOSITIONALISM is again similar to PROPRIETISM.

A third notable difference between this version of PROPOSITIONALISM and the preceding version concerns whether there are essential differences between the nature of proprietal self-ascritption for distinct agents. In §4.1, we noted that, for each agent x , if two properties p and q are in the same x -alike equivalence class, then, necessarily for x to self-ascibe p just is for x to self-ascibe q . We then noted that since the equivalence relation of being x -alike is distinct from the equivalence relation of being y -alike, for distinct individuals x and y , on this account, then, the nature of proprietal self-ascritption for an agent x is essentially different than it is for any distinct agent y . While there are some similarities, given the present account, the picture that emerges is importantly different.

Let us say that two properties p and q are “ I_r -alike” just in case $\{w' : \langle w', x \rangle \in p \text{ where } w' \in (I_r = x)\} = \{w' : \langle w', x \rangle \in q \text{ where } w' \in (I_r = x)\}$. Given the present account, if I_r is the first-personal mode of presentation that plays the self-ascritptive role for x —that is if $I_r = x$ —then, as a contingent matter of fact, if p and q are I_r -alike then the proposition by which x self-ascibes p is the same as the proposition by which x self-ascibes q , and so, as a contingent matter of fact, x 's self-ascritption of p is the same as x 's self-ascritption of q . Moreover, given the present account, for any distinct individuals x and y there will be distinct first-personal modes of presentation that play the self-ascritptive role for each of these individuals. And, for any two distinct first-personal modes of presentation, I_r and I_z , the equivalence relation of being I_r -alike will be

distinct from the equivalence relation of being I_z -alike. Thus, for any distinct agents, there will be contingent differences between those agents concerning which properties they may independently self-ascribe. However, since for each individual x and each first-personal mode of presentation I_r , there is some possibility where I_r plays the self-ascriptive role for x , it follows that the possible patterns of which properties may be independently self-ascribed is the same for each agent. The present account, then, unlike the preceding account, does not entail that there are any essential differences between the nature of proprietial self-ascriptio for distinct agents.

5 Conclusion

We began with an argument in favor of the thesis that the contents of the attitudes of belief and knowledge are propositions rather than properties. While proponents of the former view can give a very simple account of agreement, proponents of the latter would not seem to be able to provide any similarly simple and principled account. Even worse, we argued that, given some plausible assumptions, PROPRIETISM predicts that successful communication cannot take place in certain cases in which there would not, in fact, appear to be any such limitations. PROPOSITIONALISM, on the other hand, results in no similar predictions.

We then examined two versions of PROPOSITIONALISM, both of which allow us to reduce facts about epistemic and doxastic self-ascriptio to facts about propositional knowledge and belief, together with certain other facts. These two versions of PROPOSITIONALISM, however, differ in important ways. DE DICTO PROPOSITIONALISM allows that an agent x might be ignorant of their identity in the sense of failing to self-ascribe the property of being x , while DE RE PROPOSITIONALISM does not. And DE DICTO PROPOSITIONALISM implies that there are no essential differences between the nature of proprietial self-ascriptio for distinct agents, while DE RE PROPOSITIONALISM implies that there are. These differences arguably favor DE DICTO PROPOSITIONALISM over DE RE PROPOSITIONALISM.

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