

Chalmers on the Objects of Credence

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Abstract

Chalmers (2011a) presents an argument against “referentialism” (and for his own view) that employs Bayesianism. He aims to make progress in a debate over the objects of belief, which seems to be at a standstill between referentialists and non-referentialists. Chalmers’ argument, in sketch, is that Bayesianism is incompatible with referentialism, and natural attempts to salvage the theory, Chalmers contends, requires giving up referentialism. Given the power and success of Bayesianism, the incompatibility is *prima facie* evidence against referentialism. In this paper, I review Chalmers’ arguments and give some responses on behalf of the referentialist.

1. INTRODUCTION

Roughly, referentialism is the view that the object of a belief about an individual and property is wholly determined by that individual and property. In a recent paper, **Chalmers (2011a)**¹ argues that referentialism is incompatible with a successful theory in formal epistemology, Bayesianism, which I explicate below. In particular, he argues that standard Bayesian reasoning breaks down if a bare version of referentialism is true, and any attempt to salvage the core of the bare version requires giving up referentialism. According to Chalmers, the referentialist, then, faces a dilemma: She must either reject Bayesianism or give up her theory—both undesirable options.

Something like referentialism is a view familiar from the literature on Frege’s puzzle, a literature that is vast and one in which referentialists² are well represented. The referentialist faces some old worries—that, for example, one believes the same proposition in believing that Hesperus is a celestial body and that Phosphorus is a celestial body, which seems false.

¹**Chalmers (2006b)**, which was presented for the Online Philosophy Conference in May 2006, is the predecessor of **Chalmers (2011a)**. In what follows, I will also be citing **Braun (2006)**, which he gave as comments on the Chalmers paper at that conference. I found Braun’s paper only after writing the initial draft of this paper, but I have since worked in some of his comments.

²Or at least the theorists that Chalmers associates with referentialism. In what follows, I argue that Chalmers mischaracterizes how we should properly understand referentialism.

In response, some referentialists claim that the very same proposition can be taken in different ways—that agents bear various attitudes toward propositions only under a *guise*. A novelty in Chalmers’ paper is his claim that the familiar appeal to guises raises *new* problems, new problems that can break what he views as a stalemate in the Frege’s puzzle literature. As I understand him, Chalmers claims that we ought to make the three-way identification among the objects of belief, the objects of credence, and the objects that inhabit the domain of the credence function. Then, he argues that if the referentialist includes her guises in the domain of the credence function, then referentialism is false. My thesis is that Chalmers has not broken the stalemate. Specifically, I argue that Chalmers’ second horn—that attempts to salvage referentialism requires giving the theory up—fails. For this thesis, I provide numerous arguments below, each with a similar structure: That while an unadorned version of referentialism indeed conflicts with Bayesianism, the core of the unadorned version can be recovered and built upon, resulting in a theory that does no worse than Chalmers’ own theory and doesn’t require giving up the core of referentialism. Given that I’m arguing for a stalemate thesis, my *tu quoque* objections are not fallacious. After arguing that the second horn fails, I focus on how I think the thesis of referentialism should properly be understood. Once properly understood, one sees that Chalmers’ arguments don’t target referentialism but instead conclusions that follow from referentialism packaged with auxiliary theses. Once those auxiliary theses are dropped, one sees that Chalmers’ arguments miss their mark.

Before moving on, let me make a few terminological and structural points. *Terminological*: Given that one of the conclusions of this paper is that Chalmers mischaracterizes the theorists he intends to argue against, it will benefit us to make some terminological points to avoid confusion. I’ll call the thesis that Chalmers calls “referentialism,” which I’ll quote shortly, “naive referentialism.” I’ll call the class of theories that Chalmers is attacking on the second horn, theories that employ something like guises, “sophisticated referentialism.” And finally, I’ll call what I think should properly be described as referentialism, which won’t be revealed until the end of this paper, “true referentialism.”³ *Structural*: This paper is structured to mirror Chalmers’ dilemma. In §3 I canvas the ways in which naive referentialism conflicts with Bayesianism. At this point, I want to stress that we’re considering naive referentialism, which doesn’t include the notion of a guise. Only in §4 does the notion of a guise come into play.

³I am intentionally avoiding the term “Millianism” because many Millians employ something like guises, which won’t surface until §4.

2. BACKGROUND: BAYESIANISM, REFERENTIALISM

I take Bayesianism to comprise at least the following claims:

- A credence function, $cr(\cdot)$, defined over propositions, represents an agent's belief state. A credence function takes a proposition as argument and returns a real number in the interval $[0, 1]$. These real numbers represent an agent's subjective confidence in a proposition, with 0 representing absolute certainty of falsehood and 1 representing absolute certainty of truth.
- A credence function represents both an agent's unconditional credence that a proposition p is true (notated $cr(p)$) and an agent's conditional credence that a proposition p is true given that a proposition q is true (notated $cr(p | q)$).
- An agent ought to update her credences, in light of evidence, via *conditionalization*: When an agent receives evidence e , her new credence in any proposition h should be her old credence in $(h | e)$.⁴

Probabilism—the constraint that an agent's credence function ought to be a probability function—is often included in the Bayesian package, but I take the constraint to be independent. I soon raise an argument that referentialism conflicts with probabilism, but there I will flag that the argument doesn't target the core of Bayesianism but a claim often conjoined with Bayesianism.

Referentialism, unfortunately, isn't as easily glossed. Here's what [Chalmers \(2011a, p.587–588\)](#) has to say about it:

Loosely speaking, referentialism about belief says that in so far as beliefs attribute properties to individuals (e.g. the belief that Nietzsche is dead), the objects of these beliefs are wholly determined by those individuals (e.g. Nietzsche) and those properties (e.g. the property of being dead). On one version of referentialism, the objects of belief are Russellian propositions composed from the individuals and properties that one's belief is about. On another version, the objects of belief are sets of possible worlds in which the individuals in question have the relevant properties.

This is what we will call *naive referentialism*. Here are some familiar consequences of naive referentialism:

If ' a ' and ' b ' are two names for the same object, then in believing that a has ϕ and in believing that b has ϕ (e.g. in believing that Hesperus is a planet and in believing that Phosphorus is a

⁴For simplicity, and since nothing hangs on it, I set aside other versions of conditionalization, such as Jeffery conditionalization.

planet), one believes the same proposition. Likewise, in sincerely asserting '*a* has ϕ ' ('Hesperus is a planet') and in sincerely asserting '*b* has ϕ ' ('Phosphorus is a planet'), one expresses belief in the same proposition.

Propositions play many roles. We can start by thinking of referentialism about propositions generally and then move to the more specific thesis regarding propositions' role as the objects of belief in particular. I'll call the *core of referentialism* the thesis that a proposition about an individual and a property is wholly determined by that individual and property. As it stands, this thesis makes no predictions that are relevant to Bayesianism. We need to add auxiliary theses regarding the role these propositions play as the objects of belief and credence. Since the core makes no predictions relevant to Bayesianism, it is consistent with Bayesianism. To get *naive referentialism* we take the core, and we add the auxiliary claim that nothing else is relevant to whether an agent believes a proposition so described. In particular, what I have in mind here is the rejection of any non-referential component, like guises, that mediates belief in propositions. *Sophisticated referentialism*, as mentioned, includes guises. Note that naive and sophisticated referentialism agree on the core of referentialism but disagree on the grasping of propositions that satisfy the core. I want to stress that sophisticated referentialism isn't a mere extension of naive referentialism. For if it were, then if the conjunction of naive referentialism and Bayesianism is inconsistent, then so is the conjunction of sophisticated referentialism and Bayesianism. Rather, naive referentialism rejects, while sophisticated referentialism includes, a mediating component, though both agree on the core of referentialism.⁵ My thesis is that while naive referentialism is inconsistent with Bayesianism, sophisticated referentialism isn't. And since sophisticated referentialism retains the core of referentialism, it is a referentialist thesis.

3. ARGUMENTS FROM BAYESIANISM AGAINST NAIVE REFERENTIALISM

Chalmers sets up his argument as a dilemma: Naive referentialism conflicts with Bayesianism, and sophisticated referentialism's philosophical machinery can't be imported into a Bayesian framework without giving up the core of referentialism. So the referentialist either has to accept that her theory conflicts with Bayesianism, a powerful and successful theory, or give up her own theory to gain harmony—both unpalatable options. Let's call this "Chalmers' dilemma."

On to the first horn—that Bayesianism and naive referentialism are incompatible. The simplest argument against naive referentialism involves probabilism. Since, in my view, probabilism isn't essential to

⁵I thank an anonymous referee for comments that helped to make this section clearer.

Bayesianism, this argument is the weakest, but it's also the best warm up to the style of argument Chalmers advances. The conflict arises from an extension of Frege's puzzle from full to partial belief. Consider (1)—

(1) Hesperus is Phosphorus.

—which is necessarily true according to naive referentialism since the object of belief that (1) determines is the same as (2), which is necessarily true by anyone's lights:

(2) Hesperus is Hesperus.

It's taken as a datum that one's rational credence in (1) can be short of certainty. But, on one understanding of it, a probability axiom requires agents to be certain of necessary truths. Thus, naive referentialism runs afoul of probabilism. But this argument isn't weak only for targeting probabilism. As Chalmers notes, the typical formulation of the relevant probability axiom only requires certainty of logical truths, not all necessary truths, and (1) isn't a logical truth (Chalmers, 2011a, p.599).

Another serious problem is on the horizon, though. (1) and (2), according to naive referentialism, determine the same proposition. That is, insofar as we're concerned with a credence function, (1) and (2) are the same argument. But a rational agent can have differing credences in (1) and (2)— $cr(2) = 1$ and $cr(1) < 1$. This means that the agent wouldn't have a credence *function* at all since one argument is associated with two values.⁶ Probabilism aside, naive referentialism conflicts with a central aspect of Bayesianism—representing credences with functions, which is essential to the first two bullet points in my characterization of Bayesianism above. Without the apparatus of credence functions, Bayesianism can't even get off the ground.

Chalmers' main grievance is that naive referentialism conflicts with the core of Bayesianism: conditionalization. Here's a quick example.⁷ Suppose the facts are as follows: 1/10 of people with *P* have schizophrenia and 1/5 people with *Q* have schizophrenia, and 9/10 of people with *P* and *Q* have schizophrenia. Now suppose Utterson knows that Jekyll has *P* but doesn't know that he has *Q*. Since Utterson knows that Jekyll has *P* and knows that 1/10 people with *P* have schizophrenia, his credence in Jekyll having schizophrenia is as follows:

(3) $cr(\text{Jekyll has schizophrenia}) = .1$.

If Jekyll has *Q*, then since he has *P* and *Q*, and since 9/10 people with both have schizophrenia, then (4) would give one of Utterson's conditional credences:

⁶Braun (2006) makes similar points.

⁷This has been adapted from Chalmers' original example in Chalmers (2006b, §2)

$$(4) \quad cr(\text{Jekyll has schizophrenia} | \text{Jekyll has } Q) = .9.$$

We know that “Jekyll” and “Hyde” are two names for the same individual, but Utterson doesn’t. Suppose Utterson comes to know that Hyde has Q . According to naive referentialism, the proposition that Hyde has Q is the same proposition that Jekyll has Q . Assuming naive referentialism is true, given the story so far, Utterson should conditionalize:

$$(5) \quad cr_{new}(\text{Jekyll has schizophrenia}) = cr_{old}(\text{Jekyll has schizophrenia} | \text{Hyde has } Q) = cr_{old}(\text{Jekyll has schizophrenia} | \text{Jekyll has } Q) = .9.$$

But intuitively, this is wrong. Since Utterson doesn’t know that Hyde and Jekyll are the same person, seeing that Hyde has Q isn’t evidence for Jekyll having schizophrenia. The culprit here is the claim that “Hyde has Q ” determines the same object of belief as “Jekyll has Q ,” which naive referentialism entails. Thus, naive referentialism must be false if Bayesianism is true.

The second horn of the dilemma, and my responses to it, will concern us for the remainder of this paper.

4. RESPONSES TO THE SECOND HORN

The second horn of the dilemma purports to block the sophisticated referentialist from importing her account of full belief to a Bayesian setting. This horn begins by identifying the objects of credence with the objects of belief. Then, as the arguments from the first horn show, the objects of credence are determined non-referentially. Then Chalmers invokes a crucial premise—that if the objects of credence, and so the objects of belief, are determined non-referentially, then referentialism is false. This is the premise I dispute, but let’s see how this dilemma plays out for actual sophisticated referentialist theories.

It’s important to note that all referentialists are sophisticated in some way or other. Naive referentialism has obviously untoward consequences. The dialectic in the Frege’s puzzle literature has been to square the simplicity and theoretical considerations⁸ that recommend referentialism with the seemingly absurd consequences that follow from it.

This is where guises enter the picture. To block these consequences, as I mentioned, sophisticated referentialists claim that an agent can take the same proposition in different ways—that she can bear an

⁸The theoretical considerations are the direct reference theses that Kripke (1980) advances for proper names, that Kripke (1980) and Putnam (1975/2007) advance for natural kind terms, and that Kaplan (1989/2013) advances for indexicals. The simplicity (and also theoretical) consideration that recommends referentialism is that it adheres to “semantic innocence”: the constraint that an expression’s reference stays stable across linguistic environments. For more about semantic innocence, see Crimmins and Perry (1989/2007).

attitude toward a proposition under one guise and fail to bear it under another. There isn't consensus regarding the nature of these guises, but all sophisticated referentialists see their role as mediating an attitude an agent bears toward a proposition.⁹ Furthermore, these propositions, for sophisticated referentialists, are Russellian. A *Russellian* about propositions claims that propositions are structured and, insofar as the propositions are about individuals, those propositions are singular. A proposition is *structured* just in case it contains constituents. A proposition is *singular* just in case it contains objects as direct constituents. As an illustration, in outline, a sophisticated referentialist would characterize Lois Lane's (of the Superman story) situation as follows: Lois takes the very same Russellian proposition— $\langle \text{flies}, CK \rangle$, where *CK* is the person to whom both "Kent" and "Superman" refer and *flies* is the property of flying—in different ways, depending on whether she grasps it under the bespectacled reporter guise or under the superhero guise. Russellianism satisfies the core of referentialism.

Sophisticated referentialists understand this three-place relation of an agent bearing an attitude toward a proposition under a guise in different ways. According to Schiffer's (2007/1992) *hidden indexical theory*, this relation is just belief. Here is the logical form of belief reports according to this theory:

(HIT) $\exists m(\Phi^*m \ \& \ \text{Believes}(a, p, m))$.

Belief here is a ternary relation between a believer (*a*), a Russellian proposition (*p*), and a contextually determined property of propositional modes of presentation to which implicit reference is made (Φ^*),¹⁰ which is the non-referentialist component. According to another sophisticated referentialist, Salmon (1986, p.111), belief is two-place but is analyzed in terms of the ternary relation of something like disposition toward inward assent under a guise:

(SALMON) *a* believes that *p* iff¹¹ $\exists m(a \text{ grasps } p \text{ by means of } m \ \& \ \text{BEL}(a, p, m))$.

On both of the above accounts, the object of belief, *p*, is a Russellian proposition, which satisfies the core of referentialism.

⁹There is some ambivalence regarding the nature of guises. According to one specific class of views, guises are mental states (or more specifically sentences in the language of thought). See Braun (1998, 2006) and Crimmins and Perry (1989/2007). One may object to the sophisticated referentialist that the nature of guises is unclear, but that is an old objection, which I am not here to defend against.

¹⁰Implicit reference to a *property* of propositional guise (a guise that attaches to an entire proposition rather than to propositional constituents) rather than a particular guise is made because in many cases of belief attribution, a belief reporter will not be aware of the specific guise under which the person to whom the belief is being attributed believes the proposition.

¹¹Salmon himself says that *a* believes that *p* "may be analyzed" as the material I have on the right of the biconditional.

There are important differences between Schiffer- and Salmon-style accounts.¹² For example, the accounts give radically different judgments of the truth values of propositional attitude ascriptions. For this paper, it is important that, as McKay and Nelson (2010) put it, accounts such as Crimmins and Perry (1989/2007)—who offer a version of the hidden indexical theory—“embrace a metaphysics of belief similar to the standard Naive Russellian’s [accounts such as Salmon’s]. The difference between the views concerns whether or not the information semantically encoded by utterances of belief sentences is sensitive or insensitive to differences in the way a proposition is grasped.” Furthermore, referentialists of both stripes have said a great deal about numerous puzzles that might seem to carry over to Chalmers’ Bayesian challenge. For example, writers that embrace a Salmon-style account in response to, among other things, Kripke’s puzzle have made claims not only about the semantics and metaphysics of belief, but also about rationality. According to such writers, an agent can believe a pair of contradictory propositions and still be rational if she takes the proposition in different ways. It will benefit us to see how the appeal guises works out in the Bayesian machinery. To avoid complication in what follows, let us focus on theories like HIT.

The natural route for the sophisticated referentialist is to associate credences with propositions and guises. According to this proposal, call it *proposal 1*, each proposition can be associated with a guise under which that proposition is grasped. The domain of the credence function comprises ordered pairs of Russellian propositions and guises under which those propositions are grasped. On this proposal, a credence function, characterized set-theoretically, would look as follows:

$$\{\langle \langle G_{p_1}, p_1 \rangle, r_1 \rangle, \langle \langle G_{p_2}, p_2 \rangle, r_2 \rangle, \dots \},$$

where G_{p_i} is a guise, p_i a Russellian proposition, and r_i corresponds to a number in the interval $[0, 1]$. Since sophisticated referentialist accounts deliver (or aim to deliver) the correct conditions under which an agent believes a proposition, this route would also give the same results for partial belief.

Chalmers anticipates this strategy and gives a few objections. The first objection is that, on the route we’re considering, the domain no longer consists of sets but rather ordered pairs: guise–proposition pairs. On the other hand, Chalmers’ own semantics, he claims, fits seamlessly with the Bayesian machinery. In a reply to Braun, Chalmers (2006c) says the following:

By contrast, on my proposal about the nature of guises [primary intensions], guises are naturally

¹²My labels “naive” and “sophisticated” are somewhat non-standard. “Naive” is often associated with Salmon-style accounts, and Schiffer-style accounts are sometimes referred to as “sophisticated” or “contextualist.” What is important for me is that they both agree about the nature of propositions.

associated with sets of centered worlds . . . , and credences in enriched propositions mirror credences associated with these sets. This allows one to bring to bear the full set-theoretic power of the probabilistic apparatus in the analysis of rational belief. This is not a knock down argument for my view of guises, as a probability assignments can coherently be defined in the absence of the associated set-theoretic apparatus. But doing so loses some important explanatory structure. So if other things being equal, a view that allows set-theoretic analysis is preferable.

Soon I'll return to more of the details of Chalmers' own semantics, on which, over the course of numerous articles, he has spared no detail.¹³ Suffice it to say here that his objects of credence are non-referential, avoiding the first horn of the dilemma, and are set-theoretic, avoiding the current objection to proposal 1.

The first response to this objection is simple: The probability axioms can be stated in terms of a logic on sentences instead of a set-theoretically.¹⁴ While the absence of set theory might put the proponent of proposal 1 at some disadvantage, the pressure is light. Chalmers (2006c) himself recognizes this, saying of the argument:

This is not a knockdown argument for my view of guises, as a probability assignments can coherently be defined in the absence of the associated set-theoretic apparatus. But doing so loses some important explanatory structure. So if other things being equal, a view that allows set-theoretic analysis is preferable.

It would be preferable, however, for the referentialist to be at *no* disadvantage. This brings me to the second proposal.

According to *proposal 2*, the referentialist associates her guise-proposition pairs with non-referentially determined sets of worlds. On this proposal, the lines between Chalmers' own account and the referentialist's begin to blur. But this shouldn't surprise. The reason that this shouldn't surprise requires me to say more

¹³His fullest treatment can be found in Chalmers (2006a).

¹⁴Weisberg (2011, pp.5–6) suggests, in passing, something similar to my approach I'm giving:

On the other hand, philosophical considerations can make the sentence-based approach more perspicuous. Consider, for example, the sentences "Superman will save the world today" and "Clark Kent will save the world today". To Lois, these two sentences represent very distinct eventualities, though in fact they correspond to the same possible outcome. On the set-based approach, these two eventualities are represented by the same set, and hence must have the same probability. It seems reasonable, however, for Lois to think that they have different probabilities, which is allowed if we use different atomic [for my account, guise-proposition pairs], *A* and *B*, to represent them.

about Chalmers' semantics and in particular his view of propositional attitude reports, though I will be very brief. On Chalmers' two-dimensional semantics, sentences and sub-sentential components are associated with two different intensions, one referential (secondary intension), the other not (primary intension), where an intension is a function from a possibility to an extension. The referential intensions are functions from metaphysically possible worlds to the entity of the correct type. For the non-referential intensions, replace the metaphysically possible worlds with epistemically possible worlds. The object of belief incorporates both intensions, as Chalmers (2011b, p.6) describes here:

[T]he enriched intension of a simple expression is an ordered pair of the expression's primary intension and extension. The enriched intension of a complex expression is a structure consisting of the enriched intension of its simple parts (including any unpronounced constituents), structured according to the expression's logical form. The enriched intension of a sentence is its associated enriched proposition.

As an example, "Hesperus is Phosphorus" expresses the following proposition—Where h' is the primary intension of Hesperus, p' of Phosphorus, $='$ of identity, and where $=$ is the extension of identity, and v the extension of "Hesperus" and "Phosphorus":

$$\langle \langle =', = \rangle, \langle \langle h', v \rangle, \langle p', v \rangle \rangle \rangle.$$

And, as I said, in his theory of propositional attitude ascriptions, primary intensions play a similar role as the sophisticated referentialist's guises. So it shouldn't be surprising that the differences between sophisticated referentialism and Chalmers' account begin to disappear.

I'd like to pause to note that on either proposal, we escape the first horn. To remind ourselves, the problems of the first horn were that naive referentialism conflicted with three aspects of Bayesianism (and a related thesis): probablism, measuring credences with a function, and conditionalization. The first and third problems are dissolved on both responses I've given. Both problems arose from straightforward substitutivity maneuvers. "Hesperus is Phosphorus" is no longer associated with the same guise-proposition pair (or set of worlds) as "Hesperus is Hesperus." Similarly for "Jekyll has Q" and "Hyde has Q." Substitution of co-referring names doesn't require identity of credences on either option that I've given. The second problem also dissolves: On either response I've given, $cr(\cdot)$ is still a function. Take the Hesperus-Phosphorus example, and consider proposal 1 for focus (proposal 2 solves the function problem as well). We have two sentences that express the same Russellian proposition, viz. $\langle =, \langle v, v \rangle \rangle$. But that proposition is not what is

fed into the credence function. Rather, it is an ordered pair of a proposition and a propositional guise. If an agent's credence under a guise in the proposition that Hesperus is Hesperus and the agent's credence under a guise in the proposition that Hesperus is Phosphorus differ, and the agent is rational, then the agent grasps the same proposition under different guises. That means two different guises–proposition pairs are mapped to two different credences.

At this point, two natural objections arise. The first worry for both of my proposals is that the referential material is an idle wheel. For proposal 1, the credence function seems to operate only on the guise member of each ordered pair. The Russellian component seems to be irrelevant to the determination of credences. Call this the “idle wheel objection.” Proposal 2 faces a similar worry, though it's not quite as vivid. The referential component seems not to play a role, or a major role, in determining the relevant non-referential set of worlds.

A second worry is that Chalmers can invoke the premise that the objects of credence are the objects of belief, and so the referentialist, it seems, has to face the fact that the objects of credence, and so the objects of belief, are either guise–proposition pairs or non-referentially individuated sets of worlds. Here is what Chalmers (2011a, p.601) says:

But this view now says that the objects of credence, as we are understanding them, are such ordered pairs. If so, the objects of credence behave in a non-referential way. . . , and referentialism will be false of the objects of credence.

Even the sophisticated referentialists that we have canvassed claim that the object of belief is a Russellian proposition, though some non-referential component mediates that belief. With the premise that the objects of credence are the objects of belief, the sophisticated referentialist seems to be in trouble.

To these objections, Chalmers faces a *tu quoque* response. To the first objection, one of Chalmers' dimensions, the referentialist dimension, is similarly an idle wheel. As we've seen, Chalmers' objects of belief contain a referential component, the secondary intension, and a non-referential component, the primary intension. But the objects of credence for Chalmers are unstructured primary intentions that are associated with entire utterances. The referential dimension plays no role in the determination of the object of credence; thus, Chalmers faces the idle wheel objection as well. And Chalmers' premise that identifies the objects of credence with the objects of belief can similarly be reflected on him to cause trouble. Primary intentions are unstructured as well as non-referential while Chalmers' objects of belief are neither. The object of belief, as we've seen, consists of both referential and non-referential components, and furthermore, it's a structured entity whose constituents are primary and secondary intensions. So Chalmers' own account can't satisfy the

premise that the objects of credence are the objects of belief.

One response that Chalmers could give here is to raise the fact that he is a “semantic pluralist.” As he says: “It is natural for a two-dimensionalist to be a semantic pluralist, holding that there are many ways to associate expressions and utterances with quasi-semantic values, where different quasi-semantic values play different explanatory roles” (Chalmers, 2011b, p.5). This response is equally open to the sophisticated referentialist, but anyway the issue is orthogonal. The question at hand is whether Bayesian considerations put pressure on the sophisticated referentialist, not whether Bayesian considerations favor semantic pluralism.

The most plausible way to reject the foregoing argument is to notice its implicit premise: That the objects that inhabit the domain of the credence function are the objects of credence—and so the objects of belief. I accept the identification of the objects of credence and the objects of belief. When I believe that it’s raining, doubt that it’s raining, think it likely that it’s raining, etc., I bear those various attitudes toward the same object. But I see no reason to grant the assumption that the objects of credence are the objects that inhabit the domain of the credence function. The domain of a credence function is a *technical* notion. For the sophisticated referentialists considered so far, the objects of partial and full belief are Russellian propositions, though a non-referentialist component plays a mediating role. That the domain of the credence function includes a non-referentialist component doesn’t impugn the thesis of referentialism unless we grant what I see as an implausible assumption. There are various technical reasons for characterizing the domain of the credence function set theoretically, but that shouldn’t commit us all to the view that the objects of credence, and so the objects of belief, are structureless.

A nearby premise, however, might raise trouble for the sophisticated referentialist: Though the objects of credence, the objects of belief, and the domain of the credence function needn’t be identical, the objects of credence and the domain of the credence function should share important properties in common, including the property of behaving referentially or not. Thus, since the domain of the credence function behaves non-referentially, then the objects of credence behave non-referentially. Since I think the sophisticated referentialist shouldn’t give up the identification of the objects of belief with the objects of credence, we ought to conclude that the objects of belief behave non-referentially. Chalmers (2011a, p.608) sums up the argument this way, where “surrogate” applies to both proposals I’ve given:

If the surrogates behave referentially, then they are inadequate to serve as objects of credence.

If the surrogates do not behave referentially, then in so far as they are objects of credence, referentialism is false. It follows that if the objects of credence are surrogates, referentialism is false.

In my estimation, this version of the second horn of Chalmers' dilemma is its strongest form.

But the second horn rests on a crucial confusion. The confusion is the following:

- (6) While it is true that Russellian propositions are individuated referentially, the conditions under which they are believed—and derivatively the conditions under which agents have partial belief in them—should behave non-referentially since a non-referential component mediates belief in these referentially individuated propositions. Another way of putting this is that whether an agent believes a proposition in a given context doesn't depend wholly on the referentially individuated proposition that is up for belief.¹⁵

Everyone working on Frege's puzzle is trying to square our Fregean intuitions with various philosophical results that have developed in the last few decades. The sophisticated referentialist has to explain, or explain away, how it can be that Lois believes that Superman flies while she believes that Kent doesn't. Both the referentialist and Chalmers are trying to account for the data, albeit through different routes—though how different the routes are is up to question.¹⁶ Chalmers' second horn stems from confusing the individuation conditions for propositions and the conditions under which those propositions are partially and fully believed. The core of referentialism is a starting point on which the sophisticated referentialist builds to accommodate Fregean intuitions. Chalmers' requirement that sophisticated referentialists are committed to partial belief conditions that behave referentially amounts to the requirement that a referentialist theory must accept naive referentialism as the whole story.

To clarify this point, consider the analogy between Chalmers' second horn, which regards partial belief, with full belief. The compressed version of Chalmers' second horn is this one-premise argument: Partial belief behaves non-referentially; therefore, Referentialism is false. The analogous argument for full belief would be:

- (7) Belief behaves non-referentially.
- (8) Therefore, Referentialism is false.

But no sophisticated referentialist should accept this argument. As I noted, the sophisticated referentialist theories presented in this paper should explain our Fregean intuitions regarding belief and credence. That is,

¹⁵I have phrased this in terms of HIT-style accounts. For a Salmon-style account, the conditions under which agents have a disposition to inwardly assent to a proposition when taken a certain way—and so a disposition to partially inwardly assent—is determined non-referentially.

¹⁶This is especially clear when we compare Chalmers' account with HIT.

Lois will believe that Superman flies, she won't believe that Kent flies,¹⁷ it will sometimes be rational for an agent to believe that Hesperus isn't Phosphorus while also believing that Hesperus is Hesperus, and so on.

While the sophisticated referentialist accepts the core of referentialism, she is in no way obligated to accept the absurd consequences that follow from this core plus the claim that nothing else is relevant to propositions as the objects of belief. Or more cautiously: Suppose you do think that the argument from (7) to (8) is a good argument, and you do think that any referentialist theory ought to be rejected because its only true form is naive referentialism, and naive referentialism is absurd. This is a position one may take, but one doesn't get any mileage from recasting the argument in terms of credences. For if you think it is enough to refute referentialism by showing that full belief behaves non-referentially, then one would naturally expect partial belief to also behave non-referentially. And recall that my goal has only been to show that recasting Frege's puzzle in terms of Bayesianism doesn't award either side of the debate ground. Chalmers' target seems to be sophisticated referentialists of the type I've considered, viz. versions that are committed to Russellian propositions, but as we've seen these arguments rest on a confusion. Therefore, if I'm correct in this, then the stalemate resumes.¹⁸

There is yet a larger confusion in Chalmers' argument, which brings me to my final point: The referentialist needn't even be committed to the claim that the objects of belief are individuated referentially. What should properly be described as referentialism—or *true referentialism*—needn't even be committed to the core of referentialism. As it turns out, the core of referentialism itself is a cluster of views that needn't come in a package. And once separated, we can see that Chalmers' arguments miss the mark.

Sophisticated referentialists tend to claim that the objects of belief are individuated referentially, though belief is in some way mediated by a non-referential component. But that is an artifact of the majority of sophisticated referentialists in the literature employing Russellian propositions. And indeed, Russellian propositions are individuated referentially: The proposition that Hesperus is a celestial body and the proposition that Phosphorus is a celestial body are one and the same proposition, $\langle c, v \rangle$, where c is the property of being a celestial body and v is Venus. But here is a simple yet crucial point: The referentialist

¹⁷To put it again in terms of a Salmon-style account: Lois is disposed toward inward assent to the proposition that Superman flies when that proposition is presented in the Superman way and not when it is presented in the Kent way.

¹⁸At this point, Chalmers might object that referentialism is, by definition, the thesis that belief and credence behave referentially. Indeed, he may hold this view: He classifies Salmon as a referentialist about language but a non-referentialist about belief (Chalmers, 2011a, fn.9). If Salmon ends up not being a thoroughgoing referentialist about both language and belief, then, although I understand the thesis that Chalmers is attacking, I'm less clear who holds it, for he gives no representative citations in his explication of the thesis.

needn't be a Russellian. And that fact brings out what referentialism properly concerns. True referentialism properly concerns how individuals relate to propositions that are about those individuals. Put semantically, true referentialism properly concerns the nature of the contribution that certain pieces of language make to the proposition expressed. And for structured propositionalists, true referentialism is a thesis about the nature of some propositional constituents—that individuals are direct constituents. But that is, for at least the structured propositionalist, one piece of the account. On certain views of the nature of the *structure* of propositions, Chalmers' initial characterization of naive referentialism and the core of referentialism are straightforwardly false. To remind ourselves, Chalmers characterizes naive referentialism as follows: "referentialism about belief says that in so far as beliefs attribute properties to individuals (e.g. the belief that Nietzsche is dead), the objects of these beliefs are wholly determined by those individuals (e.g. Nietzsche) and those properties (e.g. the property of being dead)."

To illustrate my point, consider the following:

- (9) Bob Dylan wrote "Blowin' in the Wind."
- (10) "Blowin' in the Wind" was written by Bob Dylan.

According to the core of referentialism (9) and (10) determine the same propositions. And according to the way Chalmers has characterized naive referentialism, since nothing else is relevant to propositions in their capacity as the objects of belief, both (9) and (10) determine the same object of belief. And indeed, according to most sophisticated referentialists, being Russellians, this is true. It's plausible that both express the following Russellian proposition:

$$\langle w, BD \rangle,$$

where w is the property of having written "Blowin' in the Wind" and BD is the person that both "Bob Dylan" and "Robert Zimmerman" name. However, consider one of the most detailed accounts of structured propositions on the market—Jeff King's—a theory I consider for illustrative purposes, though I want to note that I'm not here endorsing the theory.¹⁹ King adheres to what I think should properly be deemed true referentialism: *names, indexical, and demonstratives contribute the individuals they designate in a context to the proposition expressed.*²⁰ According to King, however, (9) and (10) express different propositions. King's account is detailed and rich, but for our purpose it will do to say that propositions are complex facts that involve semantic and syntactic relations. These complex facts are constituted by lexical items standing in

¹⁹His fullest treatment can be found in King (2007).

²⁰See King (2007, Ch1). To put the thesis non-semantically, propositions contain individuals as direct constituents, a thesis that Russellianism includes but is not exhausted by.

semantic relations to their semantic values, and these lexical items stand in a complex syntactic relation. And that syntactic relation itself encodes a semantic function that instructs the semantics to interpret syntactic concatenation as the instantiation function. To illustrate, the following sentence—

(11) Rachel reads.

—expresses the proposition that is the following complex fact, though a mouthful to say: There are lexical items x and y of some language L occurring at the left and right terminal nodes, respectively, of the sentential relation R that in L encodes the instantiation function, where the semantic value of x is Rachel and the semantic value of y is the property of being a reader.²¹ According to King, that complex fact that is the proposition that “Rachel reads” expresses is true just in case Rachel reads—that is, just in case the ordinary fact of Rachel reading obtains. Thus, a difference in the complex syntactic relation R is sufficient for a difference in the proposition expressed. That (9) and (10) differ syntactically is sufficient for each to express a different proposition.²² Thus, the core of referentialism and naive referentialism is false for King.

For at least one other referentialist, Soames, similar considerations obtain.²³ On Soames’ recent account, propositions’ representational capacity derives from the representational capacity of agents. According to this account, to entertain a proposition is to engage in a cognitive activity—the mental act of predication, which for Soames is a primitive mental act, basic among others. When an agent sees o as red, there is an event token of her predicating redness to the object o . Now of course this event token can’t be the proposition that o is red. Instead, Soames takes the cognitive event *type* of predicating redness to o to be the proposition that o is red expresses. And more complex propositions and differing propositional attitudes are built upon the mental event type of predication. Regarding other attitudes, some examples: To judge that o is red is to predicate redness to o and then to endorse that predication; to believe that o is red is to predicate redness to o and to be disposed to judge that o is red (and so to be disposed to endorse the predication of redness to o). Regarding more complex propositions, an example: To entertain the proposition that o isn’t red is first to predicate redness to o and then to predicate not being true to the result of that first predication.

Soames still qualifies as a structured propositionalist in the sense that the cognitive event types that are propositions contain parts. And Soames, like King, is a true referentialist. But this doesn’t commit him to the claim that propositions are individuated referentially. This is because the verb *predicate*, for Soames, is

²¹I’m leaving off some details of King’s account that have to do with indexicals because that aspect of his account isn’t relevant to our discussion.

²²This extreme fineness of grain that results from syntactic differences has been the source of some criticism. For a critical discussion, see Collins (2007).

²³See Soames (2010) and Soames (2011).

an intensional transitive verb in the way that *look for* is. Lois can be looking for Kent without looking for Superman even though Kent and Superman are the same person. Thus, on Soames' account, "Tully shaved Cicero," "Cicero shaved himself," and "Cicero shaved Cicero" all express different propositions even though the semantic contribution of the subject and object of each sentence is the same.

As I've said, I'm not here to evaluate Soames' and King's accounts. The discussion under way illustrates what referentialism properly concerns. Chalmers can insist that the thesis he's attacking is the one he describes in his quote that we have called "naive referentialism." But that would be a mistake: King and especially Soames are well-known supporters of what should properly be deemed referentialism. What Chalmers ended up attacking was a thesis that followed from referentialism plus other theses, specifically Russellianism. The two recent theories of propositions from King and Soames show that, once Russellianism is dropped, naive referentialism, as Chalmers describes it, can be separated from true referentialism.²⁴ And this brings to light the real nature of referentialism, which Chalmers' Bayesian arguments leave untouched.

Chalmers hasn't scored a point for the Fregean. However, his novel focus on an uncharted interface has brought to light issues that deserve further exploration.²⁵

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²⁴One may find these two recent theories of propositions implausible and think that true referentialism ought to be packaged with Russellianism, but that would require much additional argumentation that Bayesianism would likely be irrelevant to.

²⁵Thanks to Phillip Bricker, Christopher J.G. Meacham, and especially an anonymous reviewer for comments on earlier drafts that greatly improved this paper.

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