Propositions and Attitude Ascriptions:
A Fregean Account*

David J. Chalmers

1   Introduction

When I say 'Hesperus is Phosphorus', I seem to express a proposition. And when I say 'Joan believes that Hesperus is Phosphorus', I seem to ascribe to Joan an attitude to the same proposition. But what are propositions? And what is involved in ascribing propositional attitudes?

Frege held distinctive views on both of these questions. He held that when one says 'Hesperus is Phosphorus', one expresses a thought, which is itself determined by composing the senses of the sentence's parts. Senses are fine-grained entities, tied to modes of presentation of an object. The senses of 'Hesperus' and 'Phosphorus' are distinct, as they involve distinct modes of presentation of the same object. Correspondingly, the thought expressed by 'Hesperus is Hesperus' differs from that expressed by 'Hesperus is Phosphorus'.

Frege also held that when one says 'John believes that Hesperus is Phosphorus', one ascribes a relation between John and the thought expressed by 'Hesperus is Phosphorus'. He held that in indirect contexts, such as those inside the scope of 'believes', expressions refer to their customary senses. So in the sentence above, 'Hesperus' refers to its customary sense rather than to Venus. More crucially, 'that Hesperus is Phosphorus' here refers to the thought that 'Hesperus is Phosphorus' usually expresses, and the ascription will be true if John stands in a belief relation to that thought.

Frege's views on these questions are no longer as popular as they once were. But I am inclined to think that they are correct, at least in broad outline if not in every detail. In particular, I think it is plausible that sentences express entities that are quite closely akin to Fregean thoughts. And

I think it is plausible that attitude ascriptions ascribe relations between subjects and these entities. In what follows I will defend these claims.

I will assume the coherence of a certain sort of two-dimensional semantics. I have defended this framework elsewhere, and will not repeat that defense here. Instead I will briefly outline the central aspects of the framework, and will then proceed. I do this in part for concreteness, and in part because this framework provides the best way that I know of to make sense of entities such as senses and thoughts. However, it may well be that much of what I say has application even to other views of Fregean senses and Fregean thoughts.

Another reason to conduct the discussion within the two-dimensional framework is that after outlining what I see as the best two-dimensionalist account of attitude ascriptions, I will use this account to rebut a number of arguments by Scott Soames in his recent book *Reference and Description: The Case Against Two-Dimensionalism*. Soames' arguments proceed by arguing that this framework cannot handle certain attitude ascriptions. In the final section of the paper, I will argue that correctly understood, the framework can handle these ascriptions straightforwardly.

In addition, the two-dimensional framework allows us to give relatively concrete analyses of various phenomena concerning both Fregean senses and attitude ascriptions. For example, we will see that it allows us to give an account of the Fregean hierarchy of senses. Along the way, I will use the framework to give a treatment of many standard issues concerning attitude ascriptions, such as those that stem from Frege's puzzle, Kripke's puzzle, and Mates' puzzle, as well as issues concerning indexicals, externalism, and context-dependence, and the relationship between *de dicto* and *de re* attitude ascriptions.

2   Two-Dimensional Semantics

In this section I will review the basic elements of the two-dimensional framework as I understand it (for more details, see Chalmers 2004, 2006). The framework is a variety of possible-world semantics, associating expressions not just with extensions but with intensions: functions from possibilia (of various sorts) to extensions. Like other versions of possible-worlds semantics, the framework presupposes a semantic theory that associates expressions (as used in contexts) with extensions. The extension of a sentence is a truth-value. The extension of a singular term is typically taken to be an object, while the extensions of other terms (predicates, general terms, and so on) are typically taken to be properties, relations, classes, functions, and other such entities. Here the details will vary with the choice of semantic theory, about which two-dimensionalism

per se is largely neutral, although we will see that it is naturally combined with certain views about the extensions of some expressions such as 'that'-clauses.

As I will develop it here, the framework also presupposes a semantic theory according to which every utterance is an utterance of an expression with a certain logical form, which may differ from its surface form. Expressions with a complex logical form will have other expressions as constituents. Typically, the extension of a complex expression will depend compositionally on the extensions of its parts (with some exceptions to be discussed later), although the nature of this dependence will again vary with choice of semantic theory. In what follows, for the purposes of illustration, I will typically adopt a simple view of logical form that is tied to first-order logic, but not much depends on this.

Two-dimensionalism associates its semantic values with expressions as used in contexts (or alternatively, with expression tokens or with utterances), rather than with expressions simpliciter, because the relevant semantic values can often vary between utterances of the same expression. For example, utterances of the same name by different speakers may be associated with a different primary intension. For present purposes it is best to restrict attention to (expression, context) pairs such that the expression is uttered in the context.[1] In what follows, talk of the intensions or extensions associated with expressions and sentences should always be understood as talk of the intensions associated with expressions-in-contexts and sentences-in-contexts. The apriority and necessity of sentences should also be understood as relative to context, for maximal generality.

Two-dimensionalism associates expressions (in contexts) with at least two sorts of intensions: primary and secondary intensions. Both intensions are functions from possibilities (of different sorts) to extensions, where these extensions are of the type that the semantic theory associates with the corresponding expression type. Primary and secondary intensions can be partially characterized by the following core theses.

(T1) Every expression (of the sort that is a candidate to have an extension) is asso-

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[1]It should be recognized that primary intensions (of a name, say) can vary between contexts in a way that differs in important respects from more familiar sorts of context-dependence. In particular, there is no obvious simple parameter in the context on which a primary intension depends, unless we regard primary intensions themselves as an element of context. Otherwise, the relevant contextual parameter will simply be the world (or perhaps the speaker's mind), with the primary intension depending on the state of the world in an unspecified way. I will adopt the latter understanding. One could instead work with expression tokens here, in part because of these differences and in part to respect the idea that it is not obvious how to make sense of the primary intension of an expression relative to a context in which the expression is not uttered. I have done this in other papers (e.g. Chalmers 2004), but here I work with the more standard apparatus of expressions in contexts.

ciated with a primary intension and a secondary intension. A primary intension is a function from scenarios to extensions. A secondary intension is a function from possible worlds to extensions.

(T2) When the extension of a complex expression depends compositionally on the extensions of its parts, its primary and secondary intensions depend compositionally on the primary and secondary intensions (respectively) of its parts, by applying the compositionality of extensions across scenarios and worlds.

(T3) The extension of an expression coincides with the value of its primary intension at the scenario of utterance and with the value of its secondary intension at the world of utterance.

(T4) A sentence S is metaphysically necessary iff the secondary intension of S is true at all worlds.

(T5) A sentence S is a priori (epistemically necessary) iff the primary intension of S is true at all scenarios.

Secondary intensions are the familiar post-Kripkean intensions that pick out the extension of an expression in metaphysically possible worlds. A sentence such as 'Hesperus is Phosphorus' is metaphysically necessary, so by (T4) its secondary intension is true at all worlds. It then follows from (T2) and standard compositional principles that 'Hesperus' and 'Phosphorus' have identical secondary intensions. In this case, 'Hesperus' and 'Phosphorus' are rigid designators whose secondary intension picks out the planet Venus in every world.

Like secondary intensions, primary intensions are functions from possibilities of some sort (scenarios, or epistemically possible worlds) to extensions. But unlike secondary intensions, the primary intensions of rigid designators can differ. For example, given that 'Hesperus is Phosphorus' is not a priori in a given context, it follows from (T5) that its primary intension is not true at all scenarios. It then follows from (T2) and compositional principles that 'Hesperus' and 'Phosphorus' (in this context) have distinct primary intensions. This is the usual pattern: where there is a posteriori identity involving two rigid designators, the terms involved will have the same secondary intensions but different primary intensions.

Scenarios can be understood in a number of ways, but on a standard understanding they are identified with *centered worlds*: ordered triples of worlds, individuals, and times within those worlds. The individual and the time may be thought of as the "center" of the scenario. For a given

utterance, the scenario of utterance will be a scenario involving the world of utterance, the speaker, and the time of utterance. It should be noted that although scenarios bear a formal resemblance to contexts of utterance, they are conceptually quite distinct from them (for a discussion of the differences, see Chalmers 2004), although the differences will not matter a great deal for present purposes.

The primary intension of 'I', evaluated at a scenario, picks out the individual at the center of a scenario. The primary intension of 'now' picks out the time at the center. The primary intension of a paradigmatic use of 'Hesperus' may function, very roughly, to pick out a bright object visible at a certain point in the evening sky in the environment of the individual at the center of a scenario. The primary intension of a paradigmatic use of 'Phosphorus' may function, very roughly, to pick out a corresponding object in the morning sky in the relevant environment.

The precise definition of primary intensions will not matter much for current purposes (it is discussed at length in Chalmers 2004). Very roughly, the primary intension of a sentence is true at a scenario when, if the subject were to accept that they were inhabiting the scenario in question, they would endorse the sentence in question. For example, if I were to accept that I am inhabiting a scenario in which all the objects in the morning sky and the evening sky have always been distinct, I would reject the sentence 'Hesperus is Phosphorus'. So the primary intension of the sentence is false in that scenario.

For present purposes, it will probably not hurt to think of primary intensions as a sort of descriptive content associated with an utterance of an expression. This framework is not committed to a strong sort of descriptivism, however. In fact, by design it is compatible with the central data of Kripke's modal and epistemic arguments against descriptivism. But it shares some of the flavor of descriptivism, and those who are not familiar with the framework might think of it in these terms at least as a heuristic for current purposes.

If one is skeptical about two-dimensionalism, one might see the current paper as a sort of conditional argument. The argument suggests that *if* this sort of two-dimensionalism is coherent (that is, if there are entities satisfying (T1) to (T5) and certain ancillary theses), then what follows is an attractive and coherent view of propositions and attitude ascriptions that vindicates a number of Frege's claims, that seems to handle intuitions about attitude ascriptions at least as well as any current account, and that can be used to respond to certain criticisms of the framework. These conditional claims may themselves provide reason to take two-dimensionalism quite seriously.

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3   Propositions

What are *propositions*, according to the two-dimensionalist? The framework I have outlined so far says nothing about this. Some two-dimensionalists characterize primary and secondary intensions of sentences as propositions. In Chalmers (1996), I call these entities "primary propositions" and "secondary propositions" (though this reflected a terminological choice more than a substantive commitment). Jackson (1998) identifies propositions with classes of possible worlds. However, I think it is not crucial to the two-dimensional framework to identify propositions with sets of possible worlds.

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. A two-dimensionalist already acknowledges at least two such entities: primary intensions and secondary intensions. Two-dimensionalists can also acknowledge other such entities, such as entities with two-dimensional structure and with structured logical form (as we will see), as well as entities that are independent of the two-dimensional framework. It is quite possible that different entities play different explanatory roles traditionally associated with propositions. So primary intensions may play some of these roles, secondary intensions may play other roles, and some roles are played by neither of these. If this is the case, then the decision as to which entities to count as "propositions" will have a terminological element, as it depends on which explanatory roles one takes to be most important in the application of the term.

However, if one is to identify a single sort of entity grounded in the two-dimensional framework as a proposition, it should be an entity that can do as much of the explanatory work associated with propositions as possible. This militates against identifying propositions with simple intensions, such as primary or secondary intensions. For a start, such intensions lack logical form, and the explanatory benefits of allowing logical form in propositions are well known. Furthermore, it is natural to hold that the epistemic and modal properties of a sentence (the properties of being necessary and of being a priori, for example) reflect properties of an associated proposition. But there is no simple intension for which this is so: epistemic properties of a sentence typically reflect properties of a primary intension, while modal properties typically reflect those of a secondary intension.

The materials for a better account are close to hand, however. For a start, a two-dimensionalist may appeal to structured logical form. The compositionality thesis (T2) already acknowledges

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some sort of logical form in sentences, and semantic values that reflect this form are easy to construct. For example, we can define the *structured primary intension* as a structure consisting of the primary intensions of all the simple expressions in a sentence (along with any unpronounced constituents), structured according to the sentence's logical form. One can define the *structured secondary intension* likewise.

A structured secondary intension will be closely related to the familiar *Russellian proposition* associated with a sentence, which is a structure consisting of the objects and properties that are the extensions of a sentence's simple parts. One can plausibly understand logical form so that secondary intensions of these simple parts are always rigid, so that they pick out the same objects and properties in all possible worlds.[2] If so, then structured secondary intensions and Russellian propositions are intertranslatable. In what follows I will assume this sort of intertranslatability and will mostly talk in terms of Russellian propositions, but much of what I say could also be put in terms of structured secondary intensions.

Structured primary intensions and Russellian propositions can both play significant explanatory roles, but there is a natural entity that can play many of the roles of both. Let us say that the *enriched intension* of a simple expression is an ordered pair of the expression's primary intension and its 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.*

Consider an utterance of 'Hesperus is Phosphorus'. The enriched intension h of 'Hesperus' here can be represented as h'/v, where h' is the associated primary intension and v is Venus. Likewise, if 'Phosphorus' here has primary intension p', then its enriched intension p is p'/v. The enriched proposition expressed by 'Hesperus is Phosphorus' can be represented as $[h = p]$, or in full as something like $[=' / =, \langle h'/v, p'/v \rangle]$, where $='$ is the trivial primary intension associated wih the identity relation.

From the enriched proposition of a sentence, many coarser-grained semantic values can be recovered. One can straightforwardly recover a structured primary intension and a Russellian proposition, by isolating the primary intensions and the extensions associated with the enriched intensions of the sentence's parts. The unstructured primary intension of the sentence can be

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[2]Any nonrigid expressions will correspond to complex structures involving properties. For example, the logical form of 'x is a doctor' might be something like 'x has doctorhood', where 'doctorhood' rigidly designates the property of being a doctor.

recovered by composing the primary intensions of its parts, and the secondary intension of the sentence can be determined by evaluating the relevant Russellian proposition in other possible worlds.

Enriched propositions can be evaluated at scenarios and at worlds in the obvious way. An enriched proposition is true at a scenario if its associated primary intension is true there, and it is true at a world if its associated secondary intension (or Russellian proposition) is true there. We can say that an enriched proposition is necessary if it is true at all worlds. It is a priori (epistemically necessary) if it is true at all scenarios.

It is then easy to see how there can be necessary a posteriori propositions. The enriched propositions associated with typical utterances of 'water is H_2O' and with 'Hesperus is Phosphorus' will be true at all worlds, but will be false at some scenario. So these propositions will be both necessary and a posteriori.

A bonus of this understanding is that enriched propositions and enriched intensions behave in a manner highly reminiscent of Fregean thoughts and Fregean senses respectively. In an earlier paper (Chalmers 2002a), I argued that primary intensions can play some of the roles of Fregean senses. However, enriched propositions can play more of the roles, and can play them better, in part because they are much more fine-grained than primary intensions.[3]

For example, primary intensions bear a resemblance to Fregean senses in that that a priori inequivalent expressions (that is, expressions 'a' and 'b' for which '$a \equiv b$' is not a priori) always have distinct primary intensions. However, cognitively distinct but a priori equivalent expressions (that is, expressions for which '$a \equiv b$' is cognitively significant but a priori) always have the same primary intension, whereas they have distinct Fregean senses. For example, two different a priori mathematical truths will both have the necessary primary intension, while having distinct senses. In these cases, enriched propositions behave more like senses than do primary intensions. Two different a priori mathematical truths will have distinct enriched propositions, for example. The only possible cases in which Fregean senses may be more fine-grained than enriched propositions are cases in which two *simple* expressions are a priori equivalent but cognitively distinct. It is not

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[3]Chalmers (2002a) begins by outlining seven Fregean claims about senses, and argues that primary intensions satisfy versions of five of these claims, two with strong qualifications, and fail to satisfy the remaining two. The two unsatisfied claims are that Fregean thoughts have an absolute truth-value and that indirect contexts invoke customary senses. The two qualifications involve a relatively weak form of determination of sense by reference, and the replacement of cognitive insignificance by apriority. Interestingly, enriched propositions appear to satisfy versions of all seven claims, without needing qualifications as strong as those just mentioned.

obvious that this can happen, although it is not obvious that it cannot.[4] In any case, cases like this will be very much rarer than corresponding cases for primary intensions.

In addition, whereas primary intensions determine reference only in the weak sense of determination in a context, enriched intensions determine reference absolutely, because reference is built into them. Furthermore, enriched propositions have an absolute truth-value in a world, whereas primary intensions do not. Enriched intensions share with primary intensions the Fregean feature that the intension associated with a name can vary between different users of the name. Finally, the enriched intensions of indexicals behave very much as Frege suggested they might. Different people will express different enriched intensions with their uses of 'I', for example, as these uses have the same primary intension but different extensions. No-one else can use a term with the enriched intension associated with my use, so this intension, like Frege's senses, can be said to be unsharable.[5]

Of course fine-grainedness is a somewhat mixed blessing. My utterance of 'You are hungry' and your utterance of 'I am hungry' will express different enriched propositions, even though we are agreeing, and there is an intuitive sense in which we are saying the same thing. Indeed, there will be many enriched propositions (especially those involving 'I') that I express even though no-one else can express them. This might be thought to be a cost of the view. Still, there is something intuitively plausible in the idea that my utterance of 'I am hungry' does not say *exactly* the same thing as your utterance of 'You are hungry'. Rather, it seems that there is a sense in which what we say is the same, and a sense in which it is different. Enriched propositions provide the structure to capture both these senses: here, the propositions share their associated Russellian propositions, but not their primary intensions. A fuller account of what is going on here requires an analysis of indirect contexts and communication, which I discuss later in the paper.

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[4]Perhaps the most likely examples of this will involve simple expressions such that it is a priori that they do not refer. Nick Kroll (unpublished) has suggested that fictional names such as 'Sherlock Holmes' may be like this. To preserve the strongest link between enriched propositions and Fregean senses, one would have to argue that such names refer to abstract objects (as suggested by Salmon (1998) and Thomasson (1998)), or that they are associated with complex structure in logical form.

[5]Given this variability, the question arises of whether enriched propositions are *semantically* associated with utterances. The answer depends on what is meant by "semantic". If semantic association requires that contents are associated with expressions independently of context, then enriched propositions will not in general be semantic contents. If semantic association is compositional truth-conditional association (so that semantic content compositionally determines truth-conditions of an utterance), then enriched propositions are semantic contents. However, for a semantic pluralist, not much rests on the quasi-terminological issue of which sort of contents are "semantic". What matters, as always, are the explanatory roles that these entities can play.

We need not make the claim too strong. Enriched propositions certainly do not satisfy every claim that Frege made about senses and about thoughts.[6] For example, Frege said that one may grasp the same thought with 'Today is ϕ' and 'Yesterday was ϕ' (said the next day), but the enriched propositions associated with the two utterances will certainly differ. Furthermore, the exact strength of the relationship between enriched propositions and cognitive significance is open, as we have seen. And we will see that there are certain differences between the resulting treatment of attitude ascriptions and Frege's own account. Nevertheless, the similarities are enough that this account might reasonably be called Fregean.

Of course enriched propositions may not play all the explanatory roles that propositions have been thought to play. Even more fine-grained entities may be required for some purposes, for example. And for some of the roles that they play, other associated entities may play them better. For example, Russellian propositions may be a somewhat better fit as arbiters of agreement and disagreement, at least in some cases, while primary intensions may be a better fit for some of the roles of propositions in probability theory. There should be no surprise for a semantic pluralist in any of this. But it is arguable that enriched propositions are the best single candidate in the two-dimensional framework for playing the core explanatory roles associated with propositions. We have already seen that they can play many of these roles better than other two-dimensionally definable entities. In the next sections, we will see that they can also play another crucial role: that of being the object of propositional attitude ascriptions. Given these explanatory roles, it is not unreasonable for a two-dimensionalist to say that this is what propositions are.

4   Two-Dimensionalism and Attitude Ascriptions

Of course one of the major roles for propositions is their role in an account of propositional attitudes and their ascription. The account in the previous section is largely grounded in considerations separate from those concerning attitude ascriptions. But I think that a detailed examination reveals that enriched propositions can play a key explanatory role in the analysis of attitude ascriptions.

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[6]In addition to the claims mentioned here, Frege would certainly reject the claim that Mont Blanc itself ("with all of its snowfields") is a constituent of the sense of 'Mont Blanc'. However, one could straightforwardly enough modify the current account to invoke some related abstract object, such as the property of being Mont Blanc. If sense is truly to determine reference, it seems that something at least this strong is required. It is worth noting that on the current account, the sense of a referring name will be an object-involving "*de re*-sense" (McDowell, 1984).

A two-dimensionalist treatment of attitude ascriptions requires first that we can associate two-dimensional semantic values with beliefs as well as with sentences. I discuss this association in Chalmers (2002b), but I will briefly summarize here. As a simplifying assumption, one can take beliefs to be logically structured mental representations, whose constituents are concepts (in the psychologists' sense, according to which concepts are mental representations). The following account does not strictly require this assumption. All that it requires is that subjects can stand in appropriate relations to structured entities (such as structured intensions and enriched propositions), in virtue of their psychological state. There may well be ways to understand such relations without postulating structured mental representations. But for ease of understanding at least on a first approximation, it is useful to think in terms of such representations.

Given appropriate structured mental representations, primary and secondary intensions can then be associated with beliefs much as they can be associated with sentences. The primary intension of a belief will be roughly that set of scenarios such that if the subject accepts that the scenario obtains, they should accept the belief. The secondary intension of a belief corresponds to the familiar way of evaluating beliefs in possible worlds. We can likewise associate primary intensions and extensions with the concepts that are the constituents of a belief, and can thereby associate enriched intensions with these concepts. Using logical structure among these constituent concepts, then we can then associate an enriched proposition with the belief.

I have argued elsewhere (Chalmers 2002a) that these associated contents can play many of the explanatory roles that propositional contents are supposed to play in the explanation of cognition and of action, but I will not focus on those things here. Instead I will focus on their role in the truth-conditions of propositional attitude ascriptions: sentences of the form 'x believes that S', and likewise for other propositional attitudes.

For ease of discussion, when someone has a belief with primary intension i_1, I will say that they *endorse i_1*. When they have a belief with secondary intension i_2, I will say that they endorse i_2. When they have a belief with enriched proposition p, I will say that they endorse p. Note that "endorse" is here being used as a technical term,[7] so that one cannot immediately move back and forth between claims about endorsement and ordinary propositional attitude ascriptions.

Two natural initial proposals for a two-dimensional account of attitude ascriptions are the following.[8]

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[7]I use the term "endorse" in part because "endorse that P" is not an English locution. However, there are ordinary locutions such as "I endorse what he said" that should not be run together with the technical usage.

[8](PI) and (SI) correspond to the proposals about attitude ascriptions discussed by Soames (2004) under the labels of

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(PI) 'x believes that S' is true of i iff i endorses the primary intension of S.

(SI) 'x believes that S' is true of i iff i endorses the secondary intension of S.

Thesis (SI) has familiar problems. (SI) entails that if (1) is true, (2) is true:

(1) Lois believes that Superman is Superman.

(2) Lois believes that Superman is Clark Kent.

But intuitively it seems clear that (1) can be true while (2) is false. Some Millians try heroically to deny the intuitions, but this is biting a large bullet. Two-dimensionalists have the resources to avoid the conclusion. The obvious two-dimensionalist upshot of (1) and (2) is that their truth depends not only on the secondary intension of Lois's beliefs, but also on the primary intension of her belief. In these cases, Lois's belief has a primary intension of the right sort to satisfy (1) but not (2).

A methodological point. In what follows I will usually assume that our intuitive judgments about the truth or falsity of attitude ascriptions are correct. Certainly I think that most theorists will allow that other things equal, an account that respects these intuitive judgments is preferable. And even if one thinks that other things are not equal, as a Millian does, it will still presumably be desirable to have an account of when and why an attitude ascription is intuitively correct, whether or not intuitive correctness coincides with truth. Presumably intuitive correctness-conditions will still play a large role in communications involving such ascriptions, for example. In what follows, I will usually assume that intuitive correctness coincides with truth, but one who disagrees with this can always read what follows as an account of intuitive correctness in its own right.

Thesis (PI) has multiple problems. The first is the converse of the problem for (SI): (PI) entails that the truth of an ascription depends only on the primary intensions of the subject's beliefs, but it seems clear that primary intensions are not all that matter. Consider:

(3a) Oscar believes that water is wet.

(3b) Twin Oscar believes that water is wet.

(4a) Fred believes that George Bush is a Republican.

(4b) Twin Fred believes that George Bush is a Republican.

"strong" and "weak" two-dimensionalism.

Here Oscar and Fred are typical Earth inhabitants, while Twin Oscar is a duplicate of Oscar on Twin Earth (where the watery stuff is XYZ), and Twin Fred is a duplicate of Fred millions of years ago, or in a distant part of the galaxy. In these cases, the standard intuitions are that (3a) and (4a) are true, while (3b) and (4b) are false. But in these cases, Oscar and Twin Oscar may have beliefs with the same primary intensions (given that primary intensions are a sort of "narrow content"), as may Fred and Twin Fred. The moral is that the truth of these ascriptions requires more than a belief with an appropriate primary intension: it also requires an appropriate environment, and in particular an appropriate relation to water or to George Bush respectively. For a two-dimensionalist, the obvious diagnosis in both cases is that the truth of these ascriptions depends not only on the primary intensions of the subject's beliefs, but also on their secondary intensions.

This suggests that the right-to-left component of (PI) is false. There are also reasons for thinking that the left-to-right component of (PI) is false. (This contrasts with (SI), where the right-to-left component looks false but the left-to-right component is not obviously false.) Relevant examples here include

(5) Fred believes that I am hungry.

(6) Pierre believes that London is pretty.

To satisfy the first ascription, Fred need not have a belief with the same primary intension as 'I am hungry'. If he did, he would believe that he is hungry. Rather, Fred can satisfy the ascription with a belief that picks the ascriber out via a quite different primary intension. Likewise, the second ascription may be true even though Pierre's use of 'Londres' and the ascriber's use of 'London' have somewhat different primary intensions. So here again, Pierre need not have a belief with the primary intension of 'London is pretty' in the mouth of the ascriber.

So if one accepts standard intuitive judgments about belief ascriptions, (PI) and (SI) are clearly false. The natural way for the two-dimensionalist to embrace all the data above is to hold that belief ascriptions are sensitive to both primary and secondary intensions of the subject's beliefs. The sensitivity is somewhat different in the two cases, reflecting the fact that while we have seen clear counterexamples to the left-to-right component of (PI), we have not seen clear counterexamples to the left-to-right component of (SI). The natural resulting account is something like the following:

(APS) 'x believes that S' is true of i iff i has a belief with the secondary intension of S (in the mouth of the ascriber) and with an S-appropriate primary intension.

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It makes sense to invoke structured rather than unstructured entities, partly as attitude ascriptions have structure. Once we do this, we can substitute Russellian propositions for structured secondary intensions, yielding the following.

> (APR) 'x believes that S' is true of i iff i has a belief with the Russellian content of S
> (in the mouth of the ascriber) and with an S-appropriate structured primary intension.[9]

"S-appropriate" is used to accommodate the fact that the truth of the ascription is sensitive to the primary intensions of the subject's beliefs (as example (2) suggests) but does not require a belief with a specific primary intension (as examples (5) and (6) suggest). Rather, it seems to require a belief with a primary intension that falls into a certain class. For a subject to believe that Clark Kent is handsome, the relevant belief must pick out Clark under a 'Clark Kent'-appropriate primary intension, which may allow various sorts of intension associated with Clark's role as reporter and ordinary citizen, for example, but not a primary intension associated with his role as Superman. (APR) leaves open just what it is for a primary intension to be "S-appropriate". It is natural to suppose that it involves standing in a relevant relation to the primary intension of S in the mouth of the ascriber, but the relation in question may well be determined in a context-sensitive way.

As things stand, (APR) states conditions under which attitude ascriptions are true, but it is not explicit about their logical form. For example, it makes no claims about the referents of 'that'-clauses, and indeed about whether they have referents at all. Of course this issue interacts with the question about the nature of propositions, as propositions are often taken to be the referents of 'that'-clauses. On the face of it, (APR) is prima facie compatible with at least two different accounts of the logical form of attitude ascriptions and of the referents of 'that'-clauses.

The hidden-indexical account

One can naturally combine (APR) with the logical form of "hidden-indexical" accounts of attitude ascription (Crimmins 1991; Schiffer 1990), on which 'that'-clauses refer to Russellian propositions, with contextually-determined constraints on modes of presentation. (APR) already shares significant elements with such an account, in that it ascribes a relation to a Russellian proposition and it constrains the primary intensions under which this proposition is presented. One could explicitly adopt the logical form of a hidden-indexical account as follows:

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[9]The labels stand for "Appropriate Primary/Secondary" and "Appropriate Primary/Russellian" respectively.

(HI) 'x believes that S' is true of i iff $\exists m B(i, m, p) \& \phi(m)$

Here p is the Russellian proposition associated with S, which we take to be the referent of 'that S'. B is a triadic relation between a subject, a structured primary intension, and a Russellian proposition, such that $B(i, m, p)$ holds iff i has a belief with structured primary intension m and Russellian content p. ϕ is a context-dependent appropriateness constraint on a structured primary intension m. It is easy to see that this account yields something very much like the truth-conditions of (APR).

Here, (structured) primary intensions play the role of modes of presentation. They are well-suited to satisfy a version of what Schiffer calls "Frege's constraint" on modes of presentation: the thesis that one cannot rationally believe and disbelieve a proposition under the same mode of presentation. On the current framework, this sort of belief and disbelief will require having beliefs with contradictory primary intensions. The conjunction of these two beliefs will have a primary intension that is false at all scenarios. Assuming that a version of principle (T5) holds for beliefs as well as sentences, it follows that this conjunction can be ruled out a priori. If we understand "rationally" in an idealized way such that one cannot rationally believe what can be ruled out a priori, the thesis in question follows.

There are many attractions to this account, but it has some clear disadvantages. First, there are cases (such as 'It is a priori that S', discussed below) where it is attractive to say that epistemic operators operate directly on primary intensions supplied by 'that S'. On this account, 'that S' does not directly supply a primary intension, so this does not work. Instead, any role for primary intensions must come from the appropriateness condition ϕ, which here seems artificial.

Second, there are human languages in which attitude ascriptions analogous to the English ascription

(7) John believes that I am hungry.

are true when Fred believes of himself (under a first-person mode of presentation) that he is hungry, rather than believing of the ascriber that he or she is hungry.[10] In these cases, attitude ascriptions do not require the ascribee to endorse the Russellian content that would typically be associated with the embedded sentence. Instead, the ascriptions appear to operate directly on primary intensions. Of course one could give an entirely different semantics for attitude ascriptions in these languages. One could also suggest that 'I am hungry' embedded in these contexts expresses a

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different Russellian proposition from the one that it usually expresses. But a uniform framework that does not require such changes in content is preferable if it is possible.

Third, we will see in the next section that there appear to be some cases in English, involving context-dependent terms such as 'tall', where sameness of Russellian content between ascriber and ascribee is not required.

Finally, we have seen that there are prima facie reasons for a two-dimensionalist to identify propositions with enriched propositions. There are also prima facie reasons to say that the referents of 'that'-clauses are propositions. These yield prima facie reasons to hold that the referents of 'that'-clauses are enriched propositions.

I do not think that these considerations against a hidden-indexical account are decisive. But they do suggest reasons to take seriously the possibility of an alternative account that gives enriched propositions a central role. In fact, such an account is not hard to find.

The coordination account

The simplest account on which 'that'-clauses refer to enriched propositions is the following:

(EP*) 'x believes that S' is true of i iff $E(i, p)$

where E is the endorsement relation, and p is the enriched proposition expressed by S. However, this account fails for a reason familiar from the case of (PI). Cases such as (5) and (6) show that an attitude ascription can be true even if the ascribee does not endorse precisely the enriched proposition that S expresses for the ascriber.

Instead, we can take a leaf from another extant approach to attitude ascriptions (Forbes 1987; Richard 1990), and require an appropriate relation to hold between the proposition expressed by 'that S' in the mouth of the ascriber and the proposition endorsed by the ascribee. I will call this relation *coordination*.[11]

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[10]These languages include Aghem (Hyman 1979), Amharic (Schlenker 2003), Navajo (Speas 1999), Slave and Zazaki (Anand and Nevins 2004).

[11]Forbes takes the relevant relation to be similarity, and the relata to be conceptions of a common referent. Richard takes the relevant relation to be representation, and the relata to be "Russellian annotated matrices". Richard's account is not intended as a Fregean account, and he holds that the matrices in question are not propositions, which he takes to be Russellian. I think that the coordination relation is best not regarded as similarity or representation, and my view of the relata differs from Forbes' and Richard's. Nevertheless, there is a clear structural similarity between the current account and Forbes' and Richard's accounts, and the current account could be regarded as a descendant of theirs.

In particular, we can combine the following simple semantics for attitude ascriptions (where here, p is the enriched proposition expressed by S)

(EP) 'x believes that S' is true of i iff $B(i, p)$

with the following analysis of the relation B expressed by 'believes'

(B) $B(i, p)$ iff $\exists q E(i, q) \& C(q, p)$

Here, E is the endorsement relation, and C expresses a context-dependent coordination relation between two enriched propositions. (EP) and (B) together entail

(CEP) 'x believes that S' is true of i iff $\exists q E(i, q) \& C(q, p)$

That is, 'x believes that S' is true of i iff i endorses a proposition that is coordinate with p, where p is the proposition expressed by S.

To a first approximation, we can say that p is coordinate with q iff (i) p and q have the same Russellian component and (ii) p determines an S-appropriate primary intension, where S is the sentence used to express q. When (CEP) is combined with this definition, it yields (APR) as an immediate consequence. If S-appropriateness were solely a function of the primary intension of S (in the mouth of the ascriber), then we could replace (ii) by the claim that p is q-appropriate. We will see that there are some cases that are more complex than this, however, so that the sentence used to express q makes a difference. But in many cases, it is the primary intension q that plays the most important role in determining S-appropriateness.

Unlike the hidden-indexical account, this account can apply in principle to attitude ascriptions in languages such as Amharic above. To handle these cases, one need only say that coordination works somewhat differently in these languages, so that sameness of the Russellian component is not always required. For the case above, what appears to matter is sameness of primary intension.

Furthermore, unlike the hidden-indexical account, this account allows a straightforward treatment of indirect contexts other than attitude ascriptions that appear to operate directly on primary intensions. For example, to handle 'It is a priori that S', we can say as before that 'that S' contributes an enriched proposition p, and that the sentence will be true iff p is a priori. In this case, the primary intension associated with p will play the major role in determining the truth-value of the overall sentence: to a first approximation, p is a priori iff p has a necessary primary intension (although see footnote 25 for a second approximation). Likewise, 'It is necessary that S' will be

true iff p is necessary, which requires that p has a necessary secondary intension. In these cases, the extension of a 'that'-clause is an enriched proposition, and the extension of an operator such as 'It is necessary that' or 'It is a priori that' is a function from enriched propositions to truth-values.[12]

A truly complete account of attitude ascriptions along the lines above would require an account of precisely what it takes for two enriched propositions to count as coordinate in a context, which would itself require an account of what it takes for a primary intension to count as S-appropriate in a context. No such complete account is yet close to hand, and because our judgments about attitude ascriptions are so unruly, comprehensive principles may be hard to find. As things stand, the best route to determining appropriateness and coordination is precisely to consider our judgments about attitude ascriptions. Of course then (CEP) does not provide an algorithm to determine whether a given ascription is true or false, and the truth-conditions that it does provide are relatively unconstrained. However, (CEP) at least provides a general framework that we can use to analyze the truth-conditions of attitude ascriptions, and within which we can attend to relevant dimensions of variation. Consideration of specific cases, such as those in the next section, helps to bring out the different ways that these constraints behave for different expressions and in different contexts, and might eventually help to yield a more constrained account of these constraints. So for now, I will adopt an approach on which claims about appropriateness are responsive to judgments about cases, rather than vice versa.

The current account is neutral on whether (EP) or (CEP) captures the logical form of belief sentences. On the former view, 'believes' is associated with a simple expression in logical form, for which (B) serves as a lexical analysis. On the latter view, 'believes' is associated with a complex structure in logical form, whose form is given by (B). The two will differ on the source of context-dependence of belief-sentences at the level of logical form: the former view will trace this to the context-dependence of the simple expression 'believes', while the latter view will trace it to the context-dependence of an unpronounced expression for the coordination relation. The choice between these options turns on syntactic and semantic considerations that go beyond the current treatment (see e.g. Stanley 2000). For present purposes, the difference between these options will not matter. What matters is the common truth-conditions for attitude ascriptions and the common

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[12]This framework also allows a straightforward response to various challenges to the two-dimensionalist treatment of modal and epistemic contexts raised by Bealer (2002). For example, Bealer suggests that the two-dimensionalist will have trouble with claims such as 'It is necessary and a posteriori that Hesperus is Phosphorus', as neither the primary nor the secondary intension is both necessary and a posteriori. On the current framework, this sentence will be true iff the enriched proposition expressed by 'Hesperus is Phosphorus' is both necessary and a posteriori.

referent for 'that'-clauses that they deliver.

5   Puzzle Cases

To see how this account works, we can examine its application to some puzzle cases.

Superman/Clark Kent

Consider

(8) Lois believes that Superman is Superman.

(9) Lois believes that Superman is Clark Kent.

Here, 'Superman is Clark Kent' in the mouth of the ascriber expresses an enriched proposition that we might represent as $[s = c]$, where s and c are the enriched intensions expressed by 'Superman' and 'Clark Kent' and '$=$' is the enriched intension associated with identity. (In what follows I will ignore the trivial two-dimensional structure associated with intensions of logical vocabulary.) Likewise, 'Superman is Superman' expresses $[s = s]$. So the truth-conditions for the above can be represented as:

(8') $\exists q E(Lois, q) \& C(q, [s = s])$

(9') $\exists q E(Lois, q) \& C(q, [s = c])$

As before, I will use the notation 'a/b' to represent an enriched intension with primary intension a and extension b. Then we can say that $s = s'/k$ and that $c = c'/k$, where k is Kal-El (the individual who is both Superman and Clark Kent), and s' and c' are the primary intensions of 'Superman' and 'Clark Kent' in the mouth of the ascriber. So (8') requires that Lois endorse a proposition that is coordinate with $[s'/k = s'/k]$, and (9') requires that Lois endorse a proposition that is coordinate with $[s'/k = c'/k]$.

In fact, Lois endorses an enriched proposition which we can represent as $[s_1 = s_1]$, where $s_1 = s_1'/k$, and s_1' is the primary intension associated with Lois's concept of Superman. This enriched proposition satisfies the Russellian condition on coordination for both (8') and (9'), as it has the same associated Russellian proposition ($[k = k]$) as both $[s = s]$ and $[s = c]$. The enriched proposition $[s_1 = s_1]$ will also satisfy the appropriateness condition on coordination for (8'): s_1'

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is presumably similar to s', and is 'Superman'-appropriate. But $[s_1 = s_1]$ does not satisfy the appropriateness condition for (9'), as s'_1 is very different from c' and is not 'Clark Kent'-appropriate. Satisfying (9'), and so (9), requires endorsing an enriched proposition in which Superman is presented under both a 'Superman'-appropriate primary intension and a 'Clark Kent'-appropriate primary intension. Lois endorses enriched propositions that satisfy each half of this constraint separately, but she endorses no enriched proposition that satisfies both halves simultaneously.

Pierre

Following Kripke (1979), consider

(10) Pierre believes that London is pretty.

(10a) Pierre believes that London is not pretty.

The truth-conditions for these claims can be represented as:

(10') $\exists q E(Pierre, q) \& C(q, [pretty(l)])$

(10a') $\exists q E(Pierre, q) \& C(q, [\neg pretty(l)])$

where l is the enriched intension expressed by 'London' in the mouth of the speaker. (The two-dimensional structure associated with 'pretty' is not relevant here, so I set it aside.)

In fact, Pierre has two relevant beliefs. He endorses the enriched proposition $[pretty(l_1)]$ and he also endorses the enriched proposition $[\neg pretty(l_2)]$, where l_1 and l_2 are enriched intensions associated with his use of 'Londres' and 'London' respectively. In this case, although the associated primary intensions l'_1 and l'_2 are distinct from each other, l_1 and l_2 are *both* 'London'-appropriate. At least in many contexts, both present London in the right sort of way to be relevant to the satisfaction of ascriptions such as (10) and (10a). (It is arguable that there are some contexts in which (10) seems true and (10a) false, or vice versa. If so, such contexts are handled by observing that the context-dependent coordination relation will be more restricted in these cases.) So both (10) and (10a) are correct.[13]

But Pierre is not irrational. Irrationality (in virtue of contradiction) requires *endorsing* two contradictory enriched propositions. The two enriched propositions $[pretty(l_1)]$ and $[\neg pretty(l_2)]$

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[13]This solution requires denying the "strengthened disquotation principle": Pierre does not assent to 'London is pretty', but he believes that London is pretty all the same.

are not contradictory, so there is no more threat to Pierre's rationality than there is to Lois Lane's rationality in believing that Superman can fly but Clark Kent cannot. Of course, there is a sense in which one can say that Pierre *believes* two contradictory propositions, in that one can correctly say that Pierre believes both [*pretty*(l)] and its negation. But on the present account, to say that someone believes a proposition is to give a fairly coarse-grained description of their psychological state, one that is compatible with numerous more fine-grained descriptions of the enriched proposition that they endorse. And it is the latter, more fine-grained characterizations that are constitutively connected to rationality.[14]

Indexicals

Consider Alice's utterance of:

(11) Fred believes that I am hungry.

Here, Alice's utterance of 'I am hungry' expresses the enriched proposition [*hungry*(i)], where i is the enriched intension that she expresses with 'I'. We can say that $i = i'/a$, where i' is the special primary intension associated with all utterances of 'I', and a is Alice. (11) will be true if

(11') $\exists q E(Fred, q) \& C(q, [hungry(i)])$

In fact, Fred endorses the enriched proposition [*hungry*(d)], where $d = a'/a$. This matches i'/a in its Russellian part. Although its primary intension a' is quite different from the primary intension associated with Alice's utterance of 'I', it still counts as 'I'-appropriate in context. The case brings out the fact that appropriateness does not always require similarity in primary intensions, in any obvious sense. Instead, it suggests that (at least in English) the appropriateness constraints introduced by a term like 'I' in these sentences are often quite loose. Arguably they are sometimes as loose as those in a corresponding *de re* attitude ascription, which I will discuss shortly.

Twin Earth and arthritis

Following Putnam (1975), consider

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[14]Something very similar applies to Kripke's Paderewski case: Peter believes that Paderewski had musical talent and believes that Paderewski does not have musical talent, under two distinct modes of presentation for Paderewski, both of which are 'Paderewski'-appropriate.

(12a) Oscar believes that water is wet.

(12b) Twin Oscar believes that water is wet.

Say that w is the enriched intension of 'water' in the mouth of the ascriber. Then these ascriptions will be true iff

(12a') $\exists q E(O, q) \& C(q, [wet(w)])$

(12b') $\exists q E(TO, q) \& C(q, [wet(w)])$

In fact, Oscar endorses the enriched proposition $[wet(w_1)]$, while Twin Oscar endorses the enriched proposition $[wet(w_2)]$. w_1 and w_2 share a primary intension: roughly, one that in a given scenario, picks out the clear, drinkable stuff in the environment of the subject at the center of the scenario. Something like this primary intension may also be shared by w. But while the extension of w and w_1 is H_2O, the extension of w_2 is XYZ. Because of this, $[wet(w_2)]$ is not coordinate with $[wet(w)]$, so that Twin Oscar's belief does not satisfy (12b). His belief has a 'water'-appropriate primary intension, but it has the wrong Russellian content.

Something similar applies to Burge's (1979) case in which Bert and Twin Bert are twins inhabiting different speech communities in which 'arthritis' is used for different diseases (arthritis and twarthritis, a disease of the joints and a disease of the muscles respectively), and both utter 'I have arthritis in my thigh'.

(13a) Bert believes that he has arthritis in his thigh.

(13b) Twin Bert believes that he has arthritis in his thigh.

Intuitively, (13a) may be true while (13b) is false. This case can be explained along lines precisely analogous to the above. Bert endorses an enriched proposition involving $a/arthritis$, while Twin Bert endorses one involving $a/twarthritis$. These share a primary intension a: roughly, one that in a given scenario, picks out the disease called 'arthritis' in the community of the subject at the center. But their extension is distinct. Because of this, Twin Bert's belief does not satisfy (13b): it has an 'arthritis'-appropriate primary intension, but it has the wrong Russellian content.

It is natural to suggest (see Chalmers 2002b) that while the Russellian content of a subject's belief depends on the environment, its primary-intension content does not. If this is correct, then the account of attitude ascriptions given here can explain why the truth of ascriptions can depend

on the environment at the same time as the ascriptions give a significant role to environment-independent narrow content. The former is grounded in the Russellian constraint, while the latter is grounded in the constraint on primary intension.

Lawyers and attorneys

Consider

(14a) Joan believes that all lawyers are lawyers.

(14b) Joan believes that all lawyers are attorneys.

Intuitively, there are cases where (14a) is uttered truly and (14b) is uttered falsely, even though 'lawyer' and 'attorney' are synonymous in the mouth of the speaker. Cases along these lines are often used to make trouble for Fregean accounts of attitude ascriptions (e.g. by Mates 1952), and this trouble might be thought to apply to the current account. In the mouth of the speaker, 'lawyer' and 'attorney' may have the same enriched intension, which we may represent as l. Then truth-conditions for both (14a) and (14b) can be represented as

(14c) $\exists q E(Joan, q) \& C(q, [\forall x(l(x) \rightarrow l(x))])$.

Where, then, does the difference in the intuitive truth-conditions of (14a) and (14b) come from? On the current account, it must arise from the context-dependence of the coordination relation. At least in the relevant cases, utterances of (14a) and (14b) invoke different coordination relations. If we understand coordination along the intuitive lines above, (14a) requires q to have a 'lawyer'-appropriate primary intension, while (14b) requires q to have an 'attorney'-appropriate primary intension. The case in question appears to be one in which these appropriateness constraints come apart.

A natural suggestion about the difference is the following. In this context, a 'lawyer'-appropriate primary intension is one that in a given scenario, picks out the individuals called 'lawyers' in the community of the subject at the center of that scenario. An 'attorney'-appropriate primary inten-sion is one that, in a given scenario, picks out the individuals called 'attorneys' in the community of the subject at the center of the scenario. In the case where (14a) is true but (14b) is false, Joan endorses $[\forall x(l_1(x) \rightarrow l_1(x))]$ where l_1 has a 'lawyer'-appropriate primary intension. This explains the truth of (14a). Joan also endorses $[\forall x(a_1(x) \rightarrow a_1(x))]$, where a_1 has an 'attorney'-appropriate

primary intension. But she does not endorse $[\forall x(l_1(x) \rightarrow a_1(x))]$, for any such pair of primary intensions. This explains the falsity of (14b).[15]

In this case, we see that even expressions with the same enriched intension are not always substitutable *salve veritate*. More precisely, such expressions are substitutable if the context is held fixed, but in practice the use of a different expression can affect the context. In particular, the word that is used to express a given enriched intension can sometimes affect the coordination relation that is relevant to the utterance. Here, as in quotational contexts, the precise word used to express a given content matters.

Of course the coordination relation will also depend on other features of the context. Say that Joan uses 'lawyer' with its normal meaning, but does not know the term 'attorney'. And say that Joan sincerely says 'Elizabeth is a lawyer'. Now consider the following attribution:

(15) Joan believes that Elizabeth is an attorney.

In a case where (15) is uttered by speakers who are not at all concerned with words, it seems reasonable to hold that the utterance is correct. In a case where the words are salient, perhaps because someone has just denied (14b) above, it seems reasonable to hold that the utterance is incorrect. One can accommodate these intuitions by saying that in the second case but not in the first, an 'attorney'-appropriate primary intension must be one that involves the word 'attorney' in the relevant way.

Context-dependent expressions

Complications arise with apparently context-dependent expressions such as 'tall'. Say that John sincerely utters (16a), in a context where 'tall' picks out a property t_1 such as that of being tall for a basketball player.

(16a) Fred is tall.

Then even if I am in a different context where 'tall' picks out some different property t_2, such as that of being tall for an Australian, it still seems that it could be correct for me to say (16b) and (16c).

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[15]A consequence here is that in some contexts, the fact that two enriched propositions are identical does not suffice for them to be coordinate.

(16b) John said that Fred is tall.

(16c) John believes that Fred is tall.

Here John's utterance expresses $[t_1(Fred)]$, and presumably this is the enriched proposition that John endorses. By contrast, my utterance of (16c) expresses $B(John, [t_2(Fred)])$, whose truth requires that John endorse a proposition coordinate with $[t_1(Fred)]$. But these propositions are not coordinate by the usual standards, as $[t_1(Fred)]$ and $[t_2(Fred)]$ are associated with distinct Russellian propositions.

These cases pose a problem for many accounts of attitude ascriptions, including the current account. One can react in various ways: for example, by denying that the relevant terms are really context-dependent, denying the intuition that my utterance of (16c) can be correct, or by arguing that when I utter it, I somehow enter into a context where 'tall' expresses t_1.[16] I do not find these suggestions especially plausible, though, and on the current account, there are resources for a different explanation.

Instead, we can say that in the context of utterance of (16c), $[t_1(Fred)]$ and $[t_2(Fred)]$ qualify as coordinate. In particular, we can say that in at least some contexts, the use of context-dependent terms such as 'tall' and 'ready' invokes a coordination relation such that enriched propositions can be coordinate despite being associated with different Russellian propositions. It might be, for example, that in the context of utterance of (16c), coordination (for the Russellian contents associated with the predicates) requires only that John endorse a proposition involving a property that could be expressed by 'tall' in some context, rather than one involving the specific property t_1 that is the extension of 'tall' in the context of utterance. In these cases, we find that the use of a specific term ('tall') affects the relevant coordination relation for Russellian contents, just as we have already seen that it can affect the relevant coordination relation for primary intensions.

One can tell a similar story about context-dependent terms such as 'ready' ('Susan believes that Mary is ready'), 'every' ('Michael believes that every bottle is empty'), and so on. Furthermore, on the current account, 'believes' is itself context-dependent, so something similar applies to it. This has the bonus of allowing a better account of embedded attitude ascriptions:

(17a) Pierre believes that London is pretty.

(17b) Michael believes that Pierre believes that London is pretty.

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[16]One might also suggest that here belief contexts are "monsters" (in the sense of Kaplan 1989), operating on the *character* of certain context-dependent expressions such as 'tall'. I think that this suggestion is worth pursuing, but I pursue a line that is closer to the current account here.

Suppose that Michael sincerely utters (17a) in a context excluding 'Londres'-involving primary intensions as appropriate modes of presentation of London, while Matthew sincerely utters (17b) in a context that allows 'Londres'-involving primary intensions as appropriate modes of presentation. Then intuitively, (17b) may still be true. But the relation B_1 expressed by 'believe' in (17a) will differ from the relation B_2 expressed by the embedded 'believe' in (17b), because of the difference in the coordination relation involved. So Michael endorses the enriched proposition $[B_1(Pierre, \langle pretty(London)\rangle)]$, while Matthew attributes to Michael belief in the enriched proposition $[B_2(Pierre, \langle pretty(London)\rangle)]$. These propositions differ in their associated Russellian contents. But on the current proposal, they may qualify as coordinate nevertheless, as B_1 and B_2 are both potential extensions of the context-dependent term 'believes'.

Subject-sensitivity

Sometimes, our intuitions regarding attitude ascriptions appear to be sensitive to the expression that occurs in the subject position of the ascription. Consider Joe's utterances of

(18) I believe that I am hungry

(19) Fred believes that I am hungry

There is a natural reading of (18) under which it requires that the Joe's belief picks himself out under a first-person mode of presentation. On this reading, if Joe sincerely utters 'He is hungry' while unknowingly looking into a mirror, (18) may still be false. But there is no such natural reading of (19). If Fred is distinct from Joe, Fred cannot pick Joe out under a first-person mode of presentation.

One could handle this case by suggesting that the use of 'I' and 'Fred' in (18) and (19) introduces different contexts and different coordination relations. But this will not work in cases that appear to involve a single context.

(20) I believe that I am hungry, and Fred does too.

(21) Fred and I both believe that I am hungry.

Intuitively, there is a reading of these sentences that behaves like a conjunction of the intuitive readings of (18) and (19) above, requiring that Joe (the speaker) picks himself out under a first-person mode of presentation, without requiring that of Fred. But in this case there seems to be

a single context. Perhaps one could suggest a mid-sentence context shift in (20), but it would be stretching things to suggest such a shift in (21).

To handle these cases, we can borrow a leaf from the account of Richard (1990) and suggest that coordination is a contextually determined *three-place* relation C between a subject and two propositions. This way, it can happen sometimes that $C(Fred, p, q)$ holds although $C(Joe, p, q)$ does not hold. In effect, context can determine different coordination constraints between pairs of propositions for different subjects. In the analysis of attitude ascriptions given earlier, we can then replace (B) with (B'):

(B') $B(i, p)$ iff $\exists q E(i, q) \& C(i, q, p)$

This will allow the desired result in the case above. However, there is still a problem case.[17] Consider a case where Joe is unknowingly looking in a mirror, so that his use of 'He' picks out himself. Joe utters the following sentences:

(22) I believe that I am hungry.

(23) He believes that I am hungry

(24) He and I both believe that I am hungry

As before, there is a natural reading of these utterances so that (22) requires that Joe pick himself out under a first-person mode of presentation, while (23) does not. And there is a natural reading of (24) that behaves like a conjunction of these readings of (22) and (23). On these readings, in a case where Joe accepts 'He is hungry' (looking in the mirror) but not 'I am hungry', (22) will be false, (23) may be true, and (24) will correspond to their conjunction and will therefore be false. We cannot handle (24) by the observation that coordination is a three-place relation, however. 'He' and 'I' in (24) both refer to the same individual, Joe. Whatever the contextually determined coordination relation C is, it cannot be that $C(Joe, p, q)$ both obtains and fails to obtain.

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[17]This is an analog of the first objection to Richard's account raised by Sider (1995), and is closely related to issues raised by Nelson 2005 and Soames 2002. Sider's second objection is tied to Richard's appeal to (correlation) functions, and is not a problem for the current account, which invokes (coordination) relations instead. Sider's third objection rests on the claim that inferences analogous to an inference from 'Joe does not believe that Hesperus is visible in the morning' to 'There is an x such that Joe does not believe that x is visible in the morning' are valid. On the current account, these inferences are invalid, but I think that this invalidity mirrors our intuitions about the case. Soames' other objections largely concern the metalinguistic aspects of Richard's account and do not apply to the current account, which invokes primary intensions where Richard's account invokes sentences. Nelson's objections are discussed below.

So one cannot obtain a reading on which the conjunct corresponding to (22) is false and the conjunct corresponding to (23) is true.

To accommodate all these intuitions, it is natural to suggest that attitude ascriptions are intensional even in the subject position. Taken at face value, the intuitions suggests that coextensive expressions (such as 'He' and 'I') in subject position cannot always be substituted *salve veritate*. We can accommodate this observation by supposing that the coordination relation C is a three-place relation between an *enriched intension* and two enriched propositions. We can then say

(EP') 'A believes that S' is true iff $B(a, p)$

where a is the enriched intention expressed by A, p is the enriched intension expressed by S, and where $B(a, p)$ is analyzed as follows (here, i is the Russellian component of a, or the extension of A):

(B") $B(a, p)$ iff $\exists q E(i, q) \& C(a, q, p)$

This account will accommodate all the relevant intuitions, at cost of some added complexity.[18] One might reasonably question whether accommodating the intuitions is worth the cost of the extra intensionality. With Nelson (2005), one might also hold that this account renders invalid apparently valid inferences such as 'A believes that S, A is B, so B believes that S'. Now, I think that the intuitions themselves give some reason to question the validity of these inferences, so I do not think that the inferences should be held sacrosanct here. Still, intensionality of this sort should not be introduced without good reason.

It remains an option to reject the anti-substitutivity intuitions here, which are significantly weaker and less ubiquitous than the intuitions opposing substitutivity within 'that'-clauses. If one did so, one might hold instead that sentences such as (24) should be read with uniform constraints on modes of presentation throughout. Because the intuitions are relatively weak, and arise in only a few cases, the cost of rejecting them in this way is not enormous. Still, if we are trying to capture all the relevant intuitions, then the present account has the machinery to do so.

It could reasonably be objected that the last two modifications of the coordination relation—allowing variation in Russellian contents and perhaps introducing intensionality in the subject

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[18]Attitude ascriptions that are *de re* or quantified in subject position, such as 'There is someone who believes that S' can be handled by an extension of the Kaplan-style semantics for *de re* attitude ascriptions described below. To a first approximation, 'x believes that S' will be true of i if there exists an enriched intension a picking out x such that $B(a, p)$ as defined above, where p is the enriched proposition expressed by S.

position—gives the account extra degrees of freedom, and that doing so reduces the theory's predictive power. I am inclined to agree with this criticism, although it is somewhat mitigated if the circumstances under which these extra degrees of freedom become relevant are well-delineated. For now, I would prefer to say that the current account is a framework for a theory of attitude ascription, rather than a full theory in its own right. A full theory would flesh out this framework with a principled account of just how the coordination constraint is determined by context. In the meantime, though, even a framework for a theory can shed light on many phenomena.

6 Believing and endorsing

On the coordination account, there are two relevant sorts of relations between subjects and enriched propositions: endorsement and belief. Belief is closer to the surface of ordinary discourse, as it is the extension of "believes". But endorsement is more fundamental than belief, in that belief can be straightforwardly defined in terms of endorsement, but the reverse is not obviously the case. There are also many different belief relations, in that many different relations can serve as the referent of "believes" in different contexts. One might suggest that whereas belief captures the semantics of belief attributions, endorsement captures the underlying cognitive state of believers.

We can naturally expect that while many explanatory roles associated with belief will be played by the belief relation, some will be played even better by endorsement. For example, assessments of agreement and disagreement may track the belief relation: two people disagree when one believes a proposition p and the other believes $\neg p$, which requires that one endorses a proposition coordinate with p and the other endorses a proposition coordinate with $\neg p$. On the other hand, we have seen that assessments of rationality may better track the endorsement relation: someone is irrational if they endorse both p and $\neg p$, but they need not be irrational if they believe both p and $\neg p$.

The distinction between belief and endorsement introduces a potential difference with Frege's account. Frege presumably held that to believe that S one must grasp the sense that is the referent of 'that S'. On the current account, it is more natural to say that to believe that S one must grasp a thought coordinate with the referent of 'that S'. That is, given the distinction between believing an enriched proposition and endorsing it, it is natural to hold that grasping a proposition lines up with endorsing it rather than believing it. At the same time, one might have a parallel notion that stands to believing as grasping stands to endorsing. For example, we can say that entertaining p requires grasping a proposition coordinate with p, so that believing p requires entertaining p. This extra

complexity enables the account to avoid a number of standard problems with Frege's account, as above, while still retaining much of its spirit.

This distinction helps to resolve another standard problem for a Fregean account, concerning communication. The focus of the current paper is belief rather than communication, but I will briefly outline the problem and its treatment.

On a Fregean view, it is natural to hold that communication requires the transmission of thoughts. When A communicates with B, A expresses a thought with an utterance, and B comes to entertain and perhaps accept the same thought. But Frege held that some senses are unsharable, so that no-one else can entertain the thought that I express with 'I am hungry'. He also held that some senses are unshared, so that two different speakers may associate different senses with a name such as 'Plato'. If so, then ordinary utterances of 'I am hungry' will not lead to the transmission of thoughts, and ordinary utterances of 'Plato was a philosopher' may not lead to the transmission of thoughts. But on the face of it, the same utterances can certainly bring about communication.

On the present account, we can resolve the problem by extending the earlier treatment of belief ascription to ascriptions concerning communication. To a first approximation, 'Fred says that S' will be true when Fred makes an assertion expressing an enriched proposition that is coordinate with p, where p is the enriched proposition that the ascriber expresses with S. Here, saying is analyzed in terms of an underlying relation of assertive expressing, just as believing is analyzed in terms of endorsing. We could then suggest that communication between A and B takes place when there is some p such that A says p and B consequently accepts (or at least entertains p). This requires in turn that there is some p such that A assertively expresses a proposition coordinate with p and B endorses (or at least grasps) a proposition coordinate with p.

This analysis of communication is arguably too weak. On the current analysis, there may be many p such that A says p with a given utterance (although only one p such that A assertively expresses p), so the mere fact that B comes to accept one of them does not obviously suffice for communication. One might impose a stronger requirement by requiring that the proposition that is *assertively expressed* by A is consequently accepted (or at least entertained) by B. This requires, in effect, that B endorses (or at least grasps) a proposition coordinate with the proposition that A assertively expresses. That is, communication requires coordination between the propositional content of the speaker's assertion and that of the hearer's ensuing cognitive state.

On this modified analysis of communication, the cases above will qualify straightforwardly as communication. When I say 'I am hungry', expressing [*hungry*(i'/djc)], you may come to endorse the enriched proposition [*hungry*(he'/djc)]. This is not the same proposition that I assertively ex-

press, but it is plausibly coordinate with it. In these cases, it is plausible that for coordination to suffice for communication, it should require sameness (or at least similarity) of associated Russellian propositions, but some variation in primary intensions is allowable.

Of course, the amount of variation allowable for communication may well be context-dependent, as before. But this mirrors the fact that our judgments about communication are themselves context-dependent. For example, say that Pierre says 'London is ugly', speaking of London under a mode of presentation as the city where he lives, and a compatriot takes him to be speaking of London under a mode of presentation as the capital of England. Then we might in some contexts judge that communication has taken place, and in others contexts judge that it has not, depending on our purposes and other background factors. So the context-dependence of coordination here reflects the context-dependence of communication.

7   Compositionality and the Fregean hierarchy

The account above does not have exactly the same form as Frege's account of attitude ascriptions, but it is closely related. The basic similarity is that 'that S' is held to refer to the ordinary sense of S, and that a belief ascription is held to ascribe a relation between the ascribee and that sense. One difference, as we have seen, concerns the role of coordination. Another difference concerns semantic innocence and compositionality.

Semantic innocence is the thesis that expressions occurring within indirect contexts have the same semantic values as they have outside these contexts. Frege denies semantic innocence, holding that in indirect contexts, words refer to their customary senses rather than their customary referents. It may be that one could combine the account above with a corresponding denial of semantic innocence, holding that expressions occurring within indirect contexts refer to their customary enriched intensions. But one need not do so. I think it is more natural to maintain semantic innocence by holding that expressions in these contexts still refer to their customary referents.

To maintain semantic innocence on a broadly Fregean account, one must deny *extensional compositionality*: the thesis that the extension of a complex expression is always determined by the extensions of its parts. For sentences such as 'Hesperus is Phosphorus', extensional compositionality holds. But for attitude ascriptions, extensional compositionality fails. In these ascriptions, the truth-value of a sentence depends not just on the extensions of expressions within the indirect context, but also on their enriched intensions. For the ascription to be true, the subject must believe the enriched proposition expressed by 'that S', which in turn requires endorsing a proposition that

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is coordinate with that enriched proposition. In many of the cases above, two sentences involve the same extensions within indirect contexts but different enriched propositions, yielding different truth-conditions.

This account is quite compatible with compositionality in a broader sense, in that the meaning of a complex expression is determined by the meaning of its parts. In particular, the enriched intensions of complex expressions are still determined by the enriched intensions of simple expressions (including unpronounced constituents). The main difference in the case of indirect contexts is that the compositional rule governing these contexts has a somewhat different form. Here the principle does not derive wholly from the compositionality of extensions (as in the cases covered by (T2), but instead involves a dependence of extensions on intensions.

We can put this as follows. In an indirect context, 'that' (or its unpronounced equivalent) introduces a sort of nonextensional compositional operator. The extension of 'that S' is determined not by composing the extensions of its parts, as usual, but instead by composing the enriched intensions of its parts. This extension is then contributed in a standard compositional way to determine the truth-conditions of the sentence, along with the extensions of the subject and belief terms. This allows us to maintain the most important feature of Frege's account: the truth-value of an attitude ascription depends not on the referents but on the senses (enriched intensions) of the expressions that occur within the indirect context.

This nonextensional compositionality can be represented formally with an *ascension operator*. The ascension operator A maps an enriched proposition p to an enriched intension $A(p)$ whose extension is p. If in 'N believes that S', S expresses the enriched proposition p, then 'that S' expresses the enriched intension $A(p)$, or simply $\langle p \rangle$. Then 'N believes that S' expresses the enriched proposition $[B(n, \langle p \rangle)]$, where B and n are the enriched intensions of 'believes' and N.

What is the ascension operator, in the two-dimensional framework? Given an enriched proposition p, $A(p)$ will be an ordered pair $[A'(p), p]$. The primary intension $A'(p)$ will be a function from scenarios to enriched propositions, mapping a scenario s to the enriched proposition $[p', p'(s)]$, where p' is the primary intension associated with p. So $A(p)$ will be wholly determined by p. Although it is not needed above, one can also define an ascension operator mapping arbitrary enriched intensions i to enriched intensions $A(i)$ whose extension is i in an analogous manner. (The primary intension associated with $A(i)$ will be a function mapping s to the enriched intension $[i', i'(s)]$, where i' is the primary intension associated with i.)

The ascension operator is so-named because it can be seen as an operator for ascent in the Fregean hierarchy of senses. Given a "sense" (enriched intension or enriched proposition) s, the

ascension operator returns a higher-order sense (enriched intension) $A(s)$ whose extension is s. The ascension operator can be iterated indefinitely, returning a sequence of higher-order senses (enriched intensions) whose extension is the previous sense in the sequence.

A common objection to Frege's hierarchy of senses stems from the claim that, as Russell put it, "there is no road back from reference to sense". On the current framework, this is only partially true. For concrete objects such as Venus, there is no canonical mode of presentation of the object, and so there is no canonical primary intension with the object as extension. However, for many abstract objects, there is a canonical mode of presentation, For example, the canonical mode of presentation associated with the number two is the way it is presented by the numeral '2' (see Ackerman 1978). And this mode of presentation is associated with a canonical primary intension: one that picks out the number two in all worlds. Primary intensions of this form are arguably unavailable for most concrete objects (there is arguably no expression whose primary intension picks out Venus in all worlds), but they are available for many abstract objects. These canonical primary intensions straightforwardly yield canonical enriched intensions for these objects, and so canonical senses that pick them out.

Like numbers, primary intensions are themselves abstract objects, and they also have canonical primary intensions that pick them out. If p' is a primary intension, its canonical higher-order primary intension $H(p')$ is one that picks out p' in all worlds. We can extend this to canonical primary intensions for enriched intensions. If p is an enriched intension $[p', p'']$, its canonical higher-order primary intension $H(p)$ is $[H(p'), p']$ (where this pair of primary intensions is reinterpreted as a primary intension picking out pairs). This canonical higher-order primary intension then yields a canonical higher-order enriched intension $[H(p), p]$, which is the same as $A(p)$ above. So where senses themselves are the relevant referents, there is indeed a road back from reference to sense.[19]

The hierarchy comes into play in the treatment of embedded attitude ascriptions. Take the attitude ascription

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[19]The current framework also allows a solution to Russell's "Grey's Elegy" problem for a Fregean account. The problem, in a nutshell, is that there is no good way to refer to the sense associated with a sentence such as 'Hesperus is Phosphorus'. Ordinary use of the sentence involves a sense that refers to planets rather than senses, so to refer to this sense one needs a higher-order sense that refers to the original sense. But Russell suggests that there is no good way to find the higher-order sense associated with the original sense, because there is no backward road from reference to sense in general. The introduction of an ascension operator handles the problem by introducing nonextensional compositionality in indirect contexts, and by grounding the backward road.

(25) John believes that Mary believes that Hesperus is Phosphorus.

Here, let S be 'Hesperus is Phosphorus. Then 'that S' refers to the enriched proposition p expressed by 'Hesperus is Phosphorus', and has enriched intension $A(p)$. 'Mary believes that S' expresses the enriched proposition m derived by composing $A(p)$ with the enriched intensions of 'Mary', and that of the relation B. (The latter plausibly has a straightforward primary intension picking out the same relation in all worlds). Then 'that Mary believes that Hesperus is Phosphorus' refers to m, and has enriched intension $A(m)$. The ascription (25) is true iff John endorses a proposition coordinate with m, and it expresses an enriched proposition derived by composing $H(m)$ with the enriched intensions of 'John', B, and C.

Here, $H(p)$ can be seen as a second-order sense (referring to the sense p), m can be seen as a proposition with this second-order sense as a constituent, and $H(m)$ can be seen as a sort of third-order sense referring to m. One might say that ordinary 'that'-clauses express second-order senses, that 'that'-clauses that embed ordinary 'that'-clauses express third-order senses, and so on. But note that there is no need to associate higher-order senses directly with any of the simple expressions in the sentence. The expression of higher-order senses is limited to 'that'-clauses themselves, as a result of the nonextensional compositionality introduced by the ascension operator.

Overall, although there are some important differences between the current account of attitude ascriptions and Frege's own account, particularly concerning semantic innocence and coordination, the similarities outweigh the differences. Most important is that senses play a key role in the truth-conditions of attitude ascriptions: 'that S' refers to the sense associated with S, and attitude ascriptions ascribe relations between subjects and these senses. We also find a role for the Fregean hierarchy of senses, and a concrete understanding of the hierarchy. By making minor adjustments to Frege's account, while grounding it within the two-dimensional framework, many common objections to Fregean accounts are overcome.

8   De re attitude ascriptions

I will now briefly discuss the treatment of *de re* attitude ascriptions within the current framework, both because this issue is important in its own right and because it is needed for the assessment of Soames' criticisms that follows. In Chalmers (2002b), I suggested a counterpart of (APR) for *de re* ascriptions:

(DR) A *de re* belief ascription '*x* believes of *n* that it is *F*' is true of *i* iff *i* has a belief with the secondary intension of '*n* is *F*' (in the mouth of the ascriber) and that picks out the referent of '*n*' under an acquaintance-appropriate primary intension.

This account is in essence an adaptation to the two-dimensional framework of Kaplan's account of *de re* ascriptions in "Quantifying In" (1967). Any belief about an object will involve some mode of presentation of that object, here represented as a primary intension. Some modes of presentation (such as one picking out the tallest person in Australia, whoever that is) are of the wrong sort to license a *de re* ascription. Other modes of presentation, such as perceptual demonstrative modes of presentation, will license such an ascription. The distinction is marked by saying that some primary intensions are acquaintance-appropriate and some are not.

In the current framework, the account might be put more fully as follows:

(DR*) '*x* believes of *N* that it is *F*' is true of *i* iff $\exists q E(i, q) \& C(q, f) \& A(q, n)$.

Here *f* is the enriched intension of '*F*' in the mouth of the ascriber, and *n* is the referent of '*N*' in the mouth of the ascriber. *C* is a coordination constraint, and *A* is an acquaintance constraint. To understand the latter two, we can stipulate that *q* (an enriched proposition endorsed by *i*) has object-predicate form $[g(a)]$, where *g* is a predicative enriched intension g'/g'' and *a* is a singular enriched intension a'/a'', and that *f* is a predicative enriched intension h'/h''. The coordination constraint *C* concerns the predicative part of *q*: $C(q, f)$ holds iff $g'' = h''$ and g' is '*F*'-appropriate. This coordination constraint is just as for *de dicto* attributions, but applied to the predicative part of the *de re* attribution. The acquaintance constraint *A* concerns the object part of *q*: $A(q, n)$ holds iff $q'' = n$ and q' is acquaintance-appropriate.

We can summarize all this by saying that '*x* believes of *n* that it is *F*' is true of *i* iff *i* endorses an enriched proposition $[g(a)]$ such that *g* is an enriched intension coordinate with *f* (the enriched intension of '*F*' in the mouth of the ascriber), and *a* is an enriched intension whose extension is the referent of *n* and whose primary intension is acquaintance-appropriate.

As before, acquaintance-appropriateness may be highly context-dependent, and is best understood by examining our intuitions about specific *de re* ascriptions. But to a first approximation, one might say that a primary intension is acquaintance-appropriate when necessarily, if an object satisfies the primary intension in a centered world, the subject at the center of that world is acquainted with the object. Of course, what it is for a subject and an object to be acquainted is itself a further question, and may itself be context-dependent. In many cases, one can think of this in a familiar

way as requiring an appropriate sort of causal relation. In demanding contexts, this relation might be required to be a perceptual relation. In intermediate contexts, a relation mediated by testimony and other linguistic mediators may suffice. In undemanding contexts, acquaintance might be said to hold of any subject and object, so that any primary intension (even a purely descriptive one) may allow the satisfaction of a *de re* ascription.

We might say then when an enriched proposition with object-predicate form picks out its object under an acquaintance-appropriate primary intension, it is an *acquainting proposition*. So the key idea is that to believe of n that it is F, one's belief must involve an acquainting proposition. I will flesh out this account with examples when I discuss Soames' arguments involving *de re* ascriptions, below.

9   Soames on Two-Dimensionalism and Attitude Ascriptions

In his book *Reference and Description: The Case Against Two-Dimensionalism*, Scott Soames gives many arguments against various forms of two-dimensionalism. The bulk of his discussion focuses on two-dimensionalist treatments of attitude ascriptions. He first discusses "strong" and "weak" two-dimensionalism at length, where the characteristic features of these include the endorsement of (PI) and (SI) respectively. Unsurprisingly, he finds that there are serious problems with these accounts.[20] He then considers account (APR) as presented in "The Components of Content", calling it "hybrid two-dimensionalism" and raising an number of objections.

In what follows I will discuss and rebut Soames' objections. To be fair to Soames, I will rely largely on (APR) rather than (EP) in answering these objections, as this corresponds more closely to the account in "The Components of Content". But I will occasionally discuss how things look from the perspective of the more detailed account (EP).

Apart from his detailed arguments, Soames raises two general worries about (APR): its invocation of "appropriateness" renders the account incomplete, and it does not identify the objects of belief. Both points are reasonable, although they are clearly challenges to the view rather than reasons for rejecting it. I have discussed these points already, so I will not discuss them further here. In particular, (EP) can be seen as giving an account of the objects of belief that is naturally combined with (APR).

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[20]As far as I know, no two-dimensionalist has given an account of attitude ascriptions endorsing (PI) and (SI) in print. Such accounts are considered and rejected in Chalmers (2002b).

(i) The a priori knowledge argument

Soames' central argument against (APR) involves a priori knowledge ascriptions. He ascribes the following two theses to me (p. 250, slightly reworded):

(AP1) A sentence S is a priori iff S has a necessary primary intension.

(AP2) A sentence S is a priori iff 'It is knowable a priori that S' is true.

He infers that I am committed to:

(AP3) 'It is knowable a priori that S' is true iff S has a necessary primary intension.

Soames argues that (AP1) and (AP2) entail the falsity of (APR). His argument rests on a tension between (APR)'s flexibility about the primary intension of an ascribee's belief and the relative inflexibility suggested by thesis (AP3). He considers cases where an ascriber and an ascribee use the same name with slightly different primary intensions. He does not give an example, so to make the argument concrete, let us consider the name 'Mr. Bean' for a female writer, used by two speakers Huey and Dewey in very similar ways, except that Huey uses the name so that 'Mr. Bean is male' is a priori, while Dewey uses it so that 'Mr. Bean is male' expresses a posteriori knowledge for him. (Strictly speaking this should be 'If Mr. Bean exists, then Mr. Bean is male', but I will omit the existence clause for simplicity.) The primary intensions of the two speakers' uses of 'Mr. Bean' will differ only in that the primary intension of Huey's use of the term will return only females in any scenario.

Now consider the following utterances by Dewey:

(26) Mr. Bean is male.

(27) Huey believes that Mr. Bean is male.

(28) Huey knows that Mr. Bean is male.

(29) Huey knows a priori that Mr. Bean is male.

(30) It is knowable a priori that Mr. Bean is male.

We can put Soames' argument as follows. If (APR) is correct, there will be cases of this general sort where Dewey's utterance of (27) is correct, because even though Huey's expression 'Mr. Bean' has a primary intension that differs from Dewey's, it is similar enough to count as

"appropriate". But once one accepts (27), (28) and (29) seem to follow. The belief that Huey expresses with 'Mr. Bean is male' qualifies as knowledge and as a priori knowledge, and if its primary intension is "appropriate" for (27), it is appropriate for (28) and (29). (30) seems to follow immediately from (9), so if Dewey's utterance of (29) is true, his utterance of (30) is true. But (26) in Dewey's mouth does not have a necessary primary intension. This entails that principle (AP3), applied to Dewey's utterances, is false. So if (AP1) and (AP2) are correct, (APR) is false.

The most straightforward response to these arguments denies thesis (AP2).[22] Consideration of cases just like this one make a reasonable case that even when an utterance of (26) is not a priori, (30) may be true, so (AP2) is false. One might think that (AP2) is true by definition: to say that *S* is a priori is just to say that 'It is knowable a priori that *S*' is true. But one need not understand the apriority of a sentence this way. One could also understand it as follows: *S* is a priori (in a context) if it expresses an enriched proposition *p* (in that context) such that *p* is a priori.[23] To a first approximation, an enriched proposition *p* is a priori if there is a possible state of a priori knowledge endorsing *p*. (A second approximation is discussed in a footnote.[24]) This plausibly entails that *p* has a necessary primary intension. Here, apriority of an enriched proposition stands to a priori knowability roughly as endorsement stands to belief. On this understanding, attitude ascriptions play no role in defining the apriority of a sentence, so one can reasonably deny (AP2). Then Dewey's utterance of (26) is naturally classified as non-apriori, even if his utterance of (30) is true.

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[22]The interpretive grounds for Soames' attribution of (AP2) to me in *The Conscious Mind* consist of a passage in which I say "We cannot know a priori that water is not H_2O" where I might have said "'Water is not H_2O' is not a priori", and a passage in which I say "We can know this statement ['Water is watery stuff'] to be true a priori" where I might have said "'Water is watery stuff' is a priori". I think it is clear that these grounds are too thin to support the attribution of a philosophical thesis. These grounds are used in turn to support the attribution of (PI) to me, via the additional claim that (AP2) and (AP3) lead to (PI) because of the semantic connection between "knowable a priori" ascriptions and ordinary attitude ascriptions.

[23]Alternatively, following Chalmers 2002a and 2004, one can define the apriority of a sentence without presupposing any two-dimensional apparatus, as follows. An sentence *S* is a priori in a context if the utterance of *S* in that context expresses actual or potential a priori knowledge: that is, if it expresses a thought that can be justified a priori, yielding a priori knowledge. Here, the apriority of sentences in contexts is defined in terms of epistemic properties of thoughts (construed as occurrent mental states) associated with the utterance of the sentence in the context, where we have an independent grasp of these epistemic properties.

[24]The definition of apriority of an enriched proposition (*p* is a priori if there is a possible state of a priori knowledge endorsing *p*) may need to be refined to deal with two tricky issues about the interaction of apriority and modality, which we might call the nesting problem and the fragility problem.

The nesting problem (a variant of the Nesting Argument discussed by Dever 2006 as a problem for two-dimensionalism) concerns the nesting of apriority operators within modal contexts. The problem applies to any view that accepts contingent a priori propositions, and can be stated independently of the two-dimensional framework. Let p be the proposition expressed by a contingent a priori sentence, such as 'q is actually q' or 'The meter stick is one meter long (if it exists)', and let A be the apriority operator. Then the following three claims are individually plausible but jointly inconsistent: (1) $Ap \& \neg \Box p$; (2) $Ap \to \Box Ap$; (3) $\Box(Ap \to p)$.

Given a standard definition of apriority on which Ap comes to $\Diamond A^*p$, where A^*p says that someone knows a priori that p (or alternatively, as in the text, that there is a state of a priori knowledge endorsing p), thesis (2) is an immediate consequence of the S5 modal axiom. Given that there are contingent a priori propositions, the false member of the triad will be (3). The relevant propositions p will be a priori at all worlds (as A^*p is possible relative to all those worlds), even though p is false there. Even worse, symmetry considerations suggest that there will be propositions that are false in the actual world but still a priori: we need only consider the propositions expressed by analogs of the sentences above in worlds where the original contingent a priori proposition p is false. This consequence is hard to accept, especially if we want the apriority operator to behave like a necessity operator in relevant respects.

Intuitively it is much better to deny (2): in worlds where p is false, Ap is also false. This requires modifying the definition of propositional apriority. So far, our analysis of the puzzle has been independent of two-dimensionalism, but at this point the two-dimensional framework offers resources. The key observation is that in the current framework, the relevant enriched propositions p cannot even be entertained at the relevant worlds w, due to a misalignment of their primary-intension and Russellian components. Let us say that an enriched intension q/r is *live* at a centered world v iff the value of q at v is r. An enriched proposition p is live at a world w iff there is a centered world v coincident with w such that each component simple enriched intension of p is live at v. Then if p is endorsed at w, p is live at w. Likewise, if p is not live at w, then p cannot be a content of thought at w. Intuitively, this suggests that p cannot be a priori at w. More formally, let us say that a structured primary intension s is a priori iff there is a possible state of a priori knowledge endorsing s. Then we can say that an enriched proposition p is a priori at w iff (i) the structured primary intension corresponding to p is a priori (at w), and (ii) p is live at w. Then when a contingent a priori enriched proposition p is false at a world w, it will not be live at w, so it will not be a priori at w. This way, we can reject thesis (2) and preserve (3).

This move also helps with the fragility problem (Chalmers 2011). An utterance is semantically fragile when the proposition expressed by an utterance depends on how one thinks and reasons after the utterance is made. Say that the name 'Act' is introduced by stipulating that it rigidly refers to the actual world-state. Then intuitively, an utterance of a sentence S of the form 'T iff in Act, T' is a priori justifiable, even if the utterance is not a priori justified, perhaps because the speaker is unreflective. The enriched proposition expressed by this utterance will have the actual world-state @ as a constituent: call the proposition $p(@)$. There is some intuition that $p(@)$ is a priori. But in many cases, there will be no possible state of a priori knowledge endorsing $p(@)$. If the speaker were to justify the a priori justifiable sentence, they would end up with justified belief not in $p(@)$ but in a distinct proposition $p(w)$ involving the world in which the justification takes place. In the actual world, there may be no state of a priori knowledge endorsing $p(@)$, and in other possible worlds, a priori knowledge of $p(@)$ by this method is ruled out. Given that there is no other way to endorse $p(@)$ a priori, the conclusion follows. Still, $p(@)$ has a necessary primary intension, and analogs of S are theorems of some logical systems. There is a strong intuition that S and $p(@)$ should count in some sense as a priori.

One can use this understanding to ground an 'It is a priori that' operator that satisfies versions of (AP2) and (AP3) with 'knowable' removed. On this understanding, 'It is a priori that S' will be true when when S expresses an enriched proposition p that is a priori. Of course then one needs to be cautious in moving between the claim that it is a priori that S and the quantified modal attitude ascription that it is possible that someone knows a priori that S: the latter does not entail the former. One could go further by arguing that in philosophical English, 'It is knowable a priori that' is sometimes used to express claims of the former sort. But if one takes this view, one will need to deny that there is an entailment between (29) and relevant instances of (30). In my view, it is best to express these claims in terms of apriority rather than a priori knowability, to avoid this issue.

An alternative (although inessential) strategy retains a version of thesis (AP2) by combining the (APR) semantics for 'It is knowable a priori' with the thesis that some claims of the form 'It is knowable a priori that S' invoke inflexible appropriateness constraints, requiring the primary intension associated with the speaker's use of S. There is perhaps a mild intuition that as one moves from (27) to (30), one's confidence in the truth of these utterances diminishes. In principle the two-dimensionalist could accommodate this intuition by saying that the appropriateness constraints become stronger as we move down the list.

This problem is distinct from the previous one: roughly, the nesting problem tends to suggest that a priori endorsable propositions need not be a priori, while the fragility problem tends to suggest that a priori propositions need not be a priori endorsable. But the solution given to the nesting problem also handles the fragility problem. On the modified definition of apriority, $p(@)$ will be a priori (it has an a priori structured primary intension and is live), so that S will express an a priori proposition. In this case $p(@)$ is a priori even though it is not a priori endorsable, and (unless we make the case that $p(@)$ and $p(w)$ are coordinate) not even a priori knowable.

The proposed criteria for apriority arguably correspond to a nonmodal analysis of propositional apriority: a proposition is a priori iff there exists a conclusive a priori justification for it. In the case of semantic fragility, one can argue that there exists an a priori justification for $p(@)$ even though this justification cannot be used to know $p(@)$ a priori. (This mirrors the fact that there exists a proof for $p(@)$ even though $p(@)$ cannot be proved; see Chalmers 2011.) In the case of contingent a priori propositions p that are false and not live in a world w, it is arguable that while p is known a priori in other worlds, there is no conclusive a priori justification for p in w. It remains plausible that there exists a conclusive a priori justification for a proposition precisely if it is live and has a necessary primary intension.

It should be noted that these problems arise even more seriously for a Russellian view of propositions, at least if the Russellian allows for contingent a priori propositions or for semantic fragility, and the Russellian has fewer resources to answer them. It is not hard to see, for example, that the fragility problem causes great difficulty for Soames' view of the contingent a priori, according to which for all S, 'S iff actually S' expresses a Russellian proposition $p \leftrightarrow p(@)$ that is knowable a priori.

(ii) Twin Earth

Soames' second argument involves a priori knowledge ascription concerning Twin Earth. We assume that the primary intension of 'water' is the same as that of the description 'watery stuff', so that 'water is watery stuff' is a priori. On Twin Earth, XYZ is the local watery stuff, but there are some isolated pools of H_2O, with some but not all of the properties of watery stuff. We can express this by saying that the H_2O in the pools is "sort of watery stuff". Inhabitants of Twin Earth come across these pools and say correctly

(31) That stuff is sort of watery stuff.

Soames then considers the following four sentences, uttered on Earth, where (34) and (35) concern the people on Twin Earth.

(32) Water is sort of watery stuff.

(33) It is knowable a priori that water is watery stuff.

(34) They know that water is sort of watery stuff.

(35) They are in a position to know a priori that water is watery stuff.

Soames notes that on my account, (32) is a priori, and (33) is correct. Intuitively, (34) is correct, while (35) is incorrect. Soames' objection is that if (33) and (34) are correct, then (35) ought to be correct too:

> After all, if it is knowable a priori that water is watery stuff, [and] if, like us, the Twin Eartheans are able to entertain the proposition that water is watery stuff by virtue of being acquainted with water, [and] if, furthermore, they know this proposition to be true, while being expert a priori reasoners, then it seems that they should be in a position to know a priori that water is sort of watery stuff. ... However, it is intuitively clear from the scenario that [(35) is] not true. It is not obvious what, if any, reasonable combination of standard two-dimensionalist theses plus Chalmers' new views about attitude ascriptions might provide an adequate explanation of this fact.

The response is straightforward. (APR) explains how (33) and (34) can be correct while (35) is incorrect. (33) requires that *some* possible beings can have a priori knowledge with the secondary intension of (32) and an appropriate primary intension (which must be necessary, in order to

allow a priori knowledge). This is correct, as we are such beings. However, it is impossible for an inhabitant of Twin Earth to have a priori knowledge with the same primary and secondary intension as ours, as it is impossible for them to have a *belief* with the same primary and secondary intension as ours. (At least, this is so if they stay on Twin Earth. If "in a position to" allows moving to Earth and acquiring our term 'water', then (35) will plausibly be true, and Soames' argument will not apply.) For an inhabitant of Twin Earth, any belief with the same (necessary) primary intension as our *water is watery stuff* belief will have a secondary intension that involves XYZ, so that it cannot satisfy the a priori knowledge ascription. The belief that they express with 'That stuff is sort of watery stuff' has the right secondary intension, but it has a quite different primary intension, one that may satisfy the appropriateness constraints for (34) and (35), but it is a contingent primary intension that cannot yield a priori knowledge.

The situation is parallel to the following

(36) I am here now (if I exist and am spatiotemporally located).

(37) It is knowable a priori that I am here now (if...)

(38) You know that I am here now (if...).

(39) You are in a position to know a priori that I am here now (if...).

Here, (36) is plausibly a priori, (37) and (38) are plausibly correct, while (39) is plausibly incorrect. This suggests that the sort of combination in (36)-(39) above is commonplace in our intuitive judgments. The two-dimensionalist explanation will run as before: a priori knowledge that I am here now requires a priori knowledge with secondary intension involving me and my current location, and an appropriate primary intension (which must be necessary). I am in a position to have this sort of knowledge, but you are not: any belief of yours that has an appropriate necessary primary intension will have the wrong secondary intension.

This explanation did not require saying anything about propositions. However, if one regards propositions as enriched propositions, then a priori knowledge ascriptions will require that the proposition in question have an appropriate necessary primary intension. In the cases above, the different subjects or communities are related to quite different enriched propositions, both of which are the right sort to satisfy attitude ascriptions such as (33) and (38), but only one of which satisfies an a priori knowledge ascription such as (34) and (39), because only one has a necessary primary intension. On this account, the mere fact that one *believes* an enriched proposition that is a priori knowable does not suffice for one to be able to have a priori knowledge of it. To do so, one must

believe the enriched proposition in the right way. On the other hand, if one *endorses* an enriched proposition with a necessary primary intension, then one should be able (on idealized reflection) to have a priori justification for this endorsement, yielding a priori knowledge.

(iii) Exportation

A third argument centers on the relation between *de dicto* and *de re* a priori knowledge attribution. Soames assumes for the sake of argument that 'Hesperus' has its reference fixed by some description *D*, where *D* involves the property of being visible in the evening sky. Then the two-dimensionalist will hold that (40) is a priori and that (41) is true.

> (40) Hesperus is visible in the evening sky, if there is a unique thing which is *D*.
>
> (41) It is knowable a priori that (Hesperus is visible in the evening sky, if there is a unique thing which is *D*).

Soames then invokes what he characterizes as an "intuitively compelling exportation principle" for moving between *de dicto* and *de re* belief ascriptions (slightly simplified here):

> (E) For any name *n* and predicate *F*, if '*A* knows/believes that *n* is *F*' is true, then '*A* knows/believes of *x* that it is *F*' is true, where the referent of *n* is assigned to '*x*'.

Setting aside complexity, this principle says roughly that one can always move from a *de dicto* attitude ascription involving a name or 'I' to a corresponding *de re* attitude ascription. Soames then suggests that (41) and (E), along with my account of attitude ascriptions, entail the following *de re* attitude ascriptions, where in (43), '*x*' is assigned to Hesperus, and where (44) is uttered by Hesperus (!).

> (42) There is something, namely Hesperus, which is such that it is knowable a priori that (it is visible in the evening sky, if there is a unique thing that is *D*).
>
> (43) It is knowable a priori that (x is visible in the evening sky, if there is a unique thing that is *D*).
>
> (44) It is knowable a priori that (I am visible in the evening sky, if there is a unique thing that is *D*).

He then says, concerning (43) and (44) respectively:

43

This result holds even though the primary intension of *x is visible in the evening sky*, relative to an assignment of Hesperus to '*x*', is contingent (and identical to its secondary intension). Clearly, this violates a central tenet—the conjunction of [(AP1)] with the left-to-right direction of [(AP2)]—of Chalmers' two-dimensionalism.

This result holds even though the primary intension of *I am visible in the evening sky, if there is a unique thing that is D* is contingent. Again, this is a violation of the central tenets of Chalmers' two-dimensionalism.

In Chapter 10 (pp. 316-318), he repeats a closely related version of this argument, adding a further criticism:

Second, *de re* knowledge of the sort reported by [analogs of (42)-(44)] is *never* a priori. For example, one simply can't know a priori, of any object, that it is visible in the evening (if anything is [the D]), or, of any kind, that instances of it are clear, potable, etc. As argued in chapter 4, such knowledge is always grounded in empirical knowledge derived, ultimately, from someone's acquaintance with the object or kind. Hence— contra the ambitious two-dimensionalist—ascriptions along the lines of [(42)-(44)] are (in the relevant cases) always false.

There are a number of independent problems with Soames' argument. First, we have seen that the two-dimensionalist is not committed to (AP2). If the two-dimensionalist wants to hold that (44) is a priori, they might do so straightforwardly by allowing that this is an exception arising from (AP2) because of the flexibility involved in (APR). However, for the sake of the argument I will accept here that (42) and (44), at least, are intuitively false, for roughly the reasons Soames gives in the passage quoted from Chapter 10.

Second, concerning (43), the two-dimensionalist should not accept that *x is visible in the evening sky*, relative to an assignment of Hesperus to '*x*', has a primary intension of the sort that Soames suggests (roughly, one that is true at all worlds where Venus has the right property). Of course such a "sentence" is not a sentence of any natural language, and the standard epistemic definition of primary intensions has no application to "sentences" of this sort. In natural language, any use of a singular term denoting an object is associated with a mode of presentation, and has an associated inferential role. It is this inferential role that grounds the term's primary intension. A free variable (whether assigned to an object or not) has no such mode of presentation or inferential role, so its primary intension is undefined. Of course primary intensions must be defined

for larger sentences in which the variable '*x*' is explicitly bound, but the primary intensions of these sentences will usually work in a way that gives no role to the sort of object-involving primary intension that Soames has in mind. So there is no problem for the view here. (The same diagnosis applies to Soames' ensuing discussion of "Pappy the paperweight", which also turns on the illegitimate assignment of primary intensions to free variables in this way.)

Finally, and most fundamentally, I think that the exportation principle (E) should be rejected. This principle plays a central role in Soames' book. Apart from using it to argue against my account of attitude ascriptions, he also uses it to argue against certain claims of Kripke and Kaplan in Chapter 4. Soames gives no argument for the principle anywhere in the book. He simply says that it is "intuitively compelling" and that rejecting it is "untenable". But it is far from intuitively obvious.

To consider the plausibility of (E), we can consider the following case, based on one that Soames discusses in Chapter 4. Say that Huey, Dewey, and Louie introduce the name 'Lee' as a descriptive name for the youngest Chinese spy (if there is one). In fact there is a youngest Chinese spy, but none of them have had any contact with this person. In conversation with Louie, Dewey makes the following belief ascriptions, the first of which is *de dicto* and the second of which is *de re*:

> (A1) Huey believes that Lee is the youngest Chinese spy, if anyone is.
>
> (A2) Concerning Lee: Huey believes of him or her that he or she is the youngest Chinese spy, if anyone is.

The reader might consult their intuitions about these sentences before going on. I will report my own intuition: (A1) seems intuitively correct, while (A2) seems intuitively incorrect.[25] However, principle (E) predicts that if (A1) is correct, (A2) is correct. So (E) seems to be to be far from intuitively compelling: if anything, it is intuitively false. Of course such intuitions are not written in stone. But as things stand, (E) needs significant argument to be supported, and it cannot be used as a premise in a philosophical argument against opposing views.

One can also make the case that (E) is intuitively implausible even for ordinary proper names. Imagine that Susan overhears two people talking about Fred, and asks them "who is Fred?". In fact Fred is a student in her class, but she does not know this. Then consider the following ascriptions, where (B1) and (B2) are uttered by an observer and (B3) by the student.

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[25] In an entirely unscientific poll of 17 Internet users (many of whom were philosophers), all 17 judged (A1) to be true, while 5 judged (A2) to be true and 12 judged (A2) to be false.

(B1) Susan knows that Fred is Fred.

(B2) The student (Fred) is such that Susan knows of him that he is Fred.

(B3) Susan knows that I am Fred.

Intuitively, the *de dicto* ascription (B1) seem to be true but the *de re* ascription (B2) and the 'I'-involving ascription (B3) seem to be false. If these judgments are correct, then (E) is false.

Furthermore, there is no clear theoretical reason to accept (E). The best support for it might be given by a strong Millian theory of names, on which they contribute their bearer and nothing else to the truth-conditions of sentences containing them. *If* one accepts a Millian semantics, it is not easy to avoid the conclusion that if (A1) is true, (A2) is true. But of course for the purposes of arguing against two-dimensionalism, one cannot presuppose a Millian theory of names. If anything, when two-dimensionalism is on the table, the counterintuitive nature of (E) gives one some reason to reject a Millian theory of names.

Once (E) is rejected, there is no basis for inferring (42), (43), and (44) above from (41), so Soames' argument can also be rejected.

In fact, the two-dimensionalist account of *de re* attitude ascriptions (DR) yields a straightforward explanation of how (A1) can be true and (A2) false, and of how (E) can fail.[26] The basic reason is that the satisfaction of *de re* ascription requires an acquaintance-appropriate primary intension, while the satisfaction of a corresponding *de dicto* ascription may not require this.

In the case of (A1) and (A2) above, Huey's relevant belief picks out Lee under a descriptive primary intension (roughly, one picking out the youngest Chinese spy in a centered world). By the criterion above, this primary intension is not acquaintance-appropriate. (A2) above is a *de re* ascription that whose satisfaction requires the subject to have a belief picking out Lee under an acquaintance-appropriate primary intension. Clearly Lee's belief does not license the satisfaction of this ascription. (A1) above is *de dicto* ascription whose satisfaction merely requires the subject to have a relevant belief picking out Lee under an appropriate primary intension, and here the descriptive primary intension (the same one expressed by 'Lee' in the mouth of the ascriber) is plausibly appropriate.

The case of proper names is somewhat more complex, as it is plausible that these always have acquaintance-appropriate primary intensions, at least at a reasonably low standard of acquaintance.

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[26]Despite his extended use of *de re* ascriptions to argue against my account of attitude ascriptions, Soames never mentions (DR), the account of these ascriptions given in "The Components of Content". Instead, he incorrectly assumes that thesis (APR) should apply to *de re* ascriptions.

Still, one can explain what is going on in a case such as (B1)-(B3) above by saying that in this context, the *de re* ascription (B2) requires an acquaintance-appropriate relation involving a fairly high standard for acquaintance, such as a perceptual relation. Susan's proper name 'Fred' has a primary intension that is acquaintance-appropriate only at a fairly low standard, one that allows distant testimonial causal chains to count as acquaintance. So the belief that she expresses by saying 'Fred is Fred' may satisfy the *de dicto* ascription (B1) but not the *de re* ascription (B2).

It is worth noting that even if the exportation principle were true, two-dimensionalism would not be seriously threatened. In fact, I think it is not implausible that there are "loose" readings of *de re* ascriptions for which the exportation principle is true (given normal readings of *de dicto* ascriptions). Likewise, it is not out of the question that there are "tight" readings of *de dicto* ascriptions for which the exportation principle is true (given normal readings of *de re* ascriptions). Readings of the former sort can be accommodated by being liberal about what counts as acquaintance. Readings of the latter sort can be accommodated by being demanding about the appropriateness of intensions to satisfy 'Lee'-involving ascriptions, so that an acquaintance-appropriate intension is required here. Of course for these readings, Soames' arguments will not go through: given readings of the former sort, ascriptions of *de re* a priori knowledge will be acceptable, while given readings of the latter sort, necessity of primary intension will not suffice for the truth of an a priori knowability claim (at least when this is read as a modal attitude ascription). Either way, the main theses of two-dimensionalism are unthreatened.

Bibliography

Ackermann, F. 1978. *De re* propositional attitudes toward integers. *Southwestern Journal of Philosophy* 9:145-53.

Anand, P. & Nevins, A. 2004. Shifty operators in changing contexts. In (K. Watanabe & R.B. Young, eds.), *Proceedings of Semantics and Linguistics Theory 14*. CLC Publications.

Bealer, G. 2002. Modal epistemology and the rationalist renaissance. In (T. Gendler and J. Hawthorne, eds) *Conceivability and Possibility*. Oxford University Press.

Burge, T. 1979. Individualism and the mental. *Midwest Studies in Philosophy* 4: 73-122.

Chalmers, D.J. 1996. *The Conscious Mind: In Search of a Fundamental Theory*. Oxford University Press.

Chalmers, D.J. 2002a. On sense and intension. *Philosophical Perspectives* 16:135-82.

Chalmers, D.J. 2002b. The components of content (revised version). In *Philosophy of Mind:*

Classical and Contemporary Readings. Oxford University Press.

Chalmers, D.J. 2004. Epistemic two-dimensional semantics. *Philosophical Studies* 118:153-226.

Chalmers, D.J. 2006. Two-dimensional semantics. In (E. Lepore & B. Smith, eds) *Oxford Handbook of the Philosophy of Language*. Oxford University Press.

Chalmers, D.J. 2011. Actuality and knowability. *Analysis*.

Crimmins, M. 1991. *Talk about Beliefs*. Cambridge, MA: MIT Press.

Dever, J. 2007. Low-grade two-dimensionalism. *Philosophical Books* 48:1-16.

Forbes, G. 1987. A dichotomy sustained. Philosophical Studies 51:187-211.

Frege, G. 1892. Über Sinn und Bedeutung. Translated in (P. Geach & M. Black, eds.) *Translations from the Philosophical Writings of Gottlob Frege*. Oxford: Blackwell, 1952.

Hyman, L. 1979. Aghem grammatical structure. *Southern California Occasional Papers in Linguistics* 7

Jackson, F.C. 1998. *From Metaphysics to Ethics*. Oxford University Press.

Kaplan, D. 1967. Quantifying in. *Synthese* 19:178-214.

Kripke, S.A. 1979. A puzzle about belief. In (A. Margalit, ed.) *Meaning and Use*. Dordrecht: D. Reidel.

Mates, B. 1952. Synonymity. University of California Publications 25:201-26. Reprinted in (L. Linsky, ed) *Semantics and the Philosophy of Language* (University of Illinois Press, 1952).

McDowell, J. 1984. *De re* senses. *Philosophical Quarterly* 136: 283-294

Richard, M. 1990. *Propositional Attitudes: An Essay on Thoughts and How we Ascribe Them*. Cambridge: Cambridge University Press.

Salmon, N. 1998. Nonexistence. *Nous* 32:277-319.

Schiffer, S. 1990. The mode-of-presentation problem. In (C.A. Anderson & J. Owens, eds.) *Propositional Attitudes: The Role of Content in Logic, Language, and Mind*. Stanford: CSLI Press.

Schlenker, P. 2003. A plea for monsters. *Linguistics and Philosophy* 26:29-120.

Sider, T. 1995. Three problems for Richards theory of belief ascription. *Canadian Journal of Philosophy* 25:487514.

Soames 2004. *Reference and Description: The Case Against Two-Dimensionalism*. Princeton University Press.

Speas, M. 1999. Person and point of view in Navajo. WCCFL 18.

Stanley, J. 2000. Context and logical form. *Linguistics and Philosophy* 23: 391-434.

Thomasson, A. 1998. *Fiction and Metaphysics*. Cambridge University Press.