

# Individuating Fregean sense

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*Abstract.* While it is highly controversial whether Frege's criterion of sameness and difference for sense is true, it is relatively uncontroversial that that principle is inconsistent with Millian-Russellian views of content. I argue that this should not be uncontroversial. The reason is that it is surprisingly difficult to come up with an interpretation of Frege's criterion which implies anything substantial about the sameness or difference of content of anything.

Propositions are the entities which are expressed by sentences in contexts and the entities to which subjects stand in the belief and other propositional attitude relations. One central question about these entities is whether they are individuated according to Frege's criterion for sameness and difference of sense, or not. Roughly speaking, and setting aside complications to which we will return, that criterion says that a pair of sentences differ in sense iff a certain sort of subject could be unsure whether they have the same truth-value.

It might seem puzzling that many think that this criterion could individuate *propositions*; for as stated it makes a claim, not directly about sameness and difference of propositions, but about the conditions under which a pair of *sentences* express the same, or different, propositions.<sup>1</sup> But it is not hard to see why the truth or falsity of Frege's criterion has been thought to be of fundamental importance for questions about the nature of propositions. And that is because there is a plausible argument from the truth of Frege's criterion to the falsity of a widely held view of propositions: the Millian-Russellian view that the constituents of propositions are objects, properties, and relations, and that the propositions expressed by sentences containing simple singular terms (including names, demonstratives, and indexicals) will typically have the object which is the referent of the relevant singular term as a constituent.

The argument runs as follows: if Frege's criterion is true, then in general a pair of sentences which differ only in the substitution of simple coreferential singular terms will differ in sense. This follows from the fact that we can always find a subject of the appropriate sort who, while understanding the relevant terms, is unsure whether they are coreferential — and hence is unsure about whether the relevant sentences have the same truth-value. But then, given a plausible, if not uncontroversial, compositionality principle,

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<sup>1</sup> One might think — especially that the problems to be discussed below stem from just this aspect of Frege's criterion — that we should give criteria for sameness and difference of Fregean sense directly in terms of properties of senses, rather than in terms of properties of bearers of senses. But it would be hard to do this without giving an account of what sorts of entities senses are — and if we could do this, we would hardly need an account of sameness and difference of sense of the sort which Frege's criterion aims to provide. I return to Fregean views which don't rely on Frege's criterion in the final section below.

it follows that the relevant singular terms must not have their referent as their content — for, if they did, then contra the argument just sketched, the sentences which differ only via substitution of those terms would *not* differ in sense. But surely if objects could ever be among the constituents of propositions, they would sometimes be the contents of simple singular terms. So objects are never among the constituents of propositions, and Millian-Russellian views of the nature of content are false. The constituents of propositions, our argument seems to show, are never simply objects, but are always more fine-grained ‘ways of thinking about’ or ‘modes of presentation of’ objects.

So, I think, goes the standard implicit argument from the truth of Frege’s criterion to the falsity of Millian-Russellian views of content. I think that the validity of this argument has been, basically, common ground between Fregeans and Millian-Russellians — each agree that if Frege’s criterion is true, then Millian-Russellian views of content have to go. The premise of that argument has not, of course, been so uncontroversial.

Fregeans defend the truth of Frege’s criterion, largely on the basis of the claim that any theory which falsifies the criterion will leave Frege’s puzzle — the task of explaining the difference between trivial, uninformative identities like

Hesperus is Hesperus

and non-trivial, potentially informative identities like

Hesperus is Phosphorus.

— unsolved. Millian-Russellians typically concede that the truth of Fregean views of content would solve Frege’s puzzle, but hold that such views are not the best such explanation, for two sorts of reasons. First, there are other, equally plausible accounts of the data which don’t involve positing Fregean senses (for example, attempts to explain differences in informativeness in terms of facts about what sentences are typically used to pragmatically convey, or in terms of coordination relations between expression tokens).<sup>2</sup> Second, the view that the contents of expressions are Fregean senses might lead to other problems which are far worse than the inability to explain the relevant differences in informativeness (like, for example, placing implausibly strong requirements on the truth conditions of attitude ascriptions, or leading to problems with the semantics of indexicals or variables, or entailing that names are non-rigid).

My aim in this paper is not to engage these much-discussed questions; in fact, my aim won’t be, in the first instance, to figure out whether Frege’s criterion for the sameness and difference of sense is true. Instead, I want to argue that any plausible interpretation of Frege’s criterion will be vacuous, in the sense that it won’t entail anything about the sameness or difference in sense of any actual sentences, and hence won’t be inconsistent with Millian-Russellian views of content.

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<sup>2</sup> See, respectively, Salmon (1986) and Fine (2007).

## 1. CONDITIONS FOR SAMENESS AND DIFFERENCE OF FREGEAN SENSE

Let's start with the question of how, exactly, Frege's criterion should be formulated. As is well known, Frege suggested that we can give conditions for sameness and difference of sense as follows:

“Now two sentences A and B can stand in such a relation that anyone who recognises the content of A as true must thereby also recognise the content of B as true and, conversely, that anyone who accepts the content of B must straightway accept that of A.” (Equipollence).<sup>3</sup>

Other passages in ‘A brief survey of my logical doctrines’ and elsewhere suggest that Frege took the relation of equipollence in the above sense to be equivalent to the relation of having the same sense.<sup>4</sup> One might, at a first pass, formulate this criterion for sameness and difference of sense as follows:

$S_1$  and  $S_2$  differ in sense iff  $\Diamond \exists x$  (x is unsure whether  $S_1$  and  $S_2$  have the same truth value)

But, as others have recognized, this claim needs qualification, because we need to put some constraints on the sorts of subjects whose judgements can be used to test the sameness of sense of a pair of sentences.

We can't, obviously, show that two sentences in German differ in sense by pointing out that someone who doesn't speak German might well be unsure whether they have the same truth-value; we need to at least require that the relevant subjects understand the sentences. And this isn't the only qualification we need; surely a subject who understood two sentences with the same sense might be unsure about whether they have the same truth-value if that subject was drunk, or very tired, or confused, or distracted, or in any one of the myriad conditions which might cause us to make mistakes about even very simple matters. Later I'll return to some questions about what, exactly, these conditions involve; but for now let's set this question to the side, and simply abbreviate these conditions by saying that a subject who meets these conditions of understanding, rationality, and reflectiveness is ‘ideal.’

Then we might state our modified version of Frege's equipollence criterion roughly as follows:

$S_1$  and  $S_2$  differ in sense iff  $\Diamond \exists x$  (x is ideal & x is unsure whether  $S_1$  and  $S_2$  have the same truth value)

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<sup>3</sup> Frege (1979), 197.

<sup>4</sup> But see Heijenoort (1977) for some skepticism as to whether Frege had an unequivocal view on this topic.

As is well-known, problems can also be raised for this modified criterion. For example, sentences which are such that any reflective and rational subject who understands them will see that they are true pose a problem for this principle, since the principle will entail — falsely, it seems — that they have the same sense. Let’s just assume that this sort of problem has a solution.<sup>5</sup> For now I want to bracket this kind of question and focus on the prior question of how our principle is to be interpreted.

In particular, I want to ask whether we should understand the values of ‘ $S_1$ ’ and ‘ $S_2$ ’ to be sentence tokens, or sentence types.

A plausible argument can be made that certain versions of Frege’s puzzle force us to take the former option. Consider, in particular, one of the instances of Frege’s puzzle discussed by Kripke in “A Puzzle About Belief.” There Kripke discusses the example of Peter, who hears the name “Paderewski” on two different occasions, once as a name for a famous pianist, and once as a name for a statesman. Peter, Kripke points out, may well wonder whether the two are the same, and hence may be unsure whether a token of “Paderewski is Paderewski” is true.

Such a use of “Paderewski is Paderewski” seems to me plainly relevantly like the stock example of “Hesperus is Phosphorus” rather than the usual understanding of “Hesperus is Hesperus” — like the former, and unlike the latter, it is informative and non-trivial. But now consider Paul, who is under no such confusion. *His* tokens of “Paderewski is Paderewski” are plainly relevantly like the stock example of “Hesperus is Hesperus.” Hence if we want our Fregean theory to provide a general solution to Frege’s puzzle, that theory had better be able to assign a different sense to Peter’s tokens of this sentence than it assigns to Paul’s. But it is hard to see how our principle for the sameness and difference of Fregean sense could do that, unless it is a principle about the sameness and difference of the senses of sentence tokens.

Let’s then revise our statement of that principle to make this explicit:

Sentence tokens  $s_1$  and  $s_2$  differ in sense iff  $\diamond \exists x$  ( $x$  is ideal &  $x$  is unsure whether  $s_1$  and  $s_2$  have the same truth value)

But it’s not clear that this at all fits with what we want our criterion or sameness and difference of Fregean sense to do. The idea is supposed to be that if we want to figure out whether two sentence tokens that I utter have the same sense, we look at the attitudes which other speakers might take to those sentences; we imagine, for example, our ‘Hesperus’ and ‘Phosphorus’ sentences being considered by someone prior to the discovery that the bright object visible in the evening = the bright object visible in the morning. But these people aren’t considering *the very sentence tokens* that I consider; we don’t, for example, require that they be encountering the very same sound waves, or bits of ink on paper, that I am.

What we presumably want, instead, is that their tokens of this name bear some important relation  $R$  to the tokens of the name which we wish to evaluate. To give a clear

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<sup>5</sup> For some possible solutions to this sort of problem, see Schellenberg (2012).

statement of a principle for sameness and difference of Fregean sense which incorporates this thought, it will be useful to adopt a few abbreviations:

$?(s_1, s_2)$  iff an ideal subject considers  $s_1, s_2$  and is unsure whether  $s_1, s_2$  have the same truth value

$[[s_1]]$  = the sense of  $s_1$

Then we might state our principle of sameness and difference of sense as the claim that some instance of the following schema is true:

### **Sameness & Difference**

$[[s_1]] \neq [[s_2]]$  iff  $\exists s_1^* \exists s_2^* (R(s_1, s_1^*) \ \& \ R(s_2, s_2^*) \ \& \ ?(s_1^*, s_2^*))^6$

I'll return below to the question of whether **Sameness & Difference** really is the best way to formulate the intuitive principle about sameness and difference of Fregean sense with which we began. For our purposes, though, it will be convenient to put those questions on hold for a moment to bring out a problem with the interpretation of **Sameness & Difference**.

This problem arises when we consider the interpretation of the schematic letter 'R' — when, that is, we consider the question of which relation R gives us the relevant (intended) instance of **Sameness & Difference**. We can state a kind of dilemma for candidates for this relation by asking: is R sufficient for sameness of sense, or not?

Intuitively, it seems clear that R *should* be sufficient for sameness of sense. For think about what the point of R is: the point of this relation is to tell us which sentence tokens we can look at to determine whether some pair of sentence tokens in which we are interested differ in sense. But it would be bizarre if we could derive conclusions about whether  $s_1$  and  $s_2$  differ in sense by looking at a pair of sentence tokens which don't even have the same sense as  $s_1$  and  $s_2$ . How could we ever expect to get information about whether  $s_1$  and  $s_2$  have the same sense by seeing whether an ideal subject could be unsure whether some pair of sentences *which differ in meaning from  $s_1$  and  $s_2$*  differ in truth value?

This seems to me pretty persuasive; but in this case, we can do better than intuition, we can provide a kind of reductio of the thesis that R is not sufficient for sameness of sense. Suppose that it is not; then we can have a situation in which  $R(s_1, s_2)$  but  $[[s_1]] \neq [[s_2]]$ . I suggest that the following assumptions are quite plausible:

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<sup>6</sup> One might wonder why the modal operator from the previous formulations has disappeared from this one. The reason, as will become clear from what follows, is that sentence tokens have their contents only contingently, so that what we really want to be doing is comparing sentence tokens at worlds and times with each other. See note 7 below.

- (i) If some expression is R-related to some expression from which it differs in sense, then every expression is R-related to some expression from which it differs in sense
- (ii) If an expression is R-related to some expression from which it differs in sense, then it is R-related to at least two expressions which themselves differ in sense.
- (iii) R is transitive.

I certainly don't claim that (i) is obvious — and still less that it logically follows from the supposition that R is not sufficient for sameness of sense. But I do find it hard to see how, given that supposition, (i) could be false. This is just because it's hard for me to see how some expressions could be special — if R is not in general a guarantor of sameness of sense, why should it guarantee sameness of sense in the case of some particular class of expressions?

(ii) — given (i) and our assumption that R is not sufficient for sameness of sense — is not negotiable. For the negation of (ii) plus that assumption entails not just that R is not sufficient for sameness of sense, but that it is sufficient for difference in sense. For if any expression is R-related to at least one expression with which it shares a sense and is R-related to at least one expression with which it differs in sense, then it is R-related to a pair of expressions which differ in sense. But if R were sufficient for difference in sense, then it would be doing part of the job that we wanted **Sameness & Difference** to do, with R's help.

It is harder to argue directly for (iii); but, given the role that R is supposed to be playing, it is also a bit hard to see how (iii) could be false. Suppose that R is not transitive, and that we have three pairs of sentence tokens A, B, and C, such that the first member of A is R-related to the first member of B, the second pair of A is R-related to the second member of B, and analogously for B and C, but that the members of A are not R-related to the members of C. Suppose now that the C-pair, but not the A- or B-pair, is ?-related. This would then entail that the B-pair differed in sense — but would, on the assumption that R is not transitive, be consistent with the A-pair having the same sense. But this is very odd. After all, given that A,B are R-related, if the B-pair were ?-related, this *would* be sufficient for the A-pair to differ in sense; surely, given this, the fact that the B-pair differs in sense should also be sufficient for the A-pair to differ in sense. But this would make R transitive. (Further, as we'll see below, a version of the argument to follow can be run without the transitivity assumption.)

Given the supposition that R is not sufficient for sameness of sense, and assumptions (i) and (ii), we know that for any sentence  $s_1$ , there is a pair of sentences  $s_2$  and  $s_3$  such that

1.  $R(s_1, s_2)$
2.  $R(s_1, s_3)$
3.  $\llbracket s_2 \rrbracket \neq \llbracket s_3 \rrbracket$

From 3 and left-to-right direction of **Sameness & Difference** it follows that there are sentence tokens  $s_4, s_5$  such that

4.  $R(s_2, s_4)$
5.  $R(s_3, s_5)$
6.  $?(s_4, s_5)$

From 1,4, and the transitivity of R it follows that

7.  $R(s_1, s_4)$

From 2,5, and the transitivity of R it follows that

8.  $R(s_1, s_5)$

But then it follows from 6, 7, 8 and the right-to-left direction of **Sameness & Difference** that

9.  $[[s_1]] \neq [[s_1]]$

Since  $s_1$  was an arbitrarily chosen sentence token, this line of reasoning can be used to show that every sentence token differs in sense from itself, which is absurd.

It is worth emphasizing that the assumptions used in the above are, in a sense, stronger than they need to be. After all, for a reductio we don't need to show that *every* sentence differs in sense from itself; it would be enough to show that one sentence token differs in sense from itself. But then we don't really need the assumption of transitivity. We could use instead the quite plausible assumption that there is at least one sentence token  $s_1$  which is R-related to distinct sentence tokens  $s_2$  and  $s_3$  such that  $?(s_2, s_3)$ . This assumption is plausible given that we know that every sentence token is R-related to a pair of sentence tokens which themselves differ in sense. It would be somewhat mysterious if none of the ?-related sentence tokens were pairs to which a single sentence token is R-related.

The preceding argument was meant to support the anyways plausible view that any reasonable candidate for R must be sufficient for sameness of sense. But, you might ask, what is to stop the proponent of **Sameness & Difference** from simply conceding that R must be sufficient for sameness of sense? The problem is that **Sameness & Difference** is supposed to be providing necessary and sufficient conditions for sameness of sense; if we concede that R must be sufficient for sameness of sense, then we are conceding that we can't interpret **Sameness & Difference** without some independent sufficient condition for sameness of sense — so **Sameness & Difference** can't do the job for which it was introduced without some other theory which does half of that job.

I think that there are three main lines of reply to this argument. The first is to resist the line of thought which led to my claim that Fregean conditions for sameness and

difference of Fregean sense are best articulated by **Sameness & Difference**. The second is to simply give up on the attempt to provide necessary *and* sufficient conditions for sameness in something like the way Frege seems to have envisaged — perhaps, one might think, sufficient conditions for difference are enough. The third is to stick with **Sameness & Difference, and look for some independent criterion for sameness of sense to give us an interpretation of ‘R.’** I consider the second and third options at some length below; but before going on to those, I’d like to briefly consider some ways of blocking the argument for the conclusion that we should understand Frege’s criterion in terms of **Sameness & Difference**.

First, one might resist the idea that our criterion has to be formulated in terms of sentence tokens. Might we, perhaps, simply deny that the ‘Paderewski’ case is a genuine instance of Frege’s puzzle, and formulate our criterion in terms of sentence types? Then we’d be rid of the need to find the troublesome relation R between sentence tokens.

In the end, though, the use of the ‘Paderewski’ example is dispensable. Given the existence of ambiguous expressions, the proponent of the ‘type’ formulation of the criterion of sameness and difference owes us some non-orthographic explanation of what the relevant way of typing expressions is. But explaining the relevant sense of ‘is the same type as’ leads — by argument exactly parallel to the one just given — to the same problems as the attempt to specify relation R.

Briefly: being of the same type (in whatever we are told is the relevant sense) must either be sufficient for sameness of sense, or not. Suppose first that it is not. Then, given that every sentence token is of the same type (in the relevant sense) as itself, we can show that every sentence token differs in sense from itself. Let  $s^*$  be some sentence token. By the right-to-left direction of **Sameness & Difference**, if  $s^*$  has the same sense as  $s^*$ , then it must be impossible for there to be an ideal subject who considers some sentence token  $s'$  of the same type as  $s^*$ , and some token  $s''$  of the same type as  $s^*$ , and is unsure whether  $s'$  and  $s''$  have the same truth-value. Given our supposition that sameness of type is not sufficient for sameness of sense (and our assumption that every sentence token is of the same type as itself), it follows that  $s'$  and  $s''$  might differ in sense. But then it follows by the left-to-right direction of **Sameness & Difference** that it is possible for some ideal subject to be unsure whether sentence tokens which are, respectively, of the same type as  $s'$  and  $s''$  have the same truth-value — which, given that  $s'$  and  $s''$  are stipulated to be of the same type as  $s^*$ , entails (given the transitivity of ‘is the same type as’ under the relevant interpretation) that  $s^*$  differs in sense from itself. But this is absurd; so our supposition that sameness of type is not sufficient for sameness of sense must be rejected.

Hence we end up with exactly the same problem. Whether we formulate our criterion in terms of sentence tokens or sentence types, we can get an interpretation of the criterion only if we are given a sufficient condition for sameness of sense of sentence tokens — which is of course part of what we wanted the criterion to provide. This is hardly surprising, since in the present context there seems to be no important difference between specifying a way of grouping sentence tokens into types and specifying a relation between sentence tokens.

A second way of resisting the move to **Sameness & Difference** might be to question the need to introduce relation R in the first place. One might think that the key move in the argument, and the one most open to question, came when I said that when we ask whether an ideal subject could be unsure about whether a pair of sentence tokens have the same truth-value, we're never really asking about an ideal's subject's consideration of *those very sentence tokens* — rather, we're asking about an ideal's subject's consideration of some distinct sentence tokens which stand in some relevant relation R to the sentence tokens we wish to evaluate.

But one might deny this by saying that when we apply principles like these in order to tell whether a pair of expression tokens differ in sense, what we typically do is consider some possible but non-actual scenario in which some perfectly rational subject is considering a pair of sentence tokens which she understands, but is unsure whether they have the same truth-value. But, the objection continues, just as there is no problem in imagining a possible but non-actual scenario in which I exist, there is no problem in imagining a possible but non-actual scenario in which some actual expression token exists. So we can, after all, use ideal subjects in the way envisaged without introducing any relation between sentence tokens at all; all we have to do is consider non-actual scenarios involving the very expression tokens we wish to evaluate.

This is perfectly correct as far as it goes. The problem, though, is that expression tokens — for example, particular inscriptions, or token sound waves — don't have their contents essentially. Hence if we are allowed to consider, when applying our criterion for sameness and difference of Fregean sense, *any* counterfactual scenario involving the relevant expression token, we will be able to trivially derive the result that every expression tokens differs in sense from itself.

So we need some restriction on the counterfactual scenarios which we are permitted to consider. And then we face a problem already too familiar from the above: either this restriction is sufficient for sameness of sense, or it is not. If it is not, then we will be able (by argument parallel to the above) derive the result that every expression token differs in sense from itself. And if it is, then again we reach the conclusion that we can interpret

our account of sameness and difference of Fregean sense only if given an independent sufficient condition for sameness of Fregean sense.<sup>7</sup>

I conclude that **Sameness & Difference** does not imply anything about the sameness or difference in sense of anything unless packaged with an independent sufficient condition for sameness of sense. Hence it can't, by itself, provide conditions for sameness and difference of Fregean sense.

It is worth emphasizing that one cannot reply to this argument by saying that the Fregean does not intend principles like **Sameness & Difference** to be (in some sense or other) reductive or explanatorily prior to the differences in informativeness which the Fregean ultimately wants senses to explain.<sup>8</sup> The problem just raised is not a problem about these principles' lack of explanatory priority; it's a problem with their lack of positive content.

## 2. RETREAT TO A CONDITION OF DIFFERENCE

A natural thought, at this stage, is that while perhaps **Sameness & Difference** fails to provide conditions for sameness and difference of Fregean sense, we might still preserve the right-to-left direction of this principle, thus giving us at least a sufficient condition for difference of Fregean sense. (This was the second of the responses to the argument of §1 listed above.) This, after all, might well be enough to give us the wanted result that 'Hesperus' and 'Phosphorus' differ in sense, and hence to validate the informal argument from a Fregean thesis about the individuation of contents to the falsity of the Millian-Russellian view of content.<sup>9</sup>

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<sup>7</sup> The fact that sentence tokens don't have their contents essentially is also the explanation for one feature of **Sameness & Difference** which might seem puzzling, and that is the fact that the modal locution used in typical statements of Frege's criterion ('... an ideal subject could do such-and-such') is absent from it. Given that sentence tokens can have different contents in different worlds, we can't simply look at all of the possible judgements of ideal subjects about some pair of sentence tokens, on pain of leading to the result that every sentence token differs in sense from itself.

For that reason, when we're talking about subjects' attitudes toward sentence tokens, we should take this as shorthand for attitudes toward sentence tokens in a world and at a time. We can then understand the quantification over sentences tokens in **Sameness & Difference** to be quantification over triples of sentence tokens, worlds, and times such that the relevant sentence token exists in that world at that time.

Nor, it's worth noting, would it matter much if we had a view of the metaphysics of expression tokens on which they had their contents essentially. For then our stipulation that we consider the same expression token in different worlds would build in the assumption of sameness of sense, and we could re-raise the dilemma in the text about the conditions under which a given inscription, or sound wave, had the same content as the expression token to be evaluated.

<sup>8</sup> Heck & May (2011) (142-3) point out that the view that Frege's criterion is somehow constitutive of sameness and difference of sense is inconsistent with Frege's aim of explaining sameness and difference of sense at the level of sentences in terms of sameness and difference of sense for subsentential expressions.

<sup>9</sup> Some Fregeans have been content to rely on a condition for difference of Fregean sense without worrying about a condition for sameness of sense; a prominent example is Evans (1982).

Let's consider this statement of a sufficient condition for difference in sense:

**Difference**

$$\llbracket s_1 \rrbracket \neq \llbracket s_2 \rrbracket \text{ if } \exists s_1^* \exists s_2^* (R_d(s_1, s_1^*) \ \& \ R_d(s_2, s_2^*) \ \& \ ?(s_1^*, s_2^*))$$

The constraints on the wanted relation 'R<sub>d</sub>' here are different than in the case of the relation 'R' in our **Sameness & Difference** principles, since now we are only aiming to give a sufficient condition for difference of sense, not necessary and sufficient conditions. But we can ask the same question about R<sub>d</sub> as we asked about R: is R<sub>d</sub> sufficient for sameness of Fregean sense, or not?

Again, it seems intuitively clear that it must be. **For, as with R, the point of this relation is to tell us which sentence tokens we can look at to determine whether some pair of sentence tokens in which we are interested differ in sense. But it would be bizarre if we could derive the conclusion that  $s_1$  and  $s_2$  differ in sense by finding that a pair of sentence tokens which don't even have the same sense as  $s_1$  and  $s_2$  are ?-related. How could we ever expect to get information about whether  $s_1$  and  $s_2$  differ in same sense by seeing that an ideal subject is unsure whether some pair of sentences which differ in meaning from  $s_1$  and  $s_2$  have the same truth value?**

And as above, we can turn this intuitive worry into an argument. Suppose for reductio that R<sub>d</sub> is not sufficient for sameness of sense. Assumptions (i) and (ii) about relation R seem just as plausible when applied to relation R<sub>d</sub>. Let A be the class of pairs of sentence tokens which differ in sense from each other.<sup>10</sup> We know that, given our suppositions, every sentence token will be R<sub>d</sub>-related to a pair of sentence tokens which themselves differ in sense. Let B be the class of pairs of sentence tokens which are such that some sentence token is R<sub>d</sub> related to each and are elements of A. Now let C be the class of sentence tokens which are ?-related. Given **Difference**, we know that C, like B, will be a subset of A. But what is the relationship between B and C?

The natural thought, surely, is that these sets will overlap. But if **Difference** is true, then we know that B and C must be disjoint. For suppose that there were a pair of sentences in both B and C. We know from the definition of B that there is some sentence token which is R<sub>d</sub>-related to each sentence in the pair. But then from the definition of C plus **Difference** it follows that that that sentence token differs in sense from itself, which is absurd.

Hence it would be very convenient for the proponent of **Difference** if B and C were disjoint. But given the definition of B and C, it is very hard to see why this should be true, for any natural candidate for R<sub>d</sub>. If every sentence token is R<sub>d</sub>-related to a pair of sentence tokens which differ in sense, why shouldn't a sentence token sometimes be R<sub>d</sub>-related related to a pair of ?-related sentence tokens? The only reasonable answer seems to be: because B is empty. But if B is empty, then R<sub>d</sub> must be sufficient for sameness of sense.

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<sup>10</sup> As above, more strictly: pairs of triples of a sentence token, time, and world.

So it is hard to see how  $R_d$  could fail to be sufficient for sameness of sense. This fact about **Difference** is less damaging than the points made above about **Sameness & Difference**, since **Difference** makes no claim to provide, on its own, a condition for sameness of Fregean sense. So we have not reached the result that **Difference** can't do it's job without the help of another theory which does exactly that job. But it does mean that we can interpret **Difference** only if we are in prior possession of a criterion for sameness of sense. Are we?

An obvious way to provide such a condition is to consider the reverse direction of our **Sameness & Difference** principles, and try something like

### Sameness

$$\llbracket s_1 \rrbracket = \llbracket s_2 \rrbracket \text{ if } \neg \exists s_1^* \exists s_2^* (R_s(s_1, s_1^*) \ \& \ R_s(s_2, s_2^*) \ \& \ ?(s_1^*, s_2^*))$$

We argued above that any plausible candidate for R (in the **Sameness & Difference** principles) and  $R_d$  (in the case of **Difference**) would have to be sufficient for sameness of Fregean sense. If the same held for  $R_s$ , that would be bad news for **Sameness**, since that would imply that the principle could give a sufficient condition for sameness of sense only with the help of another principle which did exactly that. But we can't assume that what goes for R and  $R_d$  also goes for  $R_s$  since the constraints on the latter are different than the constraints on the former two — since it has to make true a sufficient condition for sameness of sense rather than a necessary condition. (For this reason, **Sameness & Difference** is not trivially equivalent to the conjunction of **Difference** and **Sameness**.)

But in fact we can argue, in a similar if not exactly parallel way, that  $R_s$ , like its forebears, must also be sufficient for sameness of sense. Suppose that it is not. In that case, the analogues of principles (i) and (ii) discussed in connection with  $R_d$  seem just as plausible for  $R_s$ . Now select arbitrary sentences  $s_1$  and  $s_2$  which we stipulate to have the same sense. If  $R_s$  is not sufficient for sameness of sense and (i) is true, it follows that there will be a pair of expressions  $s_1^*$  and  $s_2^*$  which are such that  $R_s(s_1, s_1^*)$  and  $R_s(s_2, s_2^*)$  but  $s_1$  differs in sense from  $s_1^*$  and  $s_2$  differs in sense from  $s_2^*$ . If (ii) is true, it follows that  $s_1^*$  can  $s_2^*$  differ in sense from each other. But then if **Sameness** is true it follows that there will be some ideal subject who understands both and doubts whether they have the same truth-value — and this means that **Sameness** will not deliver the verdict that our initial expressions  $s_1$  and  $s_2$  have the same sense. But nothing was assumed about these expressions other than that they have the same sense; so it follows from our supposition that  $R_s$  is not sufficient for sameness of sense that **Sameness** will never succeed in telling us that a pair of sentences have the same sense.

Note that this is not a reductio of the conjunction of **Sameness** with the supposition that  $R_s$  is not sufficient for sameness of sense. Quite the contrary; it shows that in that condition **Sameness** is vacuously true, by showing that the condition for sameness of sense which it offers is never satisfied. But a vacuously true condition is no good for our purposes; for, as we saw above, in order to make **Difference** non-vacuous, we need some

condition for sameness of sense which sometimes actually tells us that a pair of expression tokens have the same sense.

And of course we can't just accept the conclusion that  $R_s$  is sufficient for sameness of sense, since then  $R_s$  would do by itself just what we were hoping that **Sameness** would do with  $R_s$ 's assistance. So it looks like **Sameness** is non-vacuously true only if we can, independently, come up with some sufficient condition for sameness of sense. Whether or not we can do this, it's no use to the proponent of **Difference**.

This problem seems a little bit surprising. A standard view on Fregean sense is that, even if we can't give a perfectly clear account of what senses are, and even if it is not easy to see how to give necessary and sufficient conditions for sameness of sense, we can at least, via something like the conjunction of **Difference** and **Sameness**, provide a clear sufficient condition for difference of sense which is both plausible and will entail that (for example) coreferential names which can give rise to instances of Frege's puzzle differ in sense. But if the foregoing is correct, this is a mistake.

The best move for the defender of **Difference** seems to be to give up on **Sameness**, and try to come up with some other sort of condition on sameness of Fregean sense. But this turns out to be difficult to do.

One idea — which of course is not so far from some of Frege's own uses of the notion of sense — is to give a sufficient condition for sameness of sense in terms of some sort of reportability condition:

### **Reportability**

Token sentence  $s_1$  (as used by A in C) is has the same sense as token sentence  $s_2$  (as used by B in C\*) if A could use  $s_2$ , as he uses it in C, to truly report the claims that B makes with  $s_1$ , as she uses it in C\*.

This fits nicely with a naive semantics for attitude reports, according to which an ascription  $\ulcorner A$  said that  $S \urcorner$  is true iff the content of S in the context of the ascription is the proposition which the subject of the ascription said.

Unfortunately, though, **Reportability** faces two sorts of problems.

The first is that it seems to lead to the result that just about any two tokens of a name differ in sense. Remember the example of Peter and 'Paderewski', discussed above. I suggested that given that Peter's use of "Paderewski is Paderewski" is relevantly like "Hesperus is Phosphorus" rather than "Hesperus is Hesperus", any satisfactory Fregean treatment of Frege's puzzle should assign different senses to the two tokens of "Paderewski."

Let's divide Peter's uses of "Paderewski" into pianist-tokenings and statesman-tokenings. Suppose that Paul is an ordinary, un-confused user of "Paderewski", who knows that Paderewski is both a pianist and a statesman; we can further suppose, if it matters, that he doesn't know that Peter is confused about the identity of the statesman and the musician. When Peter says, "Paderewski is my favorite pianist," it seems that Paul can truly report his speech by saying "Peter said that Paderewski is his favorite pianist" — and can do so even if he knows nothing about Peter's ignorance, and does not intend to

use “Paderewski” in any special way. Hence some of Paul’s tokenings of “Paderewski”, given **Reportability**, have the same sense as Peter’s pianist-tokenings.

Further, when Peter says, “Paderewski is the very model of a corrupt politician”, Paul can truly report his speech by saying “Peter said that Paderewski is the very model of a corrupt politician” — and, again, can do so without any special intentions or knowledge of Peter’s ignorance. Hence, it seems, some of Paul’s tokenings of “Paderewski”, given **Reportability**, also have the same sense as Peter’s statesman-tokenings.

But we already know (if the Fregean solution to Frege’s puzzle is to be general) that Peter’s pianist-tokenings of “Paderewski” differ in sense from his statesman-tokenings of “Paderewski,” from which it follows, given the transitivity of identity, that some of Paul’s “Paderewski” tokenings differ in sense from some of his other “Paderewski” tokenings.

Given that we can come up with Paderewski-type scenarios for virtually any name, it looks like this pattern of argument generalizes to the conclusion that distinct tokenings of a name for a single speaker will almost always differ in sense.

This would certainly be a surprising result. But can the Fregean perhaps simply bite the bullet here, and accept the fact that every expression token differs in sense from every other expression token as a surprising consequence of her theory? Not without undermining the basic argument for Fregeanism. After all, on that view, both “Hesperus is Hesperus” and “Hesperus is Phosphorus” would be identity sentences involving names with the same reference but distinct sense — which would leave the intuitive distinction between the sentences unexplained, and Frege’s puzzle unsolved.

Fregeans could, of course, simply resist the intuitions about truth-values in the dialogue between Paul and Peter above. But doing this in a principled way would require some account of the conditions under which expression tokens have the same sense — which rules out the attempt to use facts about who can correctly report what to provide such conditions.

The second problem for **Reportability** is that it does not really escape the fundamental problem with **Sameness**. For the condition on sameness of meaning is stated in terms of what B *could* report using a given sentence token. But (to repeat a now-familiar line of reasoning) when we consider what B could report using a given sentence, we’re really asking about what B could report using a token of a given sentence type. And then we need to know what the relevant type is — or, equivalently, what relation a sentence token must stand in to the one we want to evaluate. This relation might either be sufficient for sameness of sense, or not. If the latter, we will be able to argue that every sentence token differs in sense from itself. If the former, then **Reportability** will provide a sufficient condition for sameness of sense only with the help of another principle which does exactly that.<sup>11</sup>

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<sup>11</sup> As above, one could object that we might only consider B’s possible uses of *that very sentence token*. But this delays rather than solves the problem. Given that sentence tokens don’t have their senses essentially, we’ll have to provide some restriction on the relevant class of possible tokenings, which will amount to giving a relation between sentence tokens which will face the dilemma just sketched.

We could try instead to give conditions for sameness of sense using the intentions of the speaker:

### Intentions

Token sentence  $s_1$  (as used by A in C) has the same sense as token sentence  $s_2$  (as used by B in  $C^*$ ) if A intends in C to use  $s_1$  with the same meaning as B used  $s_2$  with in  $C^*$ .

The problem, though, is that my intention that my use of a term have the same sense as yours doesn't guarantee that it will. One way to see this is that I can have multiple intentions in using an expression, and that these intentions might conflict — I might, e.g., intend to use  $e$  with the same sense as A's use of that expression and with B's, even if, as it turns out, A and B are using the expression with different senses. (Just imagine that I am a committed Millian, and intend to use 'Paderewski' with the same sense as all of Peter's tokenings of it.)

To recap: the suggestion was that we get around the problems with our **Sameness & Difference** principles by retreating to a mere sufficient condition for difference in sense. But we found that an understanding of this sufficient condition for difference in sense only entails anything about the sense of particular expressions with the help of a sufficient condition for sameness of sense. And that is what we have been trying, and failing, to provide.

In §1 above I suggested three ways in which the defender of a Fregean criterion of sameness and difference of sense might respond to the argument of that section. The first was to resist the idea that the criterion should be formulated in a way which, like **Sameness & Difference**, requires specification of a relation between expression tokens; the second was to retreat to condition of difference for sense; and the third was to supply a condition for sameness of sense which we might put to use as the value of the schematic letter 'R' in **Sameness & Difference**. In this section, I've been considering the second response. But given that that response, like the third, depends on the specification of a relation between sentence tokens sufficient for sameness of sense, the problems with the above criteria for sameness of sense are also problems for the third line of response to the argument of §1.

At this stage, you might have the worry that I've been attacking a straw man. Can't we just assume that our intuitive judgements about sameness of meaning are, by and large, correct, and use these judgements, along with something like **Difference**, to give us the desired result that 'Hesperus' and 'Phosphorus', as we actually use them, differ in sense? Indeed, doesn't our usual practice of evaluating semantic hypotheses *always* proceed via some assumptions about sameness of meaning across tokens? After all, we often evaluate some claim about meaning of an expression by seeing what it entails about various sentences in which that expression occurs — and if this methodology is to make any sense at all, it must presuppose that we can tell when two expression tokens have the same content. Surely we're just being obstinate if we won't let the Fregean simply help herself to that.

This line of objection is not implausible. But I think that it is mistaken, for two reasons. First: it is true that we often make use of assumptions about sameness of semantic content across expression tokens when evaluating semantic hypotheses. But that is because the semantic hypotheses in question themselves entail claims about sameness of content across expression tokens. Consider, to take the simplest example, the Millian view that the meaning of a token of ‘that’ is the object for which the relevant token of ‘that’ stands. This tells us that, if this Millian view is true, any two tokens of ‘that’ which stand for the same object must have the same content. Here we are relying on prior judgments about identities of objects to derive claims about sameness of meaning across expression tokens. Parallel remarks apply to any semantic hypothesis which tells us what the semantic content of a given expression is: any such hypothesis will provide us with the resources to make judgements about sameness of meaning across expression tokens.

But of course this is exactly what principles like **Sameness & Difference** or **Difference** do not do: they do not tell us what the meaning of any expression *is*, but instead try to tell us, without doing this, when expressions differ in meaning. So these principles, unlike other semantic hypotheses about the meaning of this or that expression type, simply do not give us the resources to make the relevant judgements about sameness of meaning.

Second, the Fregean is especially badly placed to suggest that we rely on our common sense judgements about sameness of content, for the Fregean is in the business of denying those judgements. Remember the case of Paul and Peter. Imagine these two talking about Paderewski’s involvement in politics and then, a few days later, talking about Paderewski’s musical abilities. There need be no confusion involved in either of these conversations; they could be, in any intuitive sense, perfect models of communication. By any common sense standard, Paul and Peter’s tokenings of “Paderewski” in these conversations would be standard examples of tokens of name with the same meaning. But the Fregean — at least the Fregean who wants to give a general solution to Frege’s puzzle which applies to Peter’s use of “Paderewski is Paderewski” — is committed to denying at least one of these common sense judgements.

The conclusion of this section is parallel to that of the preceding section: like **Sameness & Difference**, **Difference** tells us nothing about difference of sense in the absence of a non-vacuous condition for sameness of sense which we don’t know how to provide.<sup>12</sup>

### 3. RETREAT TO A WEAKER SUFFICIENT CONDITION

But this conclusion misses an obvious answer to our problem. For of course we *do* know how to provide a sufficient condition for sameness of sense: identity. Haven’t we, after all,

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<sup>12</sup> One suggestion for avoiding this problem would be to define conditions for sameness of sense, not sentence by sentence, but via requirements for sameness of sense of various types of subsentential expressions. We could then ascend to the sentence level via some appropriate compositionality principle. I don’t quite see how this approach would work, since I’m not sure how to formulate the conditions for sameness of sense of, for example, two predicates. But it is an approach which is not ruled out by any of the arguments above.

been assuming throughout that every sentence token has the same sense as itself? Our problems have resulted from our trying to find not just a sufficient condition for sameness of sense, but something like a ‘suitably general’ condition for sameness of sense, which applies at least sometimes to distinct but synonymous expression tokens.

This gives us a way to repair **Difference**. For if identity is sufficient for sameness of sense, it might seem that we can simply plug in identity as the wanted relation  $R_d$ , giving us

$$\llbracket s_1 \rrbracket \neq \llbracket s_2 \rrbracket \text{ if } \exists s_1^* \exists s_2^* (s_1 = s_1^* \ \& \ s_2 = s_2^* \ \& \ ?(s_1^*, s_2^*))$$

or, more simply,

### **Restricted Difference**

$$\llbracket s_1 \rrbracket \neq \llbracket s_2 \rrbracket \text{ if } ?(s_1, s_2)$$

This principle applies only to sentence tokens which are such that some ideal subject reflectively considers them and is unsure about their truth-value. Just how restrictive this is depends upon how demanding our definition of ideal subjects is.

It must be pretty demanding, if any principle like **Difference** is to hold. Given that principles like **Restricted Difference** are supposed to be not just true of Fregean sense but (in some sense or other) definitive of it, we can safely presume that they must be necessary if true. (It would be very strange if the Fregean were to say that the world could have been such that an ideal subject’s being unsure whether  $s_1$  and  $s_2$  have the same truth-value is consistent with  $s_1$  and  $s_2$  having the same sense.) So we know that

$$\Box((x \text{ is ideal} \ \& \ x \text{ is unsure whether } s_1 \text{ and } s_2 \text{ have the same truth-value}) \supset \llbracket s_1 \rrbracket \neq \llbracket s_2 \rrbracket)$$

which implies the following statement of the necessary conditions for being an ideal subject in the relevant sense:

$$\Box(x \text{ is ideal} \supset \neg(x \text{ is unsure whether } s_1 \text{ and } s_2 \text{ have the same truth-value} \ \& \ \llbracket s_1 \rrbracket = \llbracket s_2 \rrbracket))$$

So whatever else we might think about what it takes for a subject to be ideal, we know that being ideal in the relevant sense is some condition which is inconsistent with a certain sort of mistake: it is metaphysically impossible for an ideal subject to be uncertain as to whether a pair of same-sense sentences have the same truth-value.

Have I ever, even in my best moments, been ideal in this sense? I don’t think so. Nor, I think, has anyone. No matter how well we understand a pair of sentences which have the same sense, and no matter how attentive, rational, reflective, etc. we are, it is surely

always metaphysically possible that we have all of these properties and yet are not quite sure that those sentences have the same truth-value.

If this is right, then **Restricted Difference** implies nothing about the difference in sense of any two actual sentence tokens — for there are no ideal subjects around to be unsure whether they have the same truth-value and hence make them ?-related.

One might respond that I'm taking the reliance on ideal subjects a bit too seriously here. We don't, the objection goes, need to find some noncircular specification of a set of conditions which is such that satisfaction of those conditions is inconsistent with uncertainty in the face of sentences which share a sense. Rather, we can just think of ideal conditions in the following way:

x is ideal with respect to a pair  $\langle s_1, s_2 \rangle$  iff ( $\llbracket s_1 \rrbracket = \llbracket s_2 \rrbracket$  iff x is sure that  $s_1$  is true iff  $s_2$  is true))

And this is of course a condition which (by Fregean lights) I've satisfied with respect to many pairs of sentence tokens at various times. I currently satisfy this condition with respect to the pair of tokens of "This paper is getting too long" that I have just uttered to myself.

The problem is that if we take this deflationary sort of view of ideal conditions, we empty **Restricted Difference** of any content. For suppose that I propose that the sense of a proper name is the object for which it stands. Surely this Millian thesis should be inconsistent with any criterion of difference for Fregean senses which deserves the name. But it is not inconsistent with **Restricted Difference** + the above take on ideal conditions. For to show that it is, we would have to find a subject ideal with respect to (say) a pair of tokens of 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' who was unsure whether they have the same truth-value. But suppose a candidate ideal subject, Hammurabi, who is unsure whether these tokens have the same truth-value, is suggested. To see whether this subject really was ideal on the above definition, we'd have to first know that the relevant sentence tokens differ in sense. But that is of course just the result that we wanted **Restricted Difference** to provide.<sup>13</sup>

So we're stuck, it seems, with the result that **Restricted Difference** never directly implies anything about the sense of any actual sentence tokens. The question then arises

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<sup>13</sup> Parallel worries arise for the attempt to treat Frege's criterion as part of a 'local holism' involving claims also terms like 'understanding' and 'rational.' The worry is that the ordinary interpretations of these terms are too weak to define Fregean sense, leading to problems like those discussed in connection with **Reportability**. But if we stipulatively define more demanding interpretations of these terms, we run into the same problems as with the deflationary interpretation of ideal conditions.

Parallel circularity problems also arise for views of ideal subjects as ones who know all the a priori truths. According to the Millian, after all, 'Hesperus is Phosphorus' is a priori (or close enough). One might do better if one could buttress the view of ideal subjects as knowing all the a priori truths with a theory of a prioricity which delivered the result that 'Hesperus is Phosphorus' is not knowable a priori, like that given by epistemic two-dimensionalism. For doubts about the epistemic two-dimensionalist's treatment of the a priori, see Schroeter (2005) and Speaks (2010).

as to whether, despite this fact, we might still use **Restricted Difference** more indirectly to derive conclusions about the sameness or difference of the sense of any actual sentence tokens. Any attempt to do this would, it seem, have to proceed in two stages: (a) argue that an ideal subject could be unsure whether tokens of ‘Hesperus is Hesperus’ and ‘Hesperus is Phosphorus’ have the same truth-value, and (b) argue that on the basis of the fact that these possible tokens differ in sense for an ideal subject, it is reasonable to believe that at least some actual tokens of ‘Hesperus is Hesperus’ and ‘Hesperus is Phosphorus’ differ in sense for we non-ideal subjects.

One might worry about either step, but step (a) seems to me particularly suspect. The only grip we now have on the notion of an ideal subject is that of a condition which is such that, necessarily, no subject in that condition can be mistaken about whether a pair of sentences with the same sense differ in truth-value. But then our view about which subjects are ideal will be hostage to our views about sense — rather than (as we wanted) our views about sense being hostage to the facts about what ideal subjects could or would do.

For suppose as above that the Millian advances the thesis that the sense of a name is the object (if any) for which the name stands, and hence (given some standard sort of compositionality principle) holds that tokens of ‘Hesperus is Hesperus’ and ‘Hesperus is Phosphorus’ have the same sense. Of course we, non-ideal subjects can be unsure as to whether these sentences have the same truth-value — but that is neither here nor there. What matters is whether an ideal subject could be similarly unsure. And it is far from clear whether this is possible. For suppose that the Millian’s claim is true. Then it just follows from the above necessary condition on ideal conditions that no genuinely ideal subject could be unsure whether tokens of ‘Hesperus is Hesperus’ and ‘Hesperus is Phosphorus’ have the same truth-value. And this contradicts claim (a) above.

One might object as follows:

OK, but this just assumes that the Millian about names is correct. Suppose instead that we hold that the sense of a name is some mode of presentation of a reference. Surely it is possible for a subject to have as complete a grasp of two modes of presentation as is metaphysically possible, and *still* be unsure whether they present the same reference. So in the end we can at least be sure that — given **Restricted Difference** — as they are used by ideal subjects, ‘Hesperus’ and ‘Phosphorus’ differ in sense. And this surely gives us some reason to believe that they differ in sense out of our non-ideal mouths as well.

But it should be clear that this argument is going in exactly the wrong direction. We wanted to use our test for difference of sense to derive (at least) the result that typical

tokens of ‘Hesperus’ and ‘Phosphorus’ differ in sense. What we’ve now seen is that to derive that result, we have to use it as a premise.<sup>14</sup>

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Philosophers often ask whether, or claim that, the meanings of expressions are ‘individuated by Frege’s criterion of difference.’ Our conclusion so far seems to be that this claim is either trivially true or trivially false. If one simply means that one’s views about meaning should conform to the criterion, then it is trivially true — a claim that even the most diehard Millian can endorse. If, on the other hand, it means that Frege’s criterion of difference tells us what the meanings of expressions are, it is trivially false — since it is consistent with virtually any view of meaning.

This hardly establishes the truth of the Millian-Russellian view of content; but it does show that the Fregean can’t easily accuse the proponent of that view of failing to meet some general constraint on sameness and difference of content.

There are two further consequences of the argument just given which are worth noting. The first is that, if the argument to this point is correct, the Fregean cannot — as is often done — explicate her view via a principle about sameness and/or difference of sense like the ones just considered. It isn’t that such principles are false; it’s that (if the argument to this point is correct) they lack substantive content. The Fregean has no choice but to directly give us some information about what senses are. This is something which, notoriously, Frege did not do much of; and it’s not a very easy thing to do.

But even if this is not easy to do, it needn’t be impossible. One neo-Fregean theory which is very well-placed to meet this explanatory demand is an epistemic two-

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<sup>14</sup> One might think that this shows that the Fregean should simply get rid of reference to what a subject who was rational, reflective, etc. would do, and focus on properties of actual subjects. One person who develops an account of Frege’s criterion along these lines is Susanna Schellenberg (2012). Her account is framed, not in terms of what an ideal subject would do, but in terms of what our rational commitments with respect to a pair of sentences are. Very roughly, and ignoring some important subtleties, the idea is that sentences differ in sense for a subject if that subject is not rationally committed to taking them to have the same truth-value.

This does avoid the problems to do with ideal subjects; but it seems to me that those problems re-emerge in another form. For consider a pair of subjects, who are, respectively, unsure whether the following pairs of sentences have the same truth-value:

(1a) Hesperus is Phosphorus.

(1b) Hesperus is Hesperus.

(2a) Secretariat is a horse.

(2b) Secretariat is a steed.

In what sense must the second subject violating her rational commitments in a way in which the first subject is not? Neither might be, in any ordinary sense, irrational. It seems to me that to explain the sense in which the second subject must be irrational even though the first is not, we’ll have to use (as above) the premise that ‘steed’ and ‘horse’ have the same sense, whereas ‘Hesperus’ and ‘Phosphorus’ do not. But then we’d again be feeding into the account what we wanted to get out of it.

dimensionalist semantics of the sort explicated and defended in Chalmers (2006). Whatever one might think of epistemic two-dimensionalism, it does not need to be stated using principles of sameness and difference like those discussed above. And that's because, like the Millian-Russellian, the epistemic two-dimensionalist tells us straightforwardly what the contents of sentences are.<sup>15</sup>

The second consequence concerns not Fregeanism, but Frege's puzzle. That puzzle, as I set it up above, was to explain the differences between informative and uninformative identities, as exemplified by the stock pair

Hesperus is Hesperus.

Hesperus is Phosphorus.

But now let's ask: what does it mean for two sentences to differ in their 'informativeness', or cognitive value? The very natural answer is to say that this is for those sentences to be such that a fully rational and reflective agent who understood both could yet take different views of their truth-value — such an agent could, for example, know that one is true, but be unsure whether the other one is.

But if we say this, then we have just said that sentences differ in informativeness just in case they satisfy **Difference**. But, as we've seen, it's pretty hard to give a non-vacuous and true interpretation of this principle. Hence our problems for the above principles of sameness and difference of Fregean sense redound to Frege's puzzle itself.

None of this is to block a Fregean from motivating his position by simply pointing to 'Hesperus is Hesperus' and 'Hesperus is Phosphorus', thumping the table, and saying: 'These sentences just obviously differ in meaning — and something's wrong with any theory which says that they don't!' Personally, I think that this table-thumping argument has more than a little plausibility. But making an intuitive claim about a single pair of sentence tokens (or even several pairs of sentence tokens) is a far cry from presenting a general puzzle about meaning which we can then ask whether various approaches to semantics solve.

One might also try to formulate a version of Frege's puzzle which relied less on differences in 'informativeness' and more on, for example, differences in apparent truth-value of attitude ascriptions which differ only in the substitution or coreferential terms. I think that the present line of skepticism about Frege's puzzle would generalize to those versions — but that conclusion goes beyond what I have argued here.<sup>16</sup>

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<sup>15</sup> Though, perhaps not coincidentally, neo-Fregeans like Chalmers are sometimes skeptical of the idea that we can make clear sense out of the Fregean's distinction between informative and non-informative sentences, and try instead to supply a kind of successor to Fregean senses which can play many of the theoretical roles that senses were supposed to play.

<sup>16</sup> Thanks for helpful comments on previous versions of this paper to Patricia Blanchette, Ben Caplan, David Hunter, Casey O'Callaghan, and Gurpreet Rattan.

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