

Sense, Communication, and Rational Engagement

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This paper is about the relation between a singular term's cognitive significance and the requirements on using the term to communicate. A term's 'cognitive significance' is the part of its meaning that determines its role in a speaker's rational cognitive life. Terms 'a' and 'b' differ in cognitive significance iff a subject who understood both terms could assent to 'a is F' but withhold assent from or reject 'b is F' without loss of rational coherence. Here are three views of the relation between cognitive significance and communication that philosophers have proposed:

The Fregean View – Speakers can communicate using a term iff they attach the same sense to it, where senses are individuated by the criterion of individuation for cognitive significance.¹

The Anti-Fregean View – Speakers can communicate using a term iff they attach the same referent to it (take it to stand for the same thing).

The Moderate Fregean View – Speakers can communicate using a term iff (a) they take it to stand for the same thing, and (b) they attach appropriately related cognitive significances to it, where 'appropriately related' cognitive significances are just the cognitive significances that might be attached to the term by speakers who count as understanding one another's uses of it.

Our aims here are to overturn the Moderate Fregean View, and to get our own alternative position, which we call 'Equivalence Class Fregeanism' ('ECF'), on the table. It is not possible to provide a full defense of ECF here. Nor is it possible to discuss in detail how close ECF comes to what Frege himself thought. But we think it is possible to show that the Moderate Fregean View is false, and to establish that the question of whether there is such a thing as Fregean sense should be addressed by considering whether ECF can be sustained.²

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¹ The question of the extent to which the 'Fregean View' was Frege's is not relevant to our purposes here. But for the criterion of difference for senses understood as cognitive significances see Frege (1960, 56–57). And for the claim that speakers can communicate using an expression iff they attach the same sense to it see Frege (1984, 357–360, 368, 371).

² Others have objected to the Moderate Fregean View from the opposite, neo-Russellian, direction. See Byrne and Thau (1996). We do not discuss such objections here.

The paper has three parts. Section 1 presents the Moderate Fregean View as a response to the Anti-Fregean View. Section 2 uses a worked example to show that the Moderate Fregean View is unstable. Section 3 argues that a right understanding of the significance of Frege's puzzle about informative identities opens up the possibility of a view (ECF) which is much more Fregean than the Moderate Fregean View, but respects the pressures away from the Fregean claim that speakers can use a term to communicate iff they use it with the same cognitive significance.

1. The Moderate Fregean response to the Anti-Fregean View

The Moderate Fregean response to the Anti-Fregean View has had its most thorough development to date in two papers by Richard Heck: 'The Sense of Communication' and 'Do Demonstratives Have Senses?'³ Heck argues that the Anti-Fregean View (which he calls the 'Hybrid View') is unstable, and urges the Moderate Fregean alternative. This section sets out the main lines of Heck's position.

According to Heck, the Hybrid (Anti-Fregean) View is motivated by the underlying principle that communication has the transmission of information from one speaker to another as a basic function or aim (Heck 1995, 85). Suppose this principle. Then to use a name to communicate, speakers must *at least* attach the same referent to the name. For a hearer acquires information from a speaker's utterance only if the hearer takes the utterance to be about the right object. Further, given the principle, it seems that to use a name to communicate speakers must *at most* attach the same referent to it. For as long as they attach the same referent to it, they will be able to use it to transmit information. So if the aim of communication is the transmission of information, then a necessary and sufficient condition for communication is that speaker and hearer attach the same referent to a name. Therefore, if we accept the principle, we have a motivation for the Hybrid View.

Heck's criticisms of the Hybrid View are constructed around examples which suggest that the principle that communication aims at the transmission of information is really just an artificially weakened version of a stronger principle – the principle that communication aims at the transmission of knowledge.⁴ Here are two examples of this kind (Heck 1995, 94–95).

Suppose that Tony uses 'George Orwell' to refer to the same man as Alex refers to using the name 'Eric Blair'. Suppose that Tony does not know that Orwell is Blair. And suppose that Alex asserts in Tony's presence, 'Eric Blair wrote *1984*'.

³ The possibility of a Moderate Fregean position is also floated by (Kaplan 1989, 537–538) and (Evans 1985, 315–316).

⁴ See Heck (1995, 91–92 and 2002, 16). For endorsement of this constraint see also Evans (1985, 310) and Williamson (2000, 267).

Finally, suppose that, by causal paths which need not concern us, Tony forms the belief that she would express by saying 'George Orwell wrote *1984*'. Tony's belief is about the right object – she is taking Alex's use of 'Eric Blair' to refer to the same object as Alex takes it to refer to. So, Tony and Alex count, on this occasion, as using 'Eric Blair' to refer to the same thing.

If the basic aim of communication is the transmission of information, then Alex and Tony are communicating. But this seems like a wrong account of the example. If, by contrast, communication is construed as involving the transmission of knowledge, we get the right result – that Alex and Tony do not communicate. Forming the belief that you would express by saying 'George Orwell wrote *1984*' in response to someone's assertion of 'Eric Blair wrote *1984*' is not a way to acquire knowledge if you do not know that George Orwell is Eric Blair. So this example suggests that communication is not the transmission of information but the transmission of knowledge, and that it does not suffice for a transaction between speakers involving a use of a name to count as communication that they attach the name to the same bearer.

Now suppose that Eric Blair becomes amnesiac and checks himself into a hospital. The doctor, Tony, though knowing nothing about the past life of her amnesiac patient, happens to light on 'George Orwell' as a name to use for her patient (she does not know that this is a name already in circulation). Some time later, Alex, intending to refer to the well-known author, says to Tony, 'George Orwell wrote *1984*'. Tony forms the belief she would express by saying 'George Orwell wrote *1984*' ('and poor guy now he's an amnesiac in a hospital bed'). Since Tony's patient in fact happens to be the author George Orwell/ Eric Blair, Tony and Alex are using 'George Orwell' with the same referent.

Again, if the basic aim of communication is the transmission of information, then Alex and Tony are communicating. But, again, this seems wrong. And, again, if communication is construed as involving the transmission of knowledge, we get the right result – that Alex and Tony do not communicate. Since it is just a matter of luck that the belief Tony forms is about the person Alex is claiming to have written *1984*, it is just a matter of luck that Tony's belief is true. And lucky true belief is not knowledge.

Heck thinks that reflection on examples like these suggests that successful communication requires the kind of intensional – 'cognitive and epistemological' (Heck 1995, 96) – relations between the belief the speaker expresses using a sentence and the belief a hearer takes it to express that the Hybrid View is supposed to be doing without. Any account of the conditions under which communication is possible which does not draw on cognitive and epistemological relations between beliefs will be an account under which the conditions for communication come out as distinct from those for the transmission of knowledge. And any such account will be subject to counterexamples like the two we have just

set out: counterexamples in which the supposed conditions for communication are met, but which cannot count as cases of communication because they could not be cases of the transmission of knowledge.⁵

Heck's positive proposal is that, in order to communicate using a name, speakers must use it to refer to the same thing, and must also associate it with 'suitably related' cognitive significances, where the cognitive significances speakers attach to a name are 'suitably related' iff speakers are able to understand each other's uses of the name. This line of thought leads Heck to a conclusion that is intermediate between the Anti-Fregean (Hybrid) View and Fregean View. According to this intermediate position, successful communication requires that speaker and hearer attach to the name both the same referent, and suitably related cognitive significances, where 'suitably related' is to be read as weaker than 'the same'. So Heck endorses both of the following claims (Heck 2002, 31):

- 1 A speaker who understands a use of a name v attaches a cognitive significance to it.
- 2 Speaker S_1 understands speaker S_2 's use of v iff the cognitive significances that S_1 and S_2 attach to S_2 's use of v are suitably related.

This is not the Hybrid View. For Heck is maintaining that successful communication demands more than sameness of referent. Nor, however, is it Frege's view. Frege thought that successful communication using an expression requires that speaker and hearer attach not just appropriately related, but identical, cognitive significances to it.

Heck recognises⁶ the temptation to try to reinstate the notion of sense and a more fully Fregean view by replacing 2 with:

- 2* Speaker S_1 understands speaker S_2 's use of v iff S_1 and S_2 attach the same sense to S_2 's use of v , where a 'sense' is an equivalence class of cognitive significances (the equivalence class of cognitive significances which might be attached to a token name by speakers who can use it to communicate).

⁵ We have omitted some details of Heck's argument to keep our exposition to a reasonable length. Heck uses examples like those we have set out to argue that it is not sufficient, for me to understand your use of v , that I respond to your assertion of ' v is F ' by forming a belief about the object you use v to refer to, even if I would also express this belief by saying ' v is F '. He goes on to argue that supplementing the Hybrid View with the claim that speaker's and hearer's uses of v must share a causal origin still does not produce an account of communication which is immune to counterexamples of this sort (Heck 1995, 97). Towards the end of the paper (section 7), he argues that a necessary condition for communication using v is that speaker and hearer know that they are using v to refer to the same object. But he holds back from claiming that this is also a sufficient condition for communication (see footnote 30). And it is not hard to construct Heck-style counterexamples to this sufficiency claim. We spare the reader the details.

⁶ See Heck (1995, 102 and 2002, 31).

But he says that this temptation should be resisted because to adopt this kind of view would be to ‘define something shared [shared sense] into existence’ (Heck 2002, 31). It would be to create ‘a theoretical construct looking for work’ (Heck 2002, 31).

We take Heck’s point to be this. The proposed equivalence class of cognitive significances will be able to perform a genuinely Fregean role – the role of explaining why there is successful communication in some cases but not others, rather than just letting us classify some cases and not others as cases of communication – only if there is an account to be had of what unifies the members of the equivalence class other than just that they are cognitive significances that speakers who can communicate using a name might be attaching to it. But there is no such account to be had. So saying that speakers attach to uses of names cognitive significances which are members of this equivalence class is just another way of saying that they can use the name to communicate: the first claim cannot explain the second.

We have no quarrel with Heck’s criticism of the Hybrid View. We endorse his claim that the Hybrid View depends on the principle that communication aims at the transmission of information.⁷ We agree that this principle is just an anemic stand-in for the principle that communication aims at the transmission of knowledge. And we agree that if communication aims at the transmission of knowledge an account of the conditions for communication must appeal to the kinds of relations between cognitive significances that the Hybrid View is supposed to be doing without.

Our disagreement with Heck concerns the intermediate position that he proposes in the attempt to do justice to both Fregean and Anti-Fregean pressures. According to Heck’s intermediate position there is an equivalence class of ways of thinking of a name’s referent that speakers who understand one another’s uses of the name attach to it. But, Heck says, there is no more we can say about what unites the equivalence class of cognitive significances than that they are the

⁷ It is worth noting that this will not in general be acceptable to the proponent of the Anti-Fregean View. She will insist that the Hybrid View is a view about the semantics of names, but communication involves semantic as well as pragmatic elements and that these have not been separated properly by either Fregean view, moderate or full-blown. She will insist further that Heck’s examples should be explained pragmatically and not semantically. To respond to the Anti-Fregean on the viability of this kind of pragmatic strategy is an important task, but one that goes beyond the scope of this paper. (For critical discussion from a Fregean perspective of one kind of pragmatic strategy, see section 2.2 of Taschek (1992). For recent critical discussion of the pragmatic strategy from a non-Fregean perspective, see Sider and Braun (2006) and Caplan (2007)). Our critical aim is to reveal the unstable character of the Moderate Fregean View and to outline a more fully Fregean view that nevertheless respects the pressures to which the Fregean view is subject and that occasion the Moderate Fregean View. This is a more modest undertaking than that of refuting the Anti-Fregean View. Thanks to anonymous referees for stressing these issues.

cognitive significances attached to a name by speakers who can use it to communicate. This is why he thinks it is not open to take a step back towards Frege by identifying a name's sense with the equivalence class of cognitive significances associated with it by speakers who can use it to communicate. And this is the element of Heck's positive view with which we want to take issue. We want to suggest that it is possible to say what unites the members of the equivalence class of cognitive significances associated with a name by speakers who understand one another's uses of it beyond just that they can use the name to communicate. And we suggest that if this possibility can be made out, Heck's contention that the move from 2 to 2* can give us only an artificial construct which performs no genuine explanatory role will be overturned.

We shall call the view that a name's sense is the equivalence class of cognitive significances that speakers who can use the name to communicate associate with it 'Equivalence Class Fregeanism' ('ECF'). We take it that the main obstacle to ECF is just the obstacle that Heck identifies, namely that of providing an account of what unites the elements of the equivalence classes. In the final two sections of the paper we show how we think this obstacle can be overcome. We begin in section 2 with a worked example that we then develop at a more theoretical level in section 3.

2. A worked example

Consider the following passage from Heck:

Suppose someone says, "That bottle is half-empty". Must I think of the bottle in the very same way that she does if I am to understand her? I think not. If I can perceive the bottle – if I can think of it demonstratively – I may well be in a position to know which bottle is in question: I may know that she is demonstrating that bottle and so know that her utterance is true if, and only if, that bottle is half-empty. If so, I will understand her utterance: I will know its truth condition. But my perspective on the bottle may be sufficiently different from hers that my Thought is, by the usual Fregean criterion, different from the one the speaker was expressing. Someone could believe that that bottle is half-empty when she thinks about it in a demonstrative way appropriate to perceiving it from one side, while denying that it is half-empty (or being agnostic about the matter) when she thinks of it in a demonstrative way appropriate to perceiving it from the other side: she might well fail to realize that the same bottle is in question both times (2002, 21).

This kind of case is familiar enough. Two people are using a perceptual demonstrative to refer to the same object. Their different spatial perspectives on the object are such that you could take each of these perspectives in turn and, without loss of rational coherence, doubt whether the object seen from each is the same. Heck sees this kind of example as being of considerable significance. In particular, he thinks this kind of example gives strong support to the idea that speakers can communicate using an expression even though they do not attach the same Fregean sense to

it. This is the Moderate Fregean description of the situation. We suggest that Heck is misdescribing the example, and that getting the description right opens the way for a defense of ECF.

As a first move towards a right account of the example, consider the fact that in the passage we have quoted Heck is actually raising two different cases of the use of a demonstrative. The first is a case of what has come to be called ‘joint attention’: speaker and hearer are able to understand one another’s uses of the demonstrative in virtue of the fact that they are jointly attending to its referent. The second is a case in which a single subject uses two perceptual demonstratives without realising that the demonstratives co-refer and without loss of rational coherence. In this passage Heck, in effect, reasons from facts about the second case to a conclusion about what is going on in the first.

The reasoning implicit in the passage can be reconstructed like this. Suppose that at time t_1 I am thinking about an object in a demonstrative way appropriate to perceiving it from one side. Suppose that at t_2 I am thinking about the same object in a demonstrative way appropriate to perceiving it from the opposite side. In this case, I could doubt that the objects I am thinking about on each occasion are the same. And my doubt would be a rationally coherent doubt. But Fregean sense just is that level of content which explains why this kind of mistake does not involve rational incoherence. So it follows (‘by the usual Fregean criterion’) that the demonstrative ways of thinking I employ on each occasion constitute distinct Fregean senses. Now consider a case in which you and I are in a position to communicate about an object in virtue of the fact that we are jointly attending to it. In this case, the only candidate to be the way of thinking of the object that I am employing is the demonstrative way appropriate to perceiving it from my perspective. And the only candidate to be the way of thinking of the object that you are employing is the demonstrative way appropriate to perceiving it from your perspective. But we know, from consideration of the case of a single subject, that these ways of thinking are distinct. It follows that this is a case in which subjects use a term (‘that bottle’) in successful communication about an object even though they do not associate the term with the same Fregean sense.

To bring out what is wrong with this reasoning we ask the reader to bear with us as we describe four varieties of ‘that bottle’ case:

(A) I say (while attending to a bottle at time t_1 from perspective π_1 and intending to refer to it) ‘That[said at t_1 from perspective π_1] is half-full’. I then walk around the bottle, attending to it all the while. When I get to the other side I say, still intending to refer to the bottle I am attending to ‘That[said at t_2 from perspective π_2] is not half-full’. Given that I have been keeping track of the bottle all the while, my mistake leaves me in a situation of rational incoherence. So my uses of ‘that’ must share a sense.

(B) I say (while attending to a bottle at time t_1 from perspective π_1 and intending to refer to it) ‘That[said at t_1 from perspective π_1] is half-full’. I can also see a bottle

reflected in a mirror on the wall and (attending to that bottle, which I am seeing from perspective π_2 , and intending to refer to it) I say 'That[said at t_2 from perspective π_2] is not half-full'. In fact my 'that₁' and 'that₂' refer to the same object. But my mistake does not leave me in a position of rational incoherence. So my uses of 'that' must differ in sense.

(C) You say 'That[said at t_1 from perspective π_1] is half-full'. I say 'That[said at t_1 from perspective π_2] is not half-full'. We understand one another's uses of the term in virtue of the fact that each of us is using it to refer to the object of our joint attention. Because we understand one another's uses of the term, our disagreement puts us into rational conflict with one another. So my use of 'that' and your use of 'that' must share a sense.

(D) You and I are sitting on opposite sides of a screen. Each of us is looking at a bottle in the unscreened part of the room. I am seeing it from perspective π_1 . You are seeing it from perspective π_2 . We do not realize that we are looking at the same bottle. I say 'That[said at t_1 from perspective π_1] is half-full'. You say 'That[said at t_1 from perspective π_2] is not half-full'. We are not in rational conflict with one another. So our uses of 'that' differ in sense.

A and **B** present a contrast between two cases of the use of co-referring demonstratives by a single subject. In **A**, because I have been keeping track of the bottle all the time, my utterances of 'That is half-full' and 'That is not half-full' bring me into rational incoherence, so my two uses of 'that' must share a sense. In **B**, my utterances of 'That is half-full' and 'That is not half-full' do not bring me into rational incoherence, so my uses of 'that' must differ in sense. **C** and **D** present the parallel contrast for the use of co-referring demonstratives by distinct subjects. In **C**, our respective utterances of 'That is half-full' and 'That is not half-full' bring us into rational conflict with one another. So our uses of 'that' must share a sense: if my use of 'that' and your use of 'that' differed in sense, then when I said 'That is half-full' and you said 'That is not half-full' there would be no rational conflict between us. In **D** our respective utterances of 'That is half-full' and 'That is not half-full' do not bring us into rational conflict, so it must be that our uses of 'that' differ in sense.

Now compare our description of these cases with Heck's account of his 'that bottle' example. Heck's example is a **C**-type case: you and I understand one another's uses of 'that bottle' in virtue of the fact that we are jointly attending to the bottle, and each of us intends to refer, and knows that the other intends to refer, to the object of our joint attention. But instead of our **C**, Heck proposes

(C*) You say 'That[said at t_1 from perspective π_1] is half-full'. I say 'That[said at t_1 from perspective π_2] is not half-full'. We understand one another's uses of the term in virtue of the fact that each of us is using it to refer to the object of our joint attention. Because we understand one another's uses of the term, our disagreement puts us into rational conflict with one another. But our uses of 'that' differ in sense. This follows from the difference in sense between my uses of 'that' in case **B**. So my utterance of 'That is half-full' and your utterance of 'That is not half-full' put us in rational conflict with one another even though our uses of 'that' differ in sense.

C* is a radical departure from the analyses offered in **A–D**. In **A–D**, sameness and difference in sense line up with the presence and absence of rational engagement: if speakers are using ‘that’ with the same sense, then if one asserts, while the other denies, ‘That is F’, there is rational tension between them; if one speaker asserts, while another denies, ‘That is F’ without rational tension, the absence of rational tension is explained by a difference in sense. In **C***, in contrast, the suggestion is that you and I are using ‘that’ with different senses, but your assertion and my denial of ‘That is F’ are, nevertheless, in rational tension. Endorsement of this kind of analysis (a **C*** analysis as opposed to an **A–D** analysis) is just a mark of endorsement of the Moderate Fregean View. For, according to the Moderate Fregean View, speakers need not attach the same sense to an expression in order to use it to communicate even though, according to this view, communication involves rational engagement. It follows that there can be rational engagement without sameness of sense.

We want to draw two morals from the comparison between Heck’s account of his ‘that bottle’ example (**C***) and our account (**C**). The first moral concerns the relation between perceptual attention and demonstrative reference. Although our discussion of this relation is not conclusive, it is an invitation to further reflection on what we consider to be important connections. The second moral concerns the instability of the Moderate Fregean View.

There is widespread agreement that if perceptual demonstratives have senses, their senses are closely related to the contents of the mental states involved in attending to their referents. But philosophers have distinguished at least⁸ three different ways in which your use of a demonstrative might be based on perceptual attention to its referent. Firstly, you might be a solo attender, using ‘that’ to refer to an object you are currently attending to – perhaps continuing to attend to it across time, as in **A**. Secondly, you might be a joint attender, using a demonstrative to refer to an object to which you and another person are jointly attending. Thirdly, you might have the capacity to refer to a thing demonstratively in virtue of having attended to it in the past and retaining a memory link which is robust enough to let you refer to it demonstratively. And for each kind of case there are hard questions to consider about what the content of the experience of attending is, and how the content of this experience relates to the sense of the demonstrative. Are there special demands that the content of a perceptual experience must meet if it is to support the later use of a memory-link perceptual demonstrative? And how does the content of the initial experience relate to the sense of the demonstrative? How is the content of your experience when you are tracking an object to be charac-

⁸ Evans (1985, ch. 8) discusses a fourth possible case of demonstrative reference based on perceptual attention: demonstrative reference to a (possibly absent) object grounded in possession of a recognitional capacity acquired by attention to the object at an earlier time. We leave this case out to avoid complicating our discussion.

terized? And what is the relationship between the content of this experience and the sense of the demonstratives used in situations like **A**? Finally, what is the content of our respective attentional states when we are attending jointly to an object? Does my experience as a joint attender have the same content as would experience of the same object for a solo attender in a situation identical to mine (the object is seen from the same spatial perspective, in the same light, and so on) except for the absence of a co-attender? Or does joint attention involve an experience of the object whose content is not available to a solo attender, so that the presence of the co-attender makes a difference to the content of the attentional state? And, however the contents of the experiences involved in joint attention are to be characterized, how do these contents relate to the senses of demonstratives used by jointly attending subjects?⁹

We cannot discuss these questions in detail here. But we do think that our discussion of Heck's 'that bottle' case puts us in a position to say the following about how the eventual answers to the questions about single subject cases, on the one hand, and joint attention cases, on the other, must go. Heck seems to be assuming a very simple model of the relationship between single-subject-no-tracking uses of demonstratives (cases like **B**), and demonstratives used in cases of joint attention. Heck's **C*** assumes that the content of your experience of a bottle to which you and I are jointly attending is the same as the content of an experience involved in solo attention to the bottle from your spatial perspective. It assumes that the content of my experience of the bottle when we are jointly attending is identical to the content of the experience of a solo attender looking at the bottle from my perspective. And it assumes that the relationship between the content of the attentional states which underwrite a solo attender's uses of perceptual demonstratives and the senses of these demonstratives will just carry over to the case of joint attention, so that a difference in experiential content which would generate a difference in sense for a solo attender will generate a difference in sense for joint attenders too. Given these assumptions, and only given these assumptions, is **C*** a legitimate account of the initial 'that bottle' case. But we have suggested that **C*** is not a legitimate account of this case. It follows that the assumptions which generate **C*** must be wrong. The simple model of how reference based on joint attention relates to reference based on solo attention is overly simple, and should be rejected.

The second moral we want to draw from our discussion of 'that bottle' concerns the instability of the Moderate Fregean View that Heck is endorsing and the

⁹ For a recent answer to these questions about joint attention see Campbell (2002, ch. 8). Campbell distinguishes between 'experientialist' and 'non-experientialist', accounts of joint attention. On an 'experientialist' view, joint attention does, while on a 'non-experientialist' view it does not, involve a distinctive way of experiencing an object not available to a solo attender (Campbell 2002, 161). His own view is experientialist.

superiority of ECF. We saw in section 1 that Heck embeds the Hybrid View in a larger discussion that places the issues of cognitive significance and what is said in the wider context of understanding the nature of communication. And he insists further that an understanding of the nature of communication should embed in a more general account of how justification and knowledge are transmitted. In the closing section of ‘The Sense of Communication’, Heck notes that the considerations he adduces to argue against the Hybrid View “can be used to argue that the notion of the sense of an expression ought to be explained, in part, in terms of the notion of *justification*” (Heck 1995, 104). In ‘Do Demonstratives Have Senses?’ Heck expands on the idea and tells us that the transmission of information is an aspect of more general considerations, without which

one cannot evaluate, contradict or endorse [a] claim . . . more generally, one is in no position at all *to engage the speaker rationally* . . . Communication does serve to make the transfer of information from speaker to speaker possible, but, more fundamentally, it serves to make it possible for people to engage one another rationally . . . (2002, 16).

Heck’s point is that communication is a form of rational engagement: any account of communication which does not take this into account is wrong.

But the moral of analyses **A–D** is that questions about Fregean sense are closely tied to questions about rational engagement too. Frege introduces the notion of sense precisely to distinguish between cases where there is rational engagement and cases where there is not. And this is why Heck’s moderate Fregean view is unstable. Heck argues that speakers can communicate using a name even though they do not attach the same sense to it: **C*** is a description of an alleged case of this kind. But once you have acknowledged (as Heck does) that subjects are using a name to communicate iff their uses of the name are in rational engagement, you will be able to keep Fregean sense at bay in this way only by denying the connection between rational engagement and Fregean sense. And to deny this connection is to ignore the real explanatory role that the notion of sense is introduced to serve.

In the final section we develop the considerations operative in the worked example of this section at a more theoretical level. We suggest a revision to the standard understanding of Frege’s puzzle about informative identities that allows us to strengthen our argument against the Moderate Fregean View, to show how the possibility of ECF arises, and to say on what the answer to the question ‘Is there such a thing as Fregean sense?’ really depends.

3. *Understanding Frege’s puzzle*

On a standard understanding of the explanatory role of the notion of sense, an expression’s sense is its ‘meaning’ in the sense of ‘meaning’ in which expressions

differ in meaning iff they occupy different roles in our rational cognitive lives. This explanatory role generates the following individuating principle for senses:

The Standard Individuating Principle for Senses (SIP) – ‘a’ and ‘b’ differ in sense iff a subject who understood both expressions could, at a single time, both assent to ‘a is F’ and withhold assent from, or reject, ‘b is F’ without loss of rational coherence.

The first step in deepening our understanding of Frege’s Puzzle is to recognize two kinds of explanation that a notion of sense which can solve the puzzle must be able to provide.

The first, and most familiar, kind of explanatory role for the notion of sense is in the explanation of how it is possible, without loss of rational coherence, to understand two names for the same object without recognizing that the names co-refer. We shall call this kind of explanation a ‘multiplying’ explanation, because it is an explanation in which the role of the notion of sense is to make available more thoughts than would be recognized if thoughts were individuated in terms of reference alone. The thought that Hesperus is a planet and the thought that Phosphorus is a planet are about the same object. If thoughts are individuated by reference alone, to believe that Hesperus is a planet while disbelieving that (or having doubts about whether) Phosphorus is a planet is to have conflicting cognitive attitudes towards the same thought. Having conflicting cognitive attitudes to the same thought is a kind of rational incoherence. But believing that Hesperus is a planet but not that Phosphorus is a planet is not a kind of rational incoherence. So the individuation of thoughts in terms of reference alone leads to errors in evaluating a thinker’s rational status. Right evaluation of a thinker’s rational status requires finer individuation of thoughts. When the notion of sense plays its multiplying role, it secures this finer individuation.

We shall call the second kind of explanation that the notion of sense must provide a ‘consolidating’ explanation. The notion of sense provides consolidating explanations in situations where full understanding of a term generates the possibility of what we shall call an ‘immediate extension of knowledge’. To see how this kind of possibility arises, consider the following inference schema, which we shall call ‘Existential Generalisation with “&”’ (‘EG&’) (where ‘F’ and ‘G’ are schematic letters ranging over predicates and the gaps are to be filled by token singular terms):

EG&

... is F

... is G

 Something is both F and G.

Now suppose that we fill the gaps in an instance of EG& with co-referential terms v and μ , and consider what the effect might be of adding $\lceil v = \mu \rceil$ to the inference as an extra premiss. There are three possible cases. The extra identity premiss appears in italics.

The first possibility is that the addition of the identity premiss turns an invalid argument (one whose premisses might be true while its conclusion is false) into a valid one. If we suppose (as Frege did) that definite descriptions are singular terms,¹⁰ the following is an example of this kind:

The last great philosopher of antiquity was taught by Plato.
 The philosopher who taught Alexander sat on Bucephelus.
The last great philosopher of antiquity is the philosopher who taught Alexander.

 Some individual was both taught by Plato and sat on Bucephelus.

Without the extra identity premiss the argument is invalid. Adding the identity premiss turns an invalid argument into a valid one.

The second possibility is that the argument is already valid, but the addition of the identity premiss alters its potential role in the extension of knowledge. Supposing, as Frege did, that functional names are singular terms (Frege 1960, 70), here is an example of this second kind of case:

$(2 \times 2) \times 2$ is greater than five.
 $(2 + 2) + (2 + 2)$ is the number of coins in my pocket.
 $(2 \times 2) \times 2$ is $(2 + 2) + (2 + 2)$

 Some number greater than five is the number of coins in my pocket.

This argument is already valid (in the intuitive sense of ‘validity’ – its premisses cannot be true while its conclusion is false) without the extra identity premiss. But, though it does not contribute to making the argument valid, the identity premiss still has a role to play. If you are given just the initial two premisses, you have work to do to show why the argument is valid: the work involved in establishing the identity premiss. Before this work is done, you might resist the move from the premisses to the conclusion without being guilty of rational incoherence. In fact, until you have established the truth of the identity premiss, resisting the move to the conclusion is the rational thing to do: until you have established the identity premiss you do not know that the move to the conclusion is valid.

Both of these cases – the case where the inference is invalid, and the case where it is valid but you could fail to see that it is without loss of rational coherence – are cases in which the notion of sense provides a multiplying explanation. In each case, the terms inserted into the gaps in the EG& schema differ in sense. The

¹⁰ See, for example, his remarks on the construction of ‘compound proper names’ (Frege 1960, 70–71).

difference in sense explains why you could believe both premisses of each instance of EG& but not be rationally compelled to move to the conclusion.

But now consider the third kind of case which results from plugging co-referring terms into the gaps in EG&. In this kind of case the resulting inference is valid, and there is no job at all for an extra identity premiss to do – not even a job in providing a rational but logically non-omniscient creature (like one of us) with justification for moving to the conclusion. In this kind of case, the premisses not only entail the conclusion. They also, as they stand and without the need for an extra identity premiss, rationally compel the move to the conclusion.

Here is an example which brings out the precise difference between this third kind of case and the cases where there is a role for the extra identity premiss to play. Let ' f ' and ' f^{-1} ' designate an arbitrary invertible function and its inverse, where the inverse is defined such that the composition of f with its inverse f^{-1} yields the identity function I (the inverse is defined such that $(f^{-1} \circ f) = I$). Now consider:

$(f^{-1} \circ f)(a)$ is F
 $I(a)$ is G

 Something is both F and G

And let us ask our usual question: What might the effect be of adding the identity premiss ' $(f^{-1} \circ f)(a)$ is $I(a)$ ' to this inference? The effect is not going to be to turn an invalid argument into a valid one. For the argument is valid as it stands. Nor is the effect to turn a valid argument whose validity might not be transparent to someone who understands all the terms involved into one whose validity will be transparent to anyone who has this kind of understanding. To see why not, compare this inference with the previous example, and suppose that in each case you are trying to explain why the inference without the identity premiss is valid to someone who does not yet see that it is. In the ' $(2 \times 2) \times 2$ ' and ' $(2 + 2) + (2 + 2)$ ' case, you would show that the inference is valid by proving the identity statement. For example, you might provide a proof in Peano Arithmetic. And because there is room for a proof of the identity statement, the fact that the person you are dealing with does not yet see that the inference is valid gives you no reason to doubt that he or she understands the expressions involved: someone might understand the expressions involved but fail to see that the instance of EG& is valid just in virtue of not having done the work required to prove the identity statement. In the ' $(f^{-1} \circ f)(a)$ ' and ' $I(a)$ ' case, by contrast, there is no work to do in 'proving' the identity statement. The identity statement is true by definition. It will already be known by anyone who fully understands the expressions it contains. So someone who fails to see that the instance of EG& is valid (as it stands, without the identity premiss) does not yet understand the expressions involved (does not grasp the definitions). Explaining the inference's validity would be a matter of going over

the definitions until they are properly understood. In the $'(2 \times 2) \times 2'$ and $'(2 + 2) + (2 + 2)'$ case, full understanding of the singular terms does not entail knowing that they co-refer. In the $'(f^{-1} \circ f)(a)'$ and $'I(a)'$ case, full understanding does entail knowledge of co-reference. Someone who cannot see the validity of the instance of EG& is not lacking a proof of the identity statement. He or she is lacking a full understanding of the expressions involved.

We shall say that in this third kind of case full understanding of the singular terms generates the possibility of the 'immediate extension of knowledge': in this kind of case, if I have full understanding of v and μ , I know that v and μ co-refer, and so I am in a position to move from a premiss containing v and a premiss containing μ to a conclusion about the expressions' common referent without needing to establish the truth of $[v = \mu]$. Furthermore, if I resist this move I bring myself into rational incoherence. And it is in this kind of case that we need the notion of sense to perform its consolidating role. In the first two kinds of case, we multiplied senses (recognized that v and μ differ in sense) to explain one kind of pattern of rational relations between attitudes. In this third kind of case we must consolidate senses (recognize that v and μ have the same sense) to explain another. A consolidating explanation posits sameness in sense to explain cases in which full understanding generates the possibility of an immediate extension of knowledge: where v and μ share a sense, anyone who fully understands both v and μ knows that they co-refer, so the move to the conclusion is available without the detour through an identity premiss; and resisting the move is rationally incoherent.

Note that the notion of sense can provide multiplying explanations iff it can provide consolidating explanations: difference in sense can explain why the extra identity premiss is required to make moving to the conclusion rational in some cases iff sameness of sense explains why it is not required in others.

We think it is fair to say that consolidating explanations have been the poor relation in discussions of what senses must be like to provide a solution to Frege's Puzzle. Now we want to suggest that the Moderate Fregean View and SIP both owe whatever initial plausibility they have to this tendency to focus on multiplying explanations and ignore the need for consolidating explanations, and that when the need to recognise both kinds of explanation is acknowledged the initial plausibility of both the Moderate Fregean View and SIP falls away.

We begin by reconstructing the kind of reasoning that leads the Moderate Fregean to a view in which there is rational engagement without shared senses. (This supplements in slightly more abstract terms the discussion in section 2 concerning Heck's reasoning about his 'that bottle' case). The Moderate Fregean's reasoning goes like this.

First, it is noticed that there are situations in which expressions are used without rational engagement. For example, in Heck's account of his 'that bottle' case, it is noticed that there is a situation Σ_1 in which a single speaker can use two

tokens of ‘that bottle’ from different perspectives π_1 and π_2 without knowing that the same object is in question, and therefore without any possibility for an immediate extension of knowledge concerning the properties of a single object over time (this a **B**-type case, in the taxonomy from section 2). Second, it is concluded that the two tokens of ‘that bottle’ are being used with different senses from the two perspectives (so this is a multiplying explanation). Finally, a distinct situation Σ_2 involving two tokens of ‘that bottle’ is envisioned in which π_1 and π_2 are again in play, but where there is rational engagement (a **C**-type case). For example, a situation is envisioned in which two speakers use tokens of ‘that bottle’ from perspectives π_1 and π_2 , but where the speakers are jointly attending to an object.

This brings one to a point where a theoretical choice needs to be made. One can either continue to take the different perspectives to entail a difference in sense, despite the rational engagement, or recognize that the fact that there is rational engagement (and so the possibility of immediate extension of knowledge) calls for a consolidating explanation, despite the difference in perspectives. And at this point the tendency to focus on the multiplying role points in the direction of the former alternative. In Σ_1 , a single speaker, without loss of rational coherence, accepts one token of ‘That bottle is F’ without accepting another, where the two tokens of ‘that bottle’ are used from perspectives π_1 and π_2 . To explain how this is possible, we must posit a difference in sense between the tokens of ‘that bottle’ used from π_1 in Σ_1 and from π_2 in Σ_1 . If we are focusing just on the multiplying role, the temptation is to conclude that π_1 and π_2 generate a difference in sense, and hence that even in Σ_2 , where the two tokens are used from perspectives π_1 and π_2 in such a way that that speakers are in rational engagement, the expressions are being used with different senses. So a focus on the multiplying role leads the Moderate Fregean to allow that there can be rational engagement where senses are not shared.

But the notion of sense can perform its multiplying role iff it can perform its consolidating role. Difference in sense can explain why there is not rational engagement in Σ_1 iff sameness of sense explains why there is rational engagement in Σ_2 . So, the Moderate Fregean View is unstable: where there is rational engagement, there is sameness of sense.

Now consider SIP. The need to recognize the consolidating role of the notion of sense undermines SIP because SIP is synchronic and intrapersonal – it deals in rational engagement between the attitudes that a single subject has at a time. But obviously there can be rational engagement between attitudes held at different times and by different subjects. So a notion of sense which can explain rational engagement wherever it arises – and so can discharge all of the explanatory obligations that a notion of sense which really solves Frege’s Puzzle must be able to fill – must be individuated more widely than SIP allows. Here are two examples to illustrate this point.

First, consider a situation in which I demonstratively refer to an object that I am tracking across time. Suppose that at t_1 I say:

That is $F_{(at\ t_1)}$.

And at t_2 , having kept track of the object all the while – suppose that I am watching it move along in the middle distance without taking my eyes off it – I say:

That is $G_{(at\ t_2)}$.

This is a situation in which, in virtue of the fact that I have been tracking the object, there is the possibility of immediately extending my knowledge and concluding:

Something was $F_{(at\ t_1)}$ and is $G_{(at\ t_2)}$.

In this situation, full understanding of the singular terms contained in the premisses generates the possibility of the immediate extension of knowledge. So this must be a case in which full understanding of co-referring terms involves knowledge of co-reference: if full understanding did not involve knowledge of co-reference, full understanding would not generate the possibility of an immediate extension of knowledge. But full understanding of ν and μ involves knowledge of co-reference iff ν and μ share a sense. So my use of ‘that’ at t_1 and my use of ‘that’ at t_2 share a sense. And if this is right, then SIP is inadequate, precisely because it is synchronic. To respect the fact that my uses of ‘that’ at t_1 and t_2 share a sense, we need an individuating principle that acknowledges that sense individuation is sensitive to the possibility of immediately extending knowledge diachronically.

Again, consider a situation in which you and I are using a demonstrative to refer to an object to which we are jointly attending. You say:

That is $F_{(at\ t_1)}$.

I say:

That is $G_{(at\ t_1)}$.

Each of us hears and understands what the other says. So either of us would be warranted in moving to the conclusion:

Something is both $F_{(at\ t_1)}$ and $G_{(at\ t_1)}$.

In this case, again, my use of ‘that’ and your use of ‘that’ must share a sense. It is because the tokens of ‘that’ share a sense that (assuming that each of our initial utterances expresses knowledge) we can use each other’s claims to extend what we know without going through the extra step of establishing that the same object is in question for both speakers. More generally, if you and I are jointly attending to an object, and fully understand one another’s uses of demonstratives to refer to the object, each of us, in virtue of this full understanding, knows that we are referring

to the same thing. So we can gain knowledge about the object from each other immediately, without going through the extra step of establishing that the same object is in question for each of us. But if this is right, then SIP is inadequate, precisely because it is intrapersonal. To respect the fact that our respective uses of ‘that’ share a sense, we need an individuating principle for sense that acknowledges that sense individuation is sensitive to the possibilities of immediately extending knowledge interpersonally.

We are now in a position to answer the Moderate Fregean challenge to ECF. ECF is the view that a token singular term’s contribution to what is said by a sentence containing it is the equivalence class of modes of presentation that speakers who understand one another’s uses of it might take it to have. Heck, our representative of the Moderate Fregean View, says that to identify the contribution to what is said with an equivalence class of modes of presentation is to ‘define something shared [between speakers who can communicate using a name] into existence’ (Heck 2002, 31), and that the defined notion would be a ‘theoretical construct looking for work’ (Heck 2002, 31). We have taken his point to be this. Unless there is something uniting the members of the equivalence class other than just that speakers who attach these modes of presentation to a token singular term will be able to use it to communicate, a notion of what is said defined in this way lies no deeper than the facts about when we can and cannot communicate, so cannot be used to explain them.

But from the perspective of our criticism of SIP, there is an account ready to hand of what unifies elements of equivalence classes of modes of presentation into the senses of ECF. The account centers on the idea of a situation which generates the possibility of immediate extension of knowledge. Communication with demonstrative-involving utterances where interlocutors are jointly attending to an object is one example of a situation of this kind. But it is only one example of the more general phenomenon. Our strategy has been to place that example in a larger pattern of examples that sees the nature of sense as constituted by relations between ignorance or knowledge of co-reference and the possibilities of extending knowledge. The principle that sameness of sense marks cases in which full understanding allows for the immediate extension of knowledge is a general principle that can collect modes of presentation into equivalence classes that can be identified with the senses of token singular terms.¹¹ This principle supplies a ground for collecting modes of presentation into equivalence classes that runs deeper than the fact that interlocutors engaged in communication are communicating, because it is

¹¹ This is the basis for a different account of what Frege might mean when he speaks of sense as “wherein the mode of presentation is contained” (1960, 57) than that offered in May (2006, 490–491).

a principle that applies whenever full understanding allows for the immediate extension of knowledge.¹²

Let us summarise the section so far. We started by arguing that a notion of sense which can really solve Frege's Puzzle must be able to provide both multiplying and consolidating explanations, where the need for consolidating explanation arises wherever full understanding allows for the immediate extension of knowledge. Then we showed how ignoring this point, and focusing on multiplying explanations alone, generates the Moderate Fregean View. Next we argued that, once the need for a notion of sense that can provide consolidating explanations is recognized, SIP is undermined. To provide consolidating explanations wherever they are required, we need a notion of sense that allows for both diachronic and interpersonal rational engagement. Finally, we have argued that the line of thought that undermines SIP also provides the resources to answer the Moderate Fregean challenge to ECF. (Note that this is to be expected, given that ignoring this line of thought is what generates the Moderate Fregean View.)

It remains to say how senses are actually individuated. We close this paper with a rough account of the kind of criterion of individuation that is needed.

Note first that what we need is an account of the conditions under which token singular terms agree or differ in sense *relative to a situation*. This is because our version of ECF collects together modes of presentation differently in different situations: cases in which a speaker tracks an object, or interlocutors jointly attend to an object, collect together modes of presentation differently from cases in which tracking or joint attention is absent, despite the fact that the modes of presentation involved may be the same in both kinds of case. More formally, the need to relativize is determined by the fact that that an individuating principle for sense is an abstraction principle that specifies co-sensicality in terms of full understanding allowing for the immediate extension of knowledge – what we have also been calling rational engagement – between uses of those token singular terms with associated modes of presentation. But *use of token singular term v with associated mode of presentation M_v is rationally engaged with use of token singular term μ with associated mode of presentation M_μ is not an equivalence relation.*¹³

¹² Heck does consider the suggestion, on behalf of the proponent of the Hybrid View, that knowledge of reference is necessary for understanding a token singular term (Heck 1995, section 7). He does not develop the idea in detail in 'Sense of Communication', nor in 'Do Demonstratives Have Senses?'. Our view connects the individuation of sense to the notion of the possibility of an immediate extension of knowledge; this idea is not to be found in Heck's account. But perhaps most importantly, Heck does not seem to recognize that individuating sense in epistemic terms is the key to developing not the Hybrid View but a more fully Fregean view. See also footnote 5 above.

¹³ Cf. Taschek (1998, 347–348). For a more recent discussion of the issue and its importance, see Fine (2007, ch. 4), especially section E: 'A Deeper Puzzle'.

We will now state the individuating principle we want to propose. Let a *situation* be a structure consisting in times, agents, and a set of what we shall call ‘engagement-relevant factors’. To keep the discussion simple, let us focus only on cases involving at most two times, and two agents. And to get our proposal on the table, let us suppose that the ‘engagement-relevant factors’ include only the factors which have arisen in the paper so far as relevant to rational engagement. These factors include things like whether a single agent tracks an object continuously across the time interval of the situation, and whether the two agents in a situation are jointly attending to an object (a full discussion would recognize additional factors, for example, factors involving recognitional capacities, and factors associated with rational engagement for proper names).

Then where t_v and t_μ are the times of utterance of v and μ , S_v and S_μ are the agents uttering v and μ , and M_v and M_μ are the modes of presentation these agents attach to v and μ ,

Revised Individuating Principle for Senses – The sense of v (used by S_v at t_v with mode of presentation M_v) = the sense of μ (as used by S_μ at t_μ with mode of presentation M_μ) iff the engagement-relevant factors in the situation of use generate the possibility of the immediate extension of knowledge upon full understanding.

That is, the senses of v and μ are the same in a situation iff the engagement-relevant factors in the situation generate the possibility of an immediate extension of knowledge upon full understanding.

Are senses individuated in this way just artificial constructs looking for work? To see why we think they are not, consider the comparison between our criterion and SIP. According to SIP, sense is just that level of meaning at which ‘a’ and ‘b’ share a meaning iff I would be guilty of rational incoherence if I doubted ‘a=b’, or affirmed ‘Fa’ at t but denied ‘Fb’ at t , or affirmed ‘Fa’ and ‘Gb’ at t but refused to move to ‘ $\exists x(Fx \ \& \ Gx)$ ’ at t . The move to ECF is just the move to extending the account of this level of meaning to recognise that questions about rational coherence and incoherence arise not just with respect to a single speaker at a single time, but also with respect to a single speaker over time, and different speakers separated at a time and over time. From the perspective that we have developed in the last two sections it is the standard, restricted notion of sense, embodied by SIP, which ends up looking artificial. We have emphasized that rational engagement is not just intra-personal and synchronic. To recognise a level of meaning (the level of sense) at which the ‘meanings’ of expressions are individuated by criteria involving rational engagement, but maintain that only synchronic intra-personal rational engagement matters is to stipulate an artificial boundary where no natural boundary arises.*

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