Constructing Meanings

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Chalmers's philosophical work exploits a distinctive version of two-dimensionalism, a formal modal framework from the 1960s and 1970s that one can use to define two kinds of possible worlds semantic values. Chalmers presents this as the best form of a Fregean account of content. One of the principal aims of *Constructing the World* is to provide its metaphysical foundations. Chalmers presents himself as vindicating a Fregean account of meaning. I will be arguing that this is incorrect; the resulting theory of meaning is not properly regarded as Fregean, because it is not a plausible theory of cognitive significance How much this poses a problem for Chalmers depends upon whether his notion of content ultimately depends upon the Fregean theory of content, that is, the theory of content that does provide an account of cognitive significance.

Although *Constructing the World* takes the form of a vindication of something like Carnap's project in the *Aufbau*, my interest in this paper is in that part of *Constructing the World* that can be seen as vindication of another work of Carnap's, namely *Meaning and Necessity*. The central notion in *Meaning and Necessity* was analyticity. The central notion in Chalmers's *Constructing the World* is what Chalmers calls 'a priori scrutability', the basic characterization of which (40) is:

> S is a priori scrutable from C for s iff x is in a position to know a priori that if C, then S.

Chalmers proposes to use a priori scrutability to 'construct' Fregean senses, via a framework very similar to the one Carnap uses in *Meaning and Necessity* to define modal intensions, and thereby providing a metaphysical foundation for Fregean senses.

In *Meaning and Necessity*, Carnap constructs a modal framework, which has as points what he called *state descriptions*, which are maximal consistent sets of sentences. To prevent consequences such as that it is possible for there to be a round square, Carnap appeals to what he calls 'meaning postulates', which eliminate state descriptions containing sentences incompatible with analytic definitions. Intensions are on this view functions from state-descriptions to extensions. A modal intension that is true in every state description, for Carnap, is *analytic*. Chalmers constructs epistemic scenarios, modeling them after Carnap's state descriptions. They too are sets of sentences. An epistemic intension that is true in every epistemic scenario is *a priori*.

Both Carnap and Chalmers develop a framework to define intensions that are intended to serve similar roles as Fregean sense in the theory of content. But there is an important difference. In *Meaning and Necessity*, Carnap

thought that the best candidates to do the work of Fregean propositions in his framework were the modal intensions he defined, functions from state descriptions to truth values. As does Chalmers (2002), Carnap recognized that these were not Fregean thoughts. On the official theory in Chalmers's book, the objects he constructs in his semantic theory that play the role of Fregean senses are *structured meanings*, structured sentence-level semantic values, the basic constituents of which are the epistemic intensions that correspond to what is expressed by simple words (248–9). Carnap, however, does not appeal to structured meanings. When Carnap encountered problems for his framework that would be addressed by structured meanings, such as the problem of propositional attitude ascriptions, he appealed instead to 'intensional isomorphism', a relation holding between *sentences* rather than propositions. Carnap was a *sententialist* about the semantics of propositional attitude ascriptions; propositions are unstructured intensions.

Chalmers singles out the part of *Constructing the World* that is analogous to *Meaning and Necessity* for special attention. According to him 'Perhaps the most important application for my purposes is to the study of meaning, using scrutability to define intensions that can play some of the roles of Fregean senses and narrow contents'. Chalmers wants to replicate central aspects of the Fregean program, replacing the mysterious primitive abstract objects that Frege thought of as senses with entities constructed with the use of epistemic scenarios and scrutability. As Chalmers writes:

> . . . many Fregeans resist the idea of constructing senses, or at least constructing them as anything as complex as functions over scenarios. Often senses are held to be primitive abstract objects. Speaking for myself, I find that doing so leaves the character of senses highly obscure, and I think that the detail of a construction is invaluable in understanding just how senses may behave. (250)

Chalmers's goal is to use the scrutability framework to resolve mysteries about the nature of the identity and individuation conditions of Fregean senses.

The theme of *Constructing the World* is the nature of scrutability relations. Chalmers aims to use scrutability relations, in particular a priori scrutability, to construct meanings. All the central notions of scrutability involve a highly idealized perspective (62). As Chalmers recognizes, these idealizations pose particular worries for the application to the theory of meaning.

In the first section, I place Chalmers's version of Fregeanism into the context of other Fregean theories. In the second section, I turn to criticism. The basis of the criticism is Chalmers's use of a priori scrutability, from a highly idealized perspective, which as he recognizes (62) poses special difficulties for the application to the theory of meaning. I will argue that these difficulties are more significant than Chalmers allows.

1. *Chalmers's theory of content*

Chalmers's aim in the theory of content is to vindicate Fregeanism. He is however sensitive to the charge of obscurantism typically leveled against the notion of Fregean sense. As Robert Stalnaker has written (Stalnaker 2012, 758), if senses are not properties or modal intensions, the objection is not merely that senses are ontologically mysterious, it is rather that one doesn't have a clear enough idea what modes of presentation might be to know whether they are ontologically mysterious or not. One might worry that taking the problem of cognitive significance seriously requires postulation of mysterious entities such as Fregean senses.

Chalmers wishes to show that the work of Frege's notion of sense can be accomplished by the intensions he constructs via epistemic scenarios and scrutibility, and structure. Epistemic scenarios are 'equivalence classes of epistemically complete sentences in the vocabulary of a generalized scrutability base'. Epistemic scenarios are sets of sentences. The senses of basic expressions are epistemic intensions, functions from epistemically possible scenarios to extensions. The senses of complex expressions are *structured meanings* containing the intensions of the basic expressions that compose them. There is no ontological problem about the nature of the epistemic intensions. They are functions from sets of expressions to extensions.[1]

Carnap and Chalmers's frameworks give one an answer to the question: 'What are senses'?; they are functions from sets of expressions to extensions. But worries remain. As we have seen, Carnap relies on meaning postulates justified by analytic truths. If Quine is correct that analyticity in Carnap's sense is a dark notion, one is left without a reliable way to individuate state descriptions. Though Carnap can define intensions as functions from sets of sentences to extensions, it does not help if one of the principles governing the existence of state descriptions invokes a notion just as mysterious as meaning.

This point emerges quite clearly in *Word and Object*, when Quine considers the identification of propositions with sets of synonymous sentences:

> If we are content to define identity of propositions by synonymy of sentences, there is no evident objection to calling propositions meanings of eternal sentences. Misgivings as to what sort of object such a meaning might be could be allayed, if one pleases, by identifying it with the very class of all those mutually synonymous sentences that are said to have it.

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1 Recently, theorists of content have argued that the appeal to structure in structured propositions is no less mysterious and in need of explanation than Fregean sense (King 2007; Soames 2010; Hanks 2011). Set-theoretic structure is widely regarded as inadequate. Of course Russell (1910a) was clearly aware of this problem.

> The worry that remains is the worry over a suitable notion of synonymy for eternal sentences. (Quine 1960, 201)

Quine has no problem with sentences and classes; indeed sentences are in fact classes of a certain kind (Quine 1960, 195). Yet he rejects the identification of propositions with sets of synonymous sentences, because he rejects the coherence of the required notion of synonymy. Parallel worries arise for Chalmers. If it isn't clear what makes it the case that a set of sentences is an epistemic scenario, then it remains unclear what epistemic intensions are, since their domains have been left unspecified.[2] If so, it's not clear how much of the mystery of senses has been solved.[3] Chalmers has much of interest to say in defence of the individuation criteria he provides for epistemic scenarios, which I cannot address here.

The standard objections to replacing Fregean senses by intensions rely upon the assumption that the intensions must be individuated by the meanings of *descriptions*, with non-rigid modal intensions. Two well-known objections, due to Kripke (1980), are that (i) the propositions expressed by sentences containing proper names and natural kind terms have different modal profiles than the modal profiles of those sentences with the proper names and natural kind terms replaced by descriptions in qualitative terms and that (ii) there are no uniquely identifying descriptions the meanings of which are a priori true of the referents of those names.

Chalmers argues that these two points are consistent with Fregeanism. To (i), he replies that modal profile is distinct from primary intension (see Evans 1985, 200). In Chalmers (2002), he first articulates his reply to (ii); here it appears early on in *Constructing the World*, in Chapter 1. Chalmers rejects the assumption that there have to be a priori truths of the form 'Aristotle was the last great philosopher of antiquity' for there to be a clear account of epistemic intensions. Intensions could be individuated by dispositions of ideally rational thinkers to judge entities in a described epistemic scenario as within or not within the extension of the relevant intension. If so, there is no reason to think that these dispositions are grounded in something like qualitative descriptions. What is needed is a constraint on the extensions of an intension, and dispositions of ideally rational thinkers are such constraints.[4]

The point that there is a need to distinguish between the kind of thing relevant for metaphysical necessity and the kind of thing relevant for the contents of judgments and beliefs is familiar with the work of Dummett

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2   As Richard Heck pointed out to me, the first of these worries is essentially the one Lewis (1986, pp. 154ff) raises against Ersatzist accounts of possible worlds.

3   Thanks especially to Richard Heck and Christopher Hill here.

4   Resolving an interpretive mystery with his previous work, Chalmers (209) is clear that he is neutral on the issue of the relative priority of meaning and the dispositions of ideal reasoners.

and Evans; see also Forbes (1989, Chapter 5). The view that senses had to be the meanings of descriptions is also rejected by Dummett and many of those he influenced, such as Evans, Forbes and Peacocke. Evans and Peacocke also use the idea that the identity criteria of senses are given by dispositions of agents (in the case of Evans, object dependent dispositions), to reject the view that ways of thinking have to be given by qualitative description.

There are similarities between the views of the neo-Fregeans and Chalmers's account of content. But there are also crucial differences. First, Evans and Peacocke do not think of the Fregean meanings of simple terms as modal intensions at all. For the neo-Fregean, senses are abstract objects tightly connected to the dispositions that individuate them, that lack explicit definitions. Secondly, at least one neo-Fregean, Gareth Evans, gives a *de re* characterization of the dispositions that constitute ways of thinking that entails that many ways of thinking are object-dependent. Third, Evans and Peacocke do not appeal to the dispositions of *idealized* rational agents.

Chalmers's view of content has a major advantage over that of neo-Fregeans such as Evans and Peacocke. Following Stalnaker (1997, 535–6), let us distinguish between *descriptive semantics* and *foundational semantics*:

> A descriptive-semantic theory is a theory that says what the semantics of the language is, without saying what it is about the practice of using that language that explains why that semantics is the right one. A descriptive-semantic theory assigns semantic values to the expressions of the language, and explains how the semantic values of the complex expressions are a function of the semantic values of its parts...questions of 'foundational semantics' [are] about what the facts are that give expressions their semantic values.

Dispositions play *only* a foundational semantic role. Thought contents are structured meanings, the constituents of which are epistemic intensions. In contrast, Evans and Peacocke tie the thought contents closely to the dispositions. On one way of reading the neo-Fregeans, the dispositions themselves are constitutive of content. Stalnaker (2012, 760) argues that this blurs the distinction between descriptive-semantics and foundational semantics. In response, one might hold that the dispositions instead are part of a contextual definition of ways of thinking (Stanley 2011, Chapter 4). But if dispositions themselves do not constitute ways of thinking, but are only used to give their individuation conditions, then one is left without an explicit definition of ways of thinking. As a result, the objection from obscurantism reemerges.

Neo-Fregeanism therefore faces a dilemma. Either neo-Fregean accounts of content blur the distinction between descriptive semantics and foundational semantics, or they fail to give an account of the nature of ways of thinking. Chalmers does not need to accept either horn of the dilemma. He can tell us

the kind of thing that senses are, and distinguish these objects from the account of what makes it the case that a particular mental state has that content.

2. A priori scrutability and the construction of meaning

The central notions of scrutability involve extreme idealizations, and are hence difficult to conceive of as idealizations of capacities that humans in fact have. The way Chalmers argues that mathematics is scrutable is by supposing that it is scrutable by a being with 'an infinite capacity for parallel reasoning' (262), and whenever the being evaluates the truth of a universal generalization it simultaneously evaluates the truth of all the instances; in other words, the being operates with the omega rule). The idealization to a countable infinity of parallel processing is necessary to argue that the truths of first-order Peano Arithmetic are scrutable in the light of Gödel's first incompleteness theorem.

Chalmers's project also must make scrutable the truths of the theory of real numbers, which requires idealized capacities for reasoning, retention, and representation of truly extraordinary scope. Chalmers does not discuss the theory of the reals, in the book. As the theory of the reals is indisputably important mathematics with clear real-world applicability, Chalmers must hold that here too the truths are a priori scrutable. To account for their scrutability, the idealizations involved in scrutability become even more extreme – Chalmers must postulate a being with an uncountable infinite capacity for parallel processing, with analogues to the omega-rule within each. Issues of time limitation arise in this case; there simply are not enough seconds in our universe to complete such a task.[5] In the case of set theory, one might worry that scrutability is not possible, as the premises for the relevant analogues to the omega rule, based on running through all the sets, are too large to form a set.[6] These are worries with the coherence of the required notion of scrutability. I will not pursue them here, turning rather to problems with the account of content that results from its employment.

Chalmers is clear that the idealizations raise worries for his construction of meanings. Since Chalmers uses this notion to construct epistemic intensions,

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5 Clark and Read (1984) argue that such idealizations are impossible. Given the axiom of choice (which bars the possibility that the reals are a countable set of countable sets), it follows that the idealization requires considering beings in worlds with a fundamentally different temporal structure than our one.

6 Chalmers discusses the case of 'higher order set theory', and suggests 'idealizations of the sort akin to [the one involving the omega rule]' might be relevant (263). But it's hard to see how such idealizations are conceivable in the case of set theory. Chalmers is open to the possibility that some statements of higher order set theory are indeterminate. It's not clear this will help with the problem.

the resulting epistemic intensions will not be as fine grained as they need to be for all purposes. As Chalmers writes (69):

> In this case [the application to the theory of meaning], idealization has some impact on the application, but does not undermine it. For example, the idealization entails that the intensions in question are not as fine-grained as Fregean senses: two expressions 'a' and 'b' can be cognitively distinct but equivalent given ideal a priori reasoning, in which case they will have the same intension though different Fregean senses.

The idealized perspective of a priori scrutability involves perfect reasoners. Chalmers's point is that this will have a direct effect on the resulting individuation of intensions. If two mathematical expressions co-denote, then 't = s' is a priori for the ideal reasoner. A construction of meaning in terms of a priori scrutability will then assign t and s the same Fregean meanings. What results is a problematic account of cognitive significance.

On Chalmers's official view of meaning, as laid out in the eleventh excursus, the senses of simple expressions are epistemic intensions 'constructed' via a priori scrutability. However, the senses of what Chalmers calls 'complex expressions' are not epistemic intensions. Rather, they are *structured complexes* of epistemic intensions. As Chalmers points out, appealing to structured meanings helps with the problem idealization poses for his construction of meanings:

> One such objection [from Fregean quarters] suggests that intensions are too coarse-grained to serve as Fregean senses, because of the idealization in the notion of *a priori*ty. For example, '77 × 33 = 2541' is a priori, but it is still cognitively significant. So '77 × 33' and '2541' should have different Fregean senses, but they will have the same primary intensions. One can deal with this objection by holding that the Fregean sense of a complex expression should be seen as a structured intension, composed of the (primary or enriched) intensions of its parts, according to the expression's logical form. So '77 × 33' and '2541' will have different structured intensions. (248–9)

The thought is that the senses of primitive concepts that are intuitively cognitively distinct are not a priori equivalent, and that expressions with intuitively cognitively distinct contents that are a priori equivalent will turn out upon investigation to be complex and therefore structured, and not primitive.

The problem for Chalmers's view is not so easily dispatched. Even if we restrict the use of a priori scrutability to the definition of primitive elements of a structured proposition, and allow structural complexity into contents, there remain failures to produce enough meanings. For example, consider a

case in which two simple scientific terms unbeknownst to the community co-denoted, and the fact of their co-denotation was due to mathematics, rather than empirical facts. For example, famously Schrödinger proved the mathematical equivalence of matrix mechanics and wave mechanics in his paper 'On the Equivalence of Heisenberg's Quantum Mechanics and Mine'. It's easy to imagine that the result also entails mathematical equivalences between primitive operators of the two theories. If so one could not appeal to structural complexity of one of the terms. One can imagine a range of similar cases here; ones in which two simple expressions turn out to be mathematically equivalent, but non-trivially so.

For Chalmers, it must turns out false that there are two syntactically simple terms, such that the discovery of their identity is significant, yet due to mathematics. It is, as I will now substantiate, profoundly un-Fregean to make cognitive significance depend in this way upon mathematical fact. I will then argue that there is no obvious way to repair the problem.

It can be from the perspective of cognitive significance a *happenstance* that two syntactically simple terms are mathematically equivalent. Schrödinger's discovery of the equivalence of matrix mechanics and wave mechanics took the form of a mathematical proof. But it was no less a *discovery*. What shows that A and B have different cognitive significance is that it can be a *discovery* that A = B. That it is a mathematical discovery or an empirical discovery is simply not relevant to issues of cognitive significance. If you are trying to explain cognitive significance with resources that are sensitive to facts about mathematical equivalences, you are using the wrong resources. It is hard to see that appeal to structure will save the account.

This point is so central to Frege, that it could easily held that to be constitutive about a Fregean approach to cognitive significance. It is, for example, what is behind the contemporary Fregean rejection of the possible worlds analysis of content. Frege clearly thought that there are analytic judgments, even definitional analytic judgments, that were cognitively significant. Famously, in section 88 of *Die Grundlagen*, Frege called Kant to task for his conception of the worth of analytic judgments:

> Kant hat den Werth der analytischen Urtheile offenbar—wohl in Folge einer zu engen Begriffsbestimmung—unterschaetzt.

Central to Frege's view of arithmetic was the existence of 'fruchtbaren Begriffsbestimmungen' [fruitful definitions], which draw boundary lines that previously did not exist ('Die fruchtbaren Begriffsbetimmunger ziehen Grenzlinien, die noch gar nicht gegeben waren. Was such aus ihnen schliessen lasse, ist nicht von vornherein zu uebersehen.' (Frege 1986, 93)). It is because of the existence of fruitful definitions, that logicism does not empty arithmetic of meaning. Arithmetic involves judgments that extend our knowledge,

and so for Kant are synthetic, despite the fact that they follow from logic and definitions (ibid.). May (2001, 31ff.) has recently argued that the desire to make sense of how analytic judgments can be meaningful is in fact the source of Frege's distinction between sense and reference. If so, Frege's central examples of cognitive significance are analytic judgments.

Frege was committed to the view that analytic judgments and even definitions can be cognitively significant. It is hard to see how one would not end up with a chain of surprising inferences starting just in definitions and logic (or arithmetic) and culminating in a cognitively significant identity between two syntactically simple terms.[7]

There are sentences that have contents that are cognitively distinct, but are a priori equivalent. Some of these cases will be ones in which the sentences have the same content for Chalmers, despite being cognitively distinct, because of facts about a priori reasoning. But Frege's commitment to rationalism precludes any account of cognitive significance that makes it depend upon mathematical fact, as such an account cannot make sense of the existence of genuine mathematical discoveries. It is hard to see how a rationalist philosophical position would be consistent with radically distinct accounts of mathematical and empirical discoveries.

The Fregean position is that possible worlds accounts of content fail, not because of the absence of some cleverly concocted method of dealing with apparent mathematical discoveries, but because such theories give a disjunctive analysis of a non-disjunctive phenomenon. The notion of a significant discovery is not a disjunctive kind. The same objection applies to Chalmers's theory of content, when considered as an account of cognitive significance. It is not a Fregean theory because it fails to respect the unity of the notion of cognitive significance across a priori and a posteriori domains.

Because Chalmers's original theory of content is a version of the possible worlds account, Chalmers has long evinced skepticism about this aspect of Frege's thinking about content. As he writes (2002, section 5):

> This understanding of cognitive significance differs from Frege's. On Frege's account, a priori knowledge can be cognitively significant: the knowledge that 59+46 is 105 is cognitively significant, for example, because this knowledge requires some cognitive work. It is very hard to articulate this notion of cognitive significance precisely, however, and it is not clear that there is a useful precise notion nearby.

Chalmers is correct that taking Frege's approach seriously does appear to preclude 'articulating' (in the terms of this book 'constructing') senses with 'precise' resources, that is, resources that make cognitive equivalence sensitive

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7   There are apparent examples of surprising a priori identities outside of mathematics (e.g. perhaps the thesis that knowledge is evidence, or that justice is fairness (though neither Williamson nor Rawls are fans of the a priori).

to mathematical fact. I cannot improve on Tyler Burge's response to this worry:

> The key point about Fregean sense is its explanatory fruitfulness. I believe that one can see, rather easily, that such fruitfulness depends on commitment to abstract entities. But one can make considerable progress by making use of Frege's insights about sense and thought contents without deciding the exact metaphysical nature of the abstractions to which one appeals. This is the analog of the situation with respect to mathematical entities in all the sciences. It is fairly obvious that one cannot avoid commitment to such entities or replace them with nominalized counterparts. The metaphysics of mathematical abstractions is, beyond these elementary points, of only tangential importance to explanation that makes use of them. I believe that the ontologies of mathematical abstractions and representational abstractions differ. But in neither case must philosophical and scientific progress await providing settled ontological accounts. (2005, 28)

If Chalmers wants to apply his theory of content to the problem of cognitive significance, then he faces a significant problem. Is there a way out? One way out is to reject the surface simplicity of an expression as a reliable guide as to whether or not it expresses a complex structured content. If so, one must provide some principle to guide us as to when an apparently simple expression expresses a structured content. Chalmers is of course aware of the problem:

> The only remaining problems arise if there are pairs of simple expressions 'A' and 'B' such that 'A=B' is a priori while also being cognitively significant. It is unclear that there are any such pairs, however. Someone might suggest that we can stipulate a simple name such as 'Num' whose reference is fixed to be something complex such as 77×33; but in such a case it is at least arguable that 'Num' should be understood to have complex structured content.

One could extract from this a method for responding to counterexamples to his account of content. For obvious reasons, we may call the strategy 'Russell's Strategy':

3. Russell's strategy

Every time one encounters a sentence of the form 'A = B' that is a priori yet cognitively significant, conclude that one of the terms must express something structurally complex.

Russell justified the strategy via his views on acquaintance. According to Russell (1988, 47), if I am acquainted with something, for example, a

color, then 'I know the color perfectly and completely when I see it, and no further knowledge of it itself is even theoretically possible'. Russell (1910b, 117) also endorsed *the principle of acquaintance*: 'Every proposition which we can understand must be composed wholly of constituents with which we are acquainted'. These two commitments led Russell to the view that if 'A = B' is cognitively significant, then one of either A or B expresses a complex structured content, as acquaintance with the denotations of both would entail knowing the identity.

It may appear that Chalmers could use Russell's exact strategy. In much of his work, when Chalmers's purposes are not merely exploratory, he relies heavily on the notion of acquaintance as the grounds of intentionality and in the analysis of perceptual content (for doubts that acquaintance can play the role Chalmers wants it to in these projects, see Siegel 2013). In *Constructing the World*, Chalmers retains his sympathy with Russell's principle of acquaintance (e.g. 399–404). Chalmers distinguishes between 'primitive concepts' and other concepts (466). Chalmers writes that 'A natural hypothesis is that [primitive concepts] are acquaintance concepts', and adopts 'the strong Russellian view', if only 'for the purposes of exploration'. Adopting an acquaintance view of primitive concepts would allow Chalmers a principled means of saying when a syntactically simple expression has a complex content, therefore overcoming the central problem.

Two widely accepted reasons for rejecting Russell's defence of Russell's Strategy are opposition to (i) the Russellian acquaintance view of the nature of primitive concepts and (ii) the view that non-primitive concepts can be defined in terms of primitive concepts together with structure. Chalmers accepts the Russellian acquaintance view of the nature of primitive concepts. However, as we have seen in the previous section, Chalmers rejects the view that all non-primitive concepts are definable in terms of complexes of primitive concepts. So Chalmers cannot accept Russell's defence of Russell's Strategy.[8]

It is genuinely unclear how else to treat cases of cognitively significant identities between two simple terms that are mathematically (or otherwise a priori) equivalent. For example, metaphysical structure is not at issue. Water is metaphysically constituted by H_2O. If one concluded on that basis that the meaning of 'water' is the same as structured complex denoted by 'H_2O', one would falsely predict that it is a priori that water is H_2O.

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8 A further, perhaps less significant point is that, given his sympathy for Russell's acquaintance view of primitive concepts, Chalmers is sympathetic to a scrutability base in which all non-indexical concepts are 'super-rigid' epistemic, that is, both modally and epistemically rigid. So if he did accept Russell's defence of Russell's strategy, the two-dimensional framework would be doing no work at all (assuming that the distinction between character and content can be used to explain the cognitive significance of indexicals).

Chalmers has no clear strategy to treat cases in which two syntactically simple terms are mathematically equivalent, yet genuinely surprisingly so. Somewhat surprisingly, he does not regard the problem as especially serious:

> Alternatively, we can simply allow that while intensions are very much like Fregean senses, they are not quite as fine-grained as Frege's own senses. This will be consistent with the intensions playing all sorts of explanatory roles. I am strongly inclined toward a semantic pluralism on which there are many notions of meaning or content playing different roles. The intensions discussed here are not all there is to meaning and content. They can play many of the relevant roles, but they do not play all the roles. For example, they do not play the 'public meaning' role, where public meanings are associated with expression types rather than expressions in contexts, and while they can play many of the roles of Fregean senses, they may not play the full role of reflecting every difference in cognitive significance. (Chalmers 2012, 249)

As a defence of Chalmers's structured meanings as an account of cognitive significance, this would be too cavalier. The objection is *not* that the notion of cognitive significance does not reflect 'every difference in cognitive significance'. The objection is rather that there is *no principled distinction* between the cases of cognitive significance which it distinguishes and the cases in which it does not. Mathematical equivalence is no different from physical equivalence as a guide to cognitive significance. It is for this reason that Fregeans reject possible worlds accounts of content, as well as attempts to rescue them by appeal to structure alone. It is, as far as I can tell, a conclusive objection to advancing Chalmers's structured meanings as (for example) objects of the attitudes.

Chalmers's suggestion in the face of this difficulty is to adopt a pluralistic view of semantic content. The Fregean can be correct about the theory of cognitive significance. Hence, the true account of the contents of propositional attitudes is the genuine Fregean one. Chalmers's structured meanings could be the right account for investigations of some other epistemic phenomenon, such as a priority.

If semantic pluralism is just the doctrine that there are multiple kinds of semantic values, it is uncontroversial. Russell (2008) builds Kaplan's character-content distinction into an argument for *Logical Pluralism*; logical operators can operate on different objects, which results in different logics or different semantics. There is a similar argument, appealing to Kaplan's character-content distinction, for semantic pluralism.

However, Chalmers requires not simply semantic pluralism, conceived as the view that expressions receive two distinct kinds of semantic values. There are relatively uncontroversial cases of this. Chalmers requires a specific *application* of that thesis. The application he requires is that there is one kind of

semantic value appropriate for the contents of knowledge, and another kind of semantic value appropriate for assessing claims of *a priori* knowledge. One might worry that once one had an account of the former kind of content, one could use it to do the work of the latter kind of content. After all, as we have established, the former kind of content, the account of cognitive significance, is more fine-grained than the latter kind of content. One could construct the more coarse-grained content of the sort Chalmers is interested in using the more fine-grained resources of the pure Fregean account of cognitive significance.

It is natural to think that epistemic scenarios must be constructed from genuinely Fregean contents, rather than sentences. Since Kripke (1979), it is known that the problem of cognitive significance cuts more finely than public language words. It can be cognitively significant for someone aware of Paderewski the pianist, and aware of Paderewski the post-World War I Prime Minister of Poland, to discover that Paderewski is Paderewski. In fact, it is not even *a priori* that Paderewski is Paderewski. If epistemic scenarios are constructed from public language sentences, then Chalmers's view will have the false consequence that it is a priori that Paderewski is Paderewski. In order to avoid this consequence, and ones like it, one might worry that Chalmers must employ a language, in individuating epistemic scenarios, that directly reflects the facts about cognitive significance. But this is just to say that it is the genuinely Fregean theory of content that underlies the notion of an epistemic scenario, and hence is the genuinely *fundamental* notion of content. If so, nothing has been done to eliminate mysteries attending to its nature.

Chalmers grants that a separate account of content is required to explain cognitive significance. I have argued that it is this account that is genuinely Fregean. So much is terminology. But *if* the genuine Fregean account of content is required to explain the content that interests Chalmers, then it is hard to see how progress has been made on the problem in the theory of meaning that the framework was set up to address. Recall Quine's objection to characterizing propositions as sets of sentences; the equivalence relation was not well defined. The worry here is slightly different. It is that the more fine-grained Fregean contents might be needed in the construction of epistemic scenarios. This would undermine the explanatory value of constructed meanings, because such value is supposed to derive from resolving mysteries associated with the metaphysics of Fregean sense.

I have here developed a worry Chalmers raises for himself, and argued that he is right that it forces the recognition of different kinds of content. The first kind of content is the the content of propositional attitudes like knowledge and belief. It is strictly Fregean. The second kind is the one Chalmers develops, to address other epistemic issues. I have raised two objections to the resulting view. The first is that the strict Fregean theory renders the constructed meanings superfluous. The second is that if, as is natural to

assume, giving an account of Chalmers's constructed meanings requires presupposing an unexplained strict Fregean theory, then the constructed meanings do not accomplish their intended explanatory purpose.[9]

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Frontloading and Fregean sense: Reply to Neta, Schroeter and Stanley

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I would like to thank Ram Neta, Laura Schroeter and Jason Stanley for their generous and probing comments on *Constructing the World*.[1] All three of them home in on key issues in the argumentation of the book. Neta and Schroeter focus on the argument for A Priori Scrutability, and especially on the key frontloading argument for that thesis. Stanley focuses on whether the semantic values that are defined in terms of scrutability can truly serve as Fregean senses. All of them raise serious challenges that need to be addressed.

1. Frontloading principles (Neta and Schroeter)

In Chapter 3 of *Constructing the World*, I argue for a Conditional Scrutability thesis: for all ordinary truths M, subjects are in a position to know (from the armchair, given ideal reasoning) that if $PQTI$, then M. (Here $PQTI$ specifies complete physical, phenomenal, that's all, and indexical information.) In Chapter 4, I argue from here to an A Priori Scrutability thesis, holding that subjects are in a position to know this conditional a priori.