

The author provides this answer after discussing whether, and in which sense, “species can be regarded as nature-given and not as language-constituted natural kinds.” His analysis is somewhat complex and given through a short history of the notion of species, distinguishing morphological species, typological species and species as populations. Concerning species as populations the author observes that, unlike typological species (and morphological ones), a species conceived as a population is a kind of spatiotemporal particular. An important distinction relevant to the analysis of the notion of species is made between nominal, real-prototypical, and ideal-prototypical terms. The details of the distinction are important. Here we should mention the author’s comment that normativity is not involved in the idea of real-prototypicality, nor in the idea of ideal-prototypicality. He is right. But it must also be said that he does not take into adequate consideration the presence of (partially) normative concepts in medicine. The main reason is that he does not deal with the general notion of disease, nor with its correlate, health.

Introducing anatomy as one of the scientific paronomies, the author discusses natural and fiat boundaries, part relations, taxonomies of parts, dependence relations, the role of taxonomies and paronomies in science and their epistemological and ontological relevance.

As should be clear from this review, the book is thorough, quite well organized, deep and original in its conceptual analysis, and provides the essential medical information the reader needs. Notwithstanding the few aforementioned gaps, it is probably the most comprehensive book that has been written about medicine and philosophy.

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Manuel García-Carpintero and Josep Maciá (eds), *Two-Dimensional Semantics*, Oxford: Clarendon University Press, 2006, 364 pp., \$125.00 (hardback). ISBN10: 019927195X.

Two-Dimensional Semantics, with an introduction by editors Manuel García-Carpintero and Josep Maciá, features mostly new essays by contributors such as David Chalmers, Martin Davies, Gareth Evans, Christopher Peacocke, James Pryor, François Recanati, Scott Soames, Robert Stalnaker and Stephen Yablo. Their essays bear directly on modal and semantic issues raised by two-dimensionalism, except for Peacocke’s work on the apriority of moral principles (Peacocke 2006). Especially noteworthy are three essays bearing on meaning and content.

Chalmers's "Foundations" (Chalmers 2006) stands out, not only in length (almost a hundred pages), but also in scope, offering a theoretical framework that could accommodate some of Kripke's insights about modality, while vindicating both Fregean senses and content internalism. Naturally, developing a descriptive-theoretic account of meaning could be put at the service of an internalist account of mental content only if meaning and content are syntactically and semantically parallel – a substantial hypothesis in need of support, given that it entails that mental representation has the structure of a *lingua mentis*.¹ A less controversial assumption in "Foundations", even though not problem-free,² is compositionality: for Chalmers, the meaning of a sentence *token*, the basic semantic unit, is compositionally determined by its structure and the meaning of its parts (singular and general term tokens). And the content of a propositional-attitude *token* is compositionally determined by its structure and the content of its parts (singular and general concept tokens).

The proposed framework for two-dimensionalism attempts to restore some two-place relations involving modality, meaning, and reason attributed to Kant, Frege and Carnap. According to the framework, Kant linked modality and reason by holding that a sentence is necessary just in case it is a priori. Frege linked meaning and reason by holding that two expressions have the same sense just in case their identity is cognitively insignificant (p. 56). And Carnap linked meaning to modality by casting the former, called 'intension', as constitutively related to necessity and possibility. On his view, two expressions have the same intension provided that their identity is necessary. "Foundations" can be read as an attempt to restore these relations, given that Kripke severed the Kantian one in the early 1970s, thus preventing the Carnapian relation from providing grounds for the Fregean relation.

But Frege's claim is in fact that, when the identity between two expressions is cognitively significant, those expressions could not have the same sense. That is, difference in cognitive significance is sufficient but not necessary for difference in sense. On Chalmers's version it is both, so it faces counterexamples such as 'Triangles are figures with exactly three internal angles'. Here the concepts are different, yet the statement seems as cognitively insignificant as 'Triangles are triangles'. After all, both statements go without saying for anyone competent with the concepts involved. Furthermore, Chalmers equates 'cognitively significant' with 'non-trivial' and 'a posteriori', cashed out as what yields substantive knowledge of the world. More needs to be said about these epistemic notions, for mathematical (and therefore a priori) propositions could yield substantive knowledge of the world. On the other hand, if cognitive insignificance is sufficient for

¹ Reasons for the assumption are, for example, in Fodor's "Propositional Attitudes" (Fodor 1978).

² See, for instance, Schiffer (2003).

being plausibly a priori, as Chalmers claims, cognitive insignificance must not be equated with triviality, given that some linguistic definitions, as well as theorems of logic and mathematics, are both a priori *and* non-trivial.³ In any case, according to the “neo-Fregean” thesis that Chalmers seeks to substantiate, whenever two expressions have the same intension their identity is a priori.

The proposed interpretation of two-dimensionalism is designed to accommodate another version of that thesis: the “Core Thesis” that a sentence (token) is a priori just in case it has a necessary 1-intension. The latter is a function from epistemically possible worlds onto extensions, and, thus, an epistemic notion of meaning. It amounts to a Fregean sense intended to capture the first-person perspective within a world that is epistemically centred. Given sufficient empirical information, an expression’s 1-intension is available a priori. But there is an intension of a different sort, the so-called 2-intension, which is a function from metaphysically possible worlds onto extensions. Both sorts of intension are truth conditional. “Foundations” provides substantial detail about how these intensions work. The 1-intension of ‘Hesperus is Phosphorus’ in a centred world taken as actual yields a sentence that is true when the morning star visible in that world is the same as the evening star, whereas its 2-intension in a counterfactual world yields a sentence that is true when both terms behave rigidly (i.e. when Venus is Venus). The sentence has a contingent 1-intension and a necessary 2-intension, which together accommodate the modal intuitions elicited by that sentence. Compare ‘Aristotle is the last great philosopher of antiquity’: in a centred world considered as actual, this sentence is true when at the centre of such a world is the last great philosopher of antiquity, whereas in a world considered as counterfactual, it is true when (uttered by Aristotle) he is the last great philosopher of antiquity. It has a necessary 1-intension (that the last great philosopher of antiquity is the last great philosopher of antiquity) but a contingent 2-intension (that Aristotle is the last great philosopher of antiquity).

At least two other articles in the volume can be read as critical responses to Chalmers’ two-dimensionalist framework. In their contribution, Alex Byrne and James Pryor cast doubts on the framework’s attempt to restore the above relations between meaning, reason and modality in light of some of Kripke’s cases in *Naming and Necessity*.⁴ Central to their argument are ‘what-we-would-say’ intuitions about scenarios in which the descriptions that speakers associate with the referent of an ordinary proper name are defective owing to incompleteness, circularity and/or plain falsity. At issue here are widely known scenarios, such as those involving the names ‘Gödel’ and ‘Feynman’. Clearly, ‘Gödel is Gödel’ is necessary whereas ‘The man who proved the incompleteness of arithmetic is

³ Fregeans themselves have objected to castings of Fregean cognitive significance along lines consistent with Chalmers’. See, for example, Katz (2004).

⁴ See note 8 in Kripke (1972).

Gödel' isn't. If we were to discover that Schmidt is in fact the one who proved the incompleteness of arithmetic, *denying* that Gödel is Gödel would still amount to saying something that is necessarily false. Furthermore, although the evidence could then make it reasonable that Gödel is not the man who proved the incompleteness of arithmetic, it is unlikely that we would stop using 'Gödel' as a name for Gödel. So the case plainly argues against names' being synonymous with definite descriptions (as does the Feynman example). But it has been noted that such scenarios nonetheless fall short of establishing the conclusion that Kripke takes them to support, that names are rigid designators.⁵ Yet this is irrelevant for Byrne and Pryor's move, which aims at showing that even when a description associated with a certain name or natural kind term is defective in the ways suggested above, utterances containing that name or natural kind term can still standardly succeed in picking out a certain individual entity or natural kind. That is, to support Byrne and Pryor's point against Chalmers' framework, it is sufficient that those scenarios make a plausible case against the attempt to countenance Fregean senses construed as modes of presentations or uniqueness properties of the denoted objects that are knowable a priori, given suitable factual information. Moreover, if such senses are understood as being object-involving, then many of the intensions that Chalmers considers a priori to anyone who knows would actually appear a posteriori.

This issue is indirectly raised by Stalnaker's contribution (Stalnaker 2006), which argues that not all two-dimensionalist frameworks need be internalist like Chalmers' (see also 2002, 2003) and Jackson's (2003a, 2003b). Stalnaker's paper has set itself the goal of reconstructing a version of two-dimensionalism compatible with semantic externalism, construed as the denial of the internalist thesis that meaning supervenes entirely on the intrinsic properties of individuals. In earlier papers (1976, 1978, 1990), Stalnaker developed a version of two-dimensionalism that accommodates what Chalmers takes to be a Fregean aspect of meaning without entailing that some meaning is narrow. Those papers attempt to answer a central question raised by standard thought experiments such as Putnam's Twin Earth: when Oscar utters 'Water is wet' on Earth, and his internal replica on Twin Earth does likewise, is the meaning thus expressed the same? Let's assume that each character exists in a set of possible worlds and believes what he says, and therefore cast possible answers to this question in terms of *belief content*. For Stalnaker, it is

⁵ Even if Kripke has succeeded in showing with these cases that names are not *synonymous* with definite descriptions, this still does not show that they *are rigid designators*. As often noted regarding his 'what-we-would-say' cases, that names behave in these contexts in a way different from definite descriptions is some evidence for the rigidity thesis, but does not prove it. After all, that phenomenon could equally be explained by, say, invoking a scope distinction for definite descriptions in those contexts. If so, that proper names are rigid designators does not follow from their behaviour in modal contexts – even though their rigidity may be a possible explanation of their behaviour there.

one thing to ask about the *actual* content of each character's belief and then evaluate it relative to the possible worlds in the set – and quite another thing to ask, for each possible world in the set, about the content of the character's belief in that possible world (and about its truth in that world). Of the two, it is only the latter question that yields the same proposition in whichever possible world of the belief or utterance.

Any such proposition, which Stalnaker calls “diagonal”, turns out to be a sort of narrow content that behaves in ways analogous to Chalmers' 1-intension. But unlike this, a diagonal proposition is construed as an abstraction from wide content. Stalnaker in fact endorses externalism about meaning and content, and is thus committed to the view that whether content is narrow or wide turns on the nature of the content-determining relation that must hold between a thought and a function in order for the latter to be the former's intension. At the same time, it is clear that Chalmers intends his notion of 1-intention to capture something that Oscar's and Twin-Oscar's utterances have in common in a Twin-Earth case: viz., these characters' perspectives on the states of affairs represented by their utterances. But Stalnaker's version of two-dimensionalism accommodates this intuition without conflicting with standard externalist conclusions from Putnamian, Burgean, and perhaps Davidsonian thought experiments. Given that Chalmers' two-dimensionalism has offered no account of the content-determining relation that would support the claim that every epistemic intension is a narrow content, an argument is needed to counter the externalist view that a thinker's direct or indirect causal contact with the environment must figure in an account of the content of at least some of his propositional attitudes. In other words, because externalist conclusions seem well supported by those thought experiments, the view that propositional-attitude content supervenes entirely on the internal properties of the thinker becomes at least debatable. The burden is on Chalmers.

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Michael Esfeld, *Naturphilosophie als Metaphysik der Natur*, Frankfurt am Main: Suhrkamp, 2008, 218 pp., ISBN 978-3-518-29463-5.

Esfeld's new book is a powerful and well-argued statement for an original position in the metaphysics of science. In Esfeld's view, rational reflection on relativity theory and quantum theory leads to a metaphysical conception of reality as built on powerful structures: first, the fundamental building blocks of reality are structures rather than properties of space-time points or of matter localized at such points; second, these structures are not categorical or inert but inherently powerful and sources of relations that hold necessarily.

The book has five chapters. The first sets out the foundations for the project by justifying a form of scientific realism. Indeed, it is only against the background of scientific realism that it makes sense to reflect on what overall conception of nature it is rational to accept on the basis of present-day scientific knowledge.

Esfeld then argues for a metaphysics of nature that is both compatible with our best scientific conceptions and fares best with respect to overall conceptual 'coherence'. The second chapter asks which conception of space, time and matter fits those criteria best in the light of relativity theory; the third chapter asks the analogous question with respect to the non-gravitational properties of mass-energy in the light of quantum physics.

The fourth chapter argues that a 'moderate' form of structural realism is the metaphysical position that is both coherent with the conceptual presuppositions of these theories and rationally superior to alternative metaphysical conceptions. The fundamental features of reality are relations and structures, which are nets of relations. Such structures are not supervenient on localized properties. Esfeld's variant of structural realism is more moderate than that of Ross and Ladyman,