**Perspectival Realism**

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Scientific realists often assert that our best scientific theories and models provide true or approximately true descriptions of facts about nature and that they cut nature at its joints. The latter assertion presupposes, among other things, that the physical domains investigated by such theories and models are structured in a unique way. More metaphorically put, that nature has joints! Let us call this the 'uniqueness assumption'. As is customary in philosophy no assumption is safe from scrutiny. The idea has been floated that nature has no joints. Frigg (2006), for example, suggests that "the physical world does not come sliced up" (p. 56). Let us call this the 'non-uniqueness assumption'. In this talk I attempt to articulate a view that submits to the non-uniqueness assumption and yet is able to maintain realist credentials.

Take the non-uniqueness assumption. What exactly is it telling us? The first thing to note is that it is not telling us that we are incapable of representing the structure of a given physical domain because of some inherent epistemic limitation. Moreover, it is not telling us that the models we can construct to represent the given domain are encoding different aspects (or perspectives) of one and the same target structure. If that were the case realism would not be facing a serious challenge, for, provided the models were accurate, each one would give us a more complete picture of the target structure. Rather, what the non-uniqueness is primarily telling us is something ontological. Physical domains somehow possess multiple structures.

At first glance this idea may seem incoherent. It is time for an example. In his critique of the structuralist view of theories but also of structural realism, Frigg (ibid.) discusses the case of two rival models for the methane molecule $CH_4$. The molecule is taken to be tetrahedron-shaped and can be represented in at least two non-isomorphic ways: (i) by taking its edges as the model's objects and its vertices as the model's relations or (ii) by taking its vertices as the model's objects and its edges as the model's relations. Frigg concludes from this that "there is no such thing as *the* structure of methane" (p. 58).

There are various things that can be said in response. It may, for example, be argued that there is a unique structure underlying the domain (however this domain is conceived of) namely the tetrahedral geometrical shape – the common denominator of both (i) and (ii). Or, more strongly, it may be argued that (ii) is the only correct way to represent the structure of methane molecules because our best explanation of why they have such a shape comes from the Valence Shell Electron Pair Repulsion theory and this theory assumes that the vertices of the tetrahedron are occupied by objects, namely four carbon atoms (see Olmsted and Williams 1997).

Finally, and most importantly for the purposes of this talk, it may be argued that even if the non-uniqueness assumption holds, the game is not lost for the realist. So long as a given physical domain does not possess all structures compatible with its cardinality, being able to correctly identify at least one of these structures will mean knowing something non-trivial about that domain. Each such structure will thus be encoding different aspects (or

perspectives) of one and the same target domain. Unlike the perspectival realism endorsed by Giere (2006), the view espoused here is thoroughly objectivist in that it underwrites the central realist assertion that our best scientific theories and models provide true or approximately true descriptions of facts about nature.

**References**:

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