

Determinables and Determinates

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The question of relative priority

Determinates under the same determinable: in virtue of the special kind of difference that obtains between them: they “are put into the same group (under the determinable colour) and given the same name, *not*, on the ground of any partial agreement, but on the ground of the special kind of difference which distinguishes one colour from another” (Johnson 1921: 176)

Determinables and determinates are kinds (and their associated properties) that stand in some type of determination relation. The determinable COLOUR, for example, is determined by the determinate RED, which in turn is determined by the (lower) determinate LIGHT RED, which is just to say that “light red” is a precisification of “red”.¹ The co-exemplification of determinables makes for less resemblance than the co-exemplification of any particular of their determinates,² and they qualify their exemplifications less determinately.

Some dead-ends

Partial identity account of determinable universals

“It is, then, a hypothesis well worth examining, that what unifies the class of universals which constitute the class of lengths is a series of partial identities holding between the members of the class.” (Armstrong 1978: 121)

Disjunction account of determinable universals

Higher order account of determinable universals

Introducing property space

Determinables and determinates are kinds (and their associated properties) that stand in some type of determination relation. The determinable COLOUR, for example, is determined by the determinate RED, which in turn is determined by the (lower) determinate LIGHT RED, which is just to say that “light red” is a precisification of “red”. The co-exemplification of determinables makes for less resemblance than the co-exemplification of any particular of their determinates, they qualify their exemplifications less determinately: “A determinable is a natural kind with a more relaxed resemblance standard than the determinates falling under it.” (Campbell 1990: 83)

We can distinguish different ‘dimensions’ in which determinables may be determined. Colors vary according to hue, saturation and brightness, and these variations are independent of one another. If hue, saturation, and brightness are determinables, they are not separate, since they depend on

¹Whether or not we want to call “red” a precisification of “coloured” is another matter, but of not much more than terminological interest.

²Cf.: “A determinable is a natural kind with a more relaxed resemblance standard than the determinates falling under it.” (Campbell 1990: 83)

each other. There cannot be saturation without hue, for example, even though no determination of saturation requires any particular determination of hue. Johnson says that the determinable color is “single, though complex, in the sense that the several constituent characters upon whose variations its variability depends are inseparable” (Johnson 1921: 183).

If we think of the qualitative characteristics of (actual and possible) things as locations within a property-space of as many dimensions as they are respects of independent variation among properties, the determination relation is topological inclusion with respect to that space. The determinable is literally ‘composed out’ of its determinates. The supervenience of the determinable on its determinates is then accounted for in robust ontological terms.

Determinates of different determinables may be linked, however. In this case, we distinguish different ‘dimensions’ in which determinables may be determined. Colors vary according to hue, saturation and brightness, and these variations are independent of one another. If hue, saturation, and brightness are determinables, they are not separate, since they depend on each other. There cannot be saturation without hue, for example, even though no determination of saturation requires any particular determination of hue. Johnson says that the determinable color is “single, though complex, in the sense that the several constituent characters upon whose variations its variability depends are inseparable” (Johnson 1921: 183).

Determinates are related to their determinables by a relation of determination. The determinate property is a way of having the determinable property, it determines it. As Prior (1949: 13) and Funkhouser (2006: 550) have noted, this determination relation is importantly different from the one holding between a conjunction and its conjuncts. It differs from it in that the determinate determines the determinable *along a certain dimension*. Funkhouser (2006: 551) calls the value-ranges of the independent variables in which a property may be further determined the “determination dimensions” of that property. Determinates under the same determinable differ in particular ways – i.e. along the determination dimensions of their common determinable. In many cases, it is an open question what the determination dimensions of some determinable are (consider e.g. the properties of being brave, intelligent or beautiful) – this does not show, however, that they do not have any. Some determination dimensions are continuous, some are discrete, some bounded, some unbounded, some have infinite and some only have two “points” or values.

Whenever we have different determination dimensions, we can picture property instances as points within a three- or higher-dimensional space. Glueing together such spaces, we get “qualitative locations” with respect to two or more properties. Combining the determination dimensions of all fundamental properties, we arrive at a “property space”, in which every property bearer is uniquely located and within which indiscernibles share the same location. Within that property space, determinates are (or correspond to) subregions of their determinables, giving us an ontological account of how a determinate is a way of having its determinable.

We find the same pattern in cases of vagueness: being definitely bald is a way of being bald, and having three hairs is a way to determine the baldness of Tom. Because they pick out determinates, precisifications of vague predicates locate their objects in some subregion.

Gunky property-space

The claim that there are lowest determinates (or *infima species*, as they used to be called) is a substantive metaphysical “postulate”, even if perhaps “universally adopted”:

“The practical impossibility of literally determinate characterization must be contrasted with the universally adopted postulate that the characters of things which we can only

characterize more or less indeterminately, are, in actual fact, absolutely determinate” (Johnson 1921: 185).

The claim that the existence of lowest determinates is conceptually or metaphysically necessary has been made,³ but it remains very controversial.

How are we to think of determinables without lowest determinates? Recent advances in the philosophy of space-time provide us with a model: if we think of the qualitative characteristics of (actual and possible) things as locations within a property-space with as many dimensions as they are respects of independent variation between properties, and think of the determination relation as topological inclusion with respect to that space, then the hypothesis that (for some determinable) there are no lowest determinates is modelled by the *gunkiness* of (some part of) property space. A (region of) space is gunky iff every part of it has proper parts. The gunkiness of ordinary space-time is a respectable scientific (Bohm (1957: 139) and Weinberg (1992: 230–240)) and metaphysical hypothesis (Schaffer 2003). There is no antecedent reason to assume that property space is necessarily non-gunky.

It is an at least *prima facie* plausible option to give a robust construal of (some) determinables, i.e. let them do some truthmaking job. It is not altogether implausible to maintain, e.g., that the truthmaker of “Sam is red” is that Sam exemplifies the determinable property *being red*. This position is forced upon truthmaker maximalists (who thinks that every truth has a truthmaker) if there are no lowest determinates.

The mere possibility of gunky property space provides support for an ‘horizontal’ rather than ‘diagonal’ account of truthmaking.⁴ In the same way the possibility of gunky space-time forces us to reinterpret spatial and temporal notions on the basis of regions and intervals rather than points and instants, gunky property-space should lead the truthmaker maximalist to reproduce the determinate/determinable structure on the side of truthmakers: rather than saying that “this is red” is (uniquely, as it were) made true by (the exemplification of) some lowest-level determinate, the friend of truthmakers should say that it is made true by (the exemplification of) the determinable property *being red*, and then analyse this latter as ontologically complex, the components of which may also have some truthmaking rôle to play.

Gunky property space gives us a plausible ontological model for infinite higher-order vagueness. A precisification of a vague predicate will pick out a subspace of the part of the property space spanned by the determination dimensions of the determinable picked out by the vague predicate. If this process goes on infinitely, the subspace is gunky: every subspace has proper subspaces.

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³Most notably by Armstrong (1961: 59), who already claimed in his refutations of phenomenalism that “it makes no sense to say that a physical object is light-blue in colour, but is no definite shade of light blue” (cf. also Armstrong 1978: 118)

⁴It has often been noted, in the case of determinates, that a determinate does not compete with its determinable for causal power. Yablo (1992) famously used this to account for mental causation.

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