

# Not quite like Clouds, nor like Splitting Hairs: In Defense of Metaphysical Vagueness

Philipp Keller\*

June 25, 2006

very rough first draft – comments and criticism very welcome

## Vagueness, determinates and determinables

Could the world be vague? Could at least some vagueness be neither epistemic nor linguistic, but genuinely metaphysical? Many have thought this absurd.<sup>1</sup> In this (at present very short and incomplete) paper, I would like to defend the *coherence* of metaphysical vagueness in three parts: I first characterise vagueness as a subkind of a more general phenomenon, the determinate-determinable pattern of exemplification determination. I then argue for the conceivability of non-wellfounded determination, i.e. the gunkiness of property space in the absence of lowest determinates. Finally, I argue that infinite descending determination chains give us a plausible model for metaphysical vagueness if combined with plausible assumptions about ontology.

If full-haired Tom loses one hair after the other, he will become a borderline case of baldness before he becomes a clear one. Even before his hair loss, however, it is vague how many hairs are part of Tom – the person who has just one hair less has an equal, or almost equal, claim to be him. This appraisal of vagueness is usually combined with the acceptance of ‘penumbral connections’ or framework principles. Whether or not Tom is bald, he is at least either bald or not bald; whichever of the candidates is Tom, at most one of them is. It is equally combined with the postulation of a spectrum of degrees of precision: “roughly bald” is vaguer than “bald” which in turn is vaguer than “clearly bald”.

These two additional features of the central explanandum are reflected differently in the two main theories of vagueness on the market, which characterise vagueness as arising from linguistic indecision and unknowability of sharp boundaries respectively. Linguistic indecision fits well with the spectrum of vagueness exhibited by “roughly bald”, “bald” and “clearly bald”, aligning them with increasingly strong restrictions on admissible precisifications. It fits less well with so-called infinite higher-order vagueness (the absence of completely precise precisifications) and with framework principles. To explain how the latter arise from our linguistic practices, linguisticists have to postulate some social mechanism that prevents people from being undecided in their use of logical vocabulary. The situation is reversed with epistemicism: it fits well with higher-order vagueness, postulating unknowable cut-off points out of reach for semantic precisifications, and penumbral connections: while we may never

---

\*University of Geneva, Switzerland, philipp.keller@lettres.unige.ch.

<sup>1</sup>David Lewis says that “Realism about vagueness is anti-realism about the world.” Terence Horgan: “The notion of an object such that there is no fact of the matter about its boundaries is at bottom incoherent.” Michael Dummett: “The notion that things could actually *be* vague, as well as being vaguely described, is not properly intelligible.” Russell stated in 1923: “Vagueness and precision alike are characteristics which can only belong to a representation, of which language is an example...Apart from representation, whether cognitive or mechanical, there can be no such thing as vagueness or precision; things are what they are, and there’s an end of it.”

be able to know whether Tom is bald, at least we know that he's either bald or not bald; it gives a less plausible – or, at least, an incomplete – account, however, of the variation of vagueness among “roughly bald”, “bald” and “clearly bald”: in the presence of “vagueifiers” like “roughly”, at least *some* vagueness clearly seems linguistic.

The third main contender, metaphysical conceptions of vagueness, fits well with both explananda: if vagueness is in the world, ‘precisification’ is a relative concept: no absolute precisification is ever to be achieved. We can hence easily explain higher-order vagueness and we can – once a workable notion of ‘blurry boundaries’ is at our disposal – explain how linguistic practice can contribute to the blurring of boundaries. Despite these advantages, metaphysical vagueness has not found many friends on the contemporary scene. Many think the very idea is incoherent, and most of those who do not think it is metaphysically impossible. In this paper, I try to develop a somewhat more sympathetic account of it, focussing less on the thorny issues of vague objects or vague identity with which it is ordinarily associated, and more on the metaphysical possibility that there are no lowest determinates.

When is a predicate  $F$  vague? When there are borderline cases of  $F$ s, i.e. things which are neither determinately  $F$  nor determinately  $\neg F$ . If there are borderline cases of  $F$ s, there are – or, at least in principle, could be – precisifications of the predicate “ $F$ ” which either determinately apply or determinately fail to apply to some of them. We find the same pattern with “red” and “light red”: “light red” determinately does not apply to some borderline cases of “red”. It determines “red” not just with respect to the core of its application, but also with respect to its penumbra. At least in this sense, vague predicates are thus a subkind of predicates standing for determinables.

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”.<sup>2</sup> The co-exemplification of determinables makes for less resemblance than the co-exemplification of any particular of their determinates,<sup>3</sup> and they qualify their exemplifications less determinately.

While we may stay relatively uncommitted with respect to the analysis of the nature of determinables,<sup>4</sup> one of their characteristics will be of particular importance. The determinate/determinable structure exhibits what we may call, somewhat tentatively, “penumbral connections”: each determinate, e.g., falls under exactly one determinable (Johnson 1921: xxxv), and no two determinates of the same determinable can be exemplified by the same thing at the same time (Johnson 1921: 181). 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. In cases of vagueness, it is neither definitely true nor definitely false that some determinate stands in this relation to a given determinable. With respect to a borderline case of redness, e.g., we may say that its colour (assuming it for the moment to be precise) is neither determinately a case of redness nor determinately is not.

---

<sup>2</sup>Whether or not we want to call “red” a precisification of “coloured” is another matter, but of not much more than terminological interest.

<sup>3</sup>Cf.: “A determinable is a natural kind with a more relaxed resemblance standard than the determinates falling under it.” (Campbell 1990: 83)

<sup>4</sup>In most of the current literature, they are identified with disjunctions of their determinates (cf. e.g. Rodríguez-Pereyra 2002: 49), but this has obvious problems pointed out e.g. by Prior (1949) (cf. also Sanford 2002).

Linguisticists will say that we ordinarily do not care: we assign determinates to determinables only to a certain depth, so to say, and use predicates for determinable properties as applying to their clear cases, leaving their application conditions in the penumbra underdetermined. Epistemicists, on the other hand, will maintain that there is a fact of the matter, unknown to us, whether or not the colour we are talking about is a shade of red or not. Familiar options in the theory of vagueness thus find easily their counterparts in the theory of determinables and determinates. But what about metaphysical vagueness?

## Gunky property-space

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 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,<sup>5</sup> but it remains very controversial. I claim that if there are predicates standing for properties plausibly interpreted as exhibiting a determinate/determinable structure and there are no lowest determinates (of these determinables), then we have a case of metaphysical vagueness. To the extent the antecedent is plausible, then, we have reason to think that metaphysical vagueness is at least not incoherent.

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.

The mere possibility of gunky property space provides support for an ‘horizontal’ rather than ‘diagonal’ account of truthmaking. 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.

---

<sup>5</sup>Most 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)

## Metaphysical vagueness?

Gunky property space does not entail vagueness: the gunky parts might never span across some property divide. If they do, however, we will have an infinite descending chain of determinates right where the border between two determinable properties would lie. Suppose, for illustration, that the region between (clear cases of) red and (clear cases of blue) in property space is gunky. Regions clearly within the core of the RED will then only have parts that clearly determine RED; but things stand differently in the penumbra. Within the penumbra, the following situation may occur: every part (determinate of descending levels) neither is clearly determined by one of the higher-level determinables, neither clearly determined by the other. For each determinate lying in the penumbra between two determinables has itself determinates that lie within this penumbra. Even if we say that each determinate either is or is not determined by one of the two determinables, we do not get to any lowest level – we have a case of unsharpenable vagueness which seems to be of an ontological sort.

Penumbral connections are preserved, albeit as level-relative. It is true of each particular determinate and each particular determinable that the determination relation either holds between them or does not hold between them. No problem with excluded middle or bivalence here. The spectrum of vagueness among predicates is equally explained: while there is no cut-off line between the determinates of every level (in the sense that each determinate is in the penumbra), there are inclusion relations between determinates of different levels. Do we not have here an example of infinite higher-order (or rather lower-order) ontological vagueness?

## References

- David M. Armstrong, 1961, *Perception and the Physical World*, London: Routledge and Kegan Paul, Ltd.
- David M. Armstrong, 1978, *A Theory of Universals: Universals and Scientific Realism, Volume II*, Cambridge: Cambridge University Press.
- David J. Bohm, 1957, *Causality and Chance in Modern Physics*, London: Routledge and Kegan Paul.
- Keith Campbell, 1990, *Abstract Particulars*, Oxford: Basil Blackwell Publishers.
- W.E. Johnson, 1921, *Logic: Part I*, New York: Dover Publications.
- Arthur Norman Prior, 1949, “Determinables, Determinates and Determinants”, *Mind* 58, pp. 1–20, 178–194.
- Gonzalo Rodríguez-Pereyra, 2002, *Resemblance Nominalism: A Solution to the Problem of Universals*, Oxford: Oxford University Press.
- David H. Sanford, 2002, “Determinates vs. Determinables”, in Edward N. Zalta (ed.) “The Stanford Encyclopedia of Philosophy”, Stanford, California: The Metaphysics Research Lab, Center for the Study of Language and Information, version of April 26, 2002, URL <http://plato.stanford.edu/entries/determinate-determinables/>.
- Jonathan Schaffer, 2003, “Is There a Fundamental Level?”, *Noûs* 37(3), pp. 498–517.
- Theodore Sider, 2001, *Four-Dimensionalism: An Ontology of Persistence and Time*, Oxford: Clarendon Press.
- Steven Weinberg, 1992, *Dreams of a Final Theory*, New York: Pantheon Books.