THE JOURNAL OF PHILOSOPHY

VOLUME CXVI, NUMBER 3
MARCH 2019

Published by **The Journal of Philosophy, Inc.**

THE JOURNAL OF PHILOSOPHY

VOLUME CXVI, NO. 3, MARCH 2019

HURT FEELINGS*

In introducing the reactive attitudes "of people directly involved in transactions with each other," P. F. Strawson lists "gratitude, resentment, forgiveness, love, and hurt feelings."[1] Because he decided to illustrate his larger points about responsibility by focusing on resentment (and its third- and first-person analogues, indignation and guilt), nearly everyone writing about responsibility in Strawson's wake has done so as well.[2] But what of the remaining reactive attitudes? Exploration into the nature of gratitude and forgiveness as they pertain to responsibility has spiked in recent years.[3] Love has not received

* This project originated as a keynote talk for a graduate student conference at Florida State University in October 2017. I am grateful to all who participated in the discussion there, as I was just getting my bearings on the phenomenon and the insights people offered in response were rich, insightful, and very helpful. I am also grateful to audiences at the October 2017 Bogota workshop on Agency and Responsibility, the March 2018 meeting of the New Orleans Invitational Seminar on Ethics, the August 2018 Oslo workshop on Being and Holding Responsible, the September 2018 Alabama Philosophical Society meeting, and the October 2018 philosophy department colloquium at the University of Virginia. For helpful conversations on these topics, I am grateful to Ben Bagley, Brie Gertler, Pamela Hieronymi, Dan Jacobson, Samuel Lundquist, Angela Smith, and Andras Szigeti. For excellent comments and questions on earlier drafts, I am grateful to Santiago Amaya, Samantha Berthelette, Felipe de Brigard, Andreas Brekke Carlsson, Randy Clarke, Ian Cruise, Justin D'Arms, Julia Driver, Andrew Eshleman, Roderick Long, Elinor Mason, Simon May, Michael McKenna, Dana Nelkin, Shaun Nichols, Kate Norlock, Hanna Pickard, Doug Portmore, Hille Paakkunainen, Piers Rawling, Connie Rosati, David Sobel, Mike Valdman, and, last but not least, two anonymous referees for this JOURNAL.

[1] P. F. Strawson, "Freedom and Resentment," in Gary Watson, ed., *Free Will*, 2nd ed. (Oxford: Oxford University Press, 2003), pp. 72–93, at p. 75.

[2] It is easiest to note the main exceptions to this trend, namely, Michael J. Zimmerman, *An Essay on Moral Responsibility* (Totowa, NJ: Rowman and Littlefield, 1988); Angela M. Smith, "Responsibility for Attitudes: Activity and Passivity in Mental Life," *Ethics*, CXV, 2 (January 2005): 236–71; and T. M. Scanlon, *Moral Dimensions: Permissibility, Meaning, Blame* (Cambridge, MA: Harvard University Press, 2008).

[3] There are nearly 400 articles on gratitude and 900 articles on forgiveness listed in PhilPapers.

0022-362X/19/1603/125–148

RELAXING REALISM OR DEFERRING DEBATE?*

A view that sometimes goes under the label *normative realism* has a lot going for it. Normative realism maintains that judgments about what we ought to do, what there is reason to do, what makes a life worth living, and the like state objective truths about the way the world is. Moreover, at least some of these normative truths are ones we can know and that can guide our deliberation. The idea that there are normative truths is obviously attractive in one sense; if there were no such truths then it would not be true that our lives can be meaningful and worthwhile, that genocide is immoral, or that kindness is virtuous. The idea is attractive not only in the sense that it would be nice if it were true, though; it is also attractive in the sense that it is intuitively very plausible. The idea that these truths are objective, in the sense of not depending fundamentally on our attitudes or practices, is also attractive. This is most obvious in the moral case. You do not have to be a full-blooded Kantian to appreciate the plausibility of Kant's suggestion that the moral law must be a "categorical imperative" whose authority does not depend on our contingent ends, and which applies universally to all possible rational agents. A child who responds to his parent's admonishing him for tormenting his sibling by saying "but I don't want to stop hitting him" has not yet fully understood and internalized properly moral norms. Finally, it is plausible that we can know at least some of these mind-independent normative truths. It may be unclear what we should think about the morality of abortion, but pre-theoretically we are confident that intense physical pain is at least sometimes bad for its own sake.

Unfortunately, these attractions come at a price, though the price varies depending on what form of realism is at issue. Non-naturalist forms of realism suffer from what some consider a bloated ontology. The supervenience of such non-natural properties on the natural/descriptive/non-normative properties poses an explanatory challenge for non-naturalist realists. Our ability to know truths about such properties also might seem mysterious, particularly since on most non-naturalist views such properties have no causal powers. Finally, non-naturalist realism has trouble explaining how normative judgment

* Thanks to Tim Scanlon, Sebastian Köhler, Debbie Roberts, David Enoch, Bart Streumer, Christine Tiefensee, and an anonymous referee for this JOURNAL for useful discussion of earlier versions of this paper.

0022-362X/19/1603/149–173

BOOK REVIEWS

Varieties of Continua: From Regions to Points and Back. GEOFFREY HELLMAN and STEWART SHAPIRO. New York: Oxford University Press, 2018. x + 214 p. Cloth $60.00.

Varieties of Continua is an investigation of different ways of representing and reasoning about continuous entities. At the heart of the book is a contrast between, on the one hand, Aristotelean or semi-Aristotelean systems that analyze continuity from a foundation of extended entities and, on the other hand, modern Dedekind-Cantor systems that analyze continuity from a foundation of extensionless points.

Almost three-fourths of the book (about 140 pages altogether) is devoted to dense, technical expositions of a series of geometric theories. Starting from initial axioms governing relations among extended regions, Hellman and Shapiro develop increasingly complex theories to handle impressive ranges of mathematical concepts including topological (such as connectedness and discreteness), orientation (such as betweeness, alignment, and direction), metric (such as congruence and bisection), and number concepts. As is usual in region-based geometries, point spaces are eventually introduced as superstructures over the initial domains of extended regions. Here, Hellman and Shapiro roughly follow Alfred North Whitehead's well-known method of extensive abstraction,[1] introducing points as equivalence classes of convergent sequences of regions.

The theories developed successively in the book differ in their assumptions regarding infinity, in the dimension of their underlying region spaces, and (for spaces of two or more dimensions) in whether their geometries are Euclidean or non-Euclidean. One of the more interesting contrasts in the book is between the "semi-Aristotelean" theories developed in chapter 2 and the "Aristotelean" theories developed (with the help of Øystein Linnebo) in chapter 3. All of the theories in chapters 2 and 3 take one-dimensional region spaces as their domains. The two sets of theories differ primarily in that all of the Aristotelean theories drop the semi-Aristotelean theories' strong fusion comprehension principle (also known as the "unrestricted fusion" principle). A *fusion* of the regions *xx* is a region *y* that overlaps the

[1] Alfred North Whitehead, *The Organisation of Thought: Educational and Scientific* (London: Williams and Norgate, 1917).

0022-362X/19/1603/174–178

same regions as do the *xx* (taken all together), so that *y* includes all of the *xx* as parts but does not extend beyond them. The fusion comprehension principle requires that any plurality of regions has a fusion.[2] Hellman and Shapiro claim that this principle clashes with Aristotle's rejection of actual, as opposed to merely potential, infinity (and thus misrepresents Aristotle's thinking about continua), because it requires that infinite pluralities of regions have a fusion (44–45). But the fusion comprehension principle requires that infinite pluralities of regions have fusions only if there are infinitely many regions. An independent axiom—the "gunkiness" axiom requiring that any region has an interval as a proper part—requires there are infinitely many regions in all domains of chapter 2's semi-Aristotelean theories. It is not clear how chapter 3's initial Aristotelean theory gets any closer to Aristotle's ideas on infinity and continua by rejecting the fusion comprehension principle while retaining the gunkiness axiom.

However, Hellman and Shapiro (again with the contributions of Linnebo) offer two further Aristotelean theories in chapter 3. The first of these—the only theory in the book developed in a modal logic—better captures the spirit of Aristotle's rejection of actual infinity. The possible worlds of the modal theory contain only finitely many regions each, but these worlds grow indefinitely large. Importantly, the model version of the gunkiness axiom requires only that each region has an interval as a proper part in some accessible world. In other words, the modal Aristotelean theory requires only that regions are potentially divisible into indefinitely many parts, not that they are actually divided into infinitely many parts. The authors use results from Linnebo's 2013 article, "The Potential Hierarchy of Sets,"[3] to establish that their modal Aristotelean theory is equivalent to their initial non-modal Aristotelean theory in the sense that any classical deductions in the non-modal theory can be replicated in the modal theory, and vice versa. A third "fully Aristotelean" theory offers a (non-modal) predicative account of region spaces, retaining the original gunkiness axiom and requiring that certain predicatively definable countable pluralities of regions have fusions.

Hellman and Shapiro go on to show in chapter 4 that it is possible to impose a point space over the Aristotelean region spaces by introducing "real-number-surrogates" as equivalence classes of sequences

[2] Hellman and Shapiro also propose a version of the fusion comprehension principle framed in terms of second-order predicate logic instead of the logic of plurals. The difference between these two versions of the fusion comprehension principle is not important for the purposes of this review.

[3] Øystein Linnebo, "The Potential Hierarchy of Sets," *Review of Symbolic Logic*, VI, 2 (June 2013): 205–28.

of regions. Importantly, however, the structure of the constructed point space does not match that of the Dedekind-Cantor real number line. This makes for a significant contrast between the point spaces introduced as superstructures over the semi-Aristotelean region spaces of chapter 2 and the point spaces introduced as superstructures over the Aristotelean region spaces of chapter 3. As Hellman and Shapiro demonstrate in chapter 2, the semi-Aristotelean point spaces are structurally identical to the Dedekind-Cantor real numbers. By contrast, the point spaces constructed over the Aristotelean region spaces differ significantly from the Dedekind-Cantor real number line in that they are *indecomposable*—it is not possible to divide sets of points (that is, real-number-surrogates) corresponding to intervals of the original region space into non-empty disjoint subsets. It follows that unlike the semi-Aristotelean point spaces, the Aristotelean point spaces are not isomorphic to the Dedekind-Cantor real number line. Thus, Hellman and Shapiro show that dropping the fusion comprehension axiom from the semi-Aristotelean region structure blocks the standard recovery of the Dedekind-Cantor real number line through the introduction of points as equivalence classes of sequences of regions.

Other notable contributions of *Varieties of Continua* stem from the ranges of geometric structure Hellman and Shapiro manage to introduce directly onto the region spaces, rather than onto the superimposed point spaces. One of the most influential region-based geometric theories is that developed by Tarski in "Foundations of the Geometry of Solids,"[4] which uses only standard mereological axioms and a unary *sphere* primitive as a basis for introducing points as classes of concentric spheres. As Hellman and Shapiro point out (103), Tarski's theory introduces most of its geometric structure by imposing standard Euclidean axioms on the derived point space. By contrast, Hellman and Shapiro's one-dimensional geometries introduce orientation relations like *to the left of* and *to the right of* and metric relations like *bisection* and *biextension* directly on the region spaces. Such relations are used to formulate a version of the Archimedean principle and establish that it holds over their region spaces, prior to the introduction of the point superstructures over the region spaces. Even more impressively, Hellman and Shapiro's two-dimensional geometry characterizes parallelograms, rectangles, directions, and angles through relations among these special classes of regions without the use of point-based geometrical

[4]Alfred Tarski, "Foundations of the Geometry of Solids," in *Logic, Semantics, and Metamathematics: Papers from 1923 to 1938* (Oxford: Clarendon Press, 1956).

and Shapiro's representation of the literature on these topics is necessarily spotty. For the most part, they focus on the positions of only a few participants in the larger debates. Pertinent background theses (for example, claims that, as a matter of metaphysical necessity, composition is unrestricted) are sometimes mentioned without any discussion of their purported grounds. Also disappointingly, most of Hellman and Shapiro's points in chapter 7 depend only on the general claim that it is possible to develop almost equally powerful geometric theories over either domains of extended regions or domains of extensionless points. Hellman and Shapiro conclude from this that certain disputes over the nature of space-time or the composition and locations of objects are merely verbal. But we have already known since at least Tarski that point- and region-based geometries are to a large extent interchangeable.[5] The discussion in chapter 7 does not substantially engage the more original aspects of the theories presented in *Varieties of Continua*. For example, there is little discussion of the implications of chapters 3 and 4 for alternative conceptualizations of potential (as opposed to actual) infinity or of the role of infinity in current debates in philosophy. Also missing is any discussion of the philosophical import of the more thoroughgoing use of relations among regions in this book's geometries—why exactly does it matter that we can, if we choose, represent and reason about alignment, directions, angles, and so on, without introducing points?

Overall, *Varieties of Continua* is very useful for its exploration of the particular geometric theories developed in it. These are wonderful examples of ingenuity in introducing a wide range of mathematical concepts over a domain of regions. The book is less satisfying in opening up discussion on the philosophical implications of its theoretical offerings.

MAUREEN DONNELLY
University at Buffalo

[5] *Ibid.*