

Non-Scalar / Non-Quantitative Value

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Jason Ross • jasonross.lpac@gmail.com

Bernhard Riemann

On the Hypotheses Which Lie at the Foundations of Geometry

Introduction

“It is well known that geometry presupposes not only the concept of space but also the first fundamental notions for constructions in space as given in advance. It gives only nominal definitions for them, while the essential means of determining them appear in the form of axioms. The relation of these presuppositions is left in the dark; one sees neither whether and in how far their connection is necessary, nor a priori whether it is possible.

“From Euclid to Legendre ... this darkness has been lifted neither by the mathematicians nor by the philosophers who have labored upon it...

“It will result that a multiply extended magnitude is susceptible of various metric relations and that space accordingly constitutes only a particular case of a triply extended magnitude... The propositions of geometry are not derivable from general concepts of quantity, but that those properties by which space is distinguished from other conceivable triply extended magnitudes can be gathered only from experience.”

Conclusion

“[W]hile in a discrete manifold the principle of metric relations is implicit in the notion of this manifold, it must come from somewhere else in the case of a continuous manifold. Either then the actual things forming the groundwork of a space must constitute a discrete manifold, or else the basis of metric relations must be sought for outside that actuality, in colligating forces that operate upon it...

“This path leads out into the domain of another science, into the realm of physics, into which the nature of this present occasion forbids us to penetrate.”

And in German

oder der Grund der Massverhältnisse ausserhalb, in darauf wirkenden bindenen Kräften, gesucht werden

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Georg Cantor

The transfinite

Cantor differentiated the countable infinite from the uncountable infinite, showing that the latter was immeasurably large in comparison with the former. Will we ever run out of things to discover?

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Bertrand Russell

A thoroughly evil man

“Bertrand Russell, in 1895, Pre-Ordains that the Quantum and Relativity Will Never Be Discovered”

http://action.larouchepac.com/riemann_vs_russell

“How Bertrand Russell Became an Evil Man”

<http://lpac.co/russell-evil>

“The Failures (and Evil) of Logic: A Particularly Evil Aspect of Bertrand Russell”

<http://archive.larouchepac.com/node/30358>

<https://larouchepac.com/new-york-class-series>