

# Problems of size in region-based theories of space

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## Abstract

Space, as we typically represent it in mathematics and physics, is composed of dimensionless, indivisible points. On an alternative, region-based approach to space, extended regions together with the relations of ‘parthood’ and ‘contact’ are taken as primitive; points are constructed as mathematical abstractions from regions. The project of giving region-based theories of space goes back to the work of [1] and [2], and much progress has been made since then in terms of showing the ‘equivalence’ between point-based and region-based theories via various representation theorems. Nevertheless, in recent years several problems concerning size, or measure, were raised for standard models of region-based theories of space. The present paper explores various prospects and challenges for understanding measure in the region-based setting.

## References

- [1] Theodore de Laguna. Point, line, and surface, as sets of solids. *Journal of Philosophy*, 19(17):449–461, 1922.
- [2] Alfred North Whitehead. *Process and Reality*. New York: MacMillan, 1929.