

Corfield, David

Modal homotopy type theory. The prospect of a new logic for philosophy. (English)

Zbl 07162136

Oxford: Oxford University Press (ISBN 978-0-19-885340-4/hbk). x, 180 p. (2020).

The author is a steering committee member of the wonderful *nLab* wiki and a philosopher greatly inspired by two mathematicians Mike Shulman and Urs Schreiber. The principal objective in this book is to convince the reader of *modal* homotopy type theory (modal HoTT) as a new fundamental language for linguistics, metaphysics and mathematics. A good book for HoTT is [*The Univalent Foundations Program*, Homotopy type theory. Univalent foundations of mathematics. Princeton, NJ: Institute for Advanced Study; Raleigh, NC: Lulu Press (2013; [Zbl 1298.03002](#))].

A synopsis of the book goes as follows: Chapter 1 is an introductory survey of the kinds of thinking that have motivated the development through this book. Chapter 2 motivates and deploys type theory, particularly its dependent version. Chapter 3 is a reworking of the author's [<http://philsci-archive.pitt.edu/13448/>], explaining why people have looked to represent more subtle notions of identity. Chapter 4 introduces modalities to the type theory. Chapter 5 recasts the author's [<http://philsci-archive.pitt.edu/11809/>], illustrating what a particular variant of modal HoTT (the differential cohesive variety) can bring to the philosophy of geometry.

Reviewer: [Hirokazu Nishimura \(Tsukuba\)](#)

MSC:

- [00A30](#) Philosophy of mathematics
- [18-03](#) History of category theory
- [01A55](#) History of mathematics in the 19th century
- [03-02](#) Research exposition (monographs, survey articles) pertaining to mathematical logic and foundations