

A Constructivist Reading of the Epsilon Calculus

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The aim of this work is to provide a constructivist reading of Hilbert's epsilon calculus. This goal is achieved in two steps, one philosophical and the other logical. First, we investigate in which sense the epsilon calculus can be seen, from a broadly Kreiselian perspective, as a way of providing a constructive analysis of classical logic and mathematics. In order to highlight the constructive aspects of this calculus, our strategy is to implement it in the general proof theoretic setting provided by (a variant of) Gentzen's sequent calculus. In particular, a cut-elimination algorithm for a version of the epsilon calculus is provided. Thus, in the second part of this work, we show how a given notion of constructivity can be displayed via the epsilon calculus.