

Continuity and computability: A framework for transition and extension

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Abstract

LW-computability, the effectivization of the general definition of continuity of real functions (called LW-continuity), demonstrates a feature different from that of the traditional computability, which is the effectivization of the classically equivalent local uniform continuity. LW-continuity is extensible to irrational based IB-continuity. LW-computability can be naturally extended to IB-computability, which is the theme of [3], and which is the effectivization of IB-continuity. The mathematical circumstances of those notions are first clarified. Then a common mechanism which explains appropriateness of the extension from LW to IB as well as that of the transition from continuity to computability is presented.

Keywords Computable sequences of numbers, continuity of real functions, computability of real functions, conjunctive schema, conjunctive transition, conjunctive extension