Characterizing the coordinate functions of space filling curves

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Abstract

The coordinate functions, \(f\) and \(g\), of a space filling curve are continuous functions from \([0, 1]\) to \([0, 1]\) so that \(F(t) = (f(t), g(t))\) maps \([0, 1]\) onto the unit square. In [1] several necessary conditions for a continuous function \(f\) are given for there to be a continuous \(g\) so that \(F(t) = (f(t), g(t))\) maps \([0, 1]\) onto \([0, 1]^2\). In our recent paper [2] with James Foran, we define a new condition for \(f\) that is both necessary and sufficient to assure that \(f\) has a matching coordinate function \(g\) such that \(F(t) = (f(t), g(t))\) fills the square.

References


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