Graph-like Continua: Characterizations and Eulerian Loops

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Abstract

Locally finite graphs can be compactified, to form the Freudenthal compactification, by adding their ends. This topological setting provides what appears to be the "right" framework for studying locally finite graphs. Indeed, many classical theorems from finite graph theory that involve paths or cycles have been shown to generalize to locally finite, infinite graphs in this topological setting, while failing to extend in a purely graph theoretic context.

More recently, compact graph-like spaces were introduced by Thomassen and Vella, as a natural class encompassing graphs, and their Freudenthal compactifications.

We present various characterizations of graph-like continua and explore when they are Eulerian.