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Title: Real sets

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Session: Category Theory, Algebraic Topology, K-Theory

After reviewing a universal characterization of the extended positive real numbers published by Denis Higgs in 1978, we define a category which provides an answer to the questions:

- what is a set with half an element?
- what is a set with π elements?

That is, we categorify (or objectify) the monoid $[0, \infty]$ under addition. The category of these extended positive real sets is equipped with a countable tensor product. We develop somewhat the theory of categories with countable tensors; we call the commutative such categories *series monoidal*. We may include some remarks on sets having cardinalities in $[-\infty, \infty]$.

This is joint work with George Janelidze.