Combinatorial covering properties in countable and uncountable contexts

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Combinatorial covering properties such as Rothberger's, Hurewicz's and Menger's are procedures for generating a cover of a given topological space from a sequence of covers of this space.

We present the most celebrated such properties together with the most important examples in a classical countable case. We also explore how these notions and examples extend to the uncountable context, where the initial sequence of covers has length κ for some uncountable cardinal κ. In this generalized setting, we replace the classical Baire space ω^ω with the generalized Baire space κ^κ.

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