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Combinatorial models for unstable and stable homotopy

Abstract: In the context of abstract homotopy theory (and towards certain uses of set theory), simplicial sets are particularly useful as models for the homotopy category of topological spaces, due to their combinatorial nature. We will recall basic definitions and offer examples of how to translate features of locally presentable categories into homotopy. Furthermore, motivation for the use of spectra will be given (focusing on representability of homology and cohomology theories) and combinatorial models for the stable homotopy category will be briefly described.