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Cardinal invariants and the Borel Tukey order

Many proofs of inequalities between cardinal characteristics of the continuum are combinatorial in nature. These arguments can be carried out in any model of set theory, even a model of CH where the inequalities themselves are trivial. Thus, such arguments appear to establish a stronger relationship than a mere inequality. The Borel Tukey order was introduced by Blass in a 1996 article to address just this. Specifically, he observed that the combinatorial information linking two cardinal characteristics is often captured by a pair of Borel maps called a \mathfrak{m}_j -Borel Tukey morphism $\mathfrak{m}_j/\mathfrak{e}_j$. The existence of a Borel Tukey morphism between two cardinal invariants has since been found to have a couple of applications in other set-theoretic contexts. In this talk we will discuss a number of popular combinatorial cardinal invariants, and compare their traditional ordering of provable inequalities with the finer ordering given by the Borel Tukey morphisms.