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Unbounded colorings and the C-sequence number

Joint work with Assaf Rinot

Motivated by questions about the infinite productivity of strong chain conditions, we introduce and analyze a coloring principle asserting the existence of certain strongly unbounded functions. We use this principle to show, for instance, that the κ -Knaster property is not infinitely productive for any successor cardinal κ . We also introduce a cardinal invariant, the *C-sequence number*, that is deeply connected to our coloring principle and can be seen as a way of measuring the compactness of an uncountable cardinal. We then present a number of ZFC theorems and independence results concerning the C-sequence number and linking it to various large cardinal notions.