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ASYMPTOTIC SHARPNESS OF BOUNDS ON HYPERTREES

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Abstract

The hypertree can be defined in many different ways. Katona and Szabó introduced a new, natural definition of hypertrees in uniform hypergraphs and investigated bounds on the number of edges of the hypertrees. They showed that a k-uniform hypertree on n vertices has at most $\binom{n}{k-1}$ edges and they conjectured that the upper bound is asymptotically sharp. Recently, Szabó verified that the conjecture holds by recursively constructing an infinite sequence of k-uniform hypertrees and making complicated analyses for it. In this note we give a short proof of the conjecture by directly constructing a sequence of k-uniform k-hypertrees.

Keywords: hypertree, semicycle in hypergraph, chain in hypergraph.

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