Upper Bounds for Erdős-Hajnal Coefficients of Tournaments

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Abstract

A version of the Erdős-Hajnal conjecture for tournaments states that for every tournament H every tournament T that does not contain H as a subtournament, contains a transitive subtournament of size at least $n^{\epsilon(H)}$ for some $\epsilon(H) > 0$, where n is the order of T. For any fixed tournament H we can denote by $\epsilon_{n_0}(H)$ the supremum over all $\epsilon \geq 0$ satisfying the following statement: every tournament T of order $n \geq n_0$ that does not contain H as a subtournament, contains a transitive subtournament of size at least n^{ϵ}. The Erdős-Hajnal conjecture is true iff for every tournament H the limit $\lim_{n_0 \to \infty} \epsilon_{n_0}(H)$, denoted as $\xi(H)$, is positive.

The main goal of this talk is to give the upper bounds for the parameter $\xi(H)$, called by us *the Erdős-Hajnal coefficient of a tournament* H, for many classes of tournaments H. We will also define tournaments called *the pseudocelebrities*, discuss their properties and mention some open problems that relate pseudocelebrities to the Erdős-Hajnal conjecture.