

Generalized Turán Problems for Trees and More

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Given a graph H and a family of graphs $\mathcal{F}$, we define the generalized Turán number $\text{ex}(n, H, \mathcal{F})$ to be the maximum number of copies of H in an $\mathcal{F}$ -free graph on n vertices. We prove a “stability” type result for generalized Turán problems which relates the generalized Turán number $\text{ex}(n, H, \mathcal{F})$ to the classical Turán number $\text{ex}(n, \mathcal{F})$ whenever H is a tree. We discuss some applications of this result, as well as some related work around the rational exponents conjecture for general graphs H and generalized Helly theorems for trees. Joint work with Sean English.