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Title: The asymptotical version of the Bollobas-Catlin-Eldridge conjecture

Abstract:

We say that the graphs G and H with n vertices pack if G and H can be embedded to the same vertex with no overlapping edges. Bollobas, Eldridge and independently Catlin conjectured that if that if $(M(G)+1)(M(H)+1) < n+2$ holds for the maximal degrees then G and H pack. Aigner and Brandt and independently Alon and Fischer proved this in the case $M(G), M(H) < 3$, Csaba, Shokoufandeh and Szemerédi if $M(G), M(H) < 4$. Bollobas, Kostochka and Nakprasit settled the case when one of the graphs is degenerate. Kaul, Kostochka and Yu showed that if $M(G)M(H) < 3/5n$ and the maximal degrees are large enough then G and H pack.

We prove an asymptotic version of the conjecture:

For every $\epsilon > 0$ there is D that if $M(G), M(H) > D$ and $M(G)M(H) < (1-\epsilon)n$ then G and H pack.