

On H -linked graphs

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Abstract

We introduce the notion of H -linked graphs, where H is a fixed multigraph with vertices w_1, \dots, w_m . A graph G is H -linked if for every choice of vertices v_1, \dots, v_m in G , there exists a subdivision of H in G such that v_i is the branch vertex representing w_i (for all i). This generalizes the notions of k -linked, k -connected, and k -ordered graphs.

Given k and n , we determine the least integer d such that, for every graph H with k edges, every n -vertex graph with minimum degree at least d is H -linked. This value $D_1(k, n)$ appears to equal the least integer d' such that every n -vertex graph with minimum degree at least d' is k -connected. On the way to the proof, we extend a theorem by Kierstead et al on the least integer d'' such that every n -vertex graph with minimum degree at least d'' is k -ordered. We will also consider the connectivity conditions for a graph to be k -linked in the talk. This is a joint work with Prof. A. Kostochka.