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Stephen G. Hartke* (stephen.hartke@ucdenver.edu), Dept of Mathematical and Statistical Sciences, University of Colorado Denver, Denver, CO. *Graph realizations of a degree sequence constrained by a vertex partition*. Preliminary report.

Given a sequence $\pi = (d_1, \dots, d_n)$, a graph G is a *realization* of π if π is the degree sequence of G . Motivated by questions about social and biological networks, we study realizations of a degree sequence that have the additional constraint that the number of edges between each pair of parts of a vertex partition is fixed. For partitions with two parts, we resolve the questions of how to test whether a given sequence has a compatible realization and whether the space of all such realizations is connected using small changes.

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