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2-edge-connected fair detachments of (≤ 3) -graphs

A detachment of a hypergraph is formed by splitting each vertex into one or more subvertices, and sharing the incident edges arbitrarily among the subvertices. Given a hypergraph F whose edges are of size at most 3, we provide necessary and sufficient conditions for the existence of a fair detachment G of F in which each color class is 2-edge-connected, which generalizes Nash-Williams' Theorem. Then we find 2-edge-connected factorizations for complete 3-uniform hypergraphs which generalizes Baranyai's Theorem restricted to 3-uniform hypergraphs.