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DENSITY CORRADI-HAJNAL THEOREM

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Mantel's Theorem — the simplest instance of Turán's Theorem — asserts that each n -vertex graph with more than $n^2/4$ edges contains a triangle. When the threshold $n^2/4$ is exceeded, one can then ask, how many triangles are. This "triangle density problem" was famously answered by Razborov in 2008. We find, for all sufficiently large n and each k , the maximum number of edges in an n -vertex graph which does not contain $k + 1$ vertex-disjoint triangles. Our result can also be viewed as a density version of the Corrádi–Hajnal Theorem which considers minimum degree instead.