1106-05-2356 **David Petrie Moulton*** (`dpmoulton@gmail.com`). *Are All 2-connected Maximal Non-Hamiltonian Graphs Spanned by θ Graphs?* Preliminary report.

One way to study Hamiltonicity of graphs is to consider (edge-)maximal non-Hamiltonian graphs. For instance, Ore's sufficient condition for a graph to be Hamiltonian can be rephrased as saying that in any maximal non-Hamiltonian graph of order n, there are two nonadjacent vertices whose degrees sum to less than n. In fact, the Bondy–Chvatal Theorem says that this property holds for every pair of nonadjacent vertices.

It is easy to show that every maximal non-Hamiltonian graph of order at least 3 is spanned by a figure-8 graph (the union of two cycles sharing a point, where we allow each cycle to degenerate to an edge). Now maximal non-Hamiltonian graphs with cut-vertices are easily classified, so we can restrict our attention to 2-connected maximal non-Hamiltonian graphs. I conjecture that every such graph is spanned by a θ graph (a subdivision of $K_{1,1,2}$). I have shown that this holds for all such graphs of order at most 20 and have proved a number of properties that a potential counterexample would have to possess. (Received September 16, 2014)