

Cycle extendability and Hamilton cycles in chordal graph classes

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A cycle C in a graph is *extendable* if there exists a cycle C' such that $V(C) \subseteq V(C')$ and $|V(C')| = |V(C)| + 1$. A graph is *cycle extendable* if every non-Hamiltonian cycle in the graph is extendable. An unresolved question is whether or not every Hamiltonian chordal graph is cycle extendable. We show that Hamiltonian graphs in classes such as interval, split, and some subclasses of strongly chordal, are cycle extendable. We also address efficiently finding a Hamilton cycle in some cases. A unifying theme to our approach is the use of appropriate vertex elimination orders.