

Strong chordality in graphs and digraphs with possible loops

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We introduce a definition of strong chordality which not only unifies the concepts of strongly chordal graphs and chordal bigraphs, but also allows strong chordality to be defined on (di)graphs where some vertices have loops and some do not. We present characterizations of strongly chordal graphs with possible loops and strongly chordal tournaments in terms of a set of forbidden induced sub(di)graphs.

In order to encourage the use of graphs with possible loops, we interpret the concepts of domination and total domination in this context, and show that the general domination problem on graphs with possible loops can be solved in polynomial time in the family of strongly chordal graphs.