

## On Upper Bound Graphs with Respect to Unary Operations on Graphs

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**Abstract.** We consider upper bound graphs with respect to unary operations on graphs, that is, line graphs, middle graphs, total graphs and squares of graphs. According to the characterization of upper bound graphs, we deal with characterizations of upper bound graphs obtained by graph operations of upper bound graphs. For example, the line graph of a connected upper bound graph  $G$  is an upper bound graph if and only if  $G = K_3$  or  $G = K_1 + H$ , where  $H = mK_1 \cup nK_2$  ( $m \geq 1, n \geq 0$ ) and the square of an upper bound graph  $G$  is an upper bound graph if and only if the intersection graph of the corresponding edge clique cover of  $G$  is an upper bound graph.

*Keywords:* upper bound graphs, posets, line graphs

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