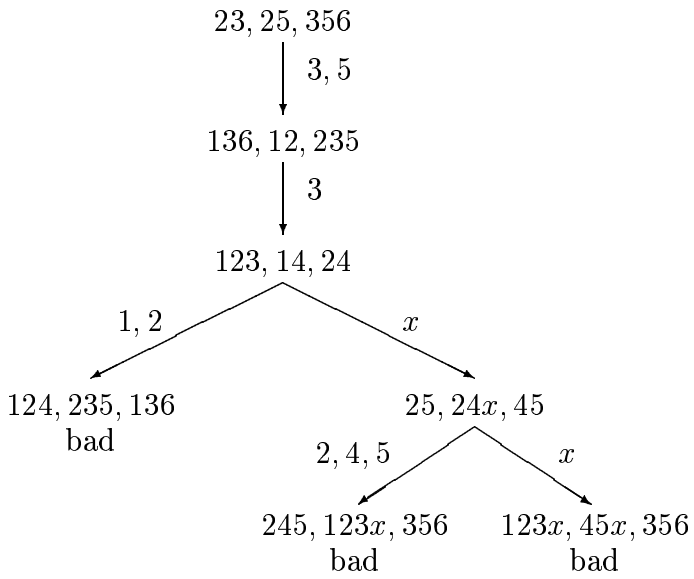

Figure 5: A solution DAMG for graph $A + 5x + 45 + 56$, showing it is not a clique graph. Only conflicts are shown at nodes. The family $\mathcal{A}$ at each node is determined implicitly as indicated in the end of Section 3.1. Arcs leaving a node are labeled with the possible solutions for its conflict. Multiple labels over an arc should be interpreted as multiple arcs parallel to the one shown, each one with a different label. The source node contains all edges and all cliques of size three of G.

6 Conclusions

We studied the question "is $K(\mathcal{G})$ the same as $K^2(\mathcal{G})$?", where $\mathcal{G}$ is the class of all graphs, and concluded that a graph in $K(\mathcal{G}) \setminus K^2(\mathcal{G})$ must have at least eight vertices.

Other partial results include the following. We obtain a necessary condition for a graph to be in the image of K in terms of the presence of certain subgraph A. We also show that being a clique graph is a property that is maintained by addition of twins, but *not being* a clique graph in *not* necessarily maintained by addition of twins. In addition, we give an algorithm for the recognition of clique graphs. Its complexity is unknown, probably exponential, but it is useful in producing proofs that graphs are not clique graphs.

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