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Summary: A set $X$ of vertices of an acyclic graph is convex if any vertex on a directed walk between elements of $X$ is itself in $X$. We construct an algorithm for generating all input-output constrained convex (IOCC) sets in an acyclic digraph, which uses several novel ideas. We show that the time complexity of our algorithm significantly improves the best one known from the literature. IOCC sets of acyclic digraphs are of interest in the area of modern embedded processor technology.

MSC: 05C20 Directed graphs (digraphs), tournaments
52A15 Convex sets in 3 dimensions (including convex surfaces)
68M99 Computer system organization
68R10 Graph theory (including graph drawing) in computer science

Keywords: acyclic digraph; input-output convex set; IOCC

Software: MiBench

Full Text: DOI

References: