

Gibbons, Phillip; Karp, Richard; Ramachandran, Vijaya; Soroker, Danny; Tarjan, Robert
Transitive compaction in parallel via branchings. (English) [Zbl 0718.68058](#)
J. Algorithms 12, No. 1, 110-125 (1991).

The transitive compaction problem for strongly connected digraphs is: given a strongly connected digraph G , find a strongly connected spanning subgraph for which the removal of any arc destroys strong connectivity. A parallel algorithm for this problem is presented. It runs in time $O(\log^4 n)$ and uses $O(n^3)$ processors on a CREW PRAM. The major tool used by the algorithm is computing a minimum-weight branching with zero-one weights. Two sequential algorithms for the problem that run in time $O(m+n \log n)$ are also presented.

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MSC:

[68R10](#) Graph theory (including graph drawing) in computer science
[68W15](#) Distributed algorithms

Cited in **3** Documents

Keywords:

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