An algorithm for Generalized Conjunctive Predicates Detection

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ABSTRACT

Analysing and debugging parallel and distributed programs is usually a difficult and not well explored problem. This is largely due to the non-deterministic nature of the run-time states of these processes, and results in a general lack of adequate parallel debugging tools. In this paper, we propose a solution for the problem of detecting global generalized conjunctive predicates (GCP). For this purpose, it is necessary to detect a global state that satisfies local predicates and corresponds to linear states of the communication channels of the processes that participate in the parallel distributed computation. We propose the algorithm DETECT_GCP to detect GCP’s. This algorithm’s local time, memory and message complexities are compared to the complexities of a well knowing algorithm to detect GCP in the literature. Our theoretical and preliminary experimental evaluations suggest various advantages of our algorithm.

References