

Kambhampati, S.

Planning graph as a (dynamic) CSP: Exploiting EBL, DDB and other CSP search techniques in graphplan. (English) [Zbl 0940.68100](#)
J. Artif. Intell. Res. (JAIR) 12, 1-34 (2000).

Summary: This paper reviews the connections between Graphplan's planning-graph and the dynamic constraint satisfaction problem and motivates the need for adapting CSP search techniques to the Graphplan algorithm. It then describes how explanation based learning, dependency directed backtracking, dynamic variable ordering, forward checking, sticky values and random-restart search strategies can be adapted to Graphplan. Empirical results are provided to demonstrate that these augmentations improve Graphplan's performance significantly (up to 1000x speedups) on several benchmark problems. Special attention is paid to the explanation-based learning and dependency directed backtracking techniques as they are empirically found to be most useful in improving the performance of Graphplan.

MSC:

[68R10](#) Graph theory (including graph drawing) in computer science
[68W05](#) Nonnumerical algorithms

Cited in **13** Documents

Keywords:

[Graphplan's planning-graph; dynamic constraint satisfaction problem](#)

Software:

[Graphplan; Walksat; STAN](#)

Full Text: [Link](#)