STRIPS (Stanford Research Institute Problem Solver)

STRIPS is a member of the class of problem solvers that search a space of "world models" to find one in which a given goal is achieved.STRIPS uses the resolution theorem-prover when attempting to prove goal and subgoals[1].The representation language used by STRIPS has been far more influential than its algorithmic approach; what we call the “classical” language is close to what STRIPS used[2].
It employs a resolution theorem prover to answer questions of particular models and uses means-ends analysis to guide it to the desired goal-satisfying model[1]

Planning Graphs

Most, if not all, modern reachability heuristics are based on a remarkably extensible data structure called the planning graph, which made its debut as a bit player in the success of GraphPlan.Planning graphs are a cheap means to obtain informative look-ahead heuristics for search and have become ubiquitous in state-of-the-art heuristic search planners [3] planning graph can propagate all types of information, such as levels, subgoal interactions, time, cost, and belief support. Planning graphs are versatile because of their many construction algorithms, the different information propagated on them, the types of problems they can solve, and the types of planners that employ them. [3] a planning graph can be used in many different ways to guide the search for a solution [2]

TWEAK

A non-linear planner that uses *constraint posting* as its approach to problem solving. It is capable of solving any nonlinear planning problem.
Constraint posting is the process of defining an object (such as a plan) by incrementally specifying partial constraints it must fit. The search space is pruned as constraints are added, until all remaining alternatives satisfy the constraints. This approach minimizes backtracking. TWEAK always has an *incomplete plan* while working on a problem; this is a partial specification of a plan that may solve the problem. Since it could be solved in many ways it represents a class of complete solutions. A *complete plan* is a total order on some finite set of plan steps[4]. TWEAK was a planner that was simple enough to allow proofs of completeness and intractability (NP-hardness and undecidability) of various planning problems. Chapman’s work led to a straightforward description of a complete partial- order planner (McAllester and Rosenblitt, 1991), then to the widely distributed implementations SNLP (Soderland and Weld, 1991) and UCPOP (Penberthy and Weld, 1992). [2]

References

[1] STRIPS: A New Approach to the Application of .Theorem Proving to Problem Solving' Richard E. Fikes Nils J. NHsson
[2] Artificial Intelligence: A Modern Approach: Peter Norvig and Stuart J. Russell
[3] A tutorial on planning graph - Based reachability heuristics Daniel Bryce, Subbarao Kambhampati
[4] TWEAK (Chapman, 1987)