Research Review

STanford Research Institute Problem Solver (STRIPS)

STRIPS is an automated planner that search a model which a given goal is achieved. The problem is represented by a first-order predicate calculus which models the search space.[3] This representation language motivated most of the automated planning problems that uses a convention to express the problem.

GraphPlan

It's an automated planner which uses a STRIPs domain and the algorithm uses a Planning Graph to guide its search for a plan. Given that a problem is solvable, it's guaranteed that it will find the shortest plan among those in which independent actions may take place at the same time and it's not sensitive to the order of the goals.[2]

Planning as Satisfiability (SATPlan)

It's also an automated planner and it's similar to GraphPlan, however it relies on satisfiability which is popular and effective approach.[1] The satisfiability approach provides a more flexible framework for stating different kinds of constraints on plans and also it reflects more accurately the theory behind the constraint-based planning systems.[4]

Conclusion

The Artificial Intelligence field developed a lot past decades and still growing up. The representation language STRIPS influenced a lot of researchers in order to model the problem. GraphPlan and SATPlan clarified the representational and combinatorial issues, and developed useful heuristics, therefore raising the level of performance of planning systems moving the field of planning forward[1]. However, still unsure how far these techniques will scale, since larger problems cannot rely on factored and propositional representations requiring to synthesize the representations with efficient heuristics.

References

[1] Russel, S. J.; Norvig, P.; Artificial Intelligence: A Modern Approach - Third Edition

[2] Blum, A. L.; Furst, M. L.; Fast Planning Through Planning Graph Analysis;

[3] Fikes, R. E.; Nilsson, N. J.; STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving

[4] Kautz, H.; Selman, B.; Planning as Satisfiability