

PLANNING SEARCH RESEARCH REVIEW

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The following review is a description of some of the main developments in the field of planning and search and the influence they had on AI applications.

STRIPS (Stanford Research Institute Problem Solver)

STRIPS was created by Richard Fikes and Nils Nilsson in 1971. It was designed as the planning component of the software for the Shakey robot Solver (Newell and Simon, 1961), a state-space search system that used means-ends analysis.

STRIPS contributed to the field of Artificial Intelligence because of the representation language it created (Norvig, P. & Russell, S., J., 2009), which is similar to the classical planning language.

STRIPS language was really attractive for researched at that time and it became very influential, indeed it is the base for most of the languages representing automate problem instances nowadays.

ADL (Action Description Language)

The Action Description Language allowed to encode more realistic problems than those allowed by STRIPS. It achieved this result by relaxing some of the STRIP restrictions (Norvig, P. & Russell, S., J., 2009).

It has been formulated by Edwin Pednault in 1986, and it permits disjunctive, quantified, conjunctive and negative preconditions, in addition to conditional effects. Moreover, ADL reduced the size of domain descriptions needed (Coles and Smith, 2007).

WARPLAN

The approach of planners in the early 70s was called linear planning by Sacerdoti (1975), and soon discovered to be incomplete do solve simple problems such as the Sussman anomaly. One possible solution to the interleaving problem was goal-

regression planning, a technique that avoid conflicts between sub-goals (Norvig, P. & Russell, S., J., 2009). The solution was introduced by WARPLAN, a planner developed by Davidi Warren, and it was the first planner written in a logic programming language (Norvig, P. & Russell, S., J., 2009). Moreover, WARPLAN is an example of the efficient results gained with logic programming, indeed WARKPLAN is only 100 lines of code, which is a dramatic economy if compared with the planners of the time.