Research Review

The first studies in AI began in 1956 after the World War II. However, this field of knowledge has a high diversity of segments, specifically this review will talk about the classical planning to solve problems.

In 1971 Fikes and Nilsson published the STRIPS [1], one of the first planning system and referenced by many studies. The planning systems in the early 1970s, usually created solutions based in a ordered sequences of actions. Yet, Sarcerdoti in 1975 proposed the steps fragmentation to find the best solution [2] , an approach similar the heuristic divide and conquer.

In Sussuman paper [3] a simple example is describe where the solution consist of three blocs staked following the sequence A,B,C. The Figure 1 show the initial state and the solution of the problem. Using this problem, Sarcerdoti introduce the concept of a planner capable to

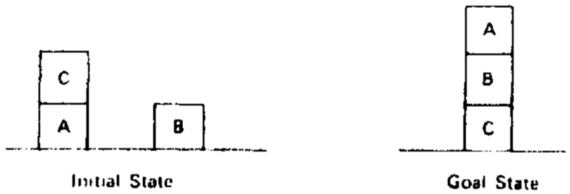

FIGURE 1 EXAMPLE PROBLEM

solve a problem without the necessity of linearity and not using backtracking NOAH (Nets of Action Hierarchies). The NOAH solution show the necessity of resolve some problems called *Critics*. This Critics resolutions needs to examine the portions of plan that represent conjuncts to be archived of a plan in parallel.

The approach presented by Sarcerdoti comes with the necessity of solve parallel problems as solve conflicts can be see in Tate paper [4]. Tate introduce the analysis of goal interaction as crucial necessity to solve problems. Tate use some heuristics to find the best solutions to identify some contractions during the problem resolution leaving for plans to remove interactions. That approach is very important when the main aspect of the planner is find the best solution to the problem.

Another situation necessary to the good planner must allow for inter- leaving of actions from different sub plans within a single sequence. In [3] the block problem is describe, in [2] the concept of parallel analysis is introduce and in [4] the conflict and the ways to improve the solution is presented. However, in [5] Korf allow to quantify the solution and measure their performance.

Finally, when the sub-goals is analyzed is necessary use techniques to avoid conflicts between then. The fist paper to introduce that approach was published by Waldinger in 1972 [6], when a strategy to solve to goals simultaneously. This strategy use an model to be used as a parameter of the modifications, supporting the understand of the solutions.

References

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