Historical Development of planning and search in AI

Planning is the process of generating a representations of a future behavior. The outcome of planning is usually a set of actions, with certain constraints on these actions, for its execution by an agent. Planning has been studied since the earliest days of Artificial Intelligence. Its research has led to different useful tools for real-world applications, and has yielded significant insights into the organization of behavior and the nature of reasoning about actions[1] .

To accomplish this task the use of Artificial Intelligence has been key. As a result, different planning languages have been developed. These languages try to describe different conditions to be able to lead to the desired goal by generating a chain of actions based on these specific conditions.

STRIPS was the first major attempt of a planning system. STRIPS was developed to find a sequence of operators in a space of world models to transform it into a model in which a certain formula can be proven to be true [2]. STRIPS was the planning component for the Shakey robot[3]. The representation language used in STRIPS has had an important impact on AI[4]. Since this language is the base for most of the languages for expressing automated planning problems today[5].

The Action Description Language (ADL) is an extension of STRIPS. ADL removed some constraints to allow the language handle more realistic problems. Contrary to STRIPS, ADL doesn't assume that unmentioned literals are false, but rather unknown. This principle is known as the Open World Assumption. ADL also allows negative literals and disjunctions, as opposed to STRIPS that only allows positive literals and conjunctions[6].

The Planning Domain Definition Language (PDDL) was an attempt to standardize the AI planning languages[7]. This languages has been used as the standard for the International Planning Competition. The language has roughly the the expressiveness of ADL for propositions, and roughly the expressiveness of UMCP for actions[8].

The advances made in the field of planning and scheduling of AI; has allow the development of intelligent vacuum cleaners and factory robots to name a few. And it's currently shaping our near future with the development of autonomous cars and autonomous drones to deliver packages.

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