Planning and search is one of the major fields of Artificial Intellligence. In this short summary, we will be focusing on the historical development of major planning languages.

STRIPS stands for Stanford Research Institute Problem Solver, and is an automated planner developed by Richard Fikes and Nils Nilsson in 1971, and was later used to reference the planning language of inputs into the STRIPS automated planner. It provided the foundation for modern action languages that express instances of automated planning problems. While the planning component made Shakey the robot a breakthrough in AI architecture and algorithm at the time, the classical planning language STRIPS was much more of a game changer in the field of AI.

However, there were room for improvements. While STRIPS was already powerful in expressing problem instances, it could have been advanced further by allowing the effects of an operator to be conditional. What started out as an extension to STRIPS in order to allow the language to handle more realistic problems became ADL, or the Action Description Language. It was proposed by Edwin Pednault in 1987, and applies the principle of the open world, where unmentioned literals are treated as unknown instead of being assumed to be false, unlike STRIPS which employed a closed-world assumption . ADL also allows negative literals and disjunctions. ADL improved upon the nonsuitability of using STRIPS for modelling many real world scenaios while managing to be less complex than situation calculus, and had a better balance between expresssiveness and complexity than the STRIPS language.

The PDDL, or Planning Domain Definition Language, was inspired by STRIPS and ADL, and is an attempt to standardize planning languages. First developed by Drew McDermott in 1998, it has evolved continually over the years to the latest PDDL3.1, and gave rise to many successors such as PDDL+, NDDL (New Domain Definition Language), and MAPL (Multi-Agent Planning Language). PDDL allowed researchers in the field of AI to formally compare planning systems and approaches by having a benchmark standard, helping speed up the progress of AI development.

References

1. Russell, S, and P Norvig. Artificial Intelligence: A Modern Approach, Chapter 10: Classical Planning
2. Shakey the robot, Technical note 323, http://www.cs.uml.edu/~holly/91.549/readings/629.pdf
3. Richard E. Fikes, Nils J. Nilsson (Winter 1971). "STRIPS: A New Approach to the Application of Theorem Proving to Problem Solving" (PDF). *Artificial Intelligence*. **2** (3–4): 189–208. doi:10.1016/0004-3702(71)90010-5.
4. Tom Bylander (September 1994). "The Computational Complexity of Propositional STRIPS Planning". *Artificial Intelligence*. **69** (1–2): 165–204. doi:10.1016/0004-3702(94)90081-7.
5. Pednault. Formulating multi-agent dynamic-world problems in the classical planning framework. In Michael Georgeff and Amy Lansky, editors, Reasoning about actions and plans pages 47-82. Morgan Kaufmann, San Mateo, CA, 1987.
6. Fox, M.; Long, D. (2003). "PDDL2.1: An Extension to PDDL for Expressing Temporal Planning Domains" (PDF). *Journal of Artificial Intelligence Research (JAIR)*. **20**: 61–124.