

Solving the Maze Problem with Inductive Logic Programming: A comparison between HYPER, Metagol and ILASP

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June 28, 2021

1 Outline

In this document, we intend to describe our Inductive Logic Programming (ILP) solutions to the Maze problem.

Section 2 offers a brief illustration of the Maze Problem we have been working on, including the main choices and assumptions we made.

Section 3 lists the tools we have used to reach our goal.

2 Introduction

Our work is focussed on the Maze problem. This problem consists in finding a path from point A to point B in a labyrinth-like shaped map (see Figure 1). A variety of classical algorithms can be used to solve this problem, starting from the most naïve wall following algorithm to more complex and elaborated ones exploiting graph theory concepts.

By approaching this simple problem with ILP though, it is possible to extend it into a much more sophisticated and interesting problem. For instance, it allowed us to start with the assumption that the problem's main character (the one we shall refer to as *agent*) has no knowledge about *how* to move. Consequently, before even trying to solve the Maze, the agent needs to learn what a *move* is and then what a *legal* move is.

3 Background

4 Implementation

4.1 HYPER

4.2 Metagol

4.3 ILASP

5 Performance comparison

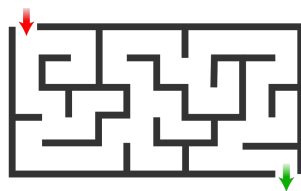


Figure 1: Example of a Maze