

SHRDLU IN MINECRAFT

Abstract

This paper documents our attempt to use SHRDLU as a blueprint for building a Minecraft bot that can understand and act upon natural language input from humans.

Upon its development and publication in 1970, SHRDLU was a computer program that was considered to be a breakthrough for the field of natural language understanding in artificial intelligence. However, expanding SHRDLU's methodology to Minecraft proved to be a greater challenge than we first imagined, largely due to the extent of the entire Minecraft universe. The unfeasibility of creating a vocabulary for Minecraft, which for our purposes was a miniature simulation of the real world, illustrates the impossibility of using SHRDLU for real-world applications.

To even have a starting point, we had to limit the Minecraft world in order to ensure that we would have a cohesive set of actions and vocab. We limited ourselves to mainly actions which does not require the Minecraft bot to dig or build, as giving the bot ability to significantly alter the Minecraft world greatly increases the complexity of our problem. In the body of the paper, we will describe the different modules--such as PARSER, PLANNER, DICTION, and more--that we built to enhance the ability of our bot to navigate the limited Minecraft world.

Sample Figures

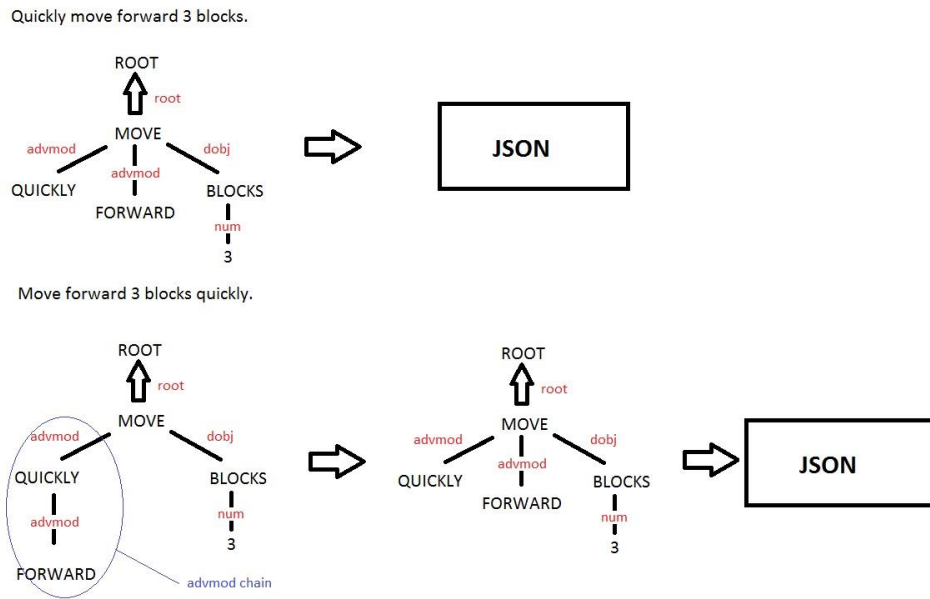


Figure 1: Parse Tree Construction and Collapsing

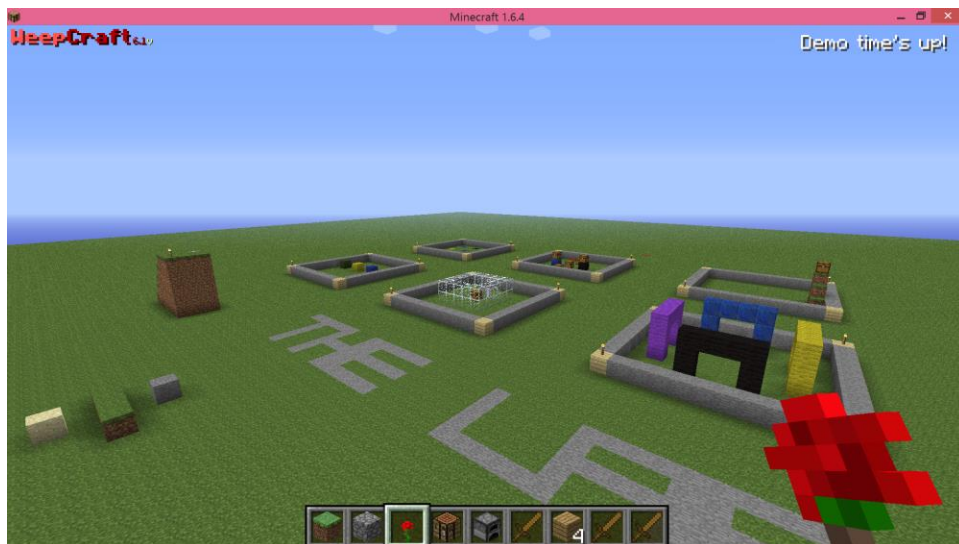


Figure 4 - Overhead view of testing grounds

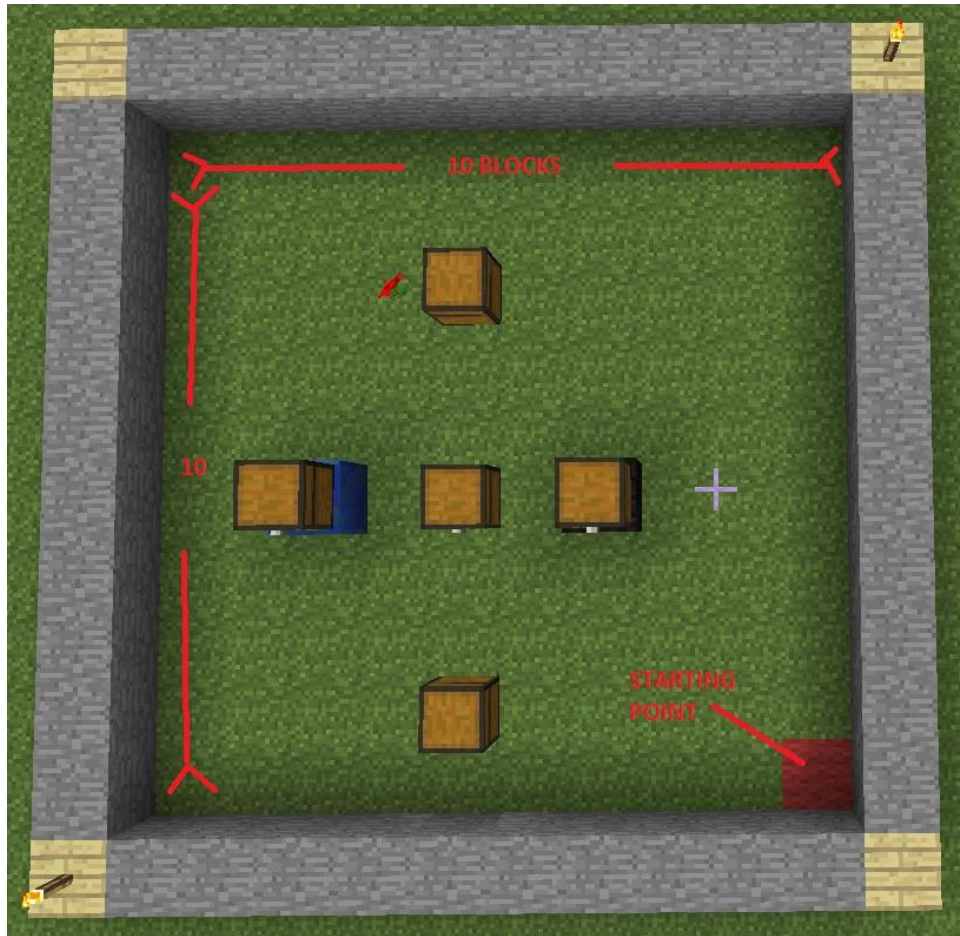


Figure 5 - Sample Test Arena