Concept Visualization for Ontologies of Learning Agents

Computer Systems Technology Lab 2006 – 2007

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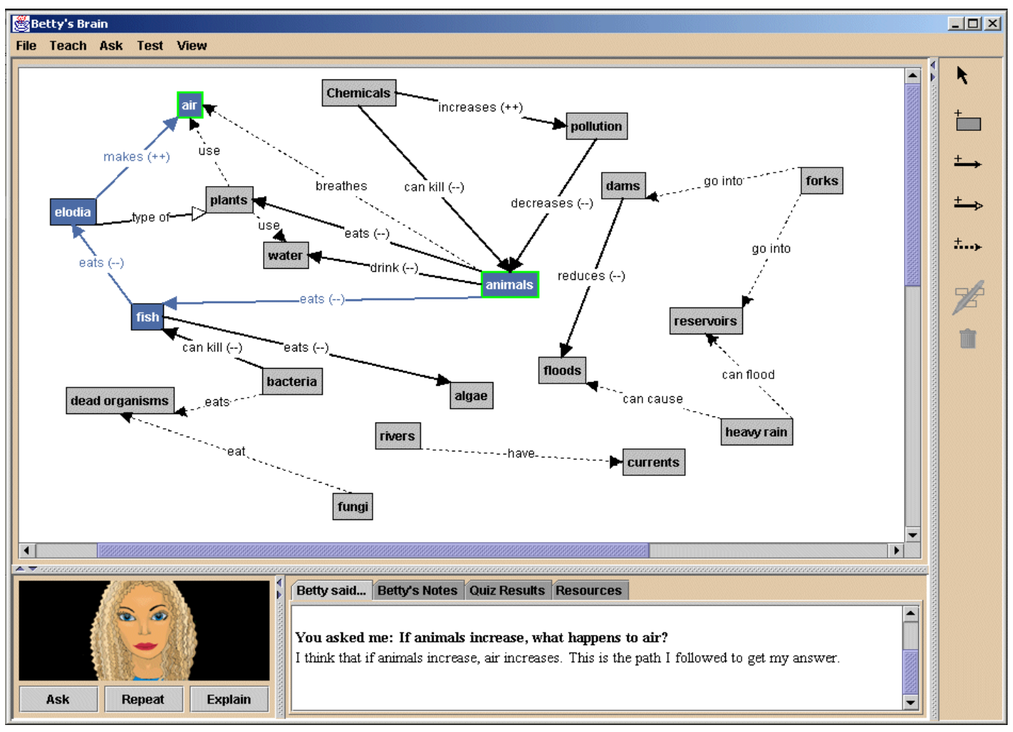
Abstract

The purpose of this project is to research, create, and program a concept visualization tool to easily browse small to large scale semantic networks and ontologies of an artificial intelligence. This relates closely to graph theory and graph layout algorithms but adds another factor by taking into account the relationships between different nodes and elements of a learning agent when drawing the graph.

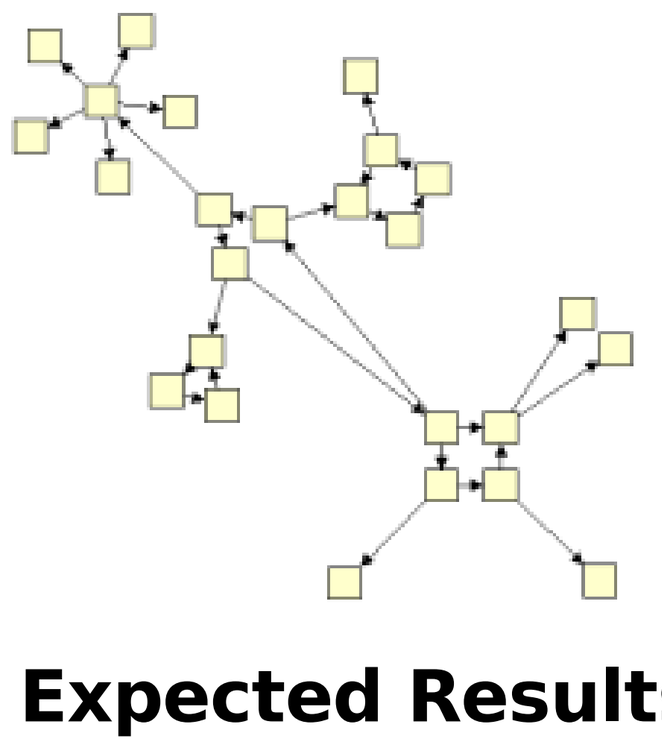


Background

The Disciple Learning Agent is an artificial intelligence that can be adapted for many purposes such as military operations, teaching, and traveling. It is currently being developed at the George Mason University – Learning Agents Center. The project will be used mainly by those who are not proficient at Computer Science. Therefore, this project aims to distribute information about the artificial intelligence in an easy and usable way.

Procedure and Methodology

The Disciple Learning Agent is currently written in JAVA and called Jdisciple. Eclipse is used to provide a basic organized structure for the entire project. This part of the project will be coded in many different iterations starting with the simplest of cases and gradually moving to more advanced cases. This will involve an implementation of a basic element picking algorithm such as a Greedy, and a basic graph layout algorithm to place and make space for elements on the screen. Then, the algorithms will improved upon every iteration by modifying the heuristics to make it more efficient, faster, and usable for larger ontologies.



Expected Results

The first version of my program will involve manipulation of small explanation element lists in a Disciple agent and represent the elements in an understandable, graphical way. Then, after each iteration, I hope to expand the algorithm for more general and larger test cases.