Graphical Interface for Constructing Parametrized Action Representations

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Abstract

- Design an intuitive graphical interface to allow non-programmers to create and modify parametrized action representations

Screenshot:

Parametrized Action Representations (PARs)

- Parametrized Action Representations are used to describe actions in a generic fashion
- Each node executes, or fails.
- Generic nodes can control branching and sequence
- Agent nodes can execute an agent-specific programmed behavior, potentially with arguments
- An individual PAR can be used as a “Lookup Node” in another PAR, which will execute the entire subtree when called
- Variables propagate up – parameters of an agent node may become parameters of a lookup node containing its tree

Topiary

- Topiary is a Microsoft .NET Windows Forms application written in C#
- The application consists of a main window multiple-document interface containing a number of trees, each in a subwindow
- There are also several toolboxes with nodes, and a few inspectors for various properties
- The application adheres to a drag-drag paradigm. Nodes are placed by dragging them into a suitable canvas

Results and Future Work

At the end of the summer, we had a functional first version of the Topiary program that could be used to design complex trees in a reasonably straightforward way, and serialize them to XML. Utilizing and executing these trees within the Unity game engine is the next step of the process.

Further Reading