Natural Language Scene Description

In RobotStudio

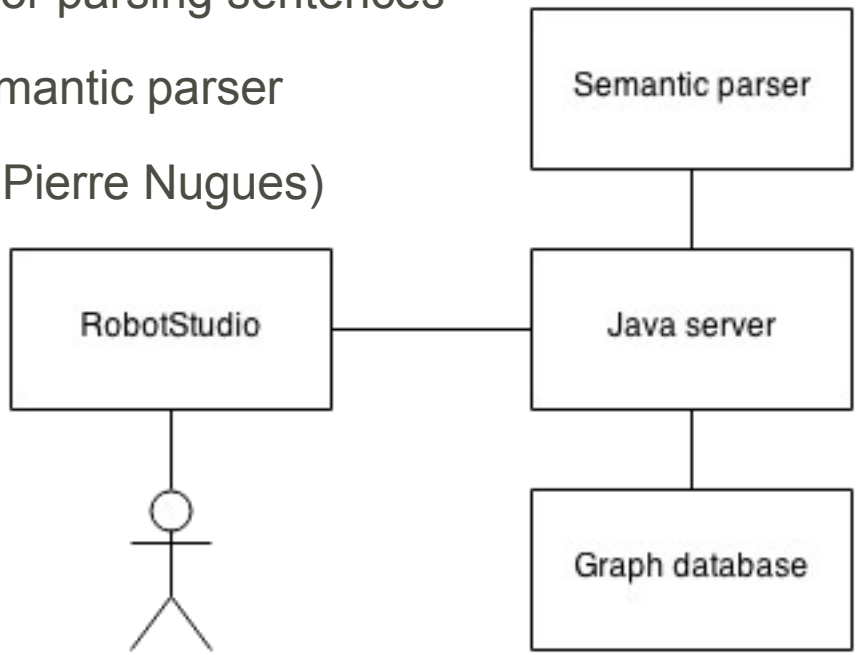
Problem description

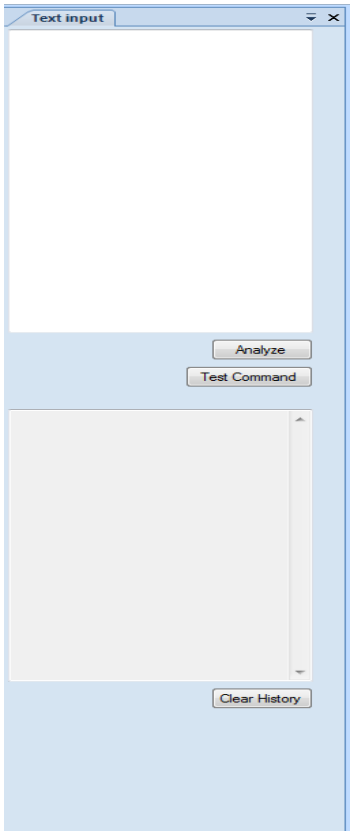
- RobotStudio – a widely used program
- Setting up scenes manually is tedious
- Natural language would be easier
- So we create a plugin

Our solution

- A program in several parts
- A plugin to RobotStudio for handling its contents
- A graph database for holding the state of the world
- A java servlet for parsing sentences
- A statistical semantic parser

  (developed by Pierre Nugues)





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Description by example

- Start with RobotStudio plugin (written in C#)
- Write text in the window, click ”Analyze”
- Text is sent to java servlet through http
- Java server passes text to the semantic parser

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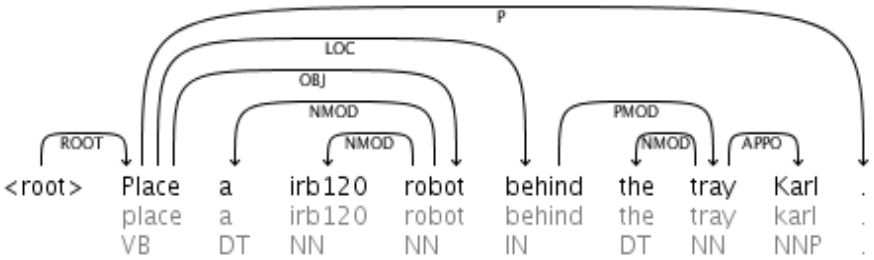
Output from the parser

The parser returns:

- Annotated corpus
- Found predicates with mapped arguments
- Dependency Tree

	Place	a	irb120	robot	behind	the	tray	Karl	.
place.01		A1			A2				



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The Java Interpreter

Possible Actions: create, remove and modify.

1. Identify predicates and determine action(s).
2. Identify object(s)
3. Interprets arguments

RobotStudio Realization

- Server compiles semantics into commands to send back to RobotStudio
- RobotStudio recieves commands, executes them
- No checks made, relies on server part

Plugin GUI

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Problems & Future applications

- Not all sentences understood – limited by all involved programs
- Needs polishing + bugfixing
- Could be written to use more abstract representation
- Combination with speech synthesizer could be interesting
- Much of the work was understanding RobotStudio, Neo4j, etc.

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