Applying Multi Agents to General Purpose Situational Simulations in Construction Management

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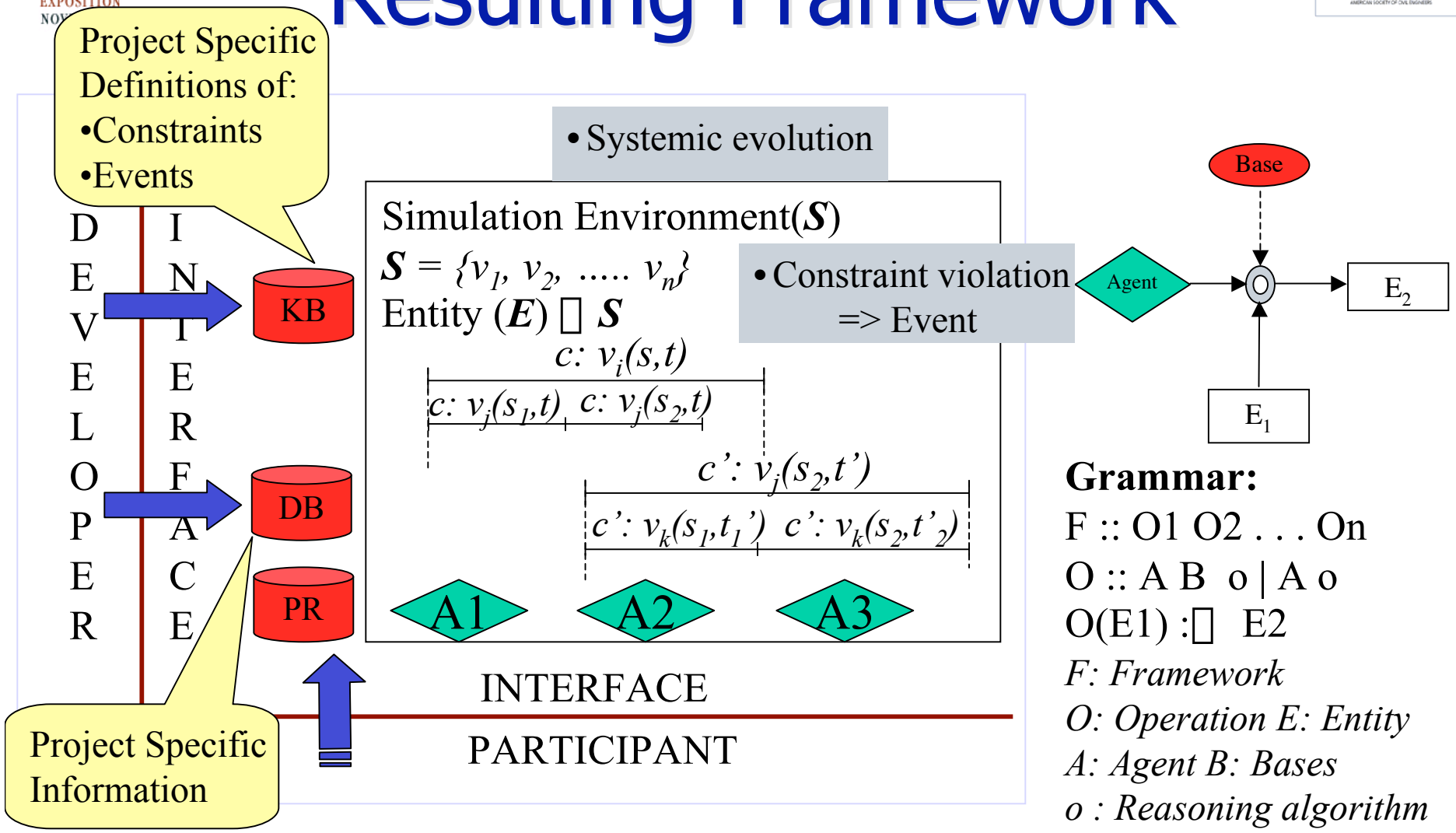
Research Overview

- Purpose
  - To illustrate the usage of a Multi-Agent Framework for a General Purpose Situational Simulation environment
- Motivation
  - Absence of an appropriate representation and reasoning framework for situational simulations of general purpose construction management processes
  - Absence of contextually rich education environments for construction managers
- Approach
  - Developing a semantics based on the interval temporal logic and constraint satisfaction
  - Developing an Agent-Entity-Operation-Base syntax

Resulting Framework



Grammar:

F :: O1 O2 . . . On

O :: A B o | A o

O(E1) : E2

F: Framework

O: Operation E: Entity

A: Agent B: Bases

o : Reasoning algorithm

Conclusion

- Summary of Work
  - Reasoning about actions and events is sound and complete within the definition of the KB (Mukherjee & Rojas, 2003; Rojas & Mukherjee, 2003)
  - Agent framework: a general purpose “language” to develop situational simulations
- Significance of Work
  - Development of a platform for independent developers to create a wide variety of situational simulation.
  - Development of context rich learning environments
  - Towards a theory of simulation systems for CM processes
- Future Research Opportunities
  - Develop an adaptive environment: agents recognize patterns in user interaction and accordingly evolve the environment
  - Explore cognitive processes of CM: implicit knowledge