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Towards Requirements Analysis Pattern for Learning Agents

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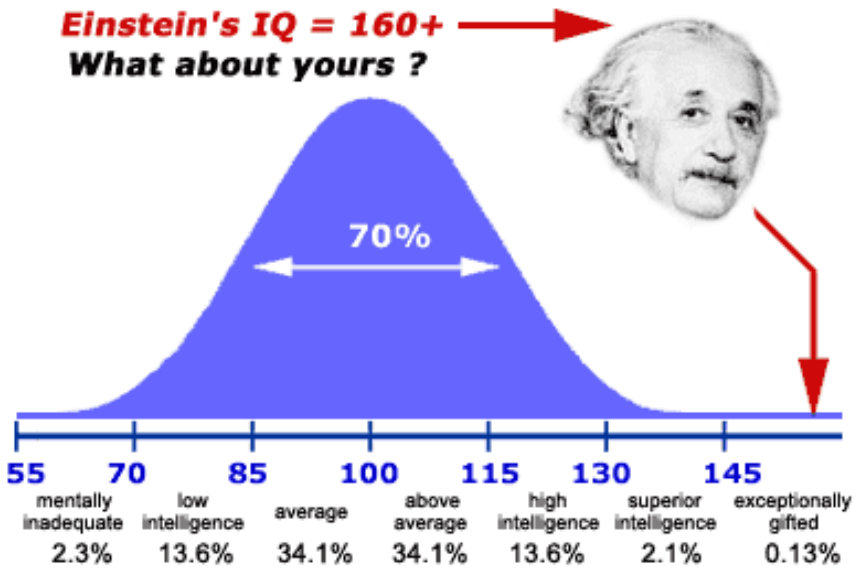
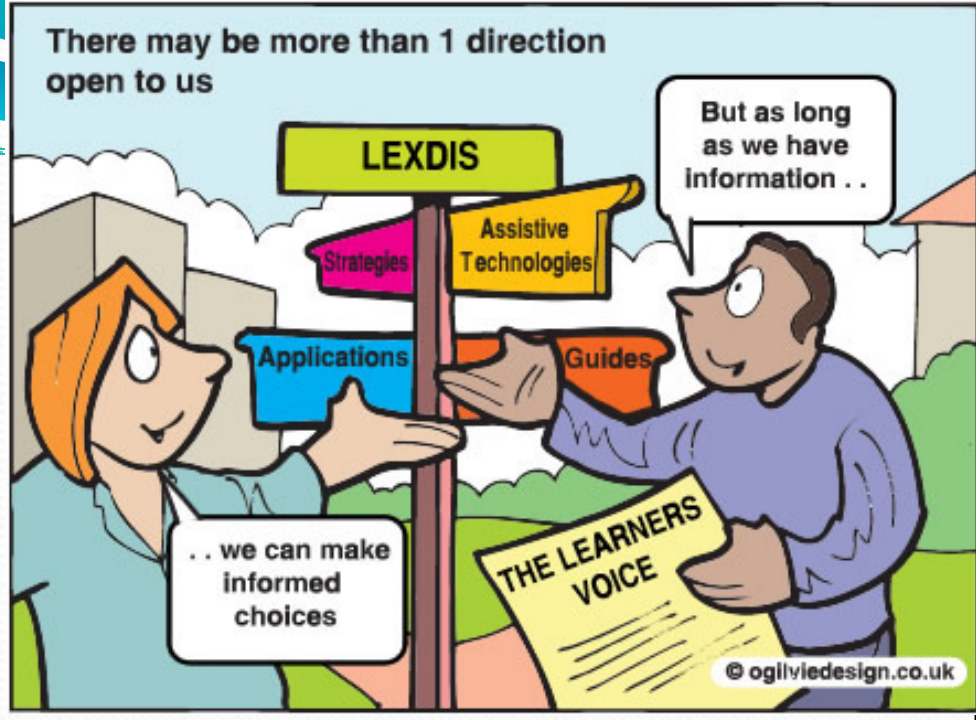
Overall Picture



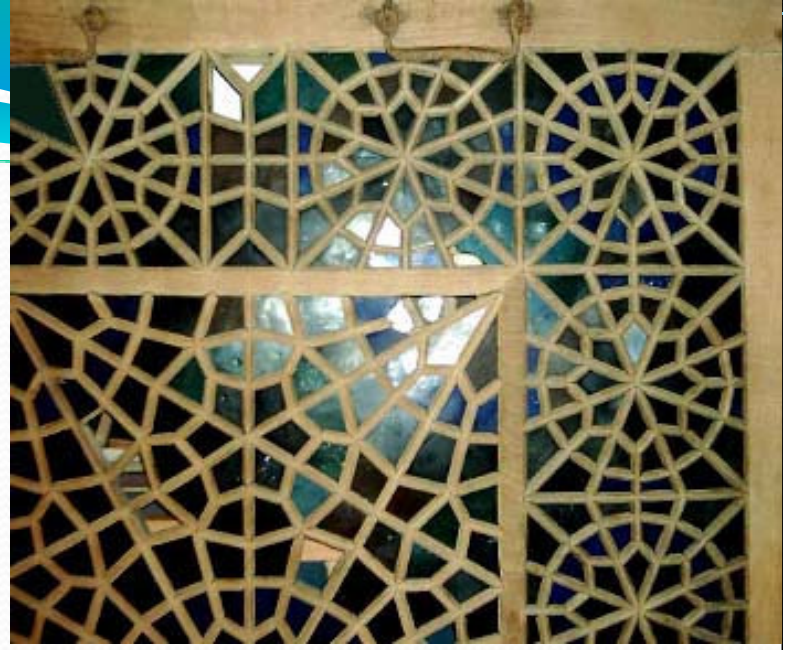
- Research Question
  - How can we specify intelligence characteristic of agents as their requirements?
    - To have a common language for specifying, developing and testing intelligence (as a vague term)
    - To have a criterion for choosing agents
    - To analyze them in terms of ways to operationalize them
- Inputs
  - AI techniques incorporated in agent based systems
  - Human intelligence characteristic & scales
  - Design & architectural concerns of agents

Why Learning?



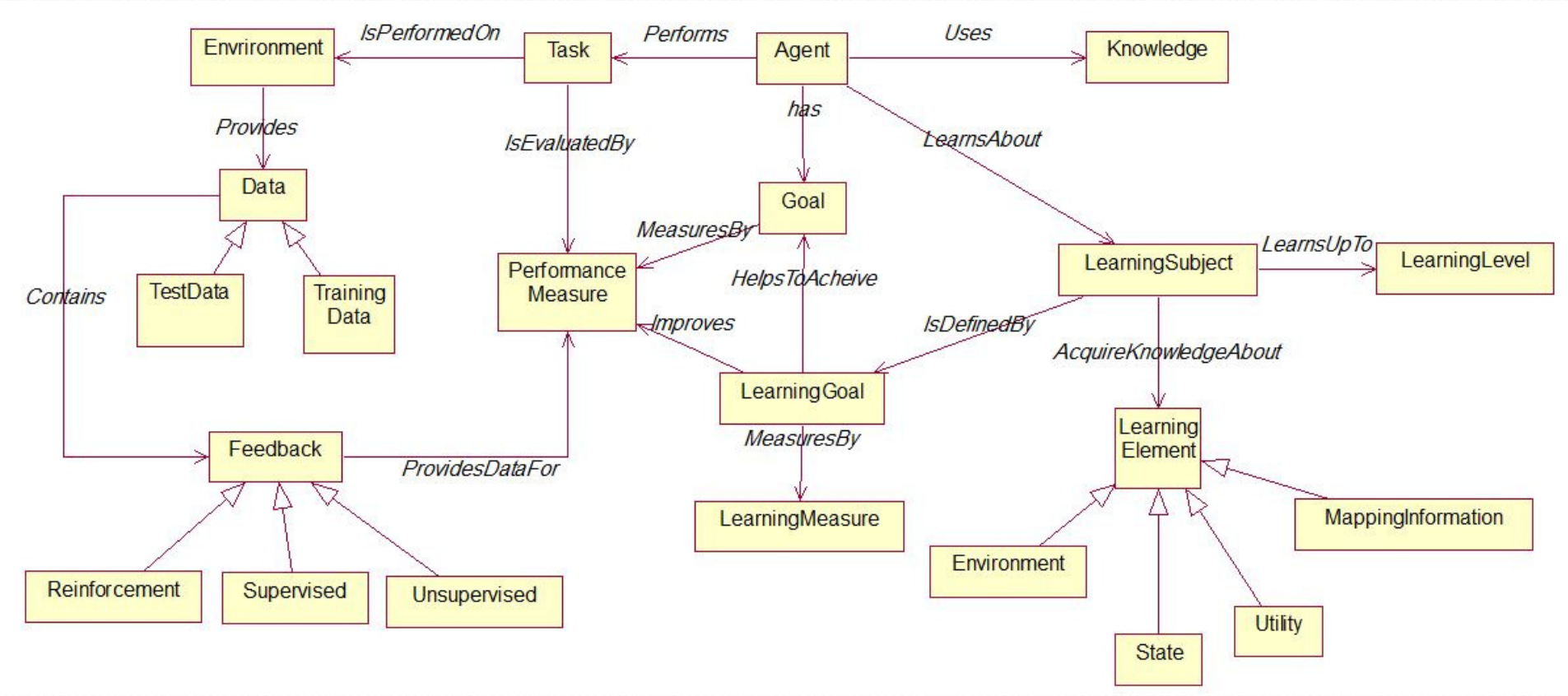
- One of the characteristics of human intelligence in various psychological theories
- An AI technique that can help software agents to behave more appropriately in dynamic and volatile situations
- Issues of learning design have been discussed (They focus on "How"s)
- Requirements analysis of an agent's learning is poorly addressed (We are interested in "What"s)

Why Analysis Patterns?

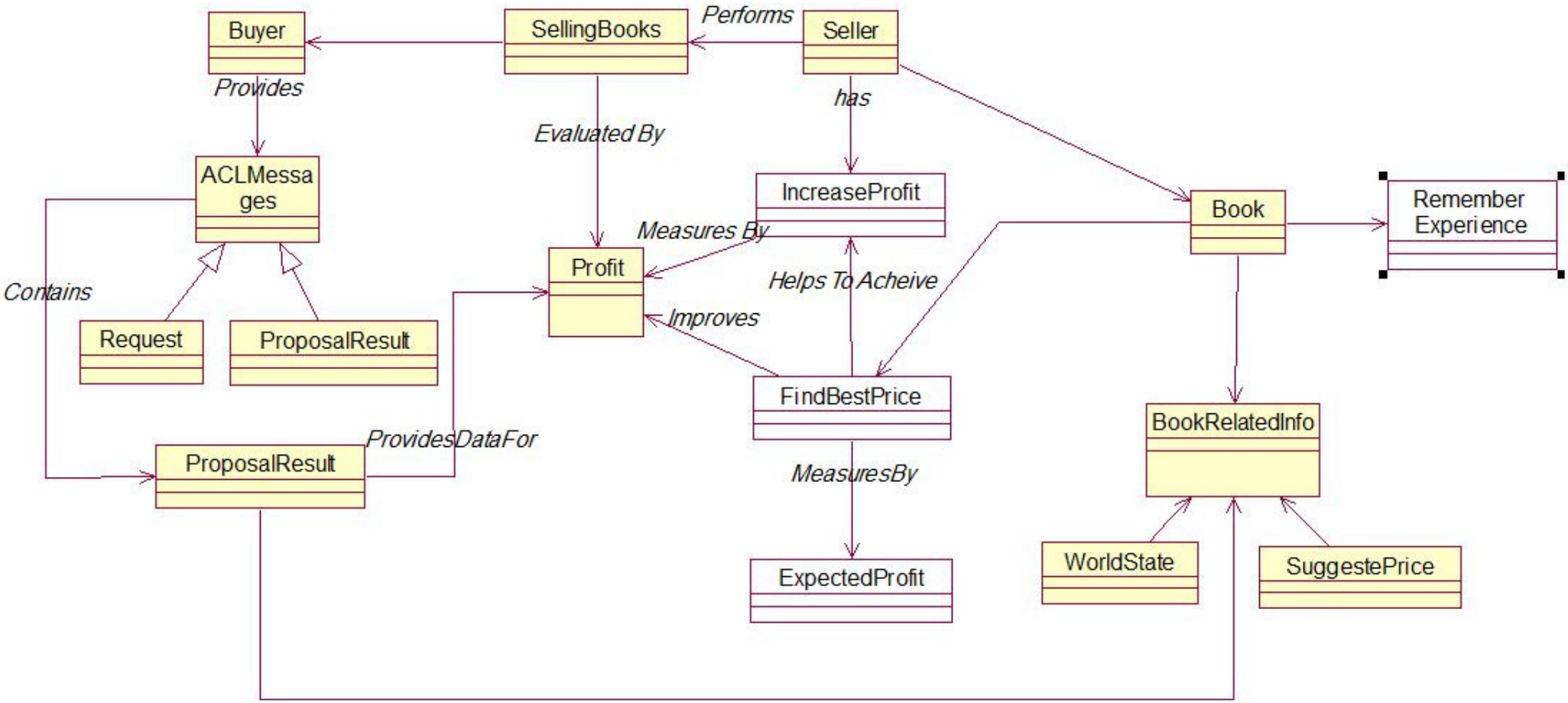


- Analysis patterns capture the knowledge of the domain which can be reused
  - Related meta-classes and their relations which present issues of conceptual modeling
  - Higher level of abstraction
  - Domain-neutral
  - Can be used as a guideline for software analysts (which are not familiar with AI techniques in our case)

Our Analysis Pattern for Learning Agents



How to use the pattern?



Further work

- Stable Analysis Pattern for Learning Agents
- Evaluating the pattern
  - Different groups of subjects
  - Involving software analysts who are dealing with conventional software systems
  - Evaluating the pattern by comparing the results with other approaches (e.g. use cases)
  - More complex case studies
- Extending & Improving the Pattern
  - Psychological issues of human learning

Thank you

Question, Comment, Suggestion?