

What you See is what you Asked for:

An Effort-based Transformation of Code
Analysis Tasks into Interactive Visualization
Scenarios

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Problem

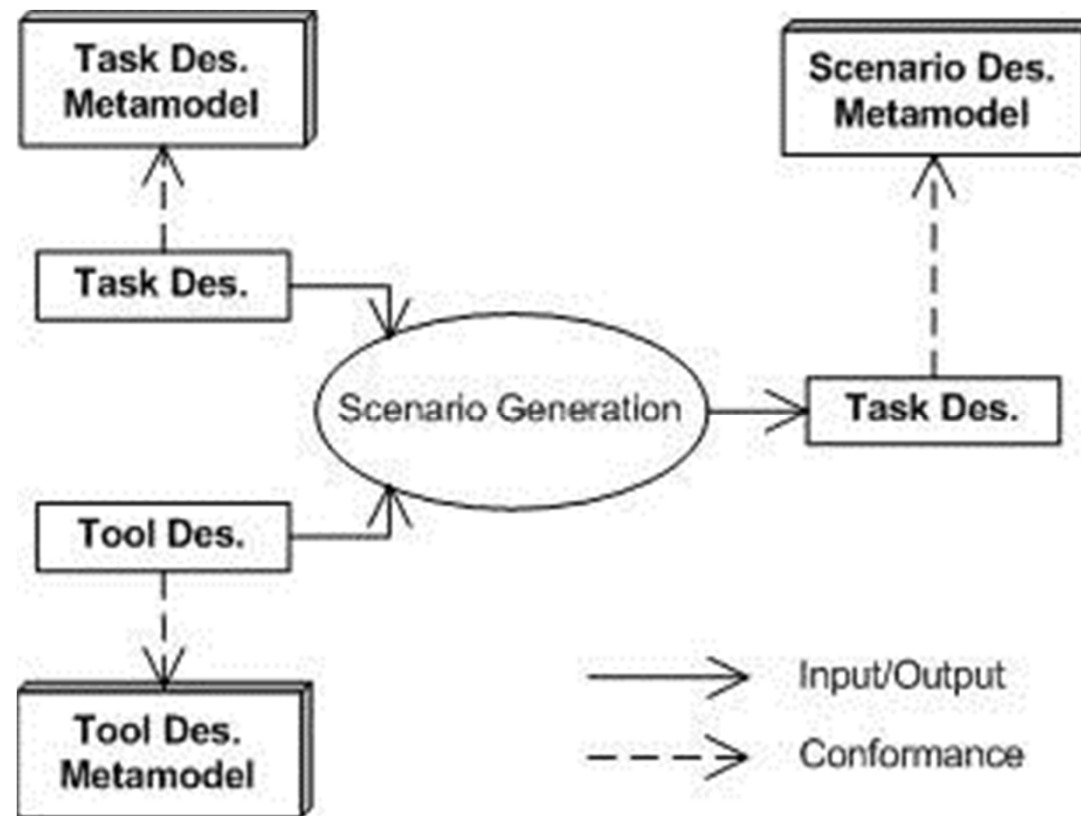
- Existing tools developed for specific tasks
- Many non documented design decisions
- Same tool, different manners to use it
- Effort depends on the manner

- How to
 - choose the manner with the less effort
 - to customize and use a visualization tool
 - to perform a specific code-analysis a task

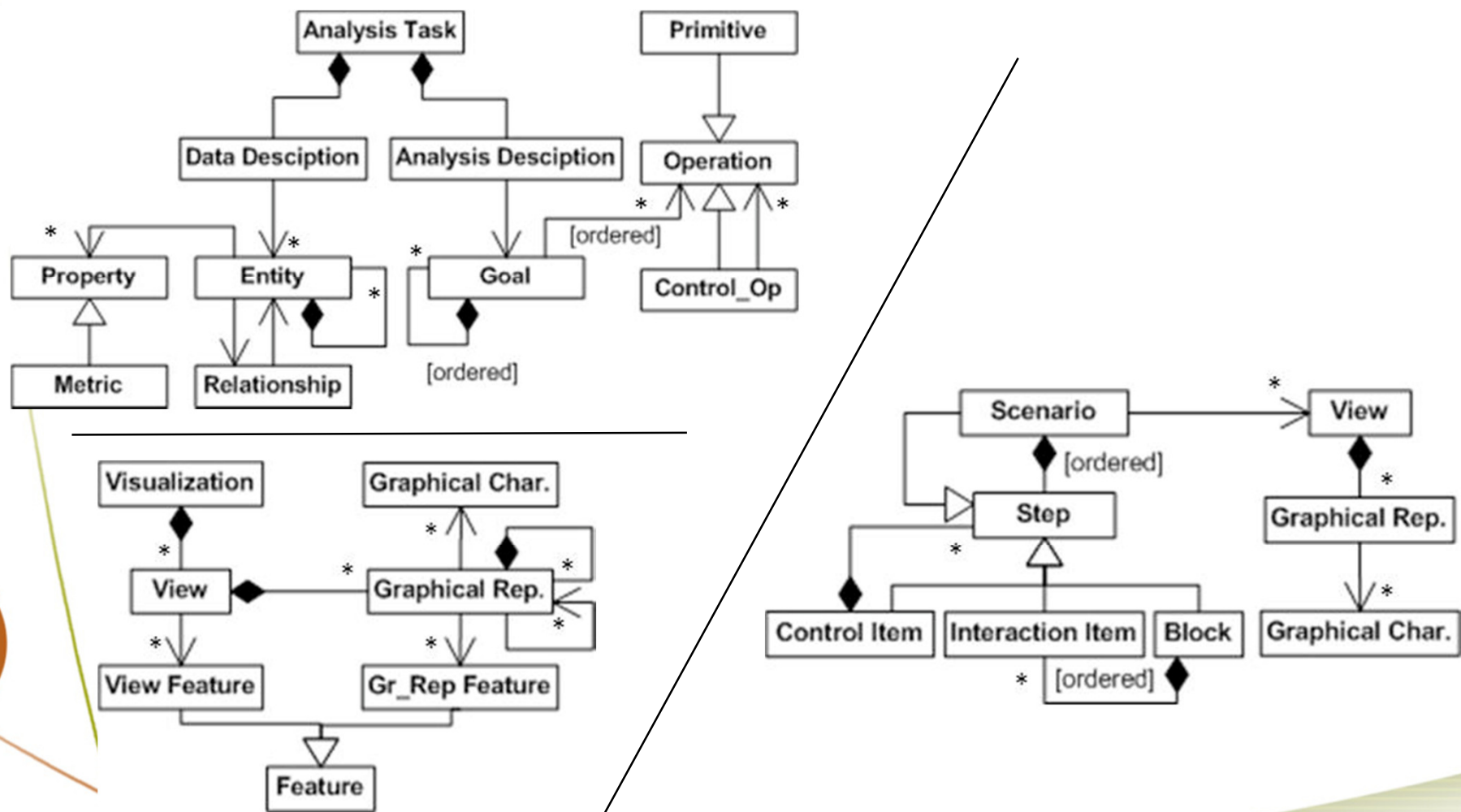
Proposal

- A visualization assistant
- To bridge the gap between two types of knowledge
 - Source code analysis
 - Interactive visualization
- Model transformation approach
 - Inputs: analysis-task description & tool spec.
 - Output: interactive visualization scenario
 - Transformation : effort-based optimization

Proposal



Input/Output Metamodels



Scenario Generation

- Mapping
 - Data into views
 - Goals into scenarios
 - Analysis operations into interaction items.
- Using heuristic search (GA)
 - Derive a solution that minimizes the analysis effort (Cost)
- Solution cost
 - Cost of performing interaction items (specific to tools)
 - Cost of violating perceptual constraints

Constraints

- Interaction items not offered by the visualization tool
- Incompatibility between interaction items and graphical attributes
- False hypothesis on a mapped data
- Inadequacy between data scales and graphical attributes
- ...

Evaluation

- Evaluation with design-anomaly detection and feature location tasks
- Using VERSO
- Open issues
 - Consider more visualization features (layouts, etc.)
 - Better define the effort
 - Adapt to tool selection