Evolution of Concurrent Partial Behaviour Models

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Real World System Development Process

Consumer products have very tight cycle times

Constant Need for new products

Finding and Fixing Bugs is Hard
Formal Methods are Not Popular

What it is like to use a theorem prover.
Scenario Based Specification: The Industry Norm

- Specification by Example.
- Aspiration rather than rigor.
- Partial and Imprecise
Inconsistent Specification

Corrected Specification

UML 2.0 Models

Partial Behavioural Models

Detect Errors  
Create Optimal Solution  
Present Simple Model
Solutions?

- Automatically find and correct bugs in requirements
- Present solutions as models that users understand
- Pragmatic techniques that work well with partial and imprecise specifications

- Synthesis of optimal consistent scenarios from flawed specs

- Compose imprecise concurrent feature specs into simulation model
  Bill Mitchell, Robert Thomson, Paul Bristow, Scenario Synthesis from Imprecise Requirements, SAM 2004: SDL and MSC, LNCS 3319.