

COLOSS Team

Dependable Components and Systems
(Composants et Logiciels Sûrs)

Research domains

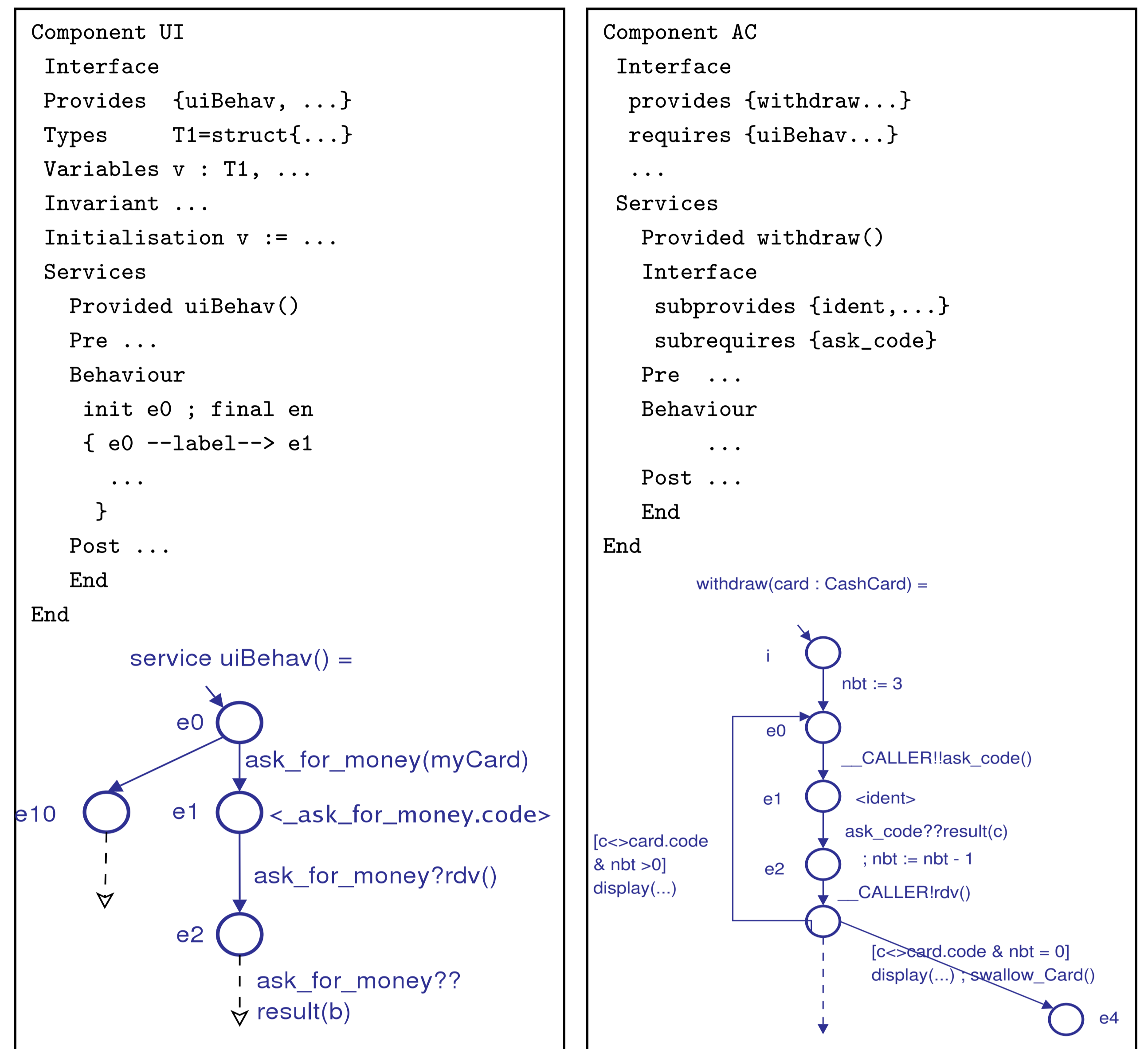
- Models, semantics, languages
- Concepts, methods and mechanized techniques to help designers and developers
- Object and component based modelling
- Formal models to specify and verify system properties
- Multi-facet analysis and specification
- Specification, verification and validation of software (components)

Objectives and Applications

- Techniques for developing dependable components and systems
- Tools for the analysis and development of embedded, concurrent, reactive and mobile systems.

The Kmelia/COSTO Project (1)

Specifying with Kmelia



Expressive and Flexible specifications

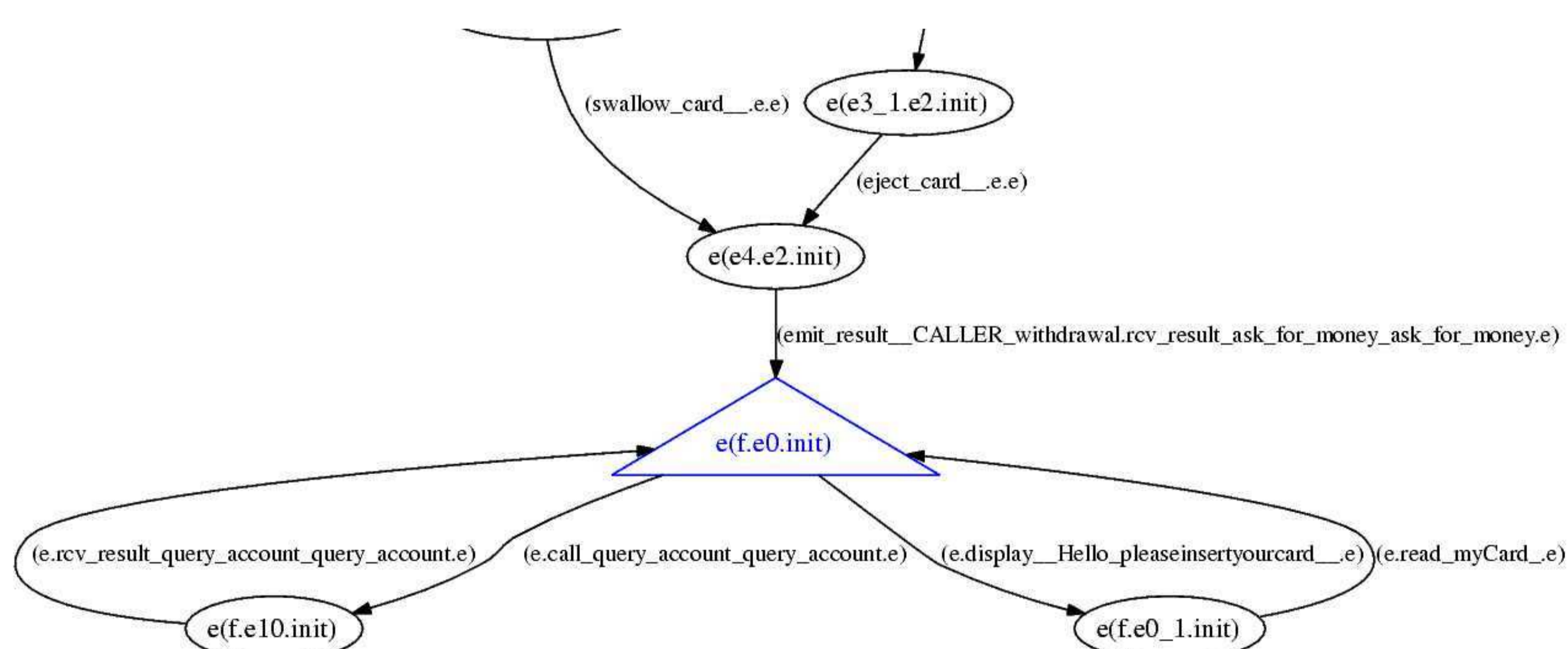
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|------------|---------------|-------------|
| Assemblies | Composition | Interaction |
| Renaming | Multiprotocol | Subservices |

to be verified using COSTO

The Kmelia/COSTO Project (2)

COSTO : Tools, Analysis and Results

- Eclipse Plugins, Graphical facilities
- Bridges with formal languages and tools : Lotos/cadp, Mec
- Exports into various formats
- Document generation (dot, tex, ...)
- Refinement into executable frameworks



Extract from a generated deadlock detection report
(Kmelia → Mec → KmeliaReport)

Products researched or developed

- COSTO (COmponent Study TOolbox) : a design and verification package for studying components based on services
- BOSCO : a template-based generator of repositories from metamodels
- NaBLa (Nantes B Libraries) : formal component libraries specified with the B Method
- ORYX/Atacora : an engineering workbench for the specification and formal multi-facet analysis of integrated software systems

Techniques and Methods Used

Z, B, Process Algebra, PVS, LOTOS, MEC, Petri-Nets, Grafcet, SPIN, etc

Services - Partnerships

- Consulting in modelling systems
- Abstraction and formal analysis of complex systems
- Expertise, courses and training in object and component based modelling (UML, etc)
- Expertise, courses and training in formal methods
- Partnerships for supervising PhD students involved in industrial projects