ConcurTaskTrees

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Use of Task Models

- Improve understanding of the application domain
- Record the result of interdisciplinary discussion
- Support effective design
- Support usability evaluation
- Support the user during a session
- Documentation

Task modelling

- Flexible and expressive notations with precise semantics
- Systematic methods able to indicate how to use information in the task models
- Availability of automatic tools to manipulate and use such information efficiently

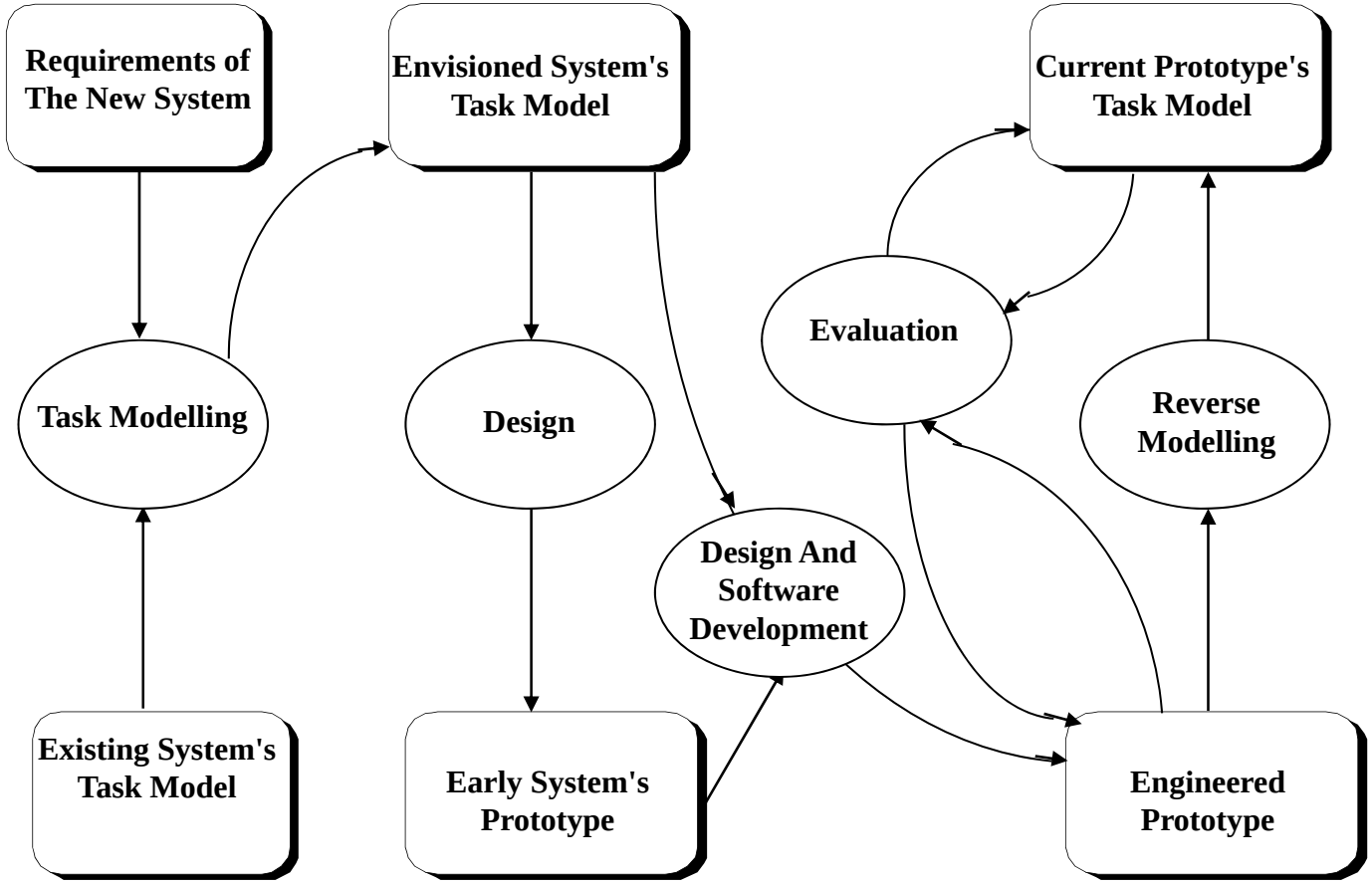
Task Models

- They represent a synchronization point among users, designers, and developers
- They are high-level descriptions that can also be understood by people without programming background
- Provide precise requirements for the user interface software development as well.

What task models can represent

- Task models can be represented at various abstraction levels
- The main high-level tasks are considered in requirements analysis
- When designers aim to provide precise design indications then the activities are represented at a small granularity
- The subject of a task model can be either an entire application or one of its parts
- The application can be either a complete, running interactive system or a prototype under development

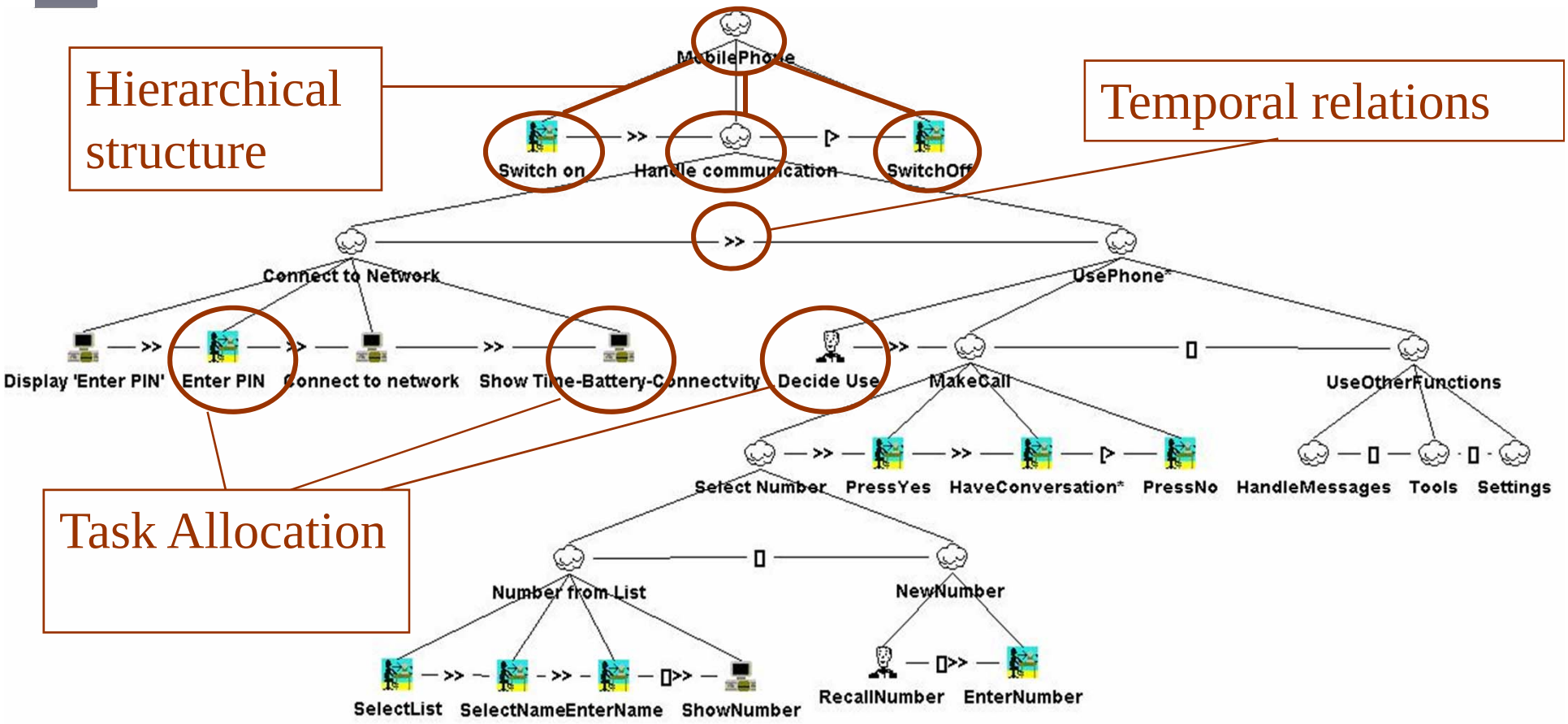
Use of task models in the design cycle



CTT Evolution

- First Publication was INTERACT'97
- Widely used in Universities and Industries
- Various extensions proposed
- Applications in many domains (Web, safety critical systems, ERP, serious games, ...)

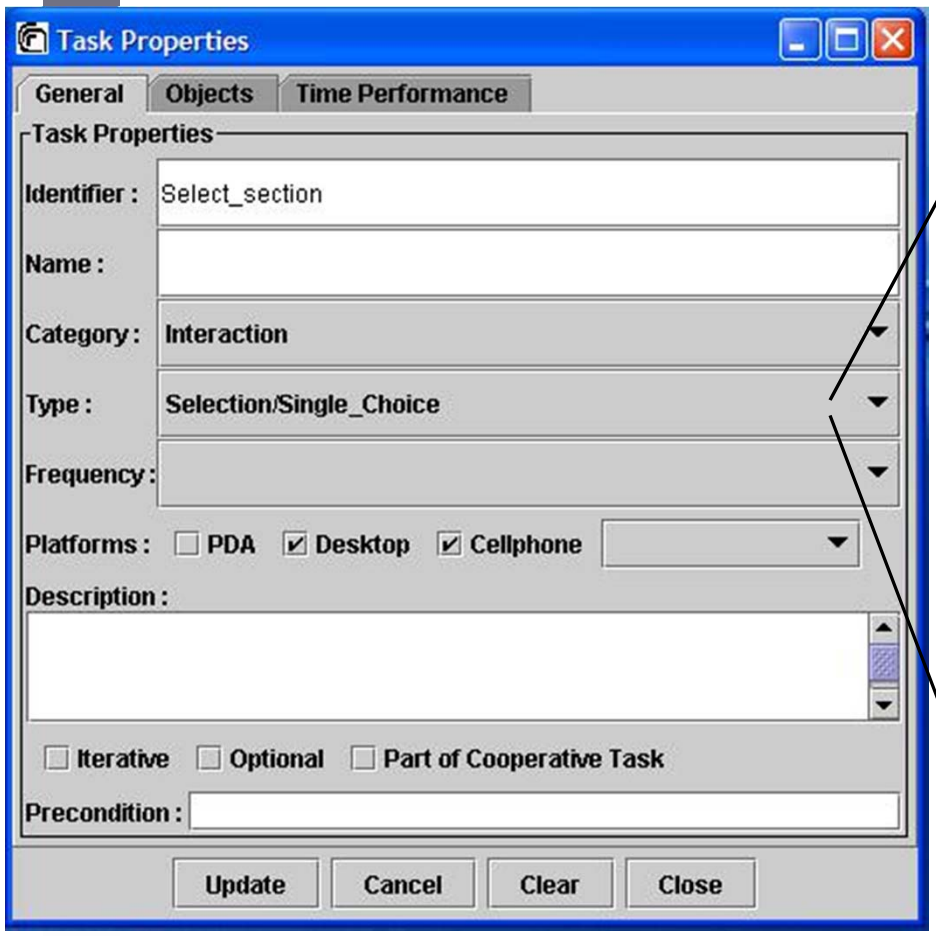
The ConcurTaskTrees Notation



Temporal operators

Enabling	**T1 >> T2 or T1 [ ]>> T2**
Disabling	**T1 [> T2**
Interruption	***T1* |> *T2***
Choice	**T1 [ ] T2**
Iteration	**T1* or T1$^{\{n\}}$**
Concurrency	**T1 ||| T2 T1 |[]| T2**
Optionality	**[T]**
Order Independency	**T1 |=| T2**

Task and attributes



Interaction tasks

Selection

Edit

Control

…

Application task

Overview

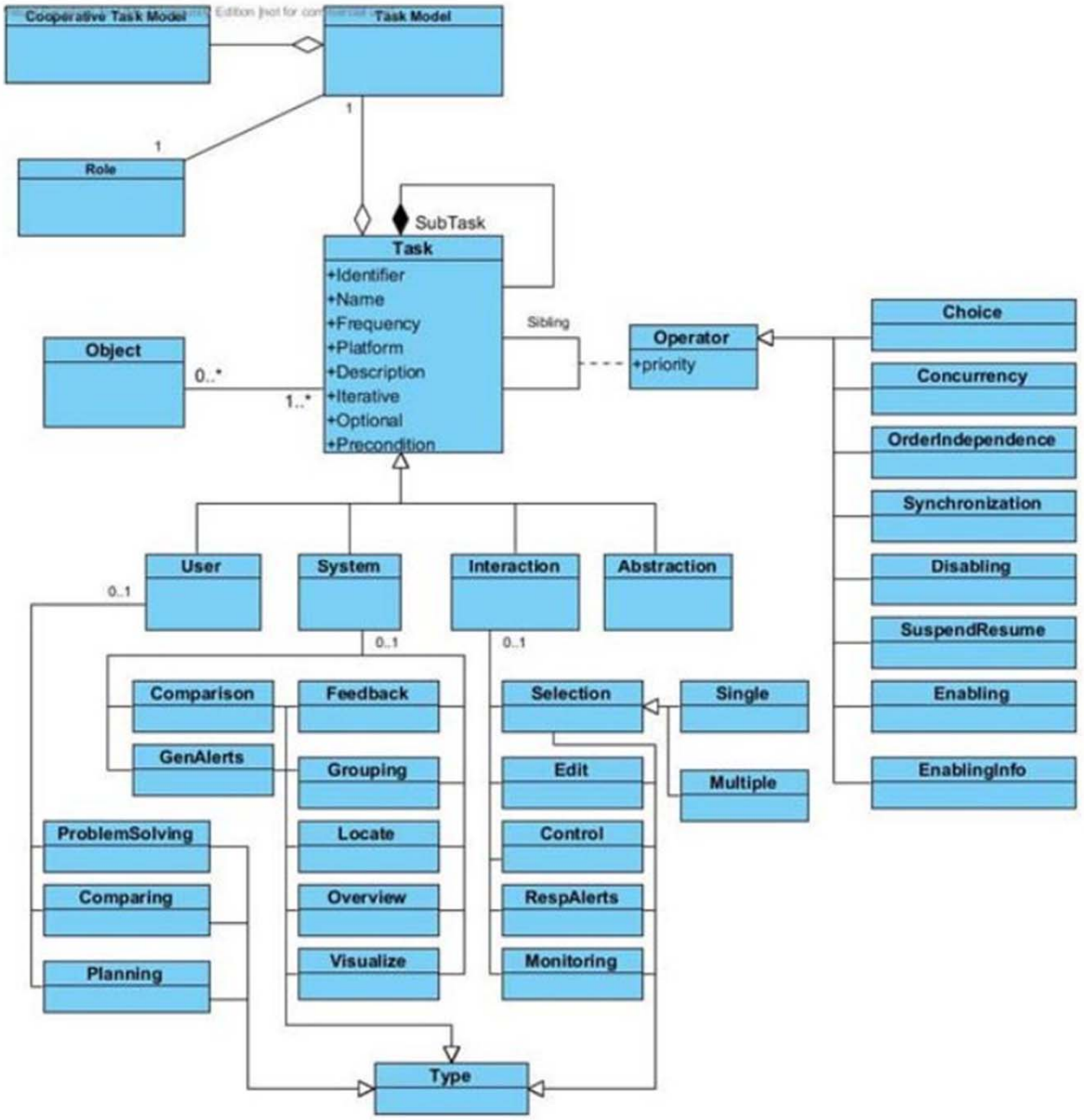
Feedback

Generating alerts

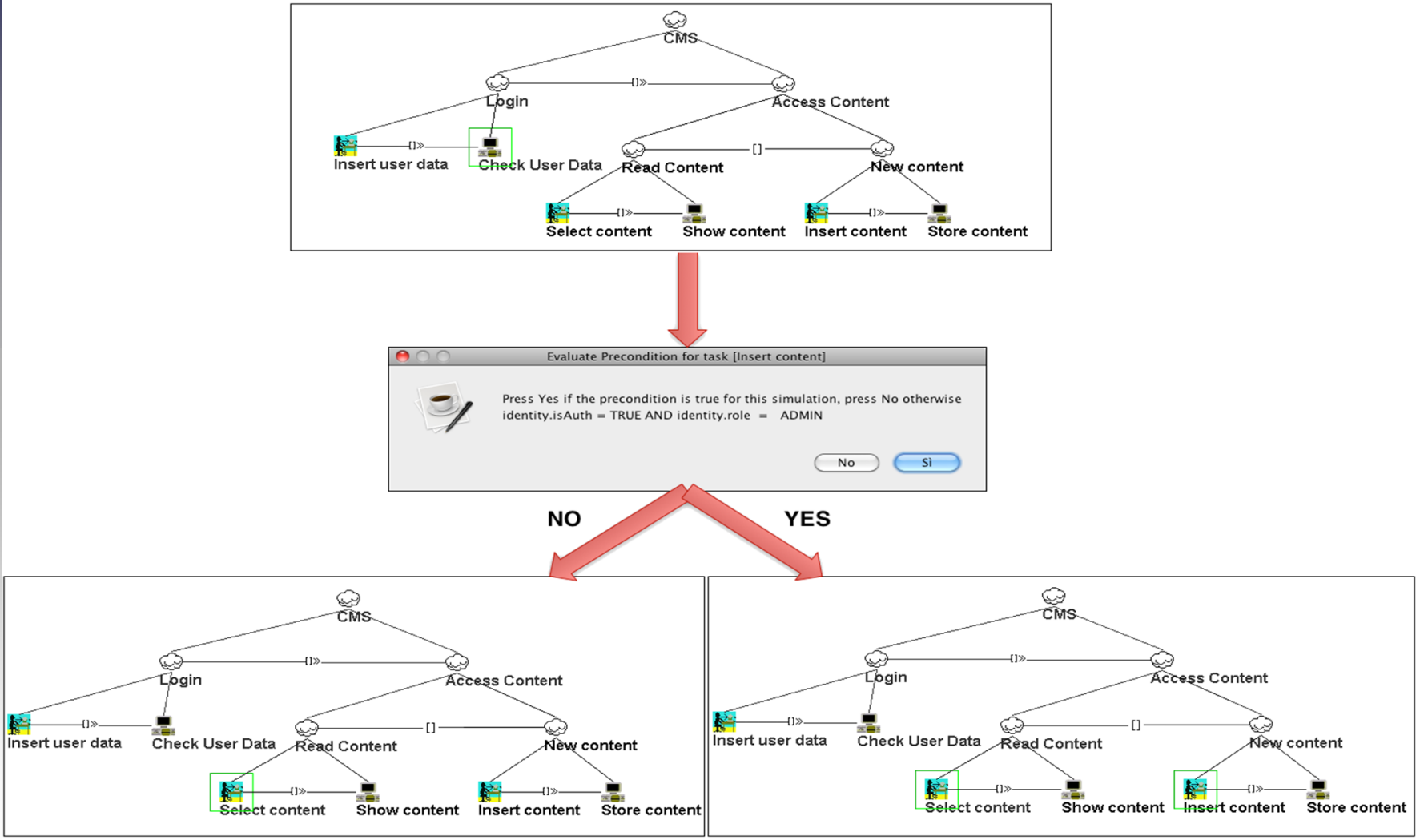
Grouping

...

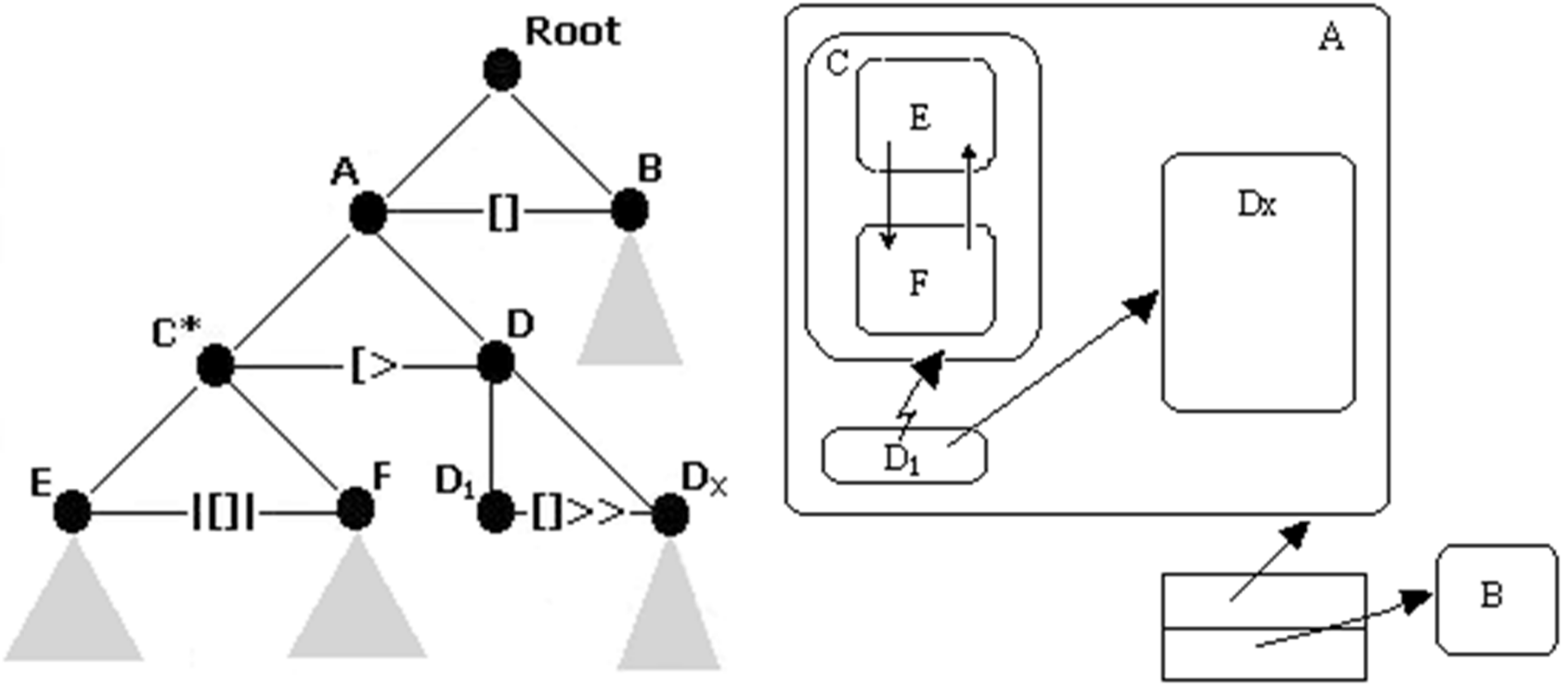
MetaModel


Cooperative Task Model
Task Model
1
1
Role
SubTask
Task
+Identifier
+Name
+Frequency
+Platform
+Description
+Iterative
+Optional
+Precondition
Sibling
Operator
+priority
Choice
Concurrency
OrderIndependence
Synchronization
Disabling
SuspendResume
Enabling
EnablingInfo
Object
0..*
1..*
User
System
Interaction
Abstraction
0..1
0..1
0..1
Comparison
Feedback
GenAlerts
Grouping
Locate
Overview
Visualize
Selection
Single
Edit
Multiple
Control
RespAlerts
Monitoring
ProblemSolving
Comparing
Planning
Type

PreConditions

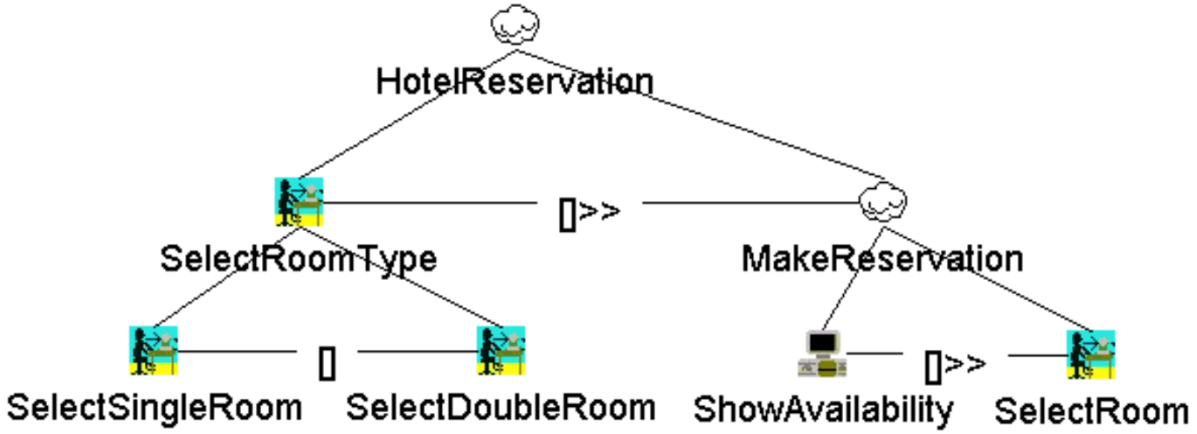


Deriving info from temporal operators



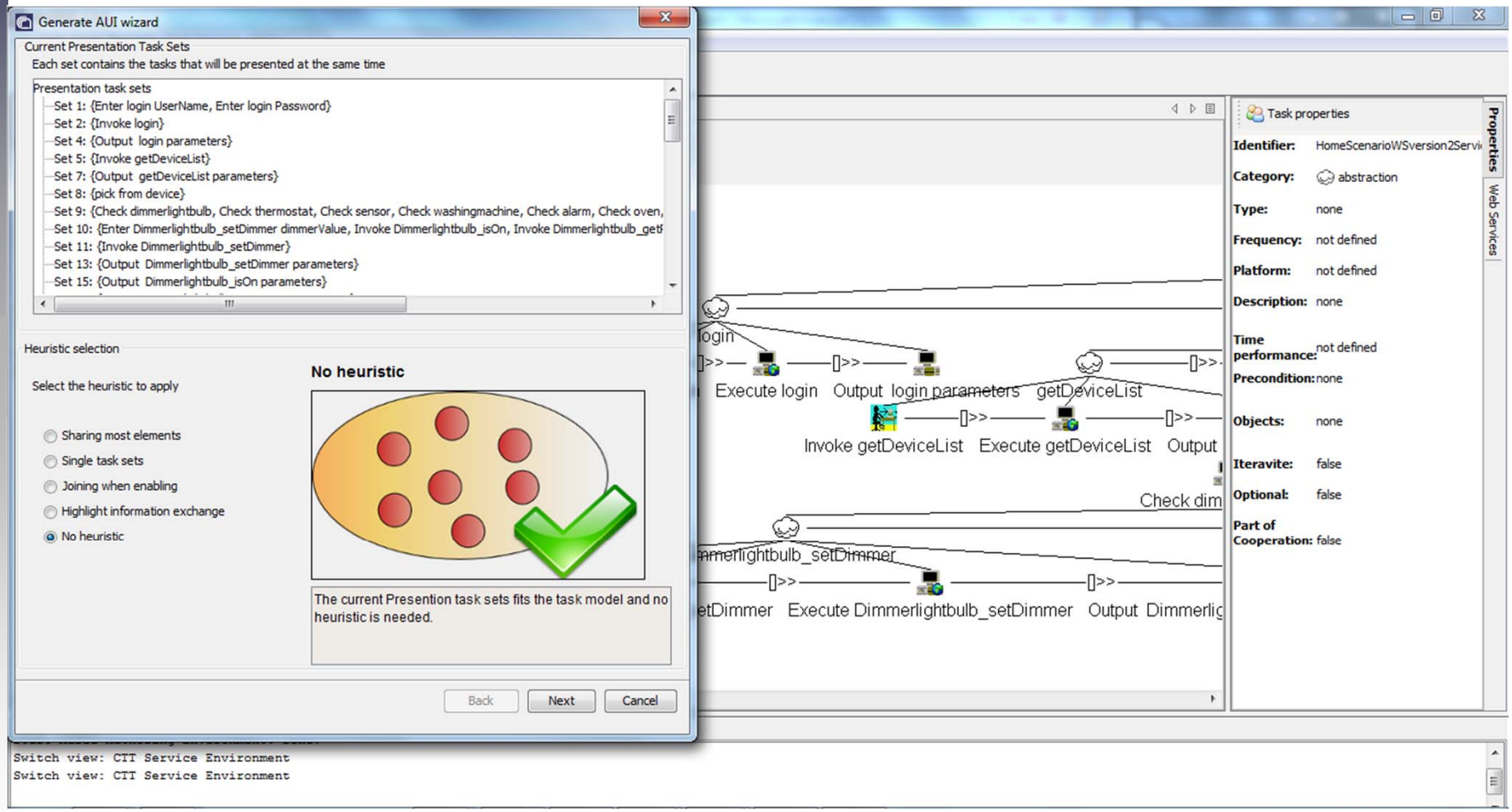
Presentation Task Sets

- Presentations indicate set of elements enabled at the same time
- Analysis of temporal operators to identify sets of tasks enabled at the same time

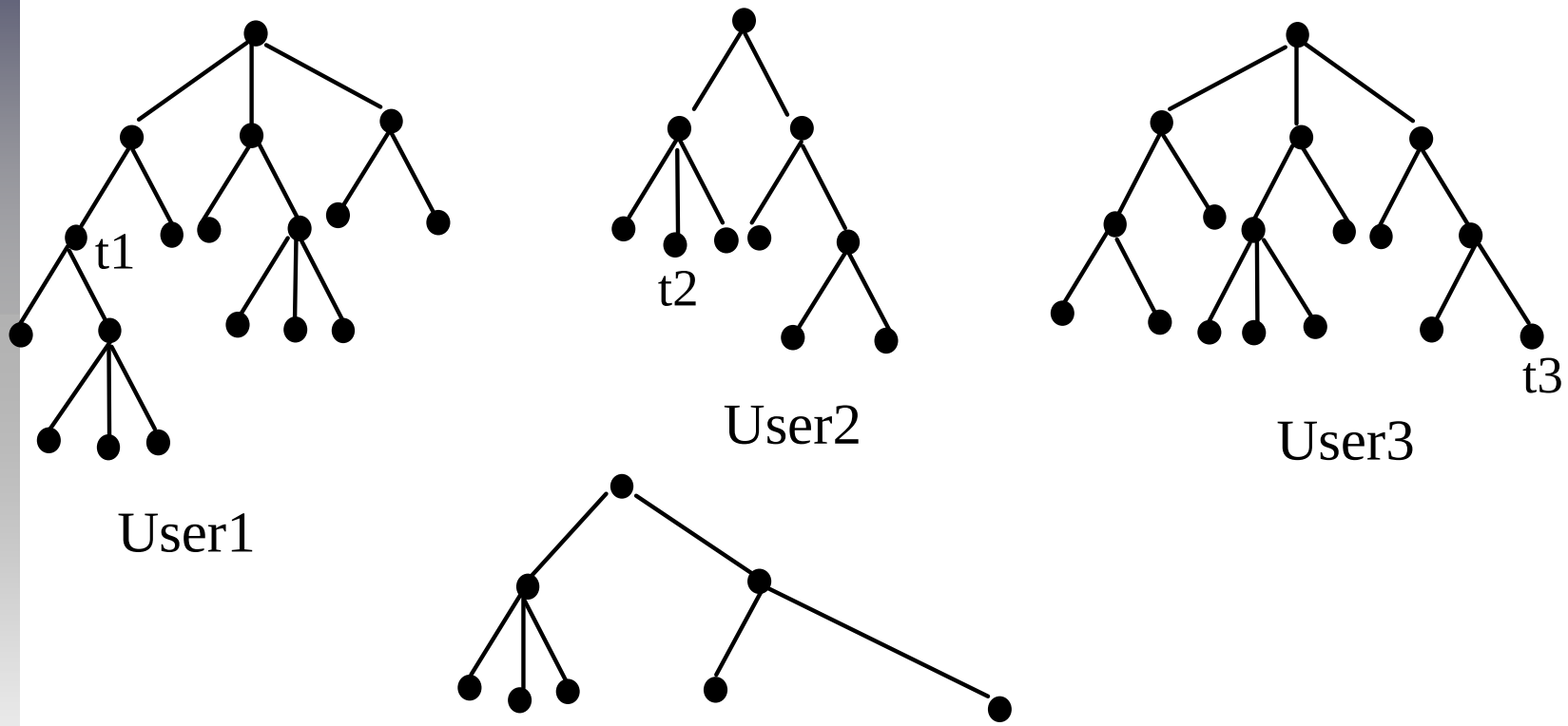


{SelectSingleRoom, SelectDoubleRoom}, {ShowAvailability}, {SelectRoom}

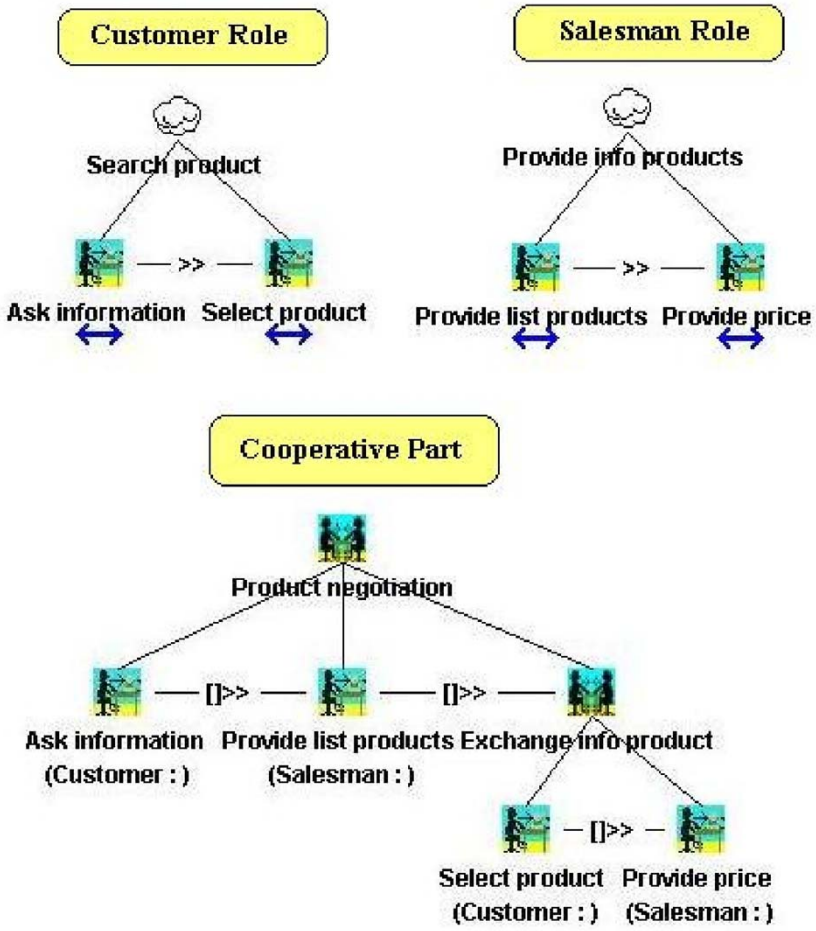
Heuristics for PTSs



Modelling Multi-User Applications



Cooperative aspects



Comparison and goals

- More flexible than ANSI standard
- More interaction-oriented than BPMN and workflow notations
- Create standard, which can then push adoption,
- Possibility of building new tools for improved presentations and processing