

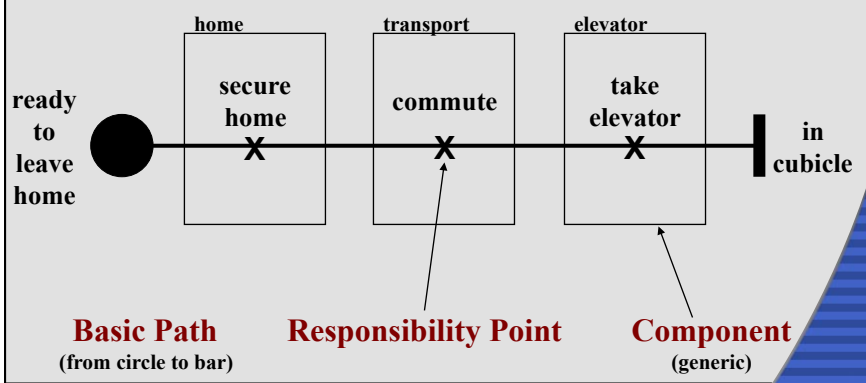
Bridging the Gap Between Requirements and Design with Use Case Maps

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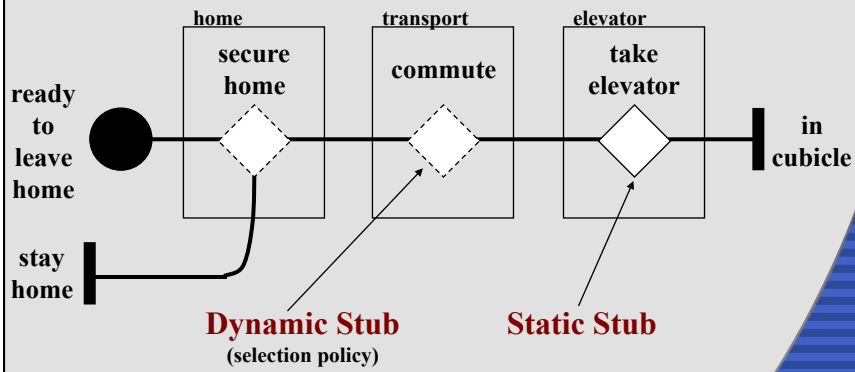
UCM Notation - Basic

UCM Example: Commuting



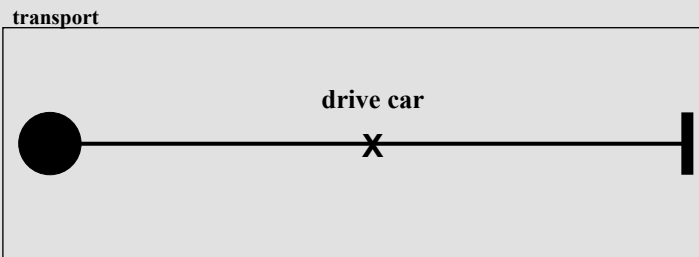
UCM Notation - Hierarchy

UCM Example: Commuting



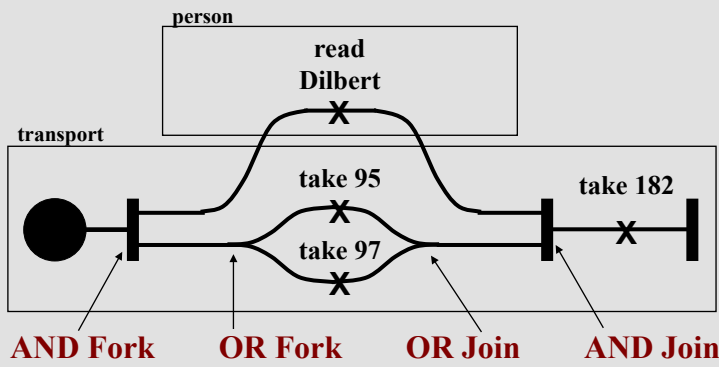
UCM Notation - Simple Plug-in

UCM Example: Commute - Car (Plug-in)



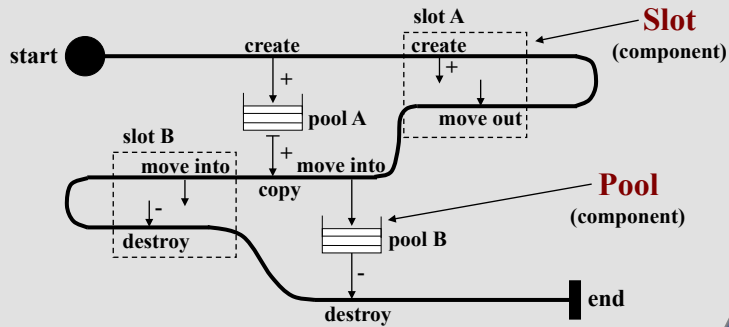
UCM Notation - AND/OR

UCM Example: Commute - Bus (Plug-in)

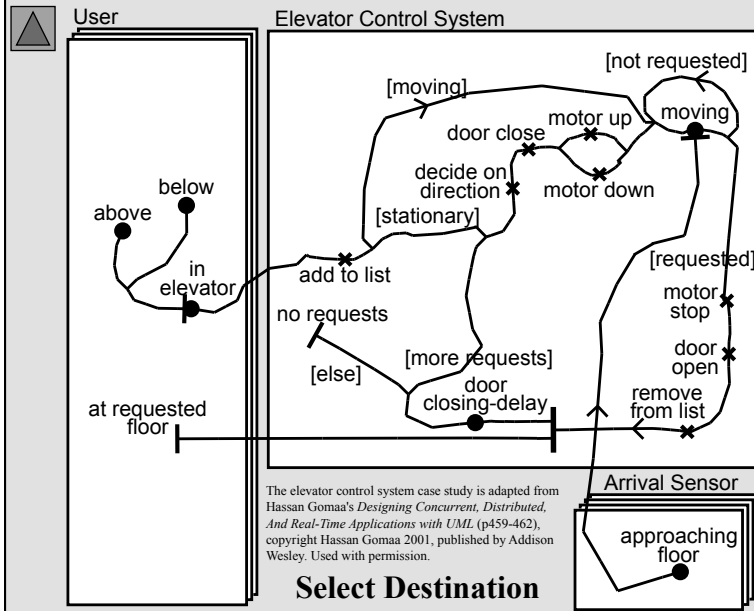


UCM Notation - Dynamic Structures

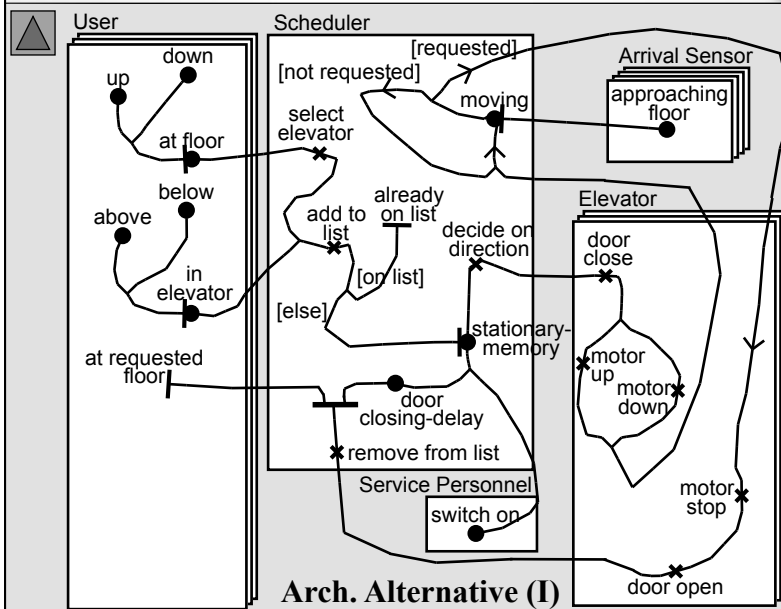
Generic UCM Example



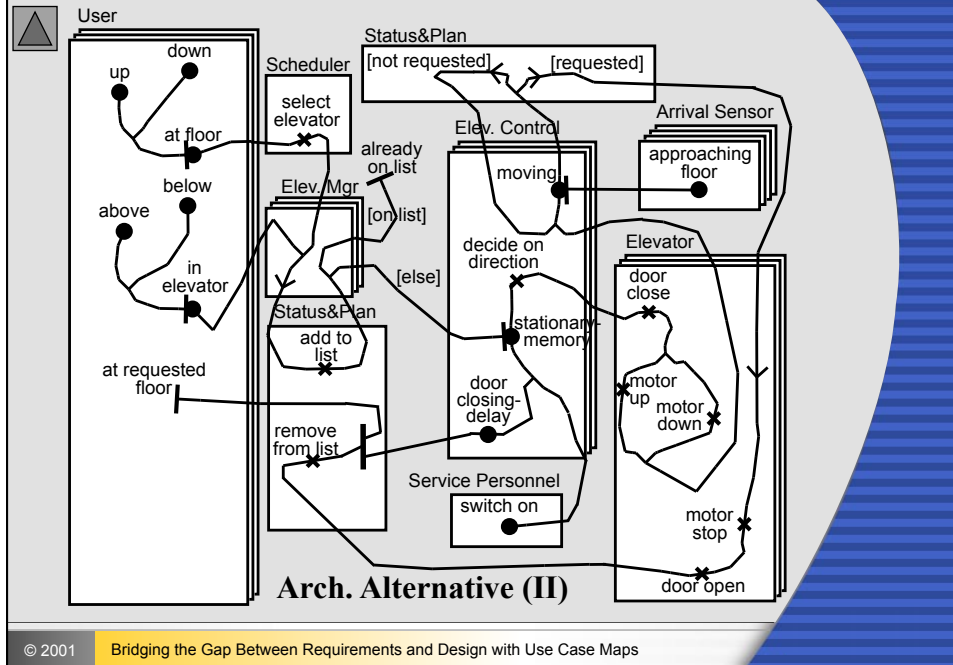
Dynamic Responsibilities and Dynamic Components



Select Destination



Arch. Alternative (I)

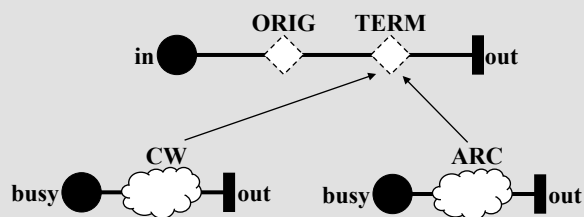


UCM Validation by Inspection

- ◆ Several problems detectable by inspection
 - Non-determinism in selection policies and OR-forks
 - Erroneous UCMs
- ◆ Many **feature interactions** (FI) solved while integrating feature scenarios together
- ◆ Remaining undesirable FI need to be detected!
 - Many are located in stubs and selection policies
 - Need more formal analysis

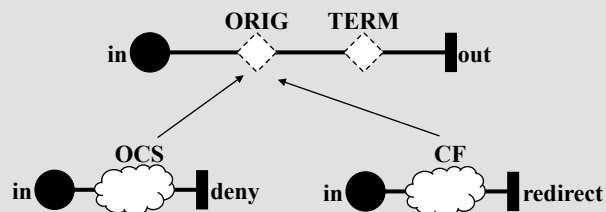
Feature Interaction (1)

- ◆ Conflict between candidate plug-ins for the same stub (eg preconditions of plug-ins are the same)
 - Call waiting (CW) vs. automatic re-call (ARC)



Feature Interaction (2)

- ◆ Unexpected behaviour among different selected plug-ins for different stubs (postconditions of plug-ins are not the same)
 - Originating call screening (OCS) denies call whereas call forward (CF) redirects call to screened number



Scenario Definitions

- ◆ Enhances the behavioural modeling capability of UCM paths and path elements
- ◆ Requires a **path data model** (for conditions at various points along the path)
 - Currently, global and modifiable Boolean variables
 - ◆ Values may be assigned to variables along a path
 - In future, ...
 - ◆ Variables may possibly have different types
 - ◆ Variables may be scoped to paths or components
 - ◆ Scenarios may be structured into sub-scenarios

Example

