



From Task Models to Dialog Graphs

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0. Introduction | 1. Model-based UI-design process | 2. Dialog models for different platforms | 3. Tool support | 4. Future Work

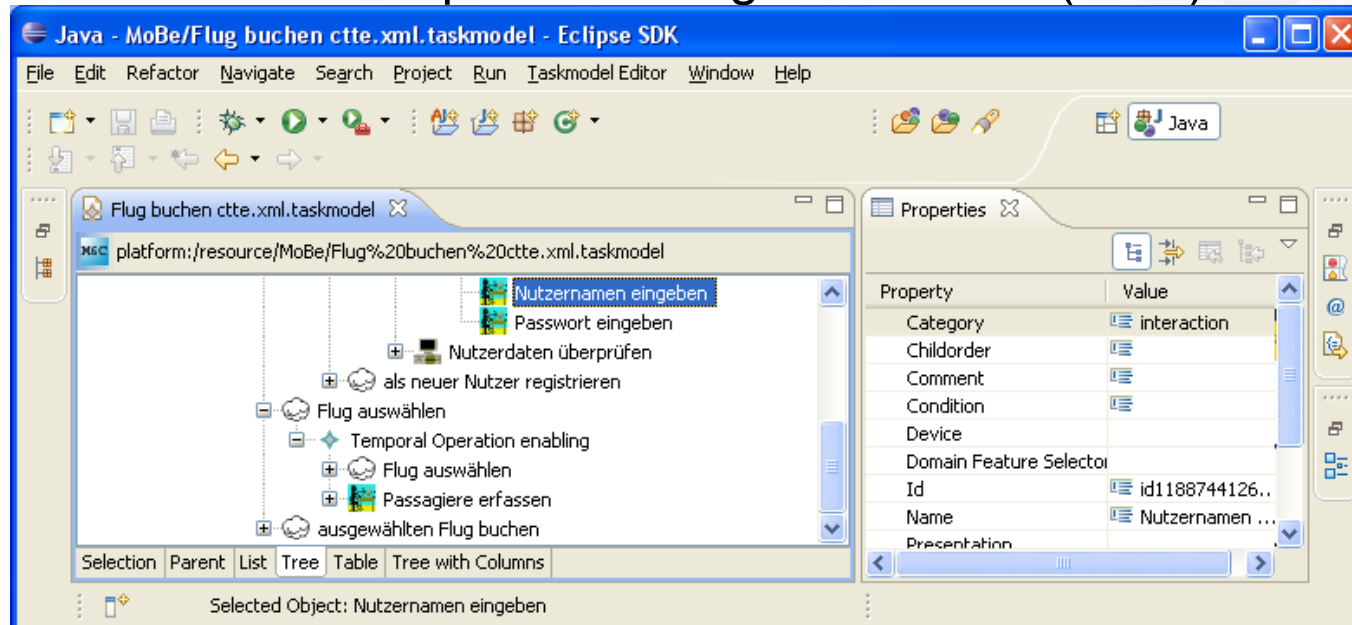
- Introduction
- Model-based UI-design process
- Dialog models for different platforms
- Tool support
- Future work



Project „Multiple User Interfaces“

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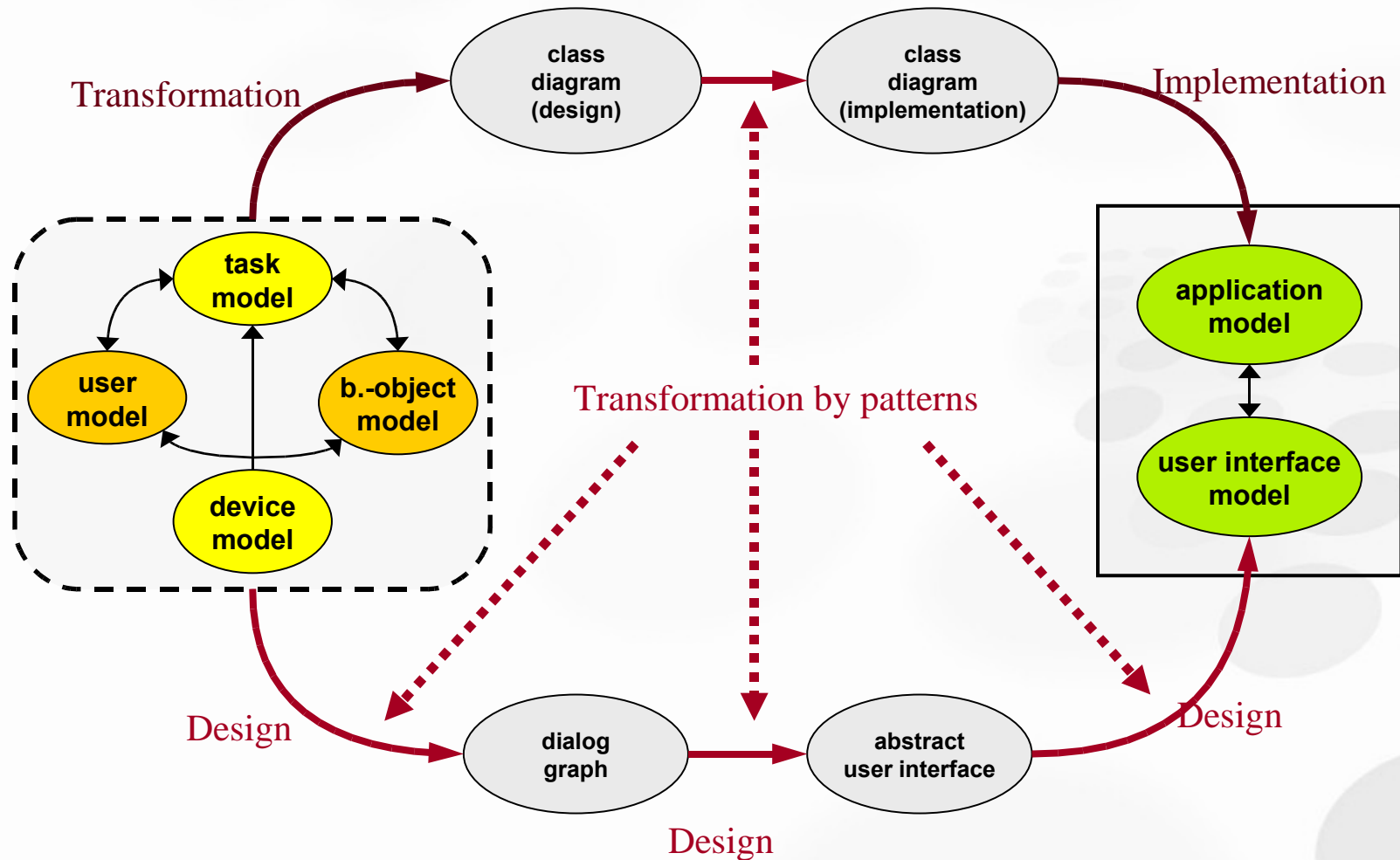
- Part of project „Mobile Assistance Systems“
- Goal: Model based Development of „Multiple User Interfaces“
 - adapt to user, device and environment
- Tools:
 - based on Eclipse Modeling Framework (EMF)



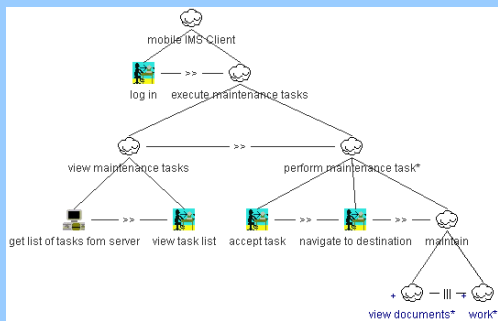


Model-based UI-design

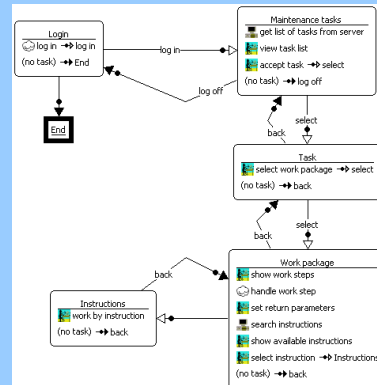
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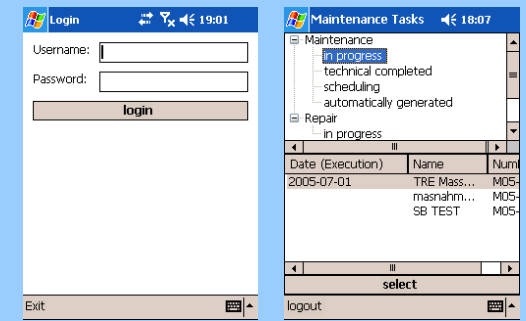
task model



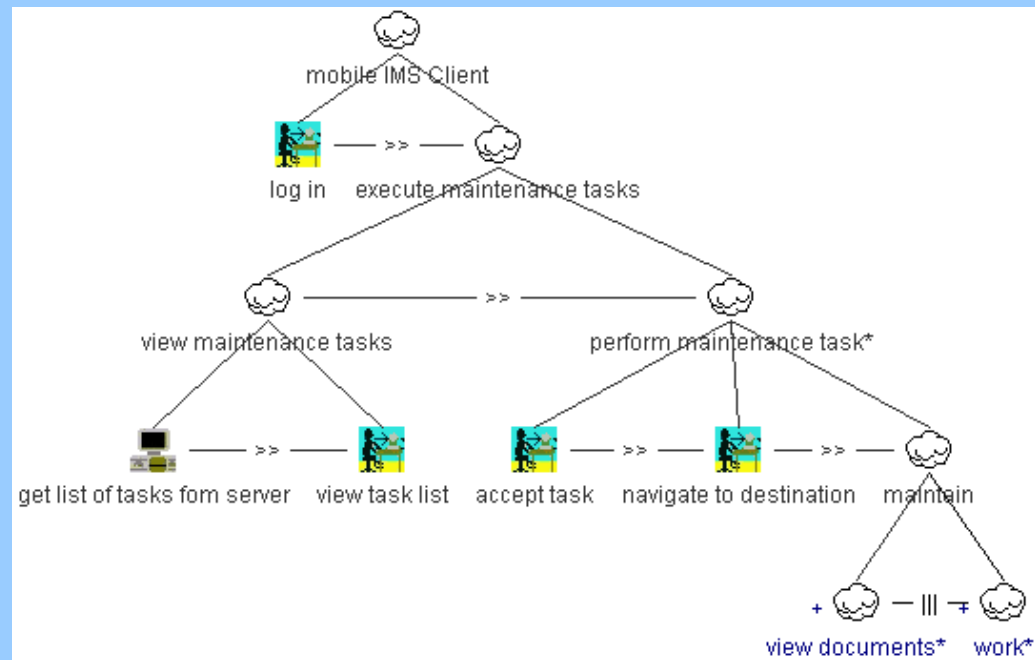
dialog graph



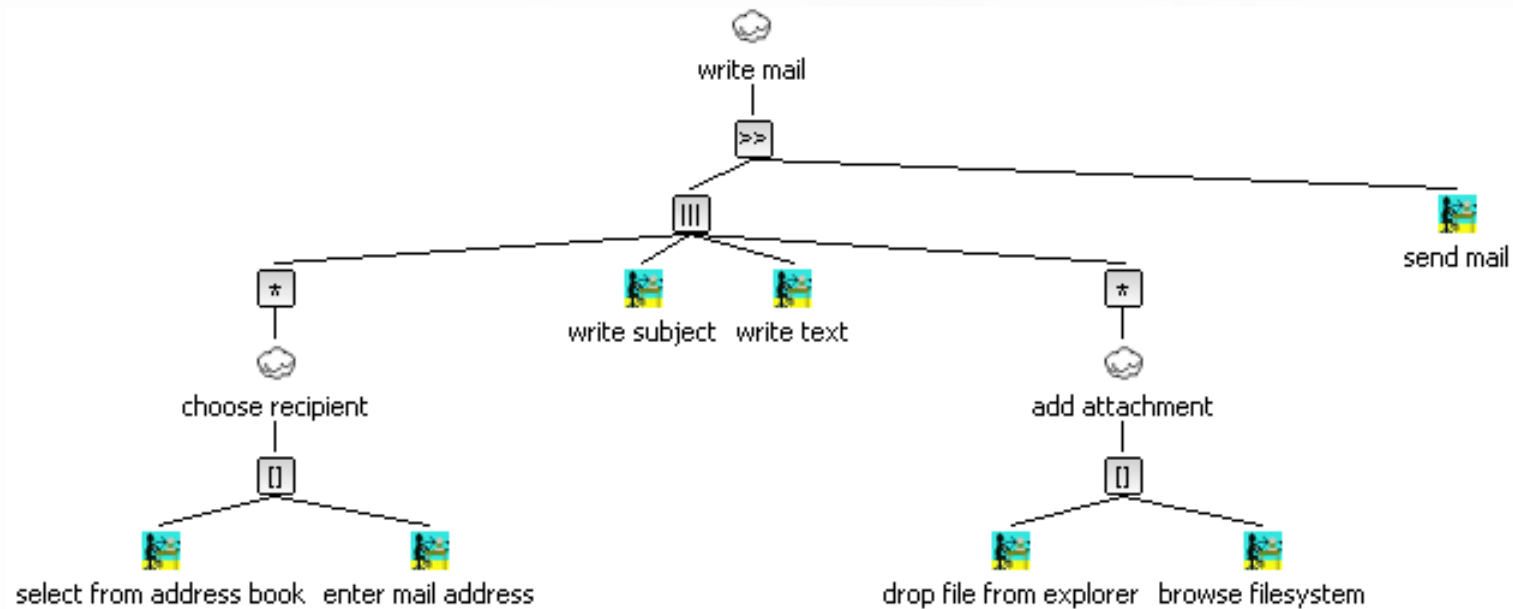
dialogs



task model



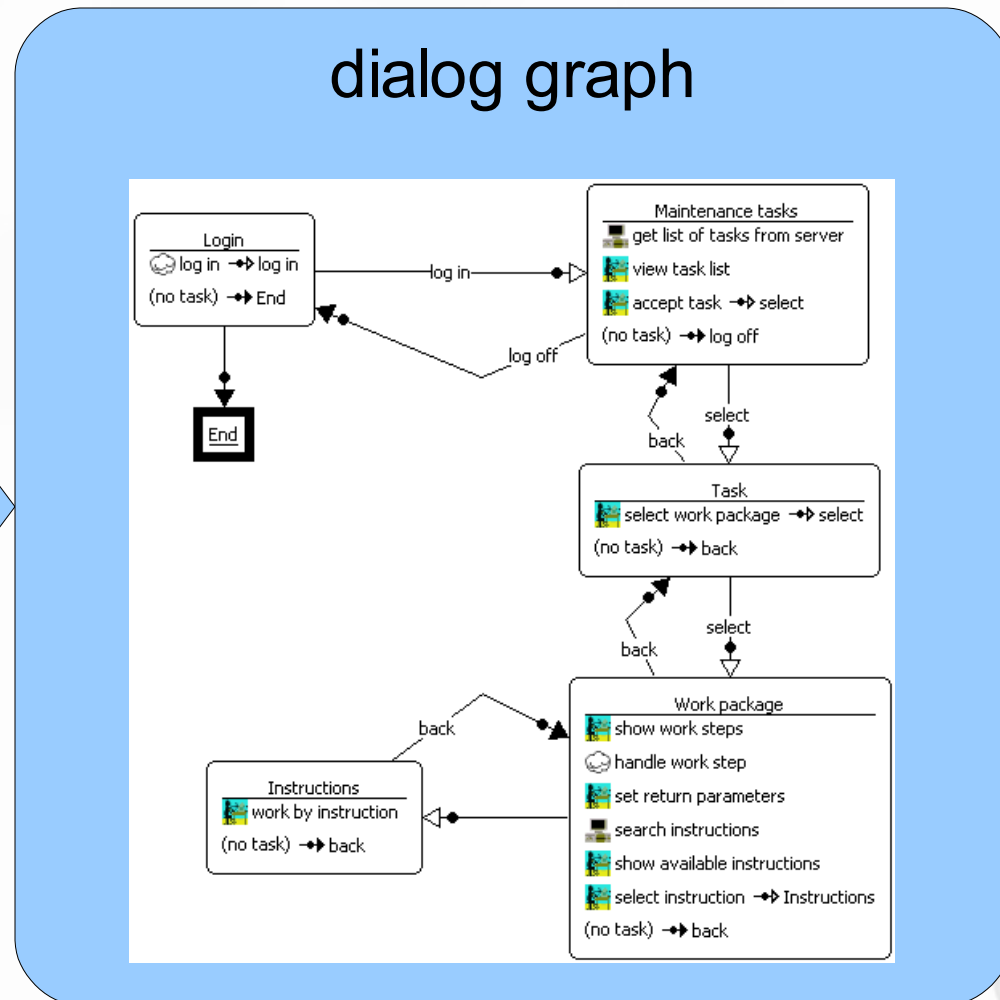
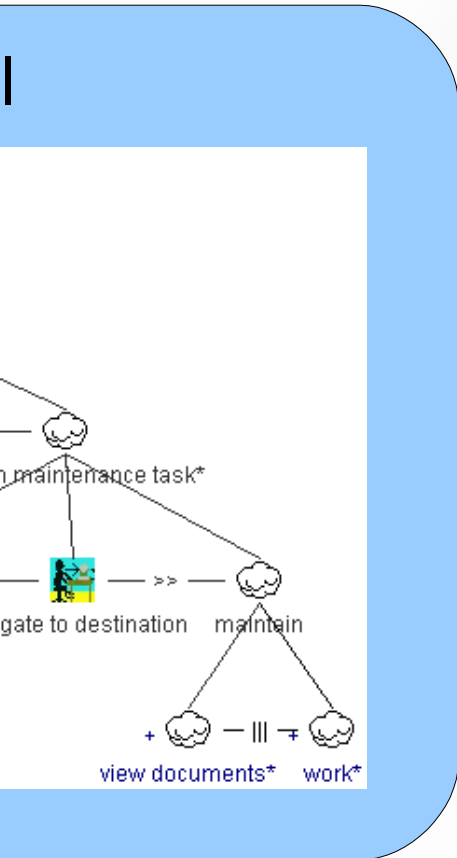
Task = (goal, sub tasks, temporal relations, preconditions, postconditions, artifacts, tools, user roles, devices)





Model-based UI-design

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- Directed graph consisting of:

- Dialog views



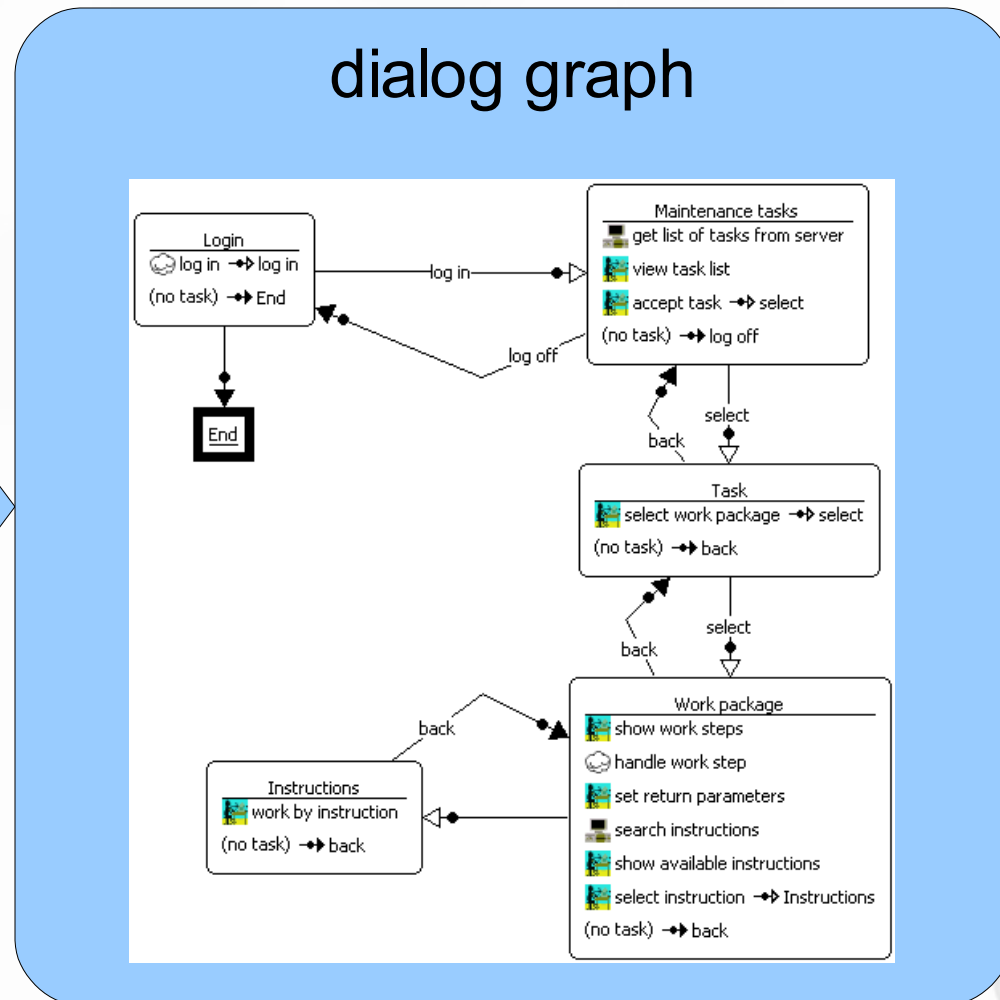
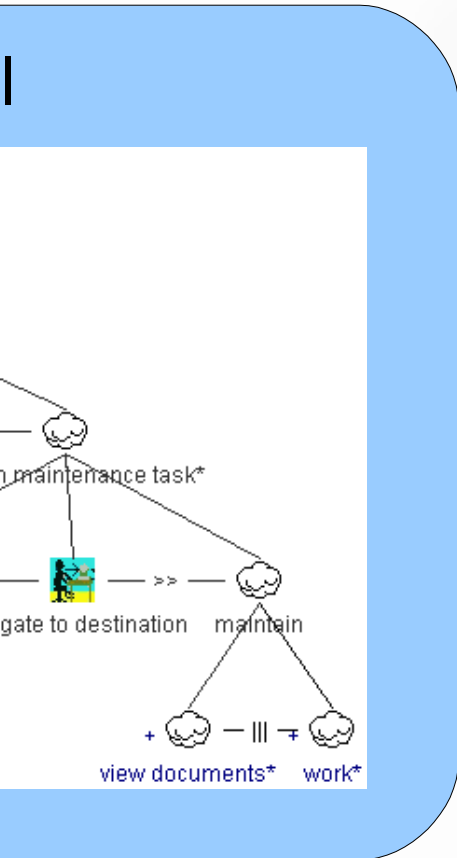
- Transitions





Model-based UI-design

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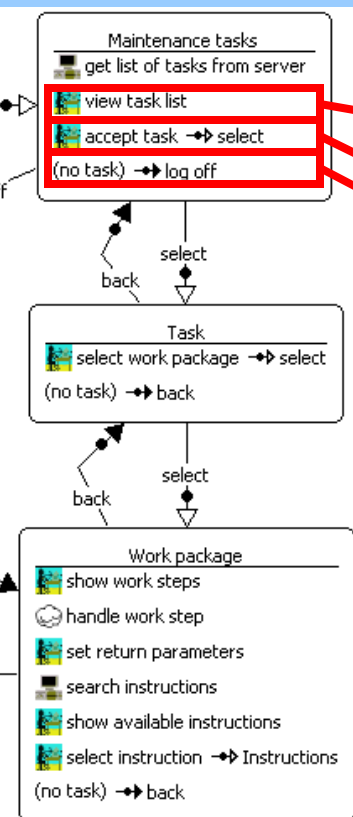




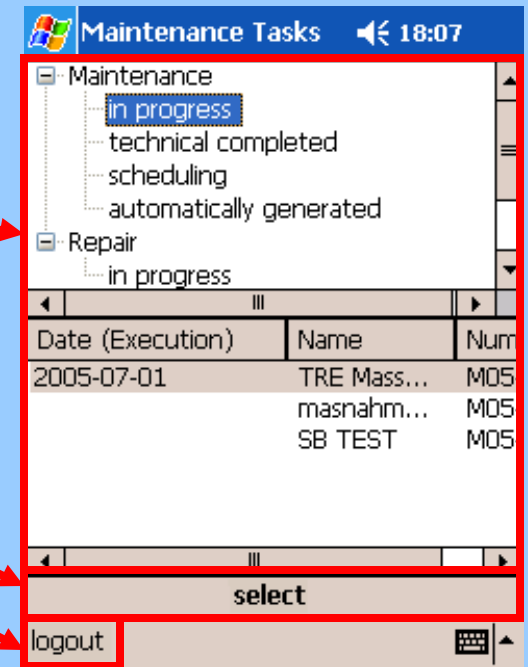
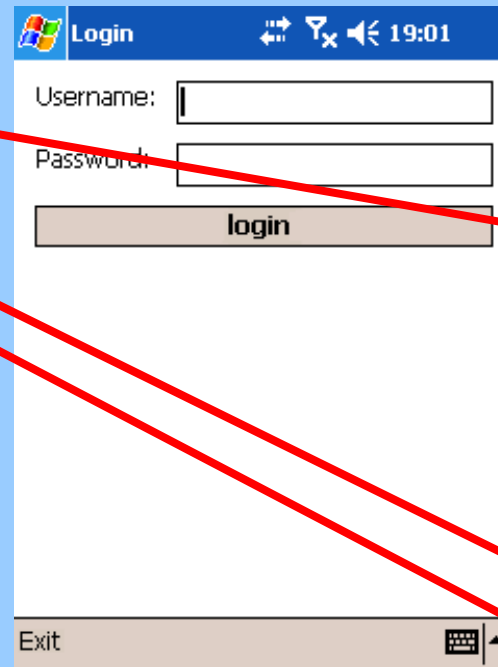
Model-based UI-design

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graph



dialogs



Support for Different Devices

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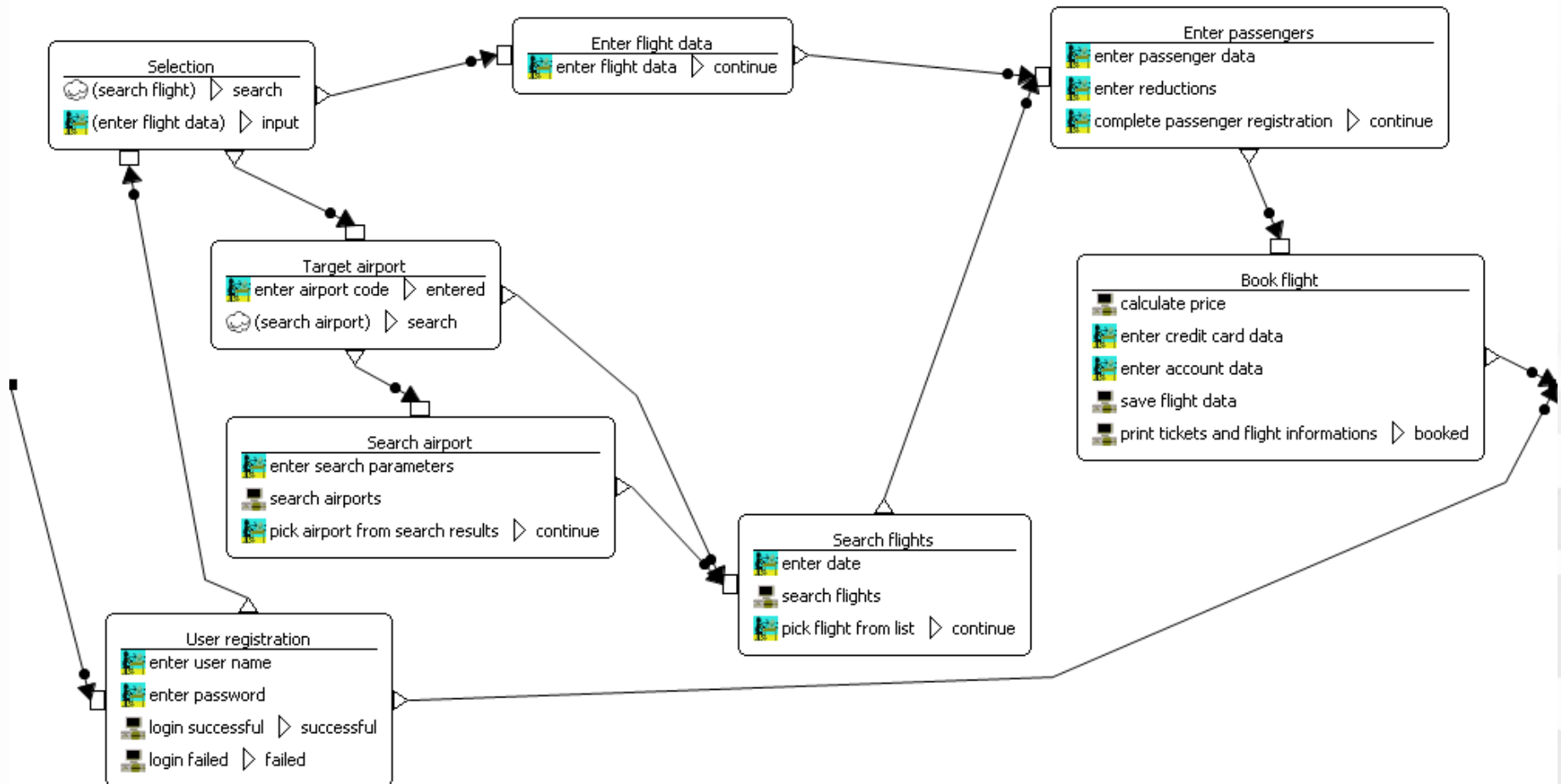
- Output:
 - display size
 - resolution
 - color quality
 - speech capabilities
- Input:
 - keyboard
 - touch pad
 - speech
- Operating System
- Performance
- Memory Size
- ...





Dialog models for different devices

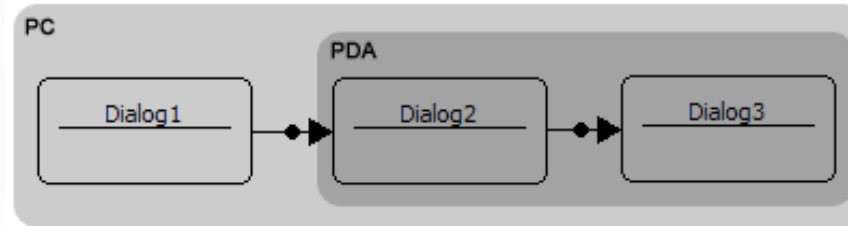
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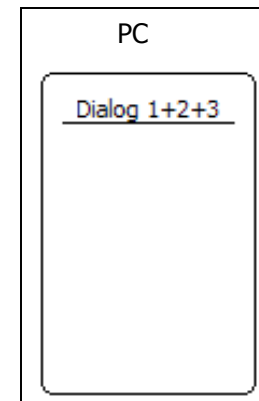
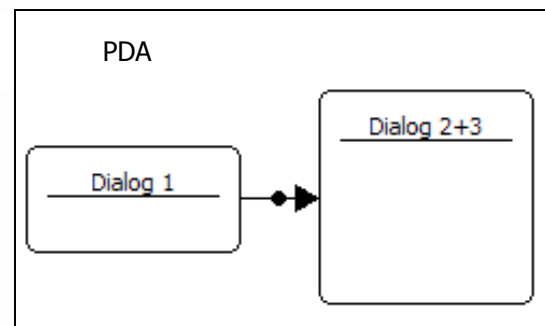
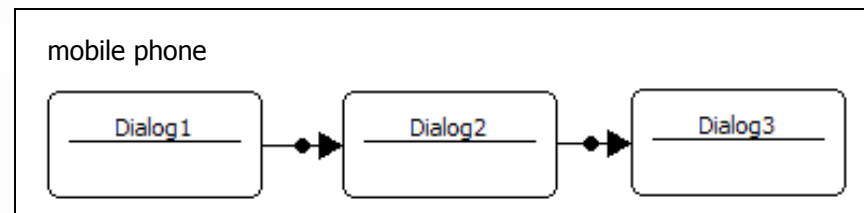


Dialog models for different devices

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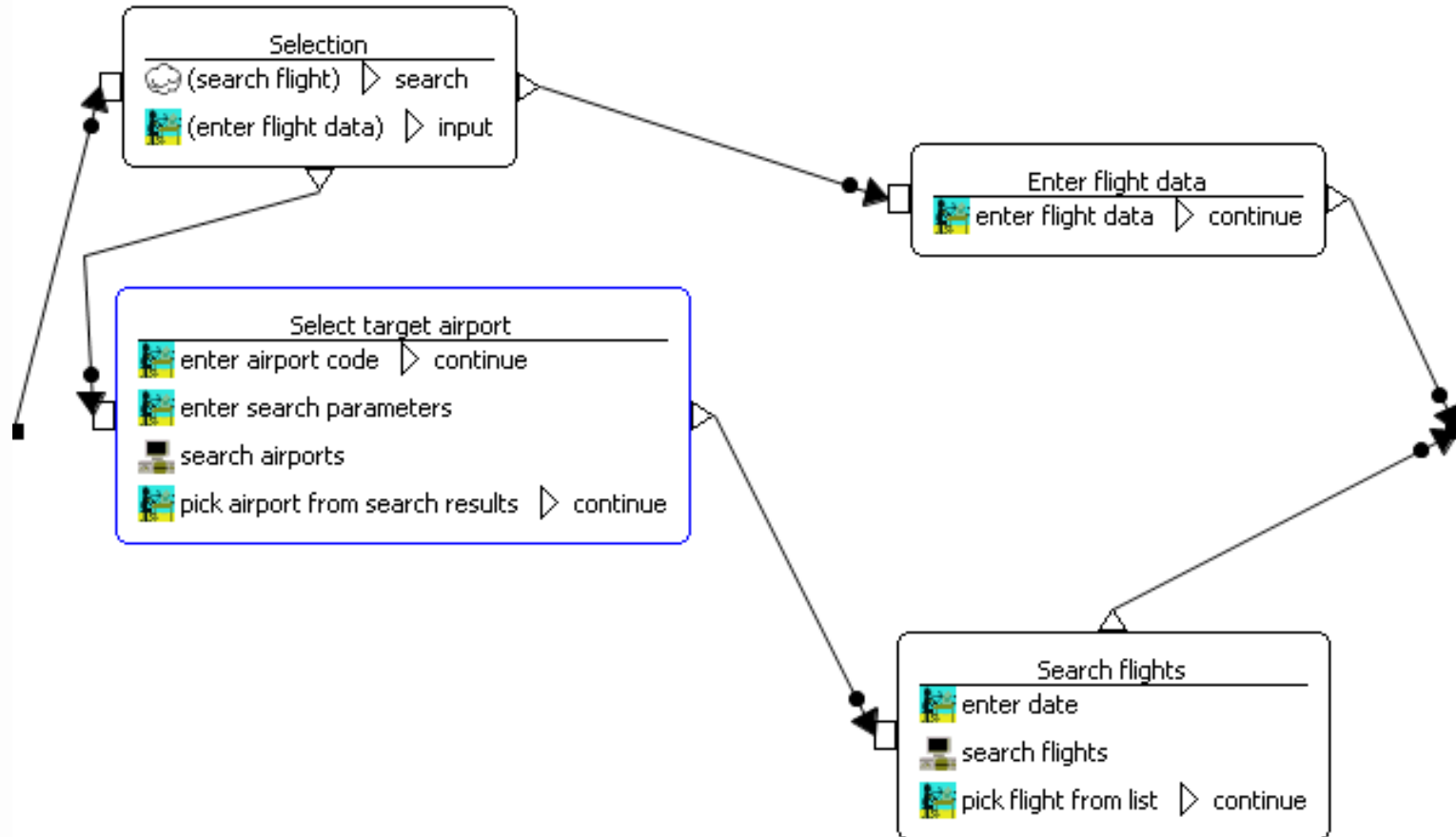
Generate platform-specific dialog graphs





Dialog models for different devices

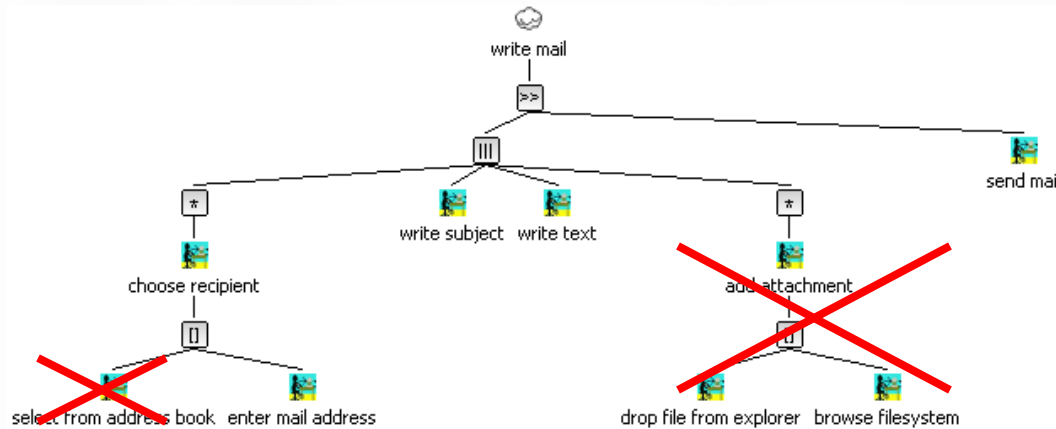
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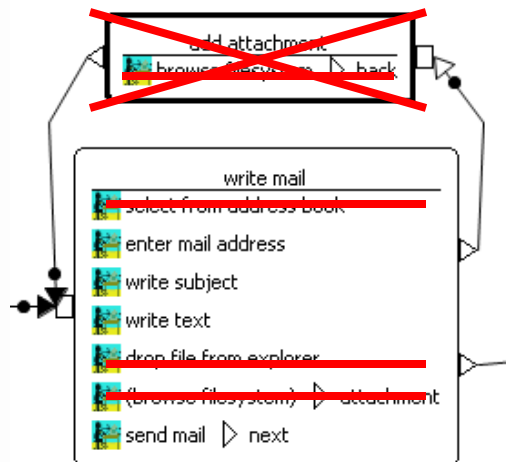


Dialog models for different devices

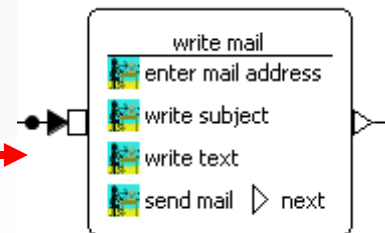
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PC



mobile phone





Tools: Task Model Editor, Task Model Simulator

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The image displays two side-by-side screenshots of the Eclipse IDE, illustrating the workflow from task model creation to simulation.

Left Screenshot: Task Model Editor
The window title is "Java - Flug buchen/en/book flight.taskmodel - Eclipse". The main editor shows a task model diagram for "register user". A palette on the left provides various modeling elements such as "Select", "Tasks", "Abstraction", "User", "Temporal opera...", "Choice", "Concurrent", "Iterations", "Iteration", and "Instance iteration". The "Problems" view at the bottom shows a table of properties:

Property
general properties
comment
id
name

Right Screenshot: Task Model Simulator
The window title is "Java - Flug buchen/en/book flight.taskmodelsimulation - Eclipse SDK". The main editor shows a hierarchical tree view of the task model simulation. The root is "flight booking system", which branches into "book flight" (marked with a green 'X'). Under "book flight", there are two main paths:

- A path starting with "register user" (green 'X') leading to "log in" (green 'X'), which further branches into "enter login data" (green 'X'). This path includes a sub-task "enter user name" (checked) and "enter password" (checked).
- A path starting with "register new user" (red 'X') leading to "choose flight" (red 'X') and "book selected flight" (red 'X').

Below these paths, there is another "book flight" node (green 'X') which branches into "register user" (green 'X') and "log in" (green 'X').



Tools: Dialog Graph Editor

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Java - Flug buchen/en/book flight.dialoggraphdiagram - Eclipse SDK

File Edit Refactor View Navigate Search Project Run Window Help

100%

Palette

- Select
- Marquee
- single dialog view
- multi dialog view
- modal dialog view
- complex dialog view
- end dialog view
- task
- input port
- output port
- sequential transition
- concurrent transition
- note
- note connection

Search flight

- enter airport code
- enter search parameters
- pick airport from search results
- search airports
- enter date
- search flights
- pick flight from list > continue
- enter flight data > continue

Enter passengers

- enter passenger data
- enter reductions
- complete passenger registration > continue

Book flight

- calculate price
- enter credit card data
- enter account data
- save flight data
- print tickets and flight informations > booked

User registration

- enter user name
- enter password
- login successful > successful
- login failed > failed

Outline

- enter pas
- check login d
- register new user
- choose flight
- book selected flight
- Search flight
- Enter passengers
- Book flight
- User registration

Properties

Property	Value
dialog view	
comment	
name	User registrati
roottask	
type	single
layout	
height	
wirth	



Tools: Dialog Graph Simulator

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Java - Flug buchen/en/book flight.simulation - Eclipse SDK

File Edit Refactor Navigate Search Project Run Window Help

*book flight.dialoggraphdiagram *book flight.simulation

flight booking system

- #
- book flight
 - >>
 - register user
 - choose flight
 - >>
 - select flight
 - search flight
 - >>
 - choose target airport
 - enter airport code
 - search airport

book flight

Search flight

- enter airport code
- enter search parameters
- pick airport from search results
- search airports
- enter date
- search flights
- pick flight from list
- enter flight data

Outline

- task model book flight
- m6c.taskmodel.simulation.edit.TaskM
- Dialoggraphsimulation: book flight

Properties

Property	Value

Simulationsszenario

Zeitpunkt	Rolle	Dialogsicht	Aufgabe	Transition
2008-06-27 11:51:03.062	book flight	<input type="radio"/> User registration	enter user name	-
2008-06-27 11:51:03.781	book flight	<input type="radio"/> User registration	enter password	-
2008-06-27 11:51:04.390	book flight	<input type="radio"/> User registration	login successful	→



Tools: Dialog Graph Simulator

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The screenshot shows the Eclipse IDE interface for a Java project named "Java - Flug buchen/en/book flight.simulation". The main editor displays a dialog graph diagram for "book flight" with a tree view on the left and a preview of the "Enter passengers" dialog box on the right. The dialog box contains input fields for "First name:" and "Last name:", radio buttons for "Reductions" (none and Student), and buttons for "enter passenger data", "enter reductions", and "complete passenger registration".

The "Simulationsszenario" table at the bottom shows the execution sequence of tasks:

Zeitpunkt	Rolle	Dialogsicht	Aufgabe	Transition
2008-06-27 11:51:03.062	book flight	○ User registration	enter user name	-
2008-06-27 11:51:03.781	book flight	○ User registration	enter password	-

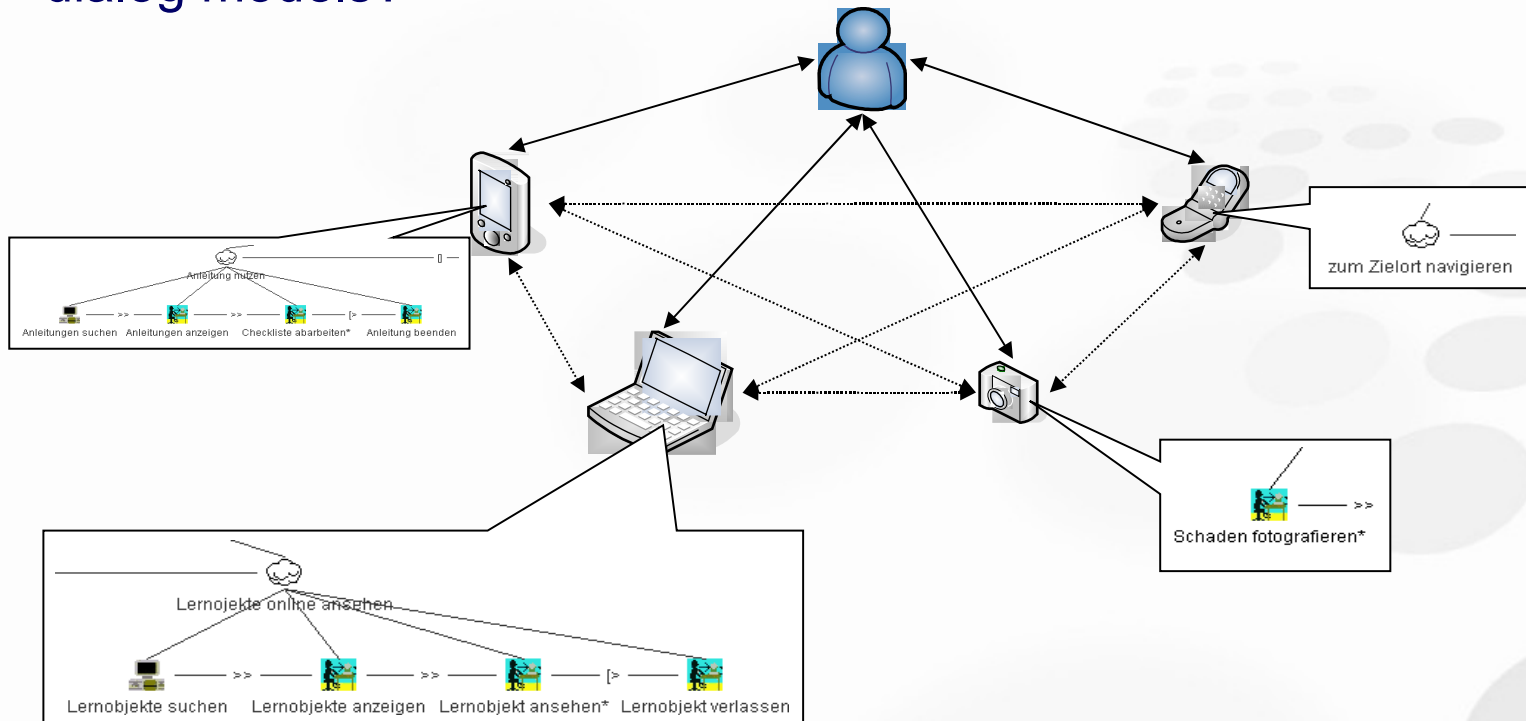


Future Work

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- (Semi-)automatic generation of dialog graphs from task models
- Patterns
- Distributed task and dialog models

- How can a user be supported by a set of devices?
- How does the concurrent use of more than one device affect dialog models?





Thank You for Your Attention!

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