



Models and Pattern

for

User Interfaces

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Overview

1. General Idea

- ❖ HCI pattern
- ❖ MB-UID

- **Pattern integration**

- ❖ Components, Pattern instance components
- ❖ Illustrating Examples
- ❖ Solution scope

- ❖ **Summary**



HCI Patterns

1. General Idea | 2. Pattern integration | 3. Summary

- GoF Patterns
- Best Practice for a certain problem
- Guidelines, Inter-media interaction
- Existing knowledge compiled in catalogues
 - References, terminology
 - Usability & functionality tested
- Benefits for model-based UI engineering?



HCI Patterns

1. General Idea | 2. Pattern integration | 3. Summary

- **Expected Benefits:**
 - Reduced model complexity, enhanced expressiveness
 - Reduced design effort
 - min: Adaptable component library



HCI Patterns

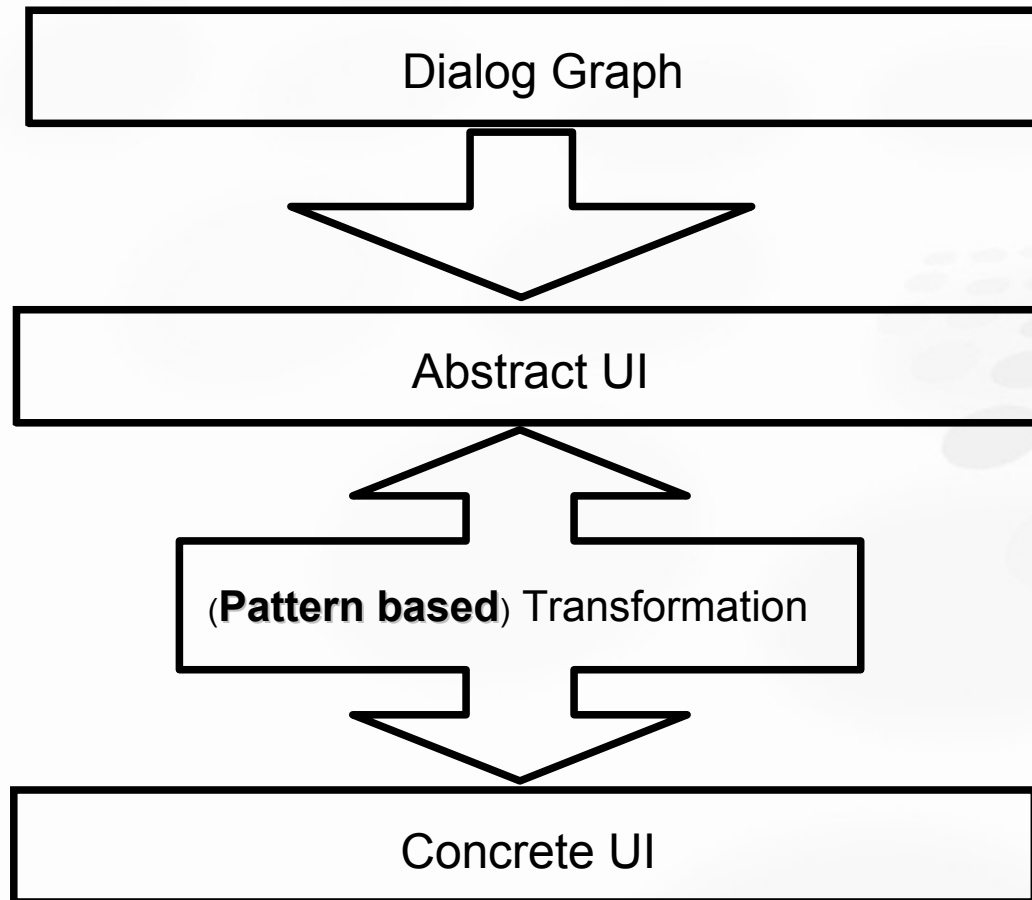
1. General Idea | 2. Pattern integration | 3. Summary

- **Problems/Tasks:**
 - Machine readable formalization of patterns (where possible!)
 - Integration into MD-UI modelling
 - Linkage to object models/business logic
 - Tool-Set: Engine, Editors



UI Models - WIMP

1. General Idea | 2. Pattern integration | 3. Summary





Components for pattern

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- Machine readable formalization of patterns
 - XML description for use in a pattern language (PLML, UI-XML)
- Integration into MD-UI modelling
 - Semi-automatic transformation between AUI, CUI, Code possible
- Linkage to object models/business logic
 - Placeholder and plug-in mechanism (partial solution only)
- Tool-Set: Engine, Editors
 - Possible, under development



Pattern Instance Component

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- **Pattern instance components (PIC):**
 - Valid pattern solution (Top-Level)
 - ...
 - single AUI-element (Bottom-Level)
 - Layout
 - References, Packages, Control-Parameter
- XML based, hierarchy operators, quantifiers



PLML

Pattern Language Markup Language

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- Developed at a workshop at CHI2003
- DTD: http://www.hcipatterns.org/tiki-download_file.php?fileId=7
- Formalizes description and associated meta data
- not specific to UI-Pattern
- Changes and Enhancements proposed
- General acceptance doubtful

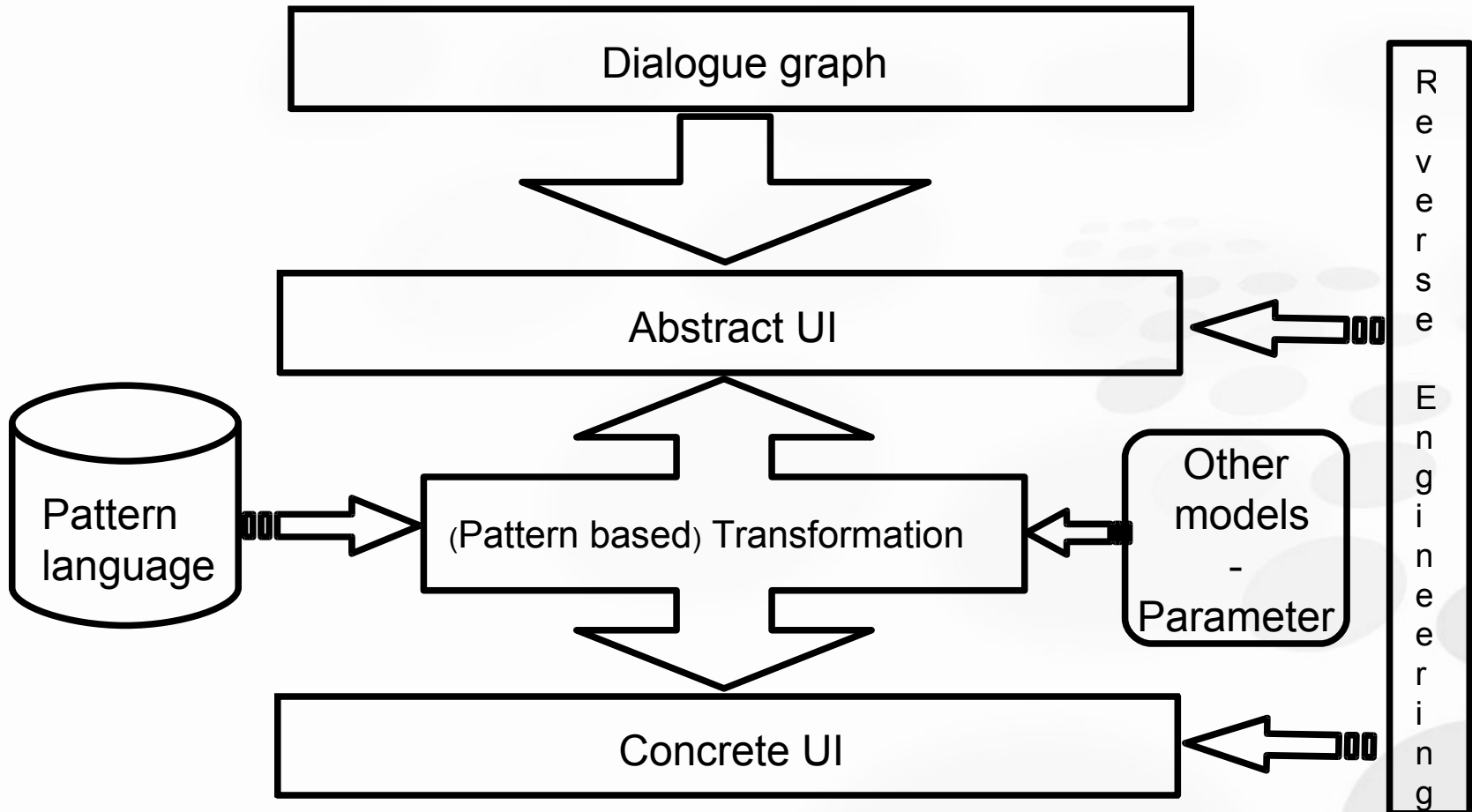
PLML – elements:

(name?, confidence?, alias*, synopsis?, illustration?, context?,
problem?, forces?, evidence?, solution?, diagram?,
implementation?, **related-patterns?**, pattern-link*, literature?,
management?)



UI Models - WIMP

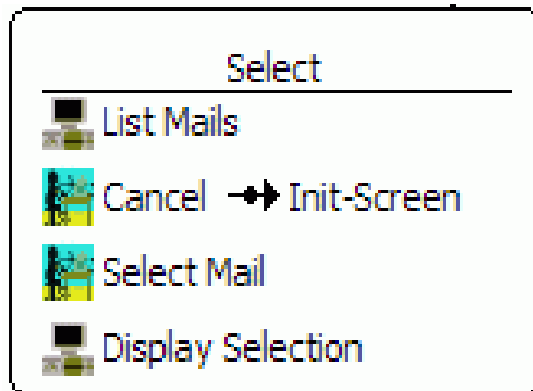
1. General Idea | 2. Pattern integration | 3. Summary



Components in MD-UID

1. General Idea | 2. Pattern integration | 3. Summary

Dialog Graph (section)



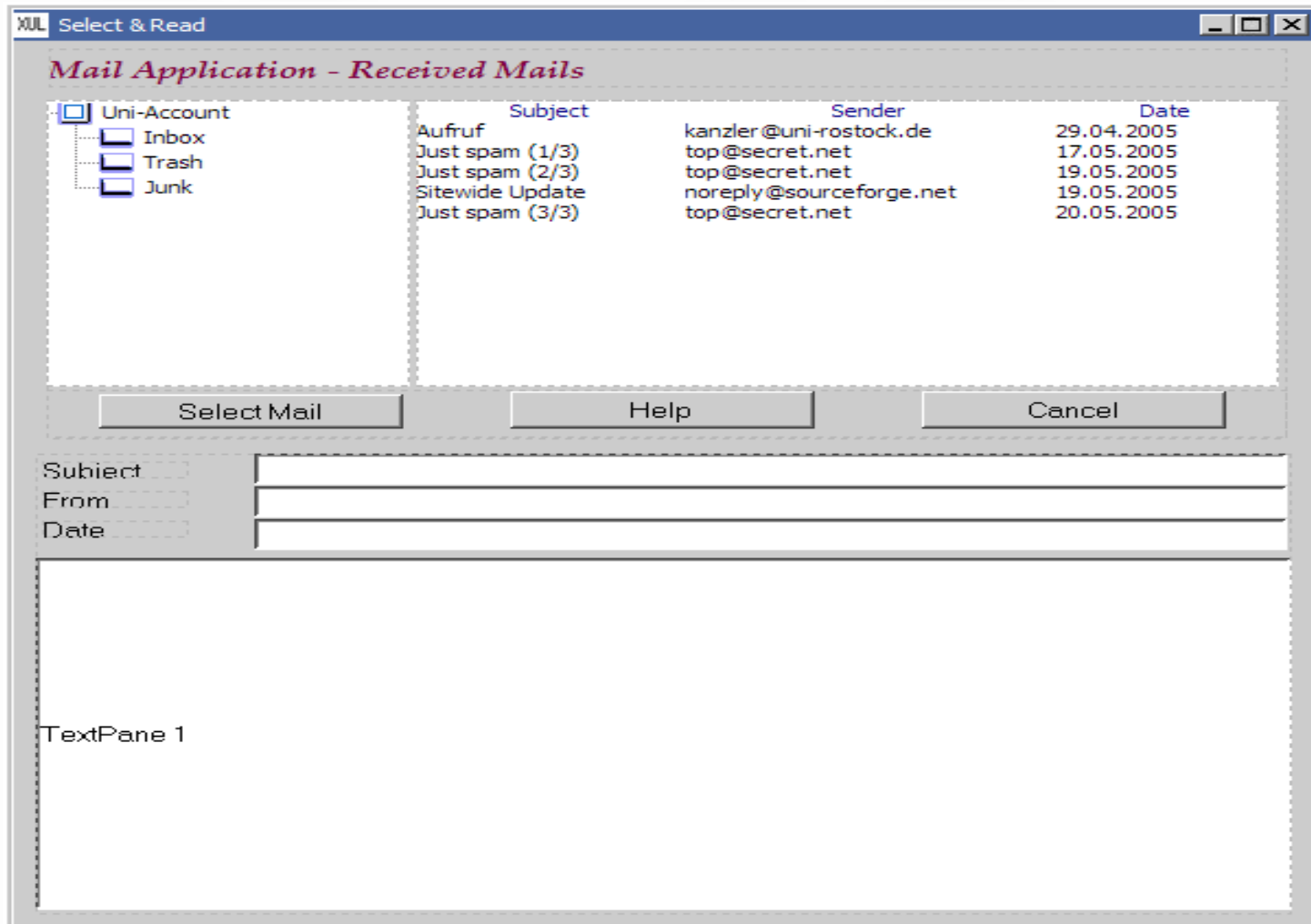
Initial AUI Specification





Visual Design

1. General Idea | 2. Pattern integration | 3. Summary





PIC usage example

1. General Idea | 2. Pattern integration | 3. Summary

XUL Testapplikation

First name

Surname

User-Id

Close Propose User Id

- Designed concrete user interface
- Conversion to 3-page wizard
 1. Usage of “Wizard”-Pattern PIC
 2. Manual refinement



PIC usage example

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Result:

- Three single views
- interconnected on CUI level



Componentizable Patterns

1. General Idea | 2. Pattern integration | 3. Summary

Pattern/Components classification of GoF-Pattern by Arnoud:

- Componentizable / Non-Componentizable
- Fully / Not comprehensive / Unfaithful / Useless

Own evaluation of Tidwells pattern catalogue:

- 42 pattern described
- along Arnoud, but three dimensions:
OO, XML-UI, Graphical Editor
- **no useful PIC in any** dimension for **7** pattern
- **useful PIC in every** dimension for **13** pattern possible
- differing usefulness/comprehensiveness for 22 patterns



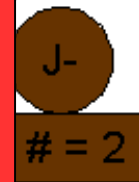
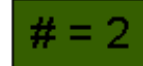
Componentizable Patterns

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← Comprehensiveness of (possible) PICs



- Intriguing Branches
- Clear Entry Points
- Edit-In-Place
- Smart Selection
- Deep Background
- Few Hues, many Values
- Center Stage

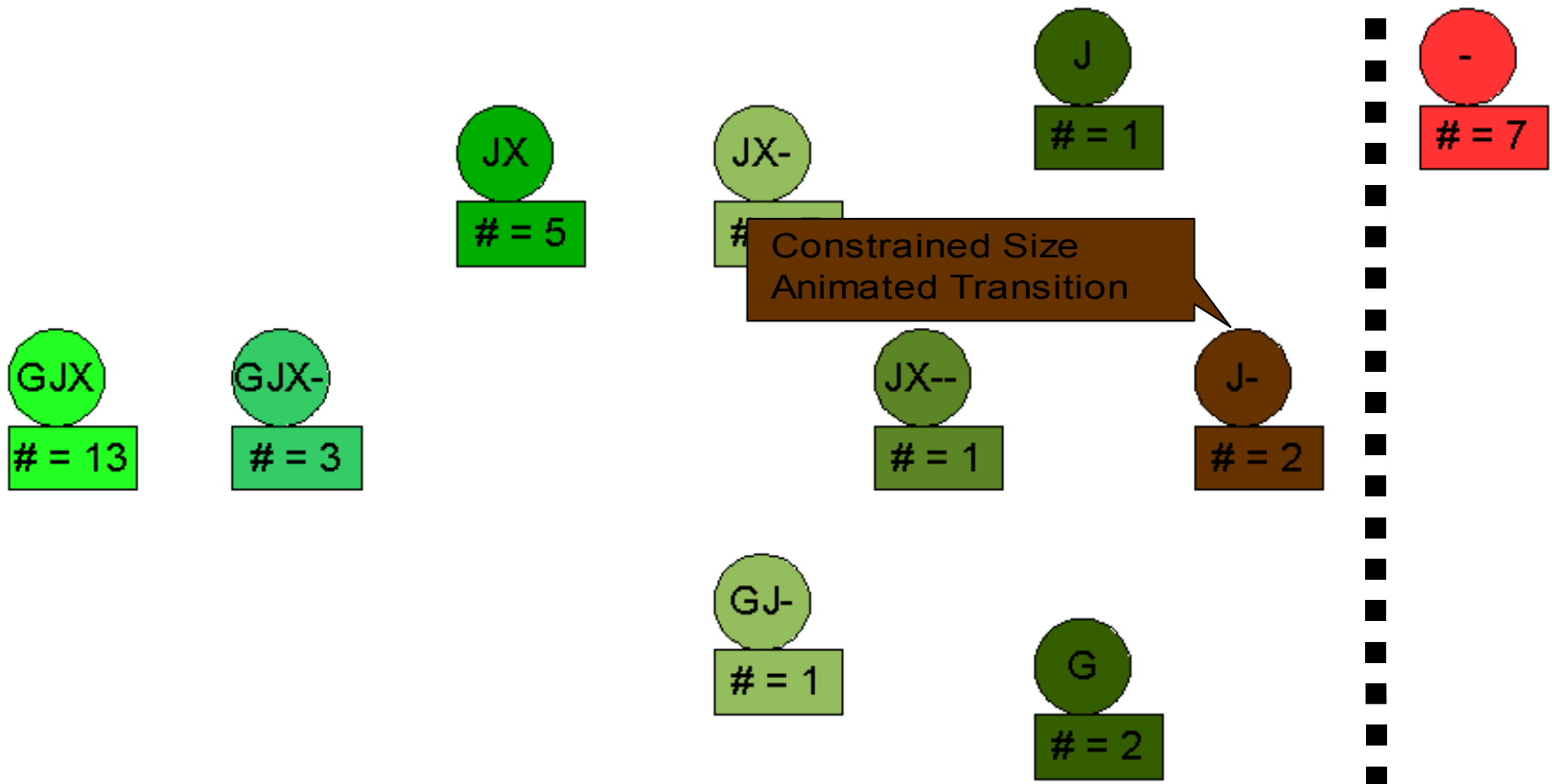




Componentizable Patterns

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← Comprehensiveness of (possible) PICs





Summary

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- HCI Pattern provide best practices in UI design
- Integration into model-based ui-generation process desirable
- Pre-programmed, adjustable, components open a subset of pattern to MD-UID

Thank you for your attention!