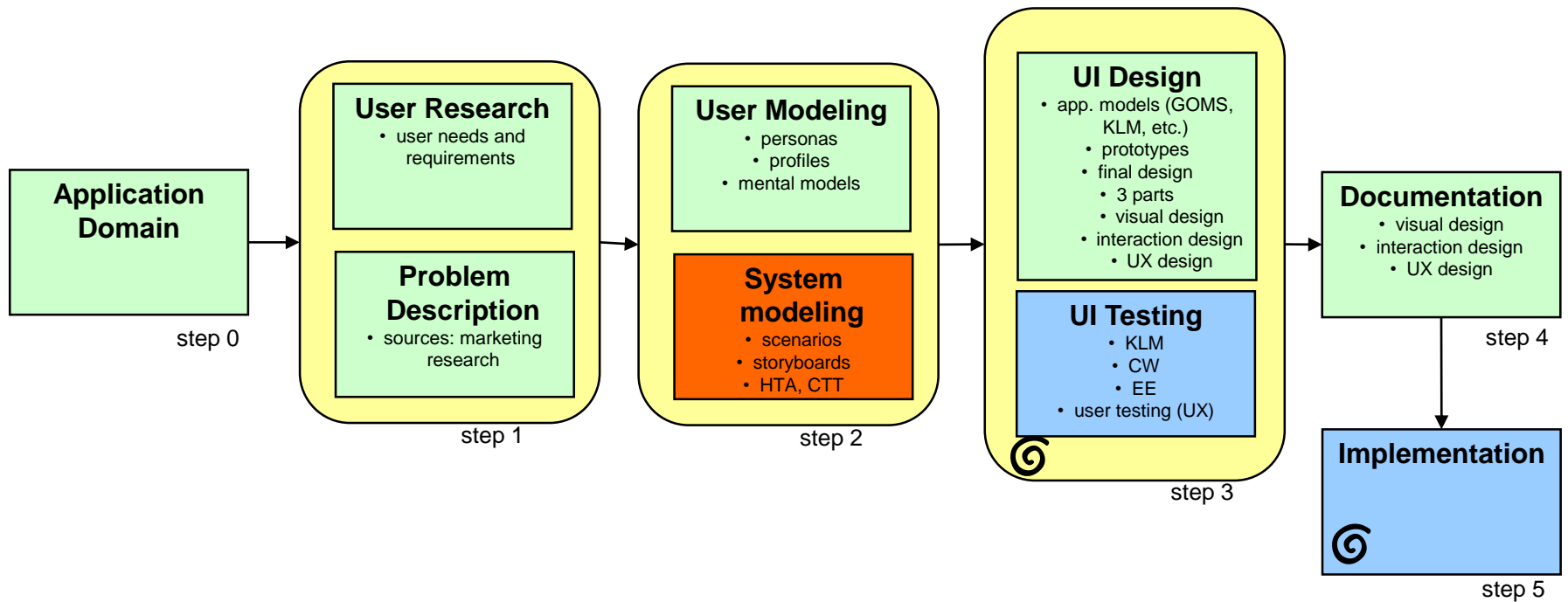

NUR- Formal description/models of user interfaces

Scenarios, Storyboards, Task models



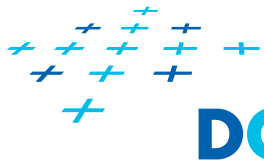
System modeling

- Analysis of user activities
- Description of the course of the dialogue



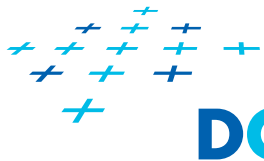
Goals vs. Tasks vs. Actions

- Goal
 - end result to be achieved
- Task
 - structured set of related activities undertaken in a sequence
- Action
 - one step or action performed (part of a task)



Describing Tasks and Requirements

- Stories (extreme programming)
 - short (3 sentences) narrative description of user activities
 - written by the user
- Scenarios
 - an informal narrative story, simple, ‘natural’, personal, not generalizable
- Use cases
 - assume interaction with a system
 - assume detailed understanding of the interaction
- HTA form of Task Analysis



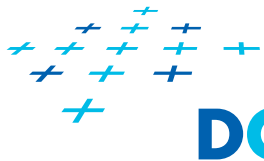
Scenarios

- By one definition, a scenario is:
 - an informal narrative story
 - simple, ‘natural’, personal
 - not generalizable
- Some use term *Task Scenario*
 - Narrative description of a specific thing done with a current system
 - Like a concrete use-case. (Real, representative)



Scenario example: Shared calendar

“The user types in all the names of the meeting participants together with some constraints such as the length of the meeting, roughly when the meeting needs to take place, and possibly where it needs to take place. The system then checks against the individuals’ calendars and the central departmental calendar and presents the user with a series of dates on which everyone is free all at the same time. Then the meeting could be confirmed and written into people’s calendars. Some people, though, will want to be asked before the calendar entry is made. Perhaps the system could email them automatically and ask that it be confirmed before it is written in.”



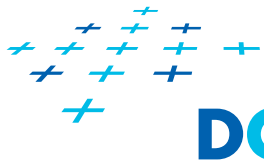
Use cases

- Each use case has a name
 - e.g. Planning a meeting; Canceling a meeting
- A family (or set, or class) of scenarios
 - One main scenario for “normal” behavior or situation
 - A sequence of interactions
 - Also set of different but related scenarios
- Documenting Use Cases
 - (Maybe) A UML Diagram showing all of them
 - Actors are stick-figures; use cases are ovals
 - (Certainly) For each use case define using English
 - A clear textual description (like a stories, a scenarios)
 - A set of scenarios in outline form



Example: Template for Use Cases

- *Use case number or id*
- *Use case title*
- *Text description (a few sentences)*
- *Preconditions (if applicable)*
- *Flow of Events*
- *Basic path*
 - 1. *First step*
 - 2. *Second step*
 - 3. *etc.*
- *Alternative Paths*
 - *Name and short description (in words) of first alternative path/scenario.*
 - *Name and short description (in words) of 2nd alternative path/scenario.*
- *Post conditions (if applicable)*
- *Special conditions (if applicable)*

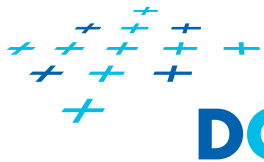


Path for use case for shared calendar

1. The user chooses the option to arrange a meeting.
2. The system prompts user for the names of attendees.
3. The user types in a list of names.
4. The system checks that the list is valid.
5. The system prompts the user for meeting constraints.
6. The user types in meeting constraints.
7. The system searches the calendars for a date that satisfies the constraints.
8. The system displays a list of potential dates.
9. The user chooses one of the dates.
10. The system writes the meeting into the calendar.
11. The system emails all the meeting participants informing them of them appointment

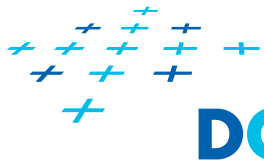


Storyboard

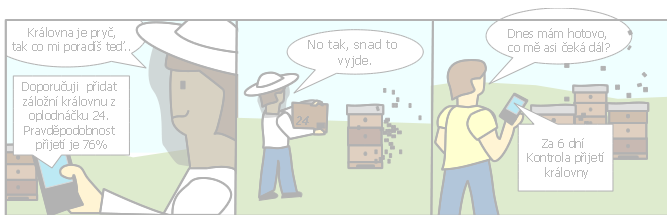


Storyboard

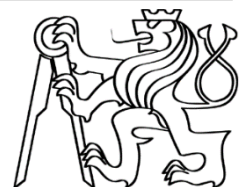
- a series of key frames as sketches
 - originally from film industry; used to get the idea of a scene
- integrates scenarios and use-cases
 - shows the situations (sequence of tasks) where the user will interact with the future system to achieve the desired goal
 - typically one scenario = one storyboard (with possible alternative endings)
 - no explicit visualization of UI
 - no detail description of interaction with the system
- designer has a big picture of the whole situation
- users can evaluate intuitively the design plans



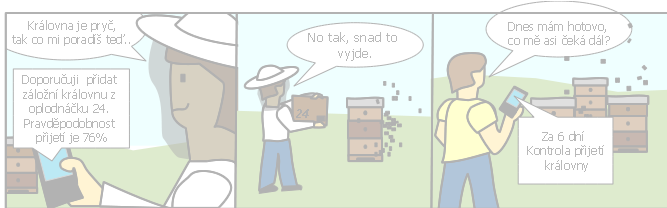
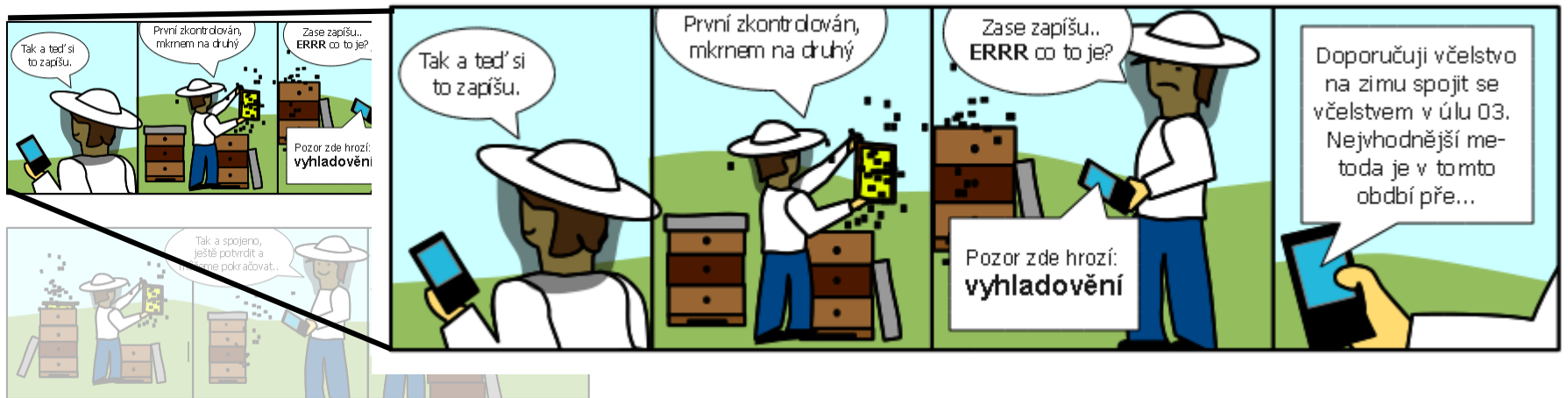
Storyboard example - BEEPER



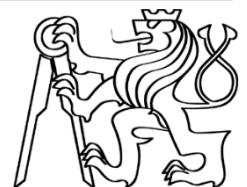
Source: Ondřej Mandík, CTU student



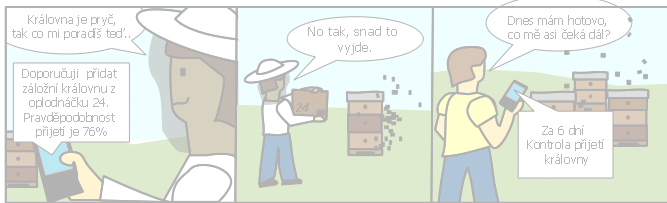
Storyboard example - BEEPER



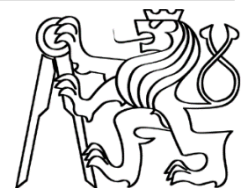
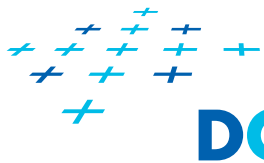
Source: Ondřej Mandík, CTU student



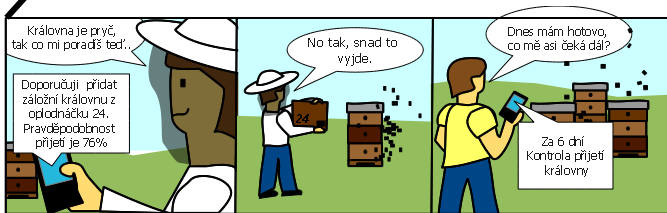
Storyboard example - BEEPER



Source: Ondřej Mandík, CTU student



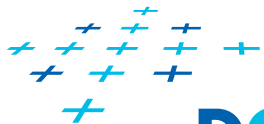
Storyboard example - BEEPER



Source: Ondřej Mandík, CTU student

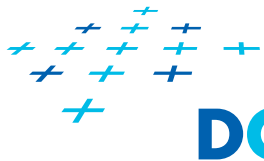


Hierarchical Task Analysis (HTA)

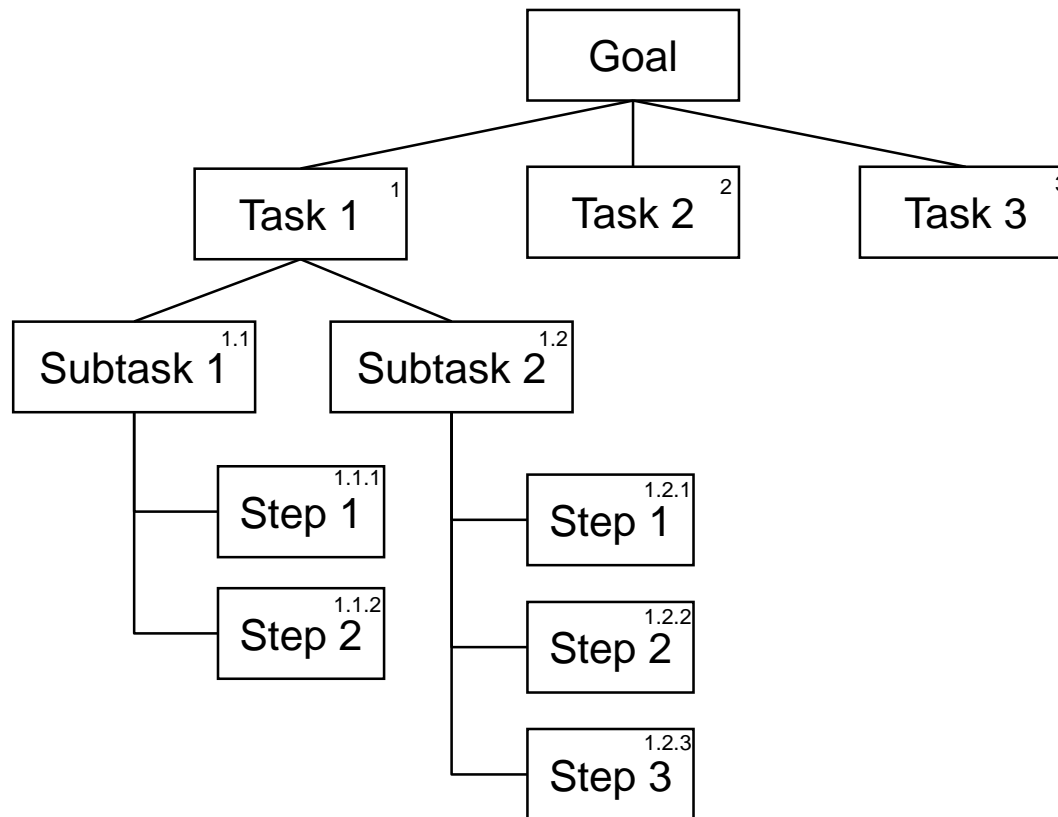


Task analysis

- Determines in certain way performance of the user during execution of task
- What we need to know
 - what the users are doing
 - what they need for their activity (tools etc.)
 - what they need to know
- It is necessary to divide the task into subtasks (hierarchically) and to analyze single steps
- Method: HTA (Hierarchical Task Analysis)



Hierarchical Task Analysis (HTA)



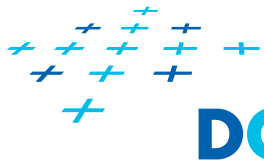
Plan A: 1.1.1 – 1.2.1 – 1.2.3

Plan B: 1.1.2 – 1.2.2 OR 1.2.3



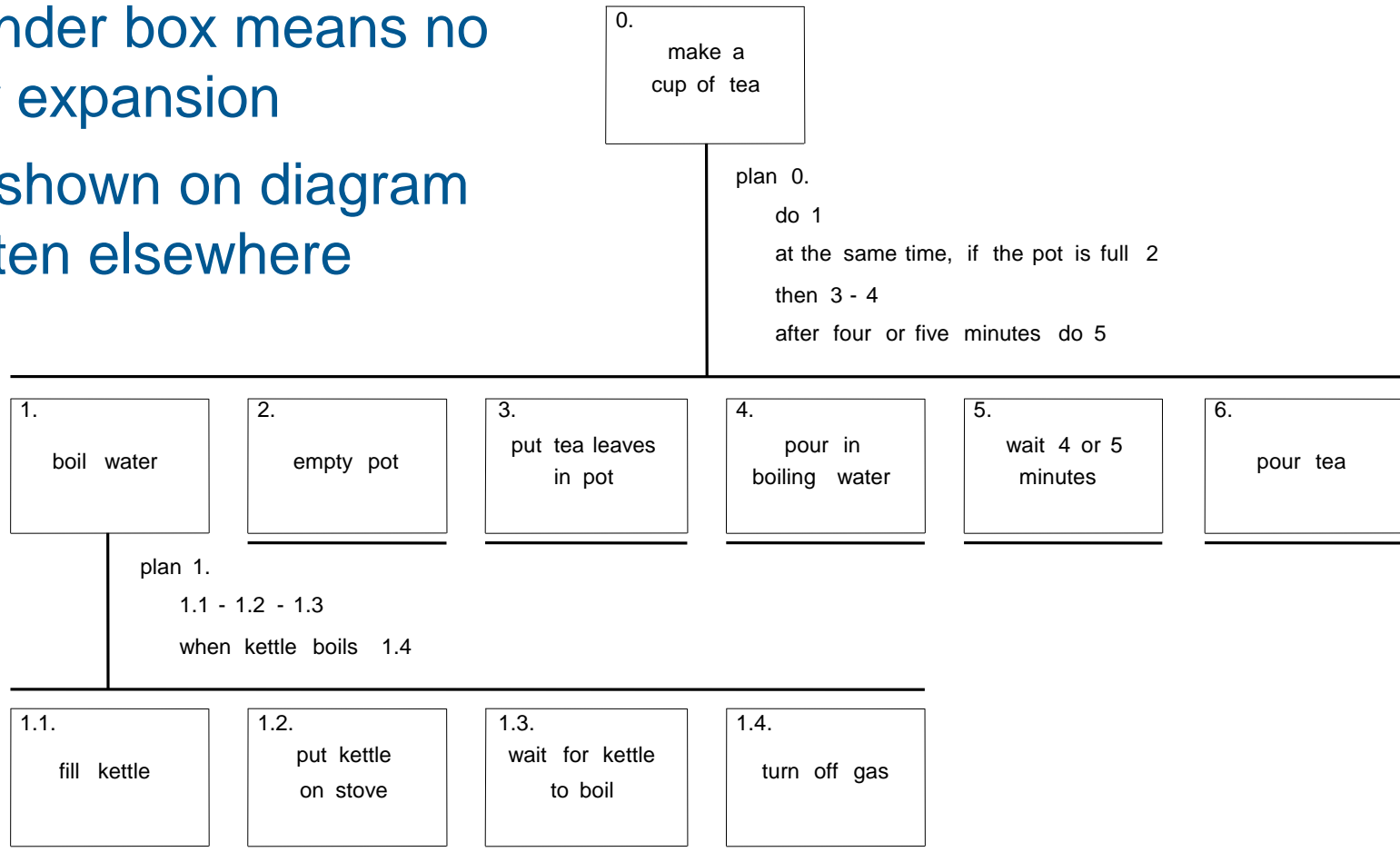
HTA Example: How to make a tea

- Pay attention to the level of decomposition
- Questions
 - Can we continue in decomposition?
 - Do we know in which order to execute single subtasks?
 - Is it (always) important?



Diagrammatic HTA

- Line under box means no further expansion
- Plans shown on diagram or written elsewhere



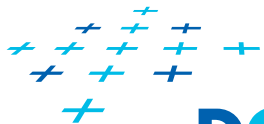
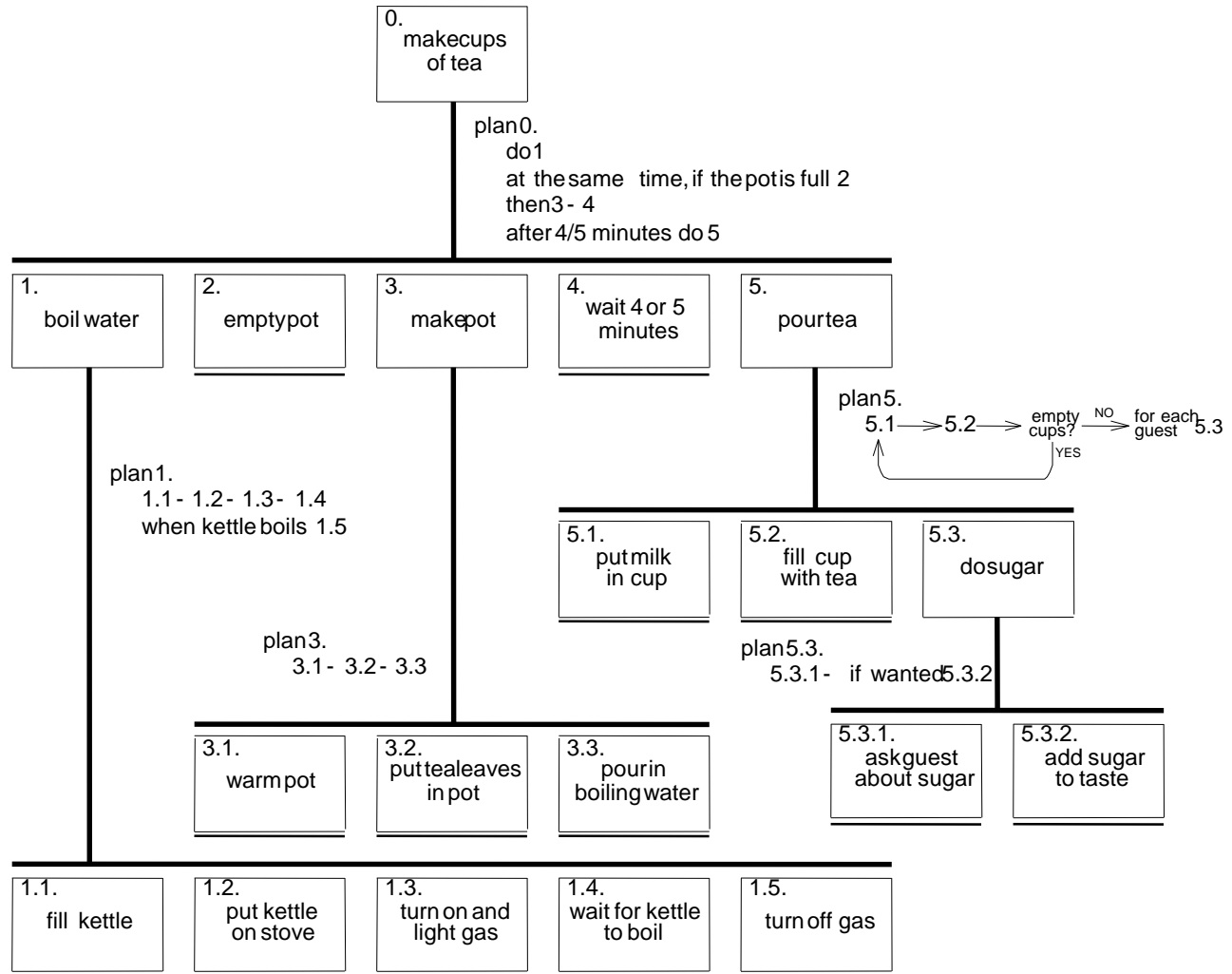
Diagrammatic HTA

- Decomposition: tree
- Plans: execution

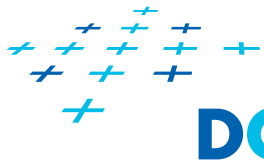
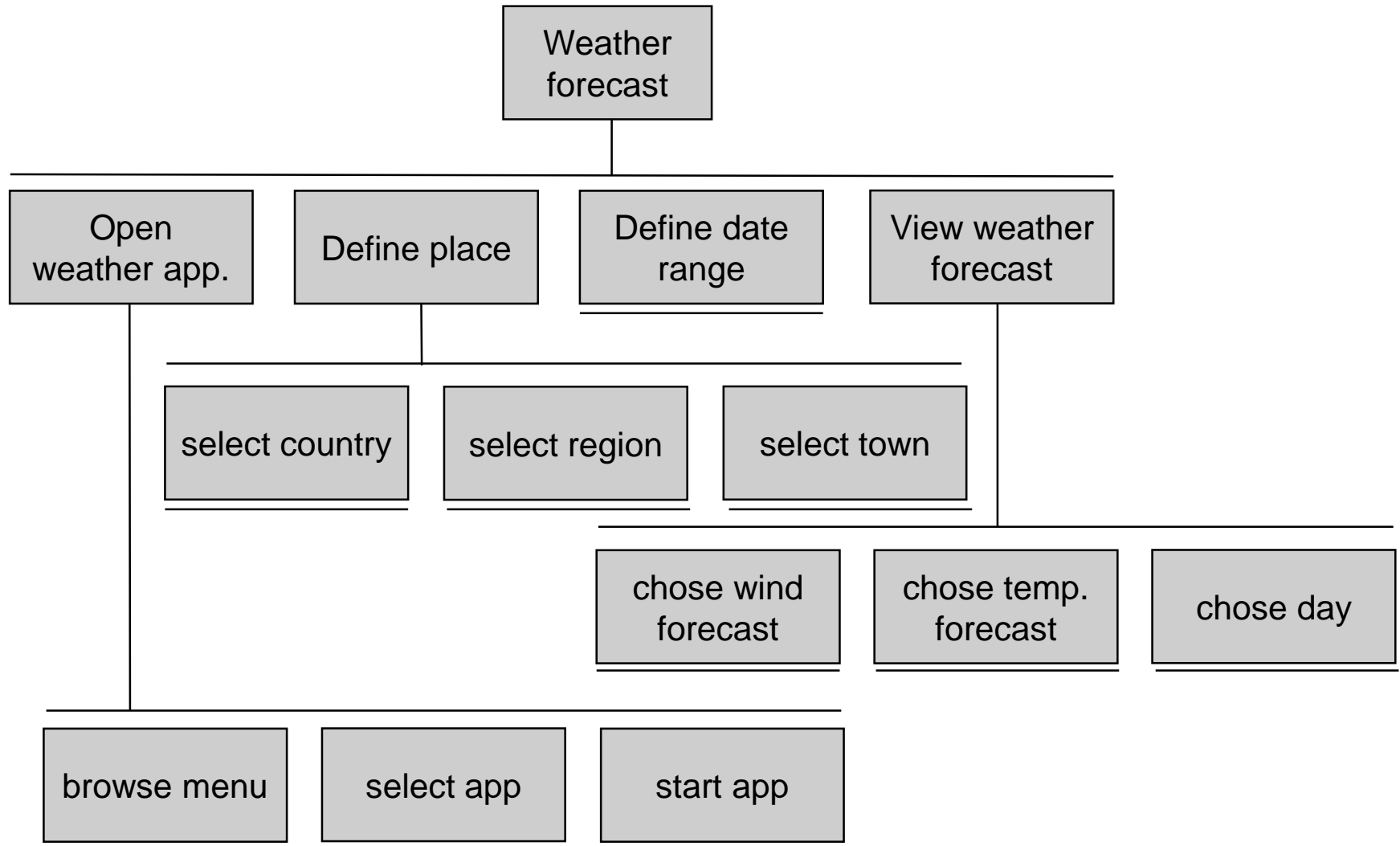
- What is important on plans?
- They tell us in which order should be individual steps executed



Redefined HTA For Making Tea

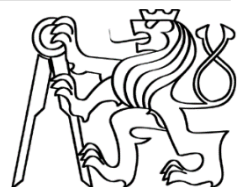
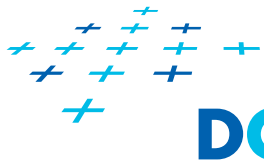


Weather forecast HTA



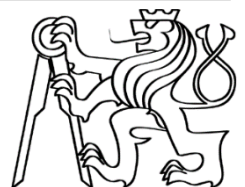
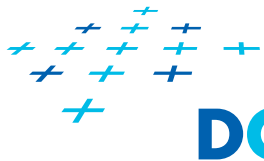
HTA – what we have gained when using it

- We have some idea about the sequence of individual steps that bring us to the desired goal
 - e.g. tea ready for drinking, what will be the weather tomorrow



Alternative description of HTA

- Besides graphical form it is possible to use textual (structured) form
- It is more compact
- It is harder to read
- Example: how to borrow a book from library



Alternative description of HTA

0. In order to borrow a book from the library

1. go to the library

2. find the required book

2.1 access library catalogue

2.2 access the search screen

2.3 enter search criteria

2.4 identify required book

2.5 note location

3. go to correct shelf and retrieve book

4. take book to checkout counter

■ plan 0:

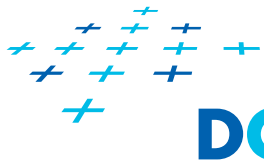
1. do 1-3-4.

2. If book isn't on the shelf expected,
do 2-3-4.

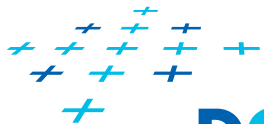
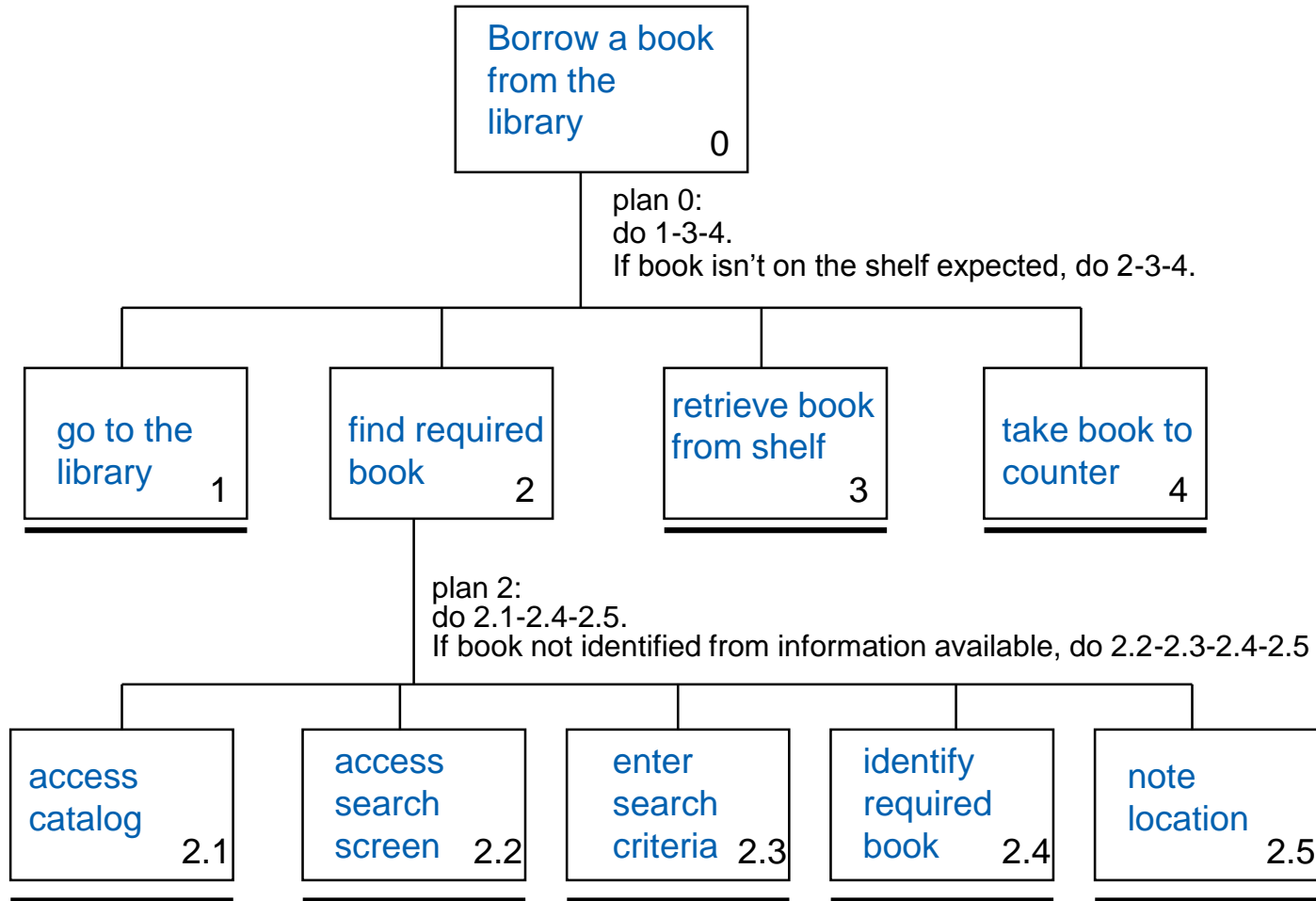
■ plan 2:

1. do 2.1-2.4-2.5.

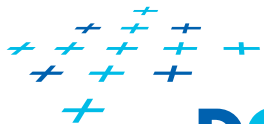
2. If book not identified do 2.2-2.3-
2.4.



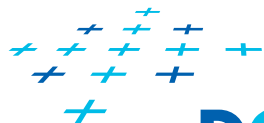
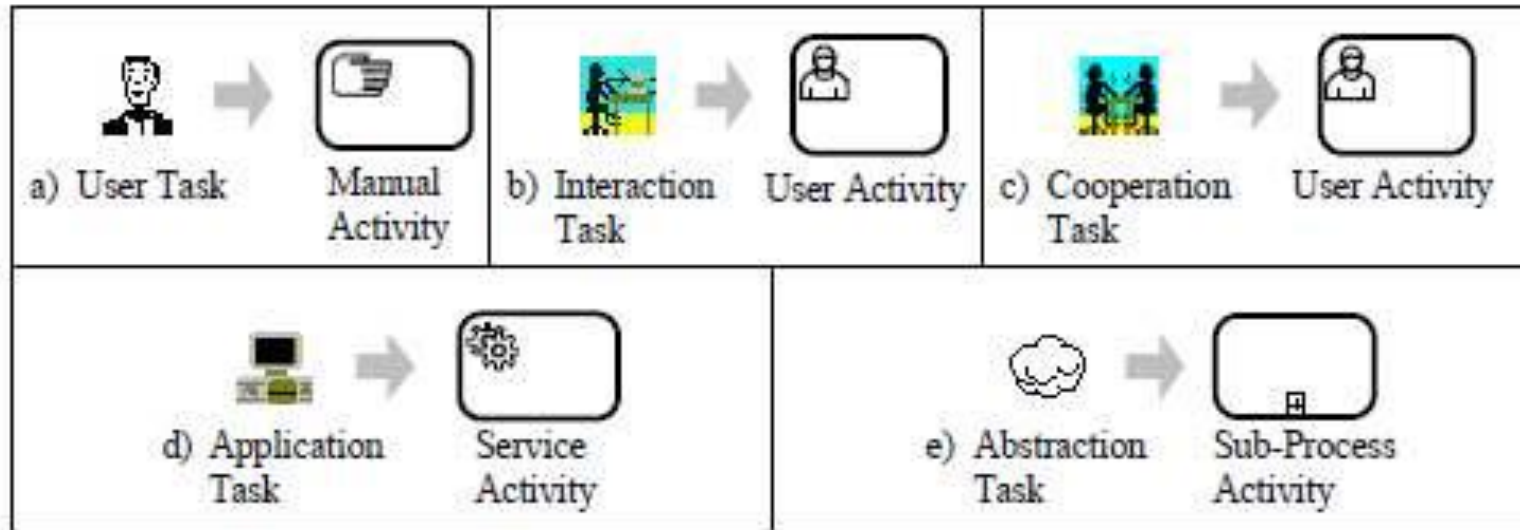
Alternative description of HTA (diagrammatic)



Concurrent Task Tree (CTT)

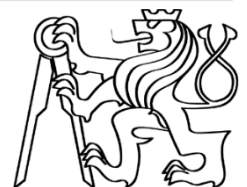


Symbols used in CTT

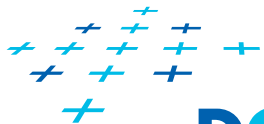
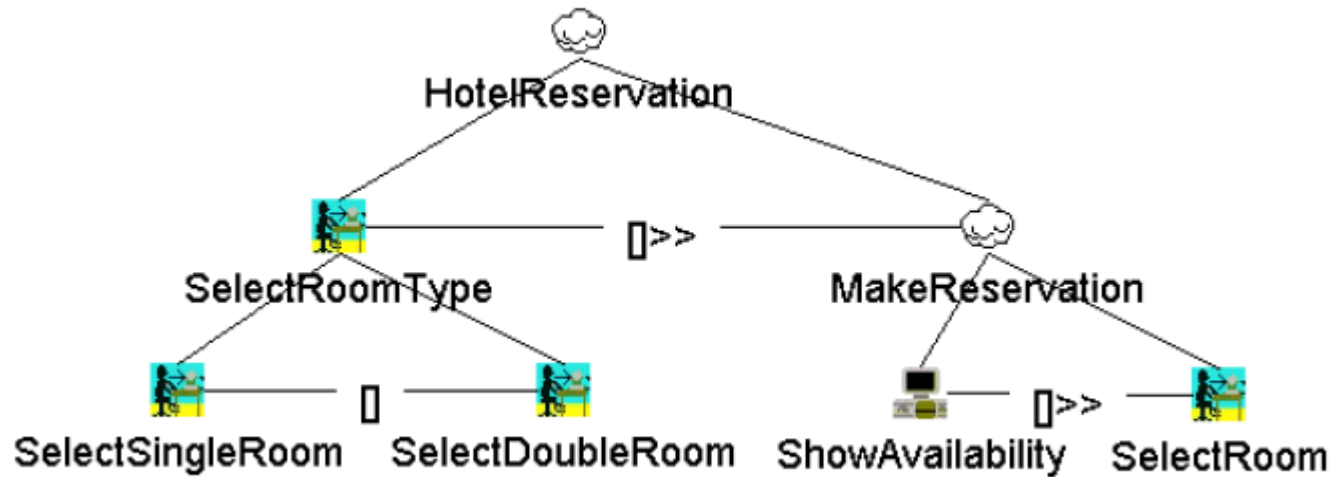


CTT – operators used

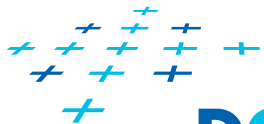
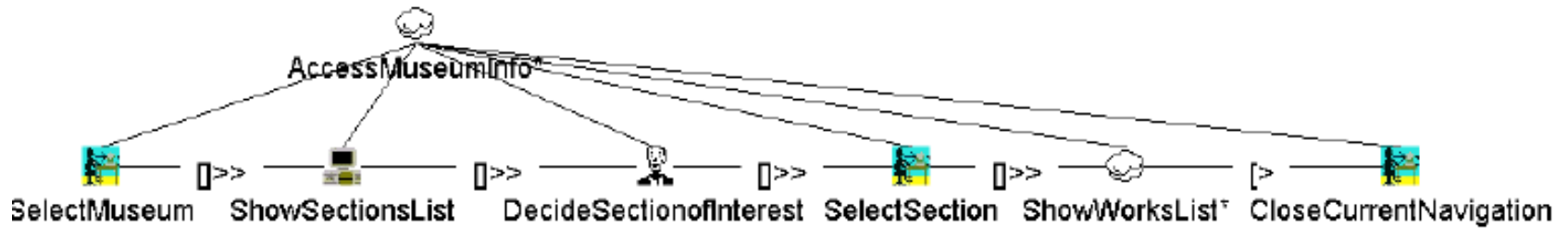
Enabling	$T1 \gg T2$ or $T1 [] \gg T2$
Disabling	$T1 [> T2$
Interruption	$T1 > T2$
Choice	$T1 [] T2$
Iteration	$T1^*$ or $T1_{\{n\}}$
Concurrency	$T1 T2$ $T1 [] T2$
Optionality	$[T]$



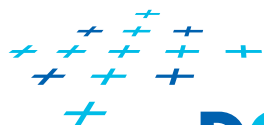
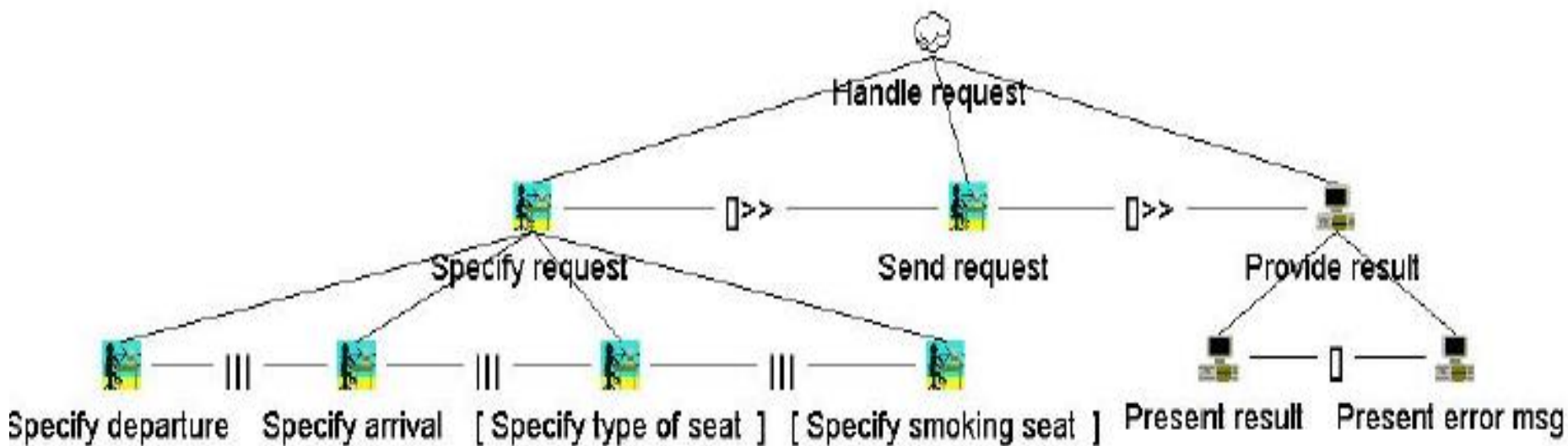
CTT example



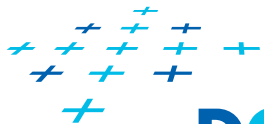
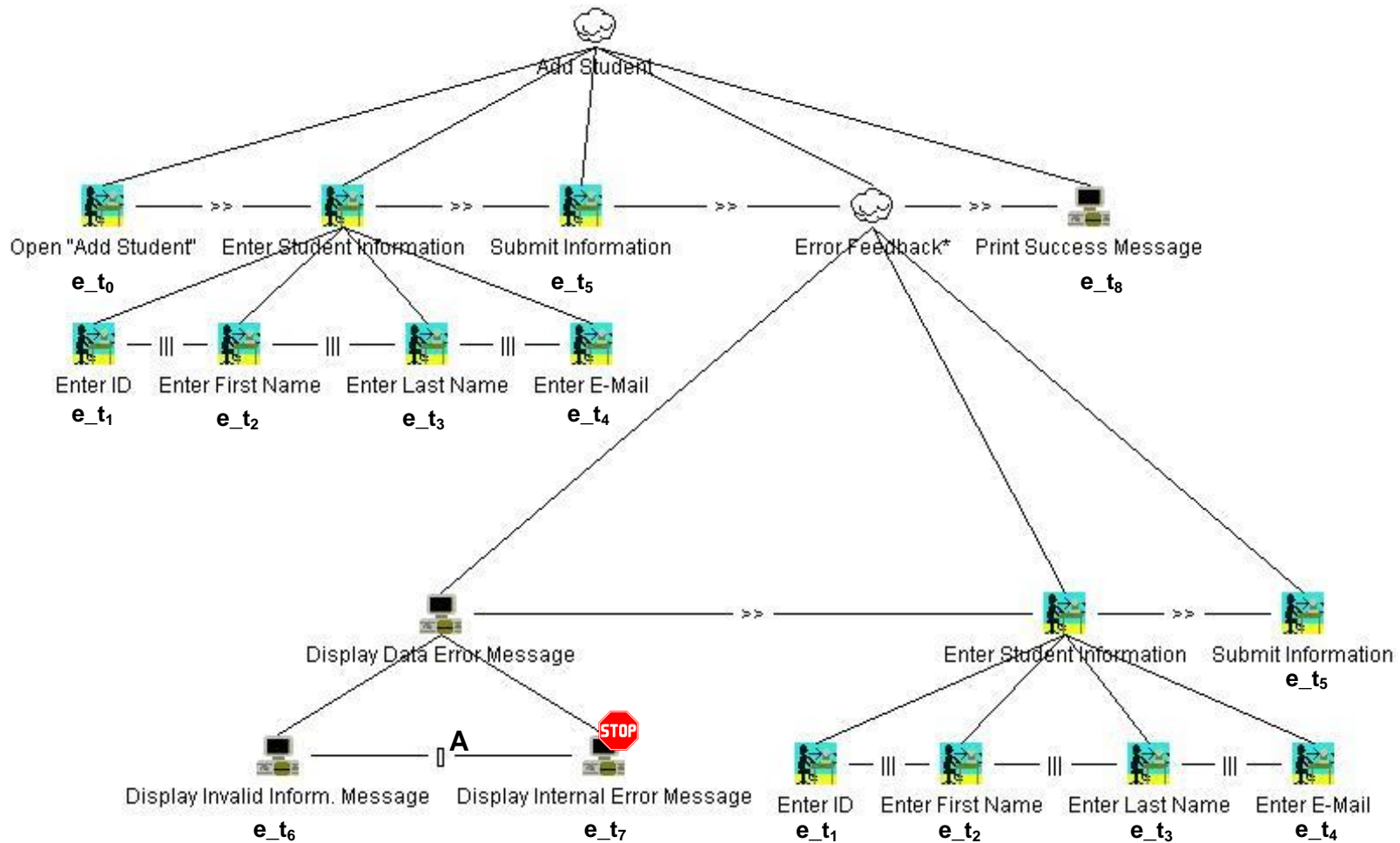
Another CTT example



CTT example – what task is it?



CTT – “KOS – like” example



SUMMARY



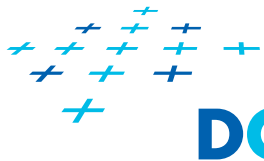
DCGI

NUR- Formal description/models of user interfaces (Scenarios, Storyboards, Task models)



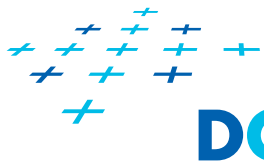
How Could This Be Useful?

- Requirements capture and system design
 - Models how the user would use the system
 - Based on existing system
 - What should be added? Where do new features fit?
 - What can be left out?
 - What's most critical? What's most frequently done?
 - May help you choose a high-level interaction style or think about a conceptual model
- Detailed interface design
 - Plans map to paths through dialogs
 - Menu design based on task decomposition
- Scenarios for user evaluation tests
- Manuals, training, help systems



Example question for examination

- Which questions are inappropriate for semi-structured interview while performing user research for users of e-shop?
- How can you describe HTA method for analysis of future application?
- What node categories are used in CTT model?



Thank you for attention

