

14 Personalization Techniques

14.1 Adaptive Hypermedia

14.1.1 Logic-Based Definition of Adaptive (Educational) Hypermedia System

Actors of an Adaptive Educational Hypermedia System:

- Is a hypermedia system: graph with nodes (content) and edges (links)
Actor 1: Document space with relations (DOCS)
- Models the characteristics of users in a user model
Actor 2: User Model (UM)
- Users interact with the system during runtime
Actor 3: Observations (OBS)
- The AEHS adapts the underlying hypermedia system by inserting / deleting / enabling relations for a users, by estimating priorities of relations, by selecting appropriate content, etc.
Actor 4: Adaption Component: Rules for Adaptation (AC)

Definition 13 (Logic-Based Definition of Adaptive (Educational) Hypermedia Systems)

- *DOCS: Document Space*

A finite set of first order logic (FOL) sentences with atoms for describing documents (and knowledge topics) and predicates for defining relations between these atoms.

- *UM: User Model*

A finite set of FOL sentences with atoms for describing individual users (user groups), and user characteristics, as well as predicates and rules for expressing whether a characteristic applies to a user.

- *OBS: Observations*

A finite set of FOL sentences with atoms for describing observations and predicates for relating users, documents / topics, and observations.

- *AC: Adaptation Component*

A finite set of FOL sentences with rules for describing adaptive functionality.