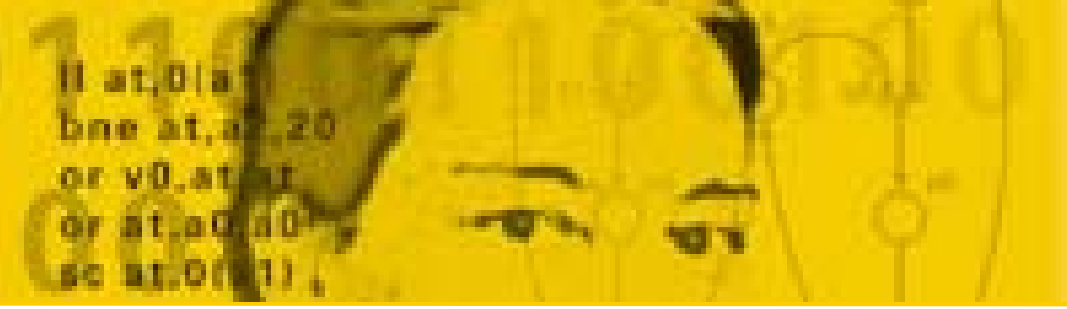

Women's Postgraduate College for Internet Technologies

Technische Universität Wien

Vienna University of Technology

Fostering Adaptivity in E-Learning Platforms: A Meta-Model Supporting Adaptive Courses

Sabine Graf
Vienna University of Technology, Austria
Women's Postgraduate College for Internet Technologies
graf@wit.tuwien.ac.at

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Motivation and Aims

- E-learning platforms are often used in e-education but they provide the same course for all learners
- Learners have different needs
- Adaptivity increase the learning progress

How to bring more adaptivity in e-learning platforms focusing on learning styles?

Basic concept:

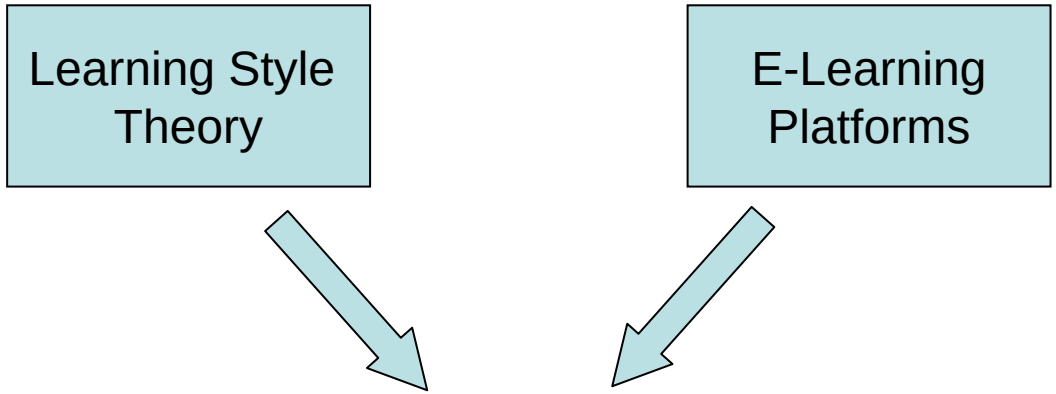
- Author creates individual learning objects
- System composes the learning objects to different courses

→ Description saying how courses need to be designed to provide adaptivity (= meta-model)
  - Easy applicable for all platforms
  - Platforms should not lose their simplicity

Felder-Silverman Learning Style Model

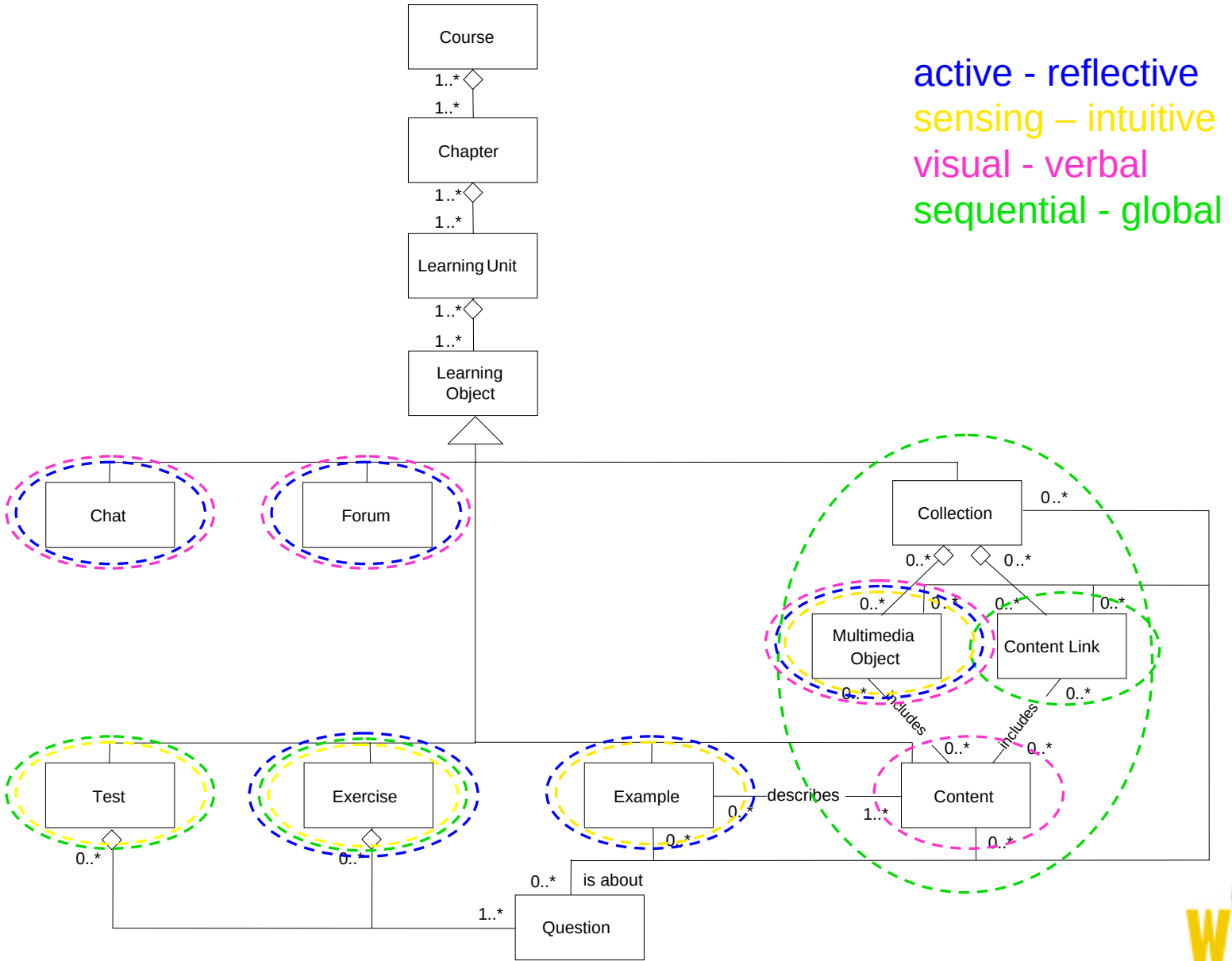
- Richard M. Felder and Linda K. Silverman, 1988
- Each learner has a preference on each of the four dimensions
- Dimensions:
  - Active – Reflective
    learning by doing – learning by thinking things through
    group work – work alone
  - Sensing – Intuitive
    concrete material – abstract material
    more practical – more innovative
    patient / not patient with details
  - Visual – Verbal
    learning from pictures – learning from words
  - Sequential – Global
    learn in linear steps – learn in large leaps
    good in using partial knowledge – need „big picture“
- Strong preference but no support → problems

Supporting Learning Styles in E-Learning Platforms

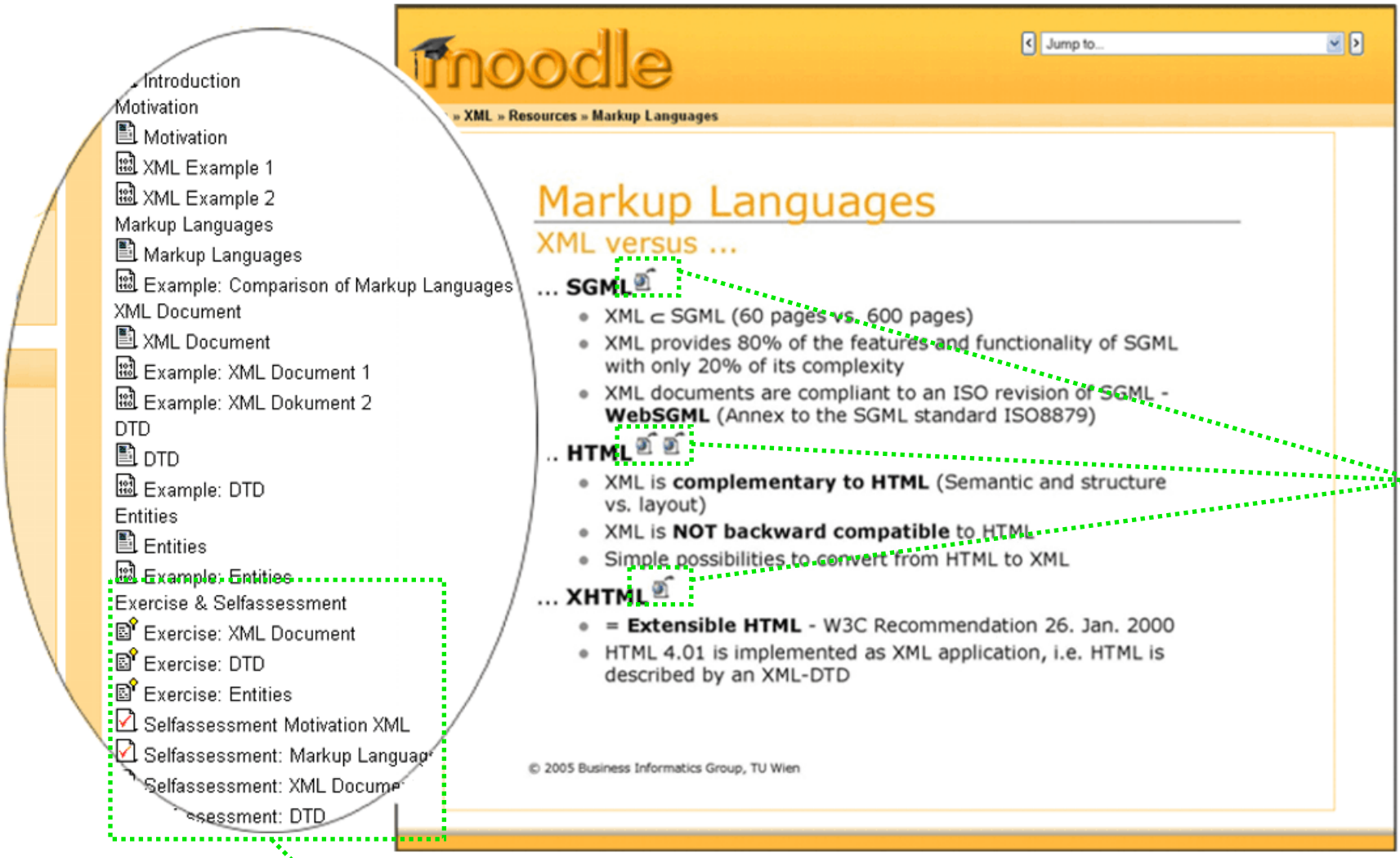


- Which kinds of learning objects/activities can be used to adapt to the learning style?
- Which kinds of learning objects/activities are commonly used?

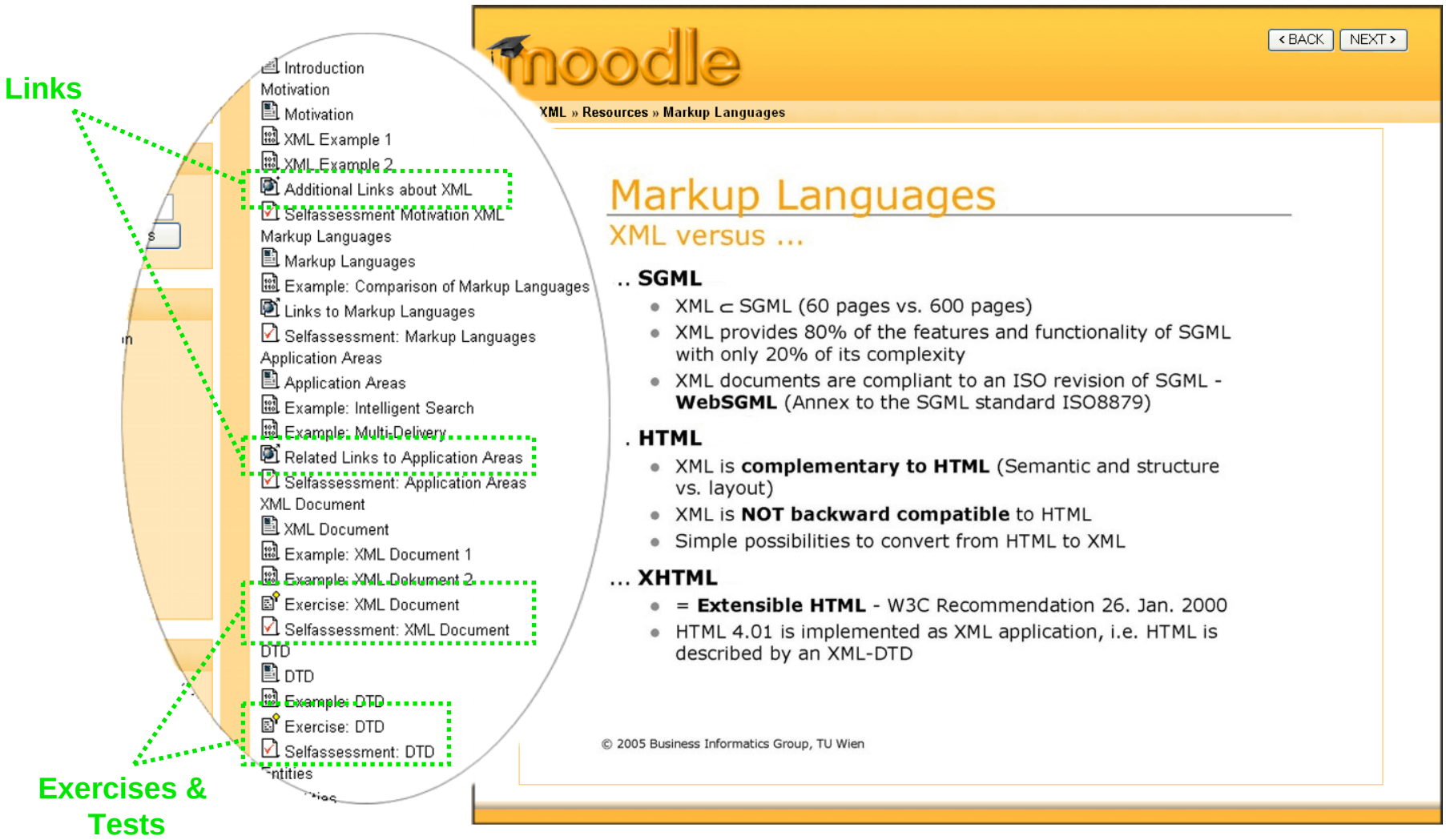
Meta-Model


Course
1..*
1..*
Chapter
1..*
1..*
Learning Unit
1..*
1..*
Learning Object
Chat
Forum
Collection
0..*
0..*
0..*
Multimedia Object
Content Link
includes
includes
Test
Exercise
Example
describes
Content
1..*
Question
is about
active - reflective
sensing – intuitive
visual - verbal
sequential - global

A course for a global learner



A course for a sequential learner



Conclusion & Future Work

- Meta-model for supporting adaptive courses
- Describes how courses should be designed to provide adaptivity
- Easy to integrate in e-learning platforms without losing their simplicity

→ generate different course instances out of one course

→ generate a suitable course for each learner

- We have implemented the meta-model in Moodle
- Future Work:
  - Implementing a tool that generates different course instances
  - Implementing a tool that identifies the learning style of a learner
  - Extending the meta-model by including also not commonly used features