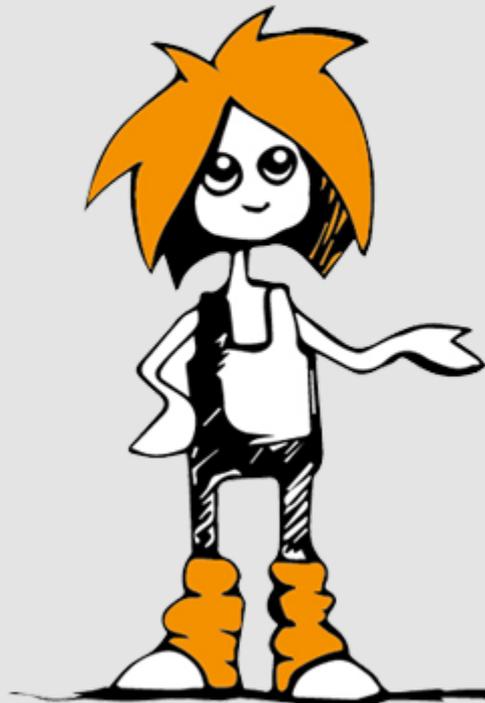
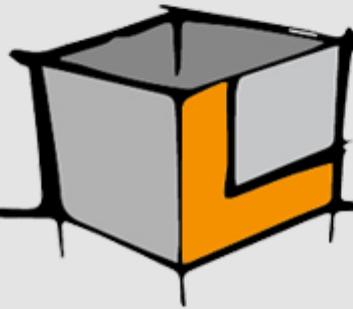


Towards a Hybrid Approach to Learning Analytics, Educational Data Mining, and Personalization



or TEACHING A LITTLE
GIRL QUANTUM PHYSICS



EA'S BOX

Learning Analytics
Toolbox

... we need ANALYTICS!



Educational assessment / data mining / learning analytics

→ Identify characteristics, traits and states, needs of learners

.... in games

→ Support the game's (educational) AI in understanding what the player aka learner is doing and needing

→ And, in a next step, to make psycho-pedagogically relevant actions

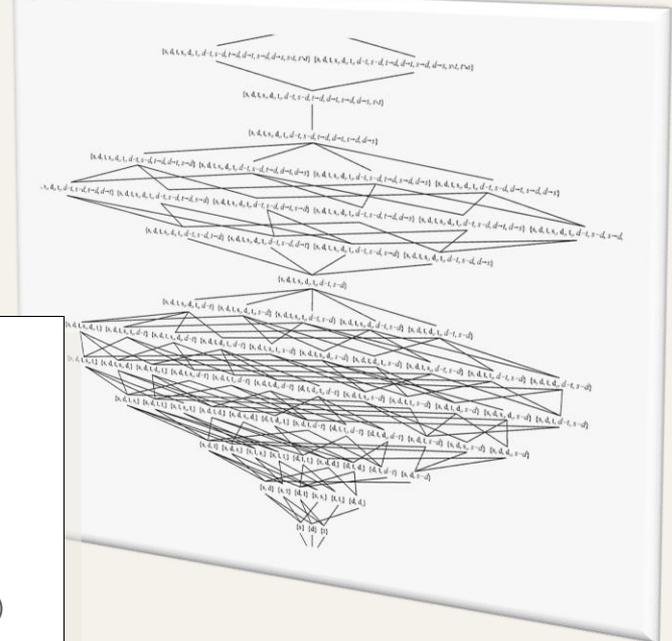
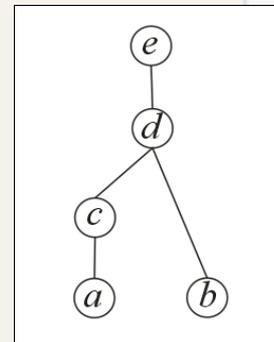
.... ideally seamlessly and unobtrusively and in real time!

→ In order to avoid harming gaming experience, immersion, engagement, flow, the game's credibility, narrative, etc.

> Learning processes, lately!

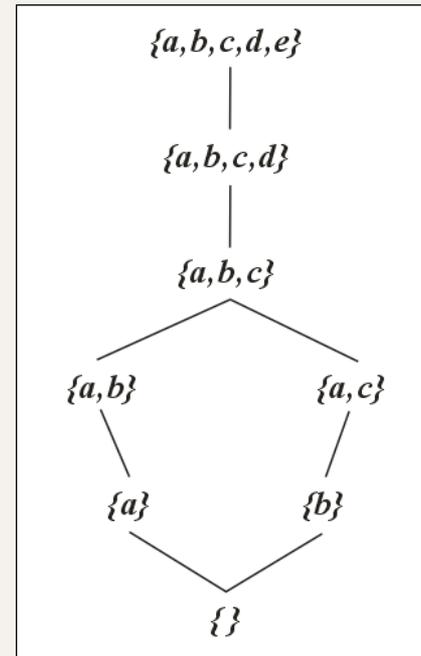
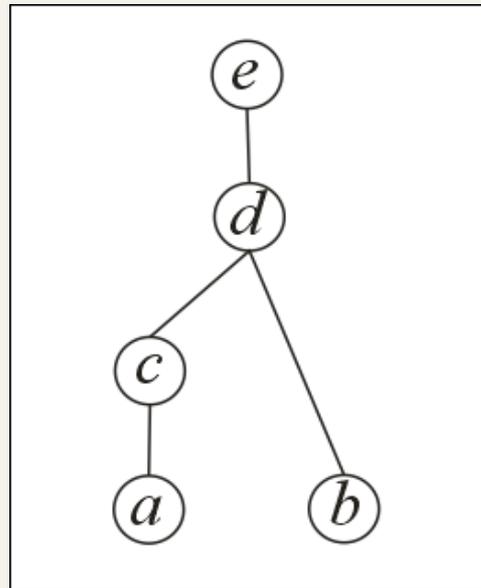
CbKST: All grey theory

- Domain analysis → decompose a domain into a catalogue of **atomic chunks** of *aptitude* (knowledge, ability, skills, competence)
- Finding the *natural course* → establish a relation between the competencies
- Deriving a **global structure** → competence structure
- Linking **behavior** to competence (structures) probabilistically



CbKST: All grey theory

... in essence:



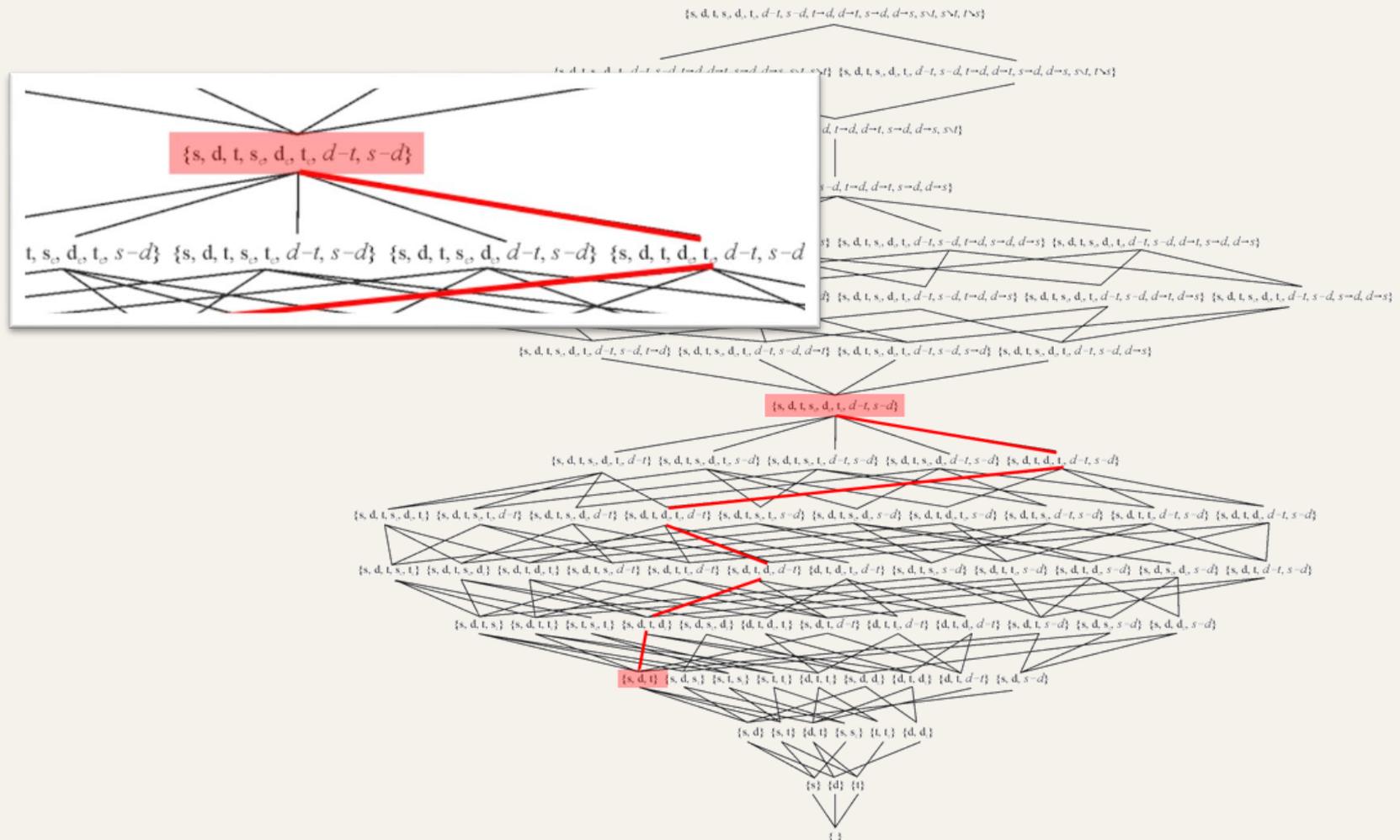
CbKST: All grey theory



EA'S BOX
Learning Analytics
Toolbox



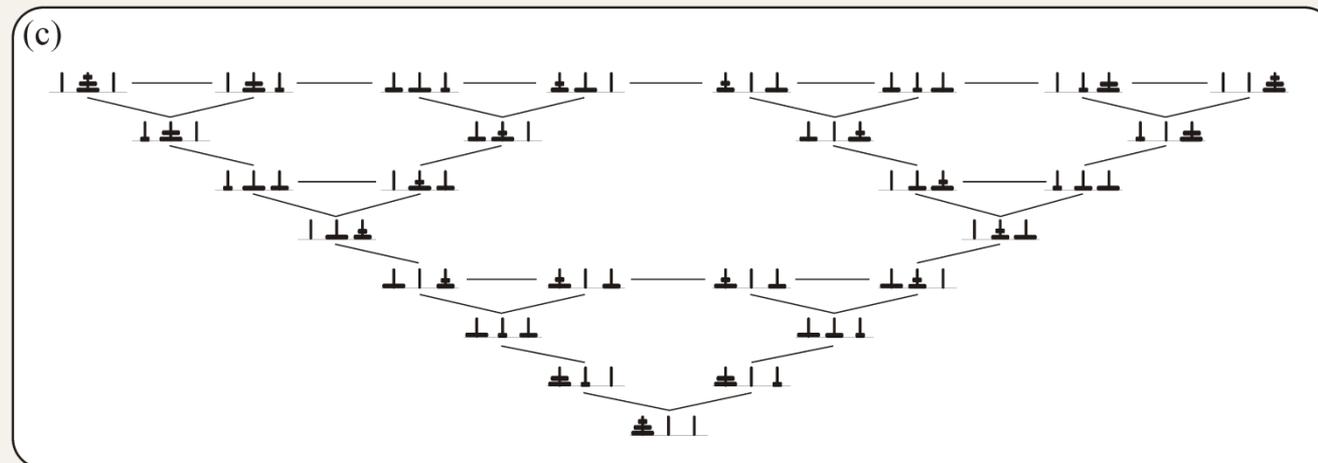
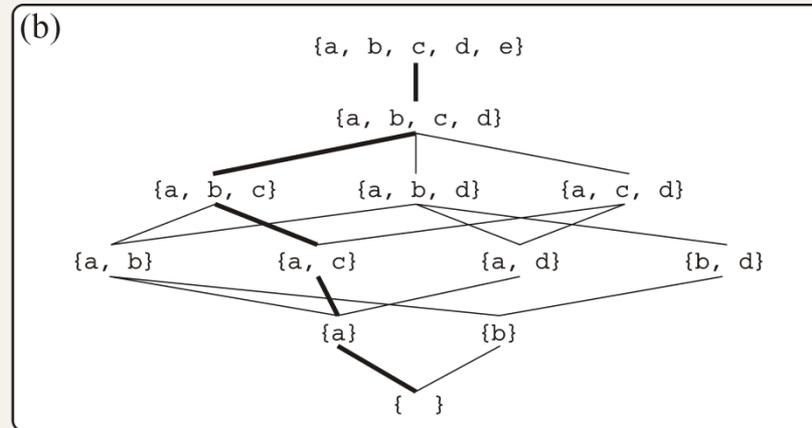
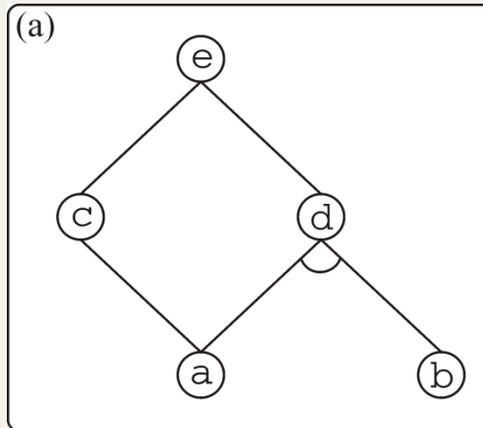
Competence States and Learning Paths



CbKST: All grey theory



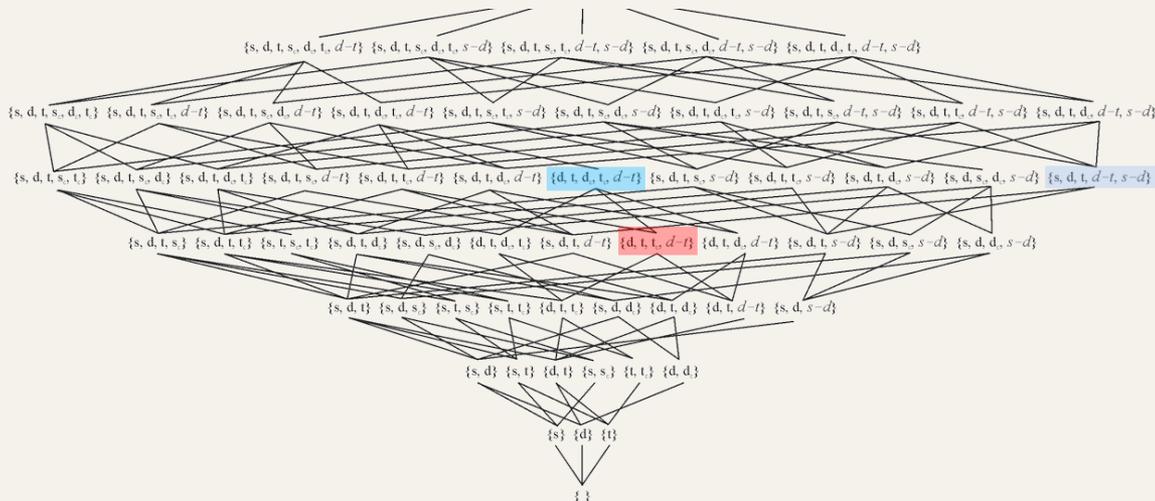
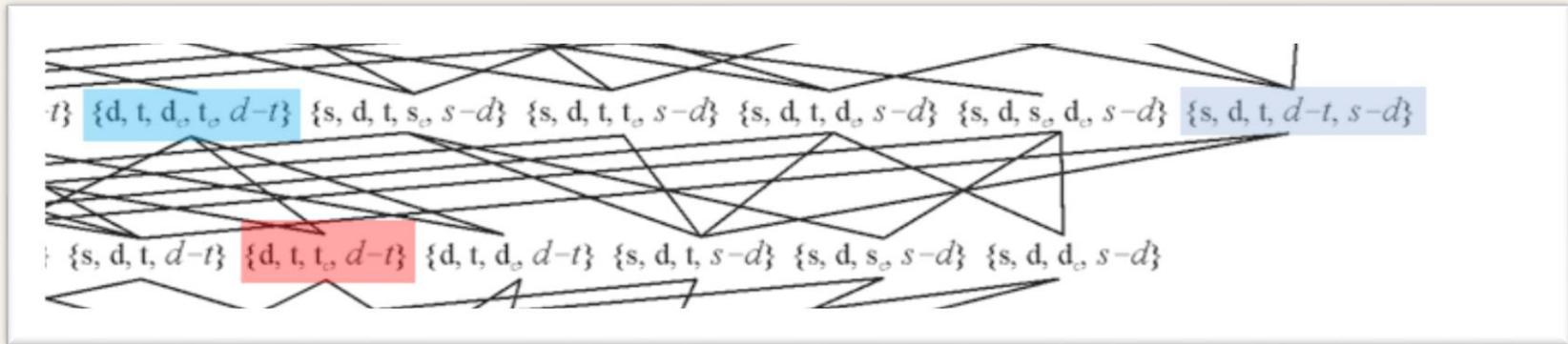
Merging with Problem Spaces



CbKST: All grey theory



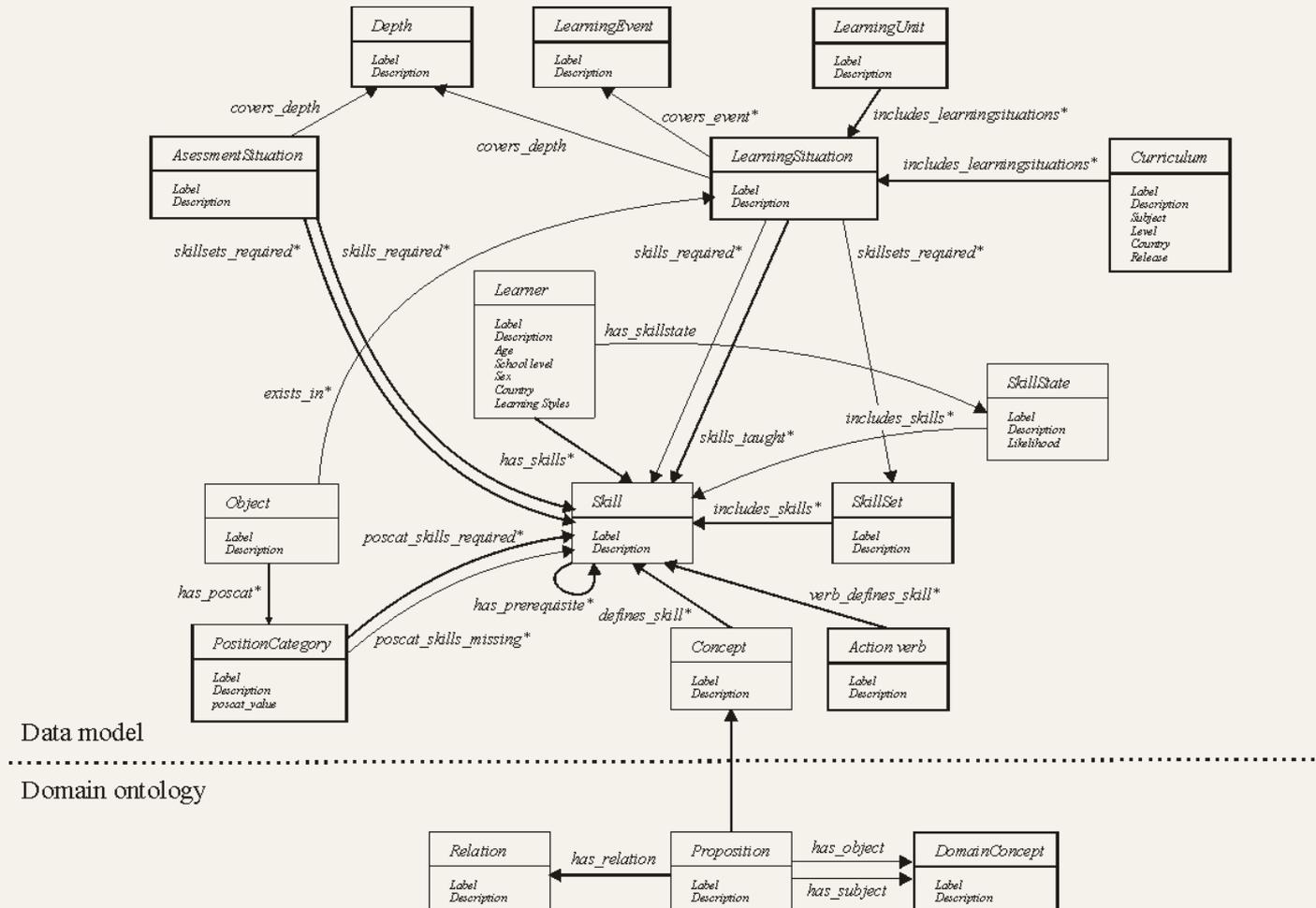
Educational decisions: The outer fringes



CbKST: All grey theory



The ontology model: The games memory (where analytics go)



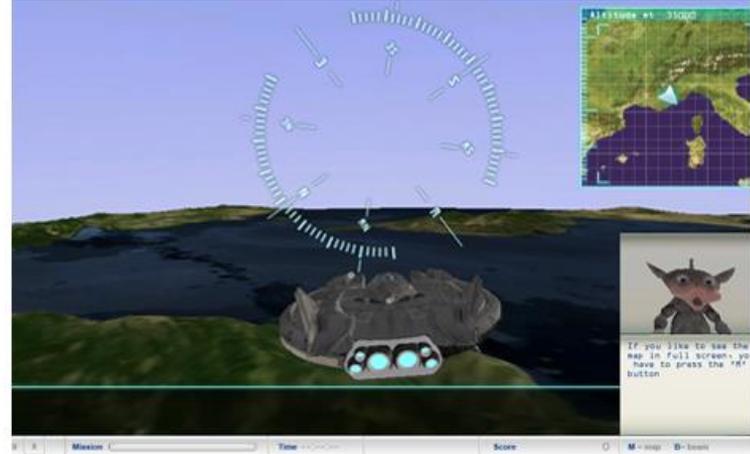
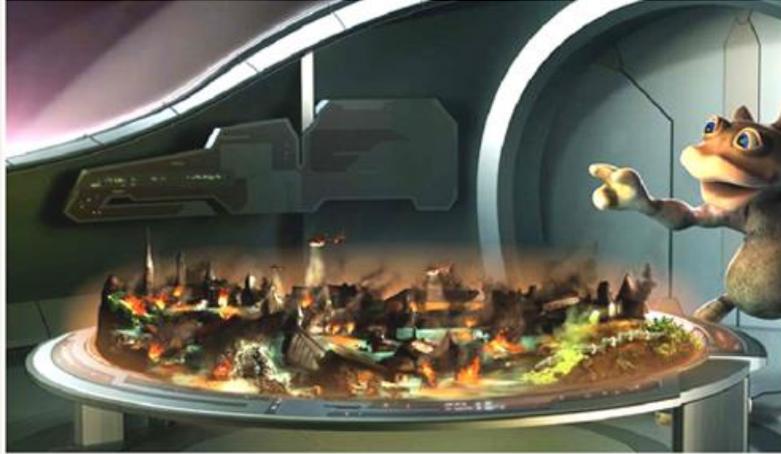
The Black Galileans



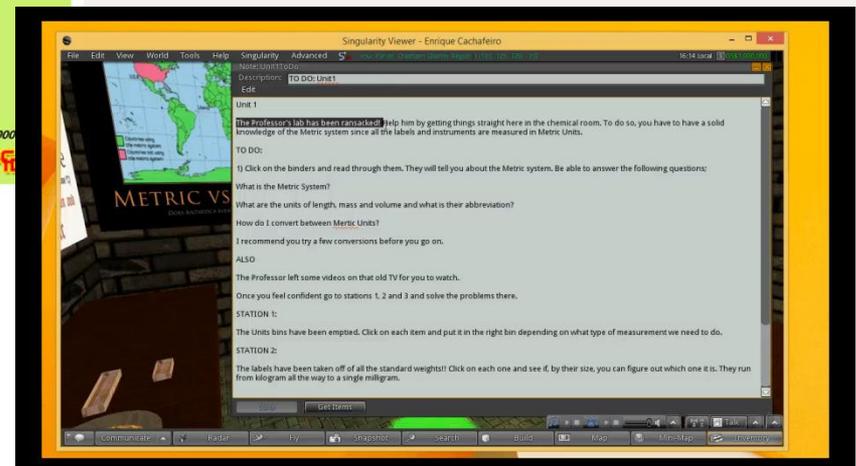
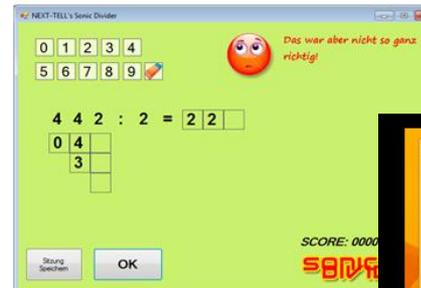
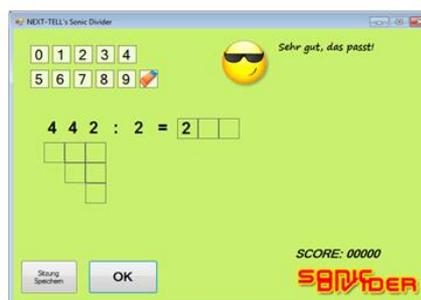
Teaching an Alien Geography



EA'S BOX
Learning Analytics
Toolbox



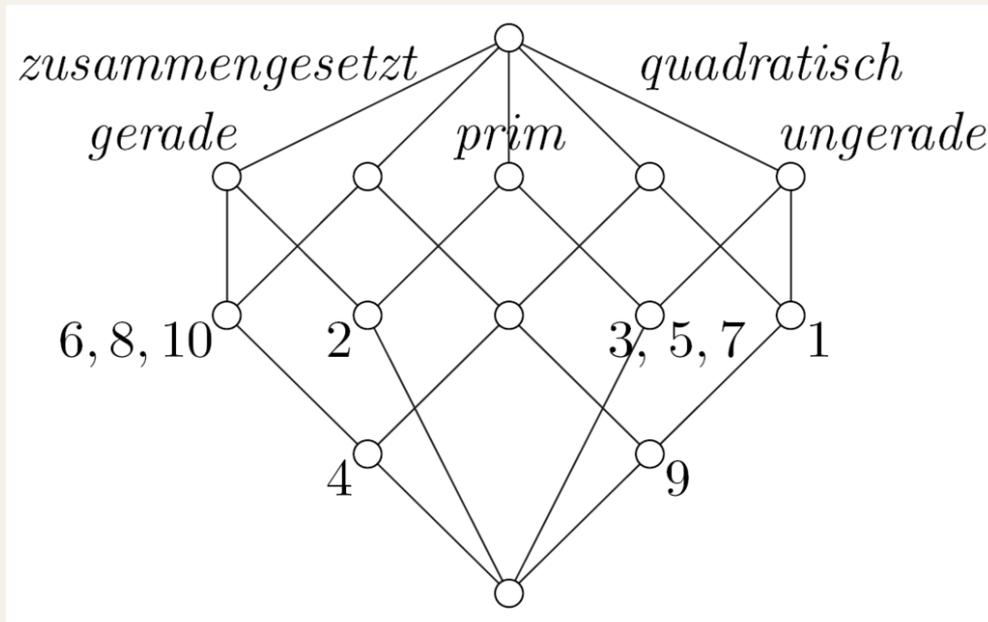
Apps and others



Coming up next!



CbKST + FCA

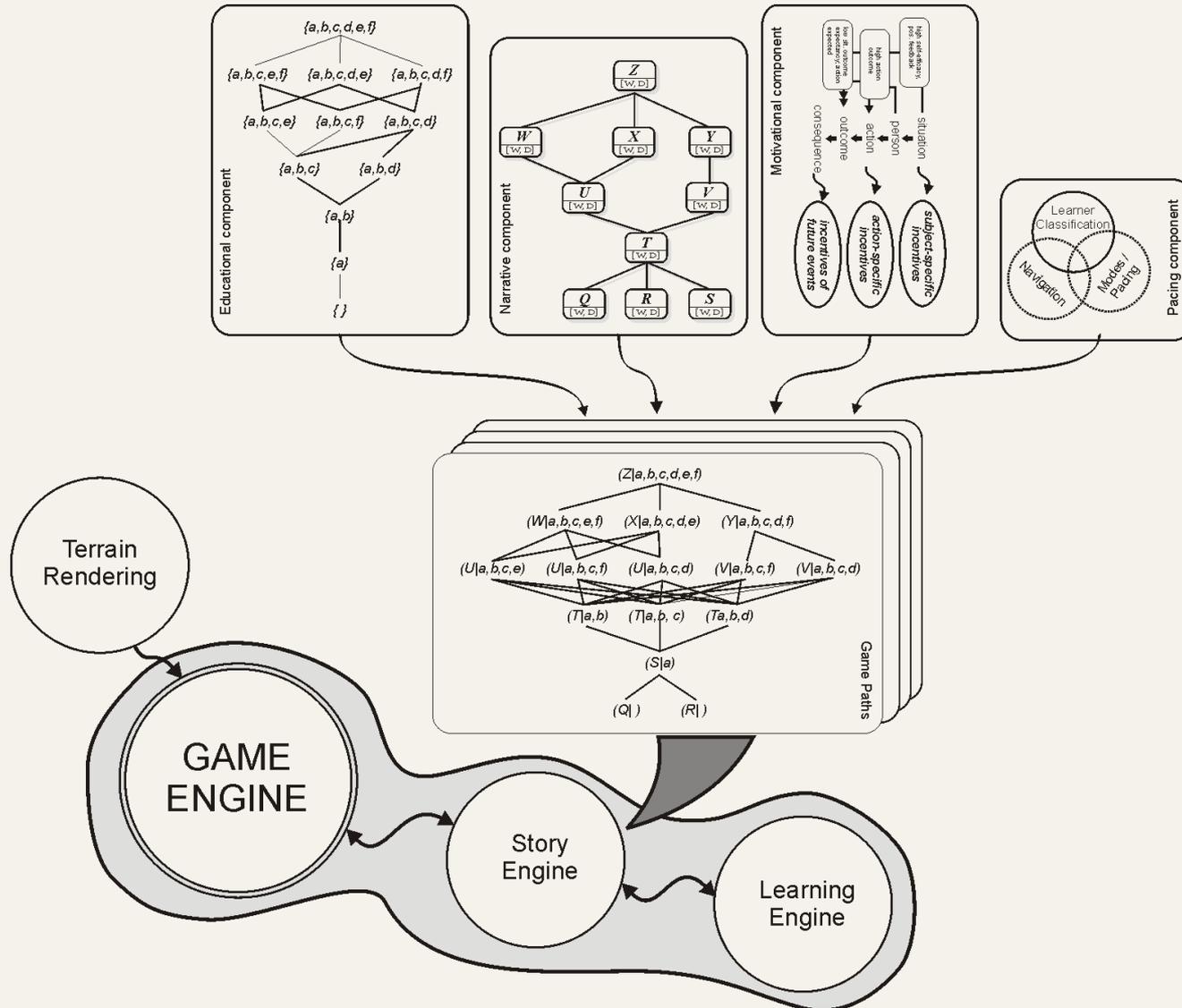


| | <i>gerade</i> | <i>ungerade</i> | <i>prim</i> | <i>zusammengesetzt</i> | <i>quadratisch</i> |
|----|---------------|-----------------|-------------|------------------------|--------------------|
| 1 | | × | | | × |
| 2 | × | | × | | |
| 3 | | × | × | | |
| 4 | × | | | × | × |
| 5 | | × | × | | |
| 6 | × | | | × | |
| 7 | | × | × | | |
| 8 | × | | | × | |
| 9 | | × | | × | × |
| 10 | × | | | × | |

Coming up next!



EA'S BOX
Learning Analytics
Toolbox



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