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Semantic Analysis of Learning Traces

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The activity of the TWEAK team relates to the fields of AI and Knowledge Engineering, exploring more specifically two dimensions: TELS and the Web. We are particularly interested in the co-evolution of user-machine systems in computer-supported environment, with a knowledge-oriented stance.

Expertise in the field of TEL
- Models and tools to
  - Build profiles of learners from their traces
  - Generate activities according to pedagogical needs of each teacher
  - Adapt content of TEL for each learner
  - Acquire teachers’ knowledge

Keywords: interaction traces, traces models, traces visualization, indicators, teachers, analysts

kTBS: a kernel for Trace-Based Systems
The TWEAK team defines Trace-Based Systems as systems that tap the knowledge available in users’ interaction traces.
kTBS is an open reference implementation of TBS based on RDF.
- A trace is a set of obsels (observed elements).
- An obsel has:
  - a type
  - 2 timestamps (begin and end)
  - attributes, and relations to other obsels
- A trace is linked to a trace model that describes:
  - the obsel types that the trace can contain
  - their attributes and their relations
- A trace can be computed by a transformation method in order to create other traces.

kTBS4LA: kTBS for Learning Analytics
Objective: enable an analyst to use kTBS in order to interpret learning traces.

Scenario: an analyst wants to understand how learners use a TEL system \( T \) and to compute indicators about learners activities or skills.

Using kTBS4LA, he/she can:
- import traces to the platform and define a trace model for \( T \)
- visualize the traces, each type of obsel being represented differently
- compute new traces (e.g. filter)
- define requests to compute indicators

Creating a trace model while importing traces
Visualizing bases of traces
Visualizing a trace