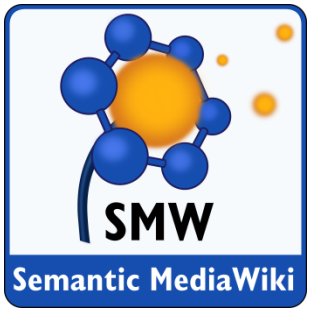


Seminar: Semantic MediaWiki Applications

Thema: Semantic MediaWiki on-a-stick

(using Surgipedia)

Institute of Applied Informatics and Formal Description Methods (AIFB)
Research Group: Knowledge Management

Student: Lucas Teran Freudenthal (1596501)

Evaluators and minders: Dipl.-Inform. Benedikt Kämpgen
M.Sc. Basil Ell

What is Cognition-Guided Surgery?

Transregional Collaborative Research Centre (TCRC)
'Cognition-Guided Surgery' [1]

Aim: create a technical, cognitive system to support the surgeon

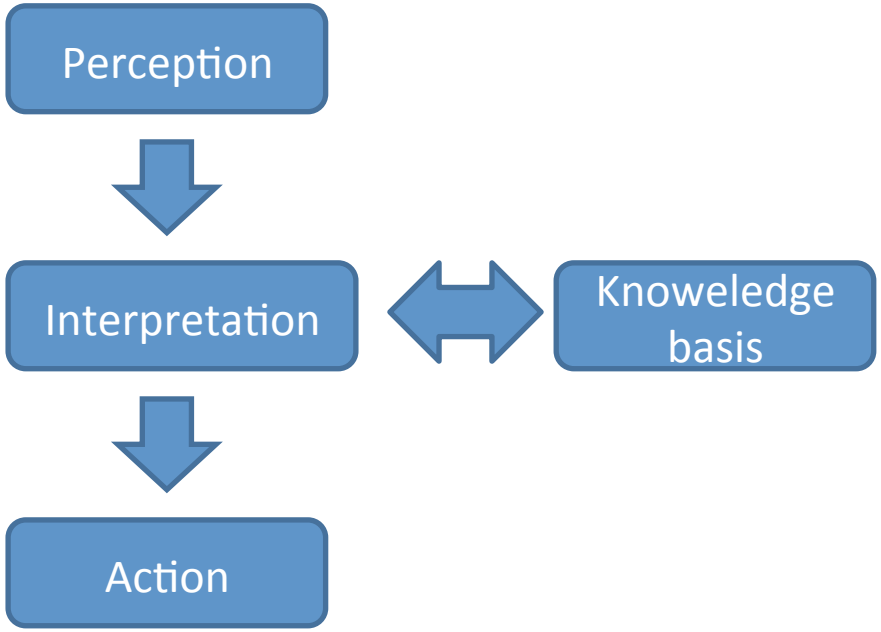
Cognition-Guided Surgery

- **Similar to a human assistant**
- **Retains knowledge permanently**
  - doesn‘t forget
  - no fluctuation
- **Accumulates information**
  - large Databases
- **Information can be reused**
  - for future operations
  - by any user (easy to transfer)

[1] Quelle: http://www.cognitionguidedsurgery.de/index.php?id=2&L=1

Cognition-Guided Surgery's functions [1]

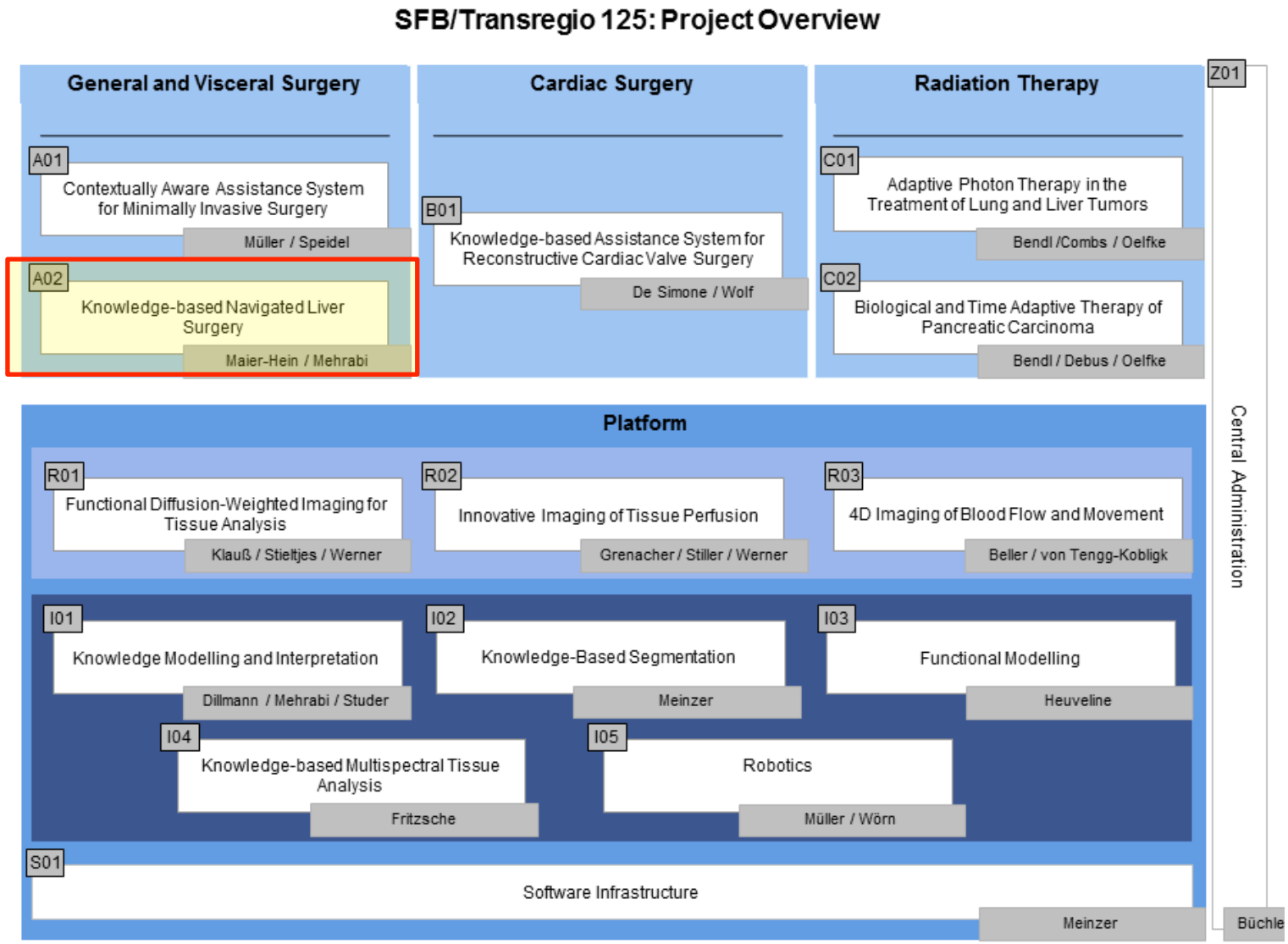
- **Accumulate information**
  pre-, peri- and postoperative
- **Interpret information**
  through knowledge base
- **Follow the operational procedure**
  continuously
- **Gather information**
  (only) relevant
- **Incorporate knowledge**
  both factual and practical
- **Use information**
  estimate the current situation
- **Recommend course of action**
  appropriate (reasonable)
- **Feedback results**
  for the learning process
- **Store information**
  empirical knowledge is available for future use



[1] Quelle: http://www.cognitionguidedsurgery.de/index.php?id=2&L=1

Surgipedia

part of the knoweledge base of the 'Cognition-Guided Surgery‘ project

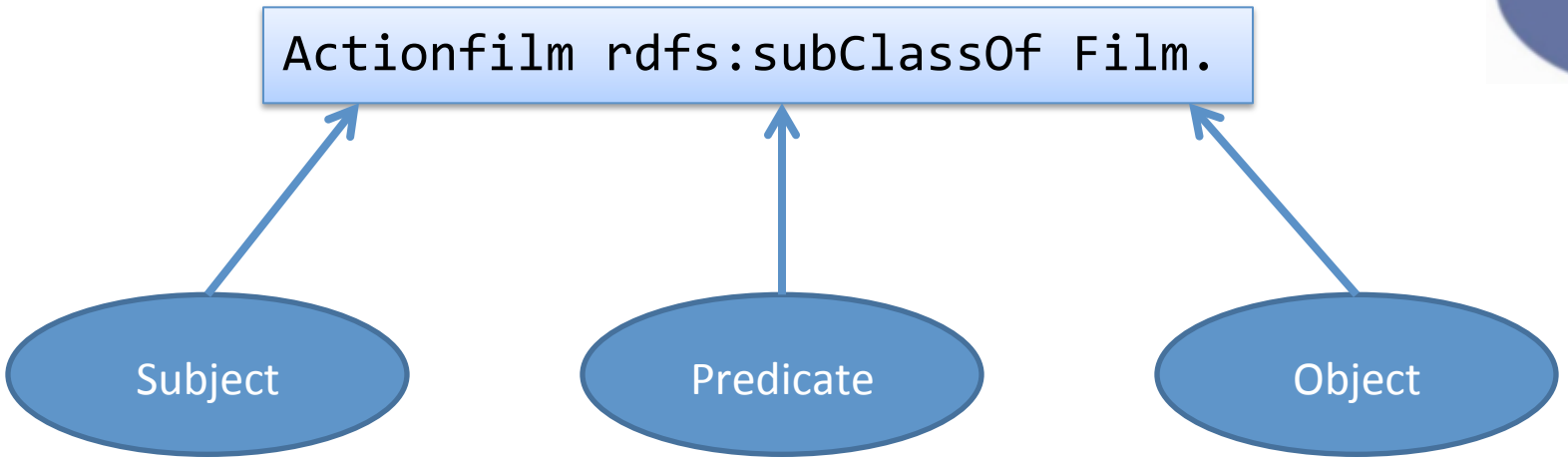


Medical Guidelines

- **assist in medical decision making**
  systematically developed statements
  for specific clinical conditions
  users: health care *professionals*
- **in no way a substitute for a medical professional's independent judgment**
- **should not be considered medical advice**[1]

[1] https://www.aace.com/publications/guidelines

Resource Description Framework (RDF)[1]



[1]http://www.w3.org/TR/rdf-concepts/#section-triples

Tasks to do in Surgipedia

- **Describing liver factors**
  Identifiyng relevant factors
- **Annotating patients**
  Fill relevant factors in the Patients page (optimal: Using Semantic Forms)
  From Paper based Data bases to RDF
- **Evaluate guideline**
  Derive new property (e,g.: Therapy) for the patient

Tasks to do in Surgipedia

- **Describing liver factors**
  - Identifiyng relevant factors
- **Annotating patients OFFLINE**
  - Fill relevant factors in the Patients page (optimal: Using Semantic Forms)
  - From Paper based Data bases to RDF
- **Evaluate guideline**
  - Derive new property (e,g.: Therapy) for the patient

The aim of this seminar paper was:

Objective	Result
1. To test if Semantic MediaWiki works flawless on a Server based on a USB 2.0 memory stick.	
2. To test if the Surgipedia is easily imported to the “virgin” SMW-on-a-stick.	
3. To test if it is possible to annotate Patient data on a Stick, and then export it via RDF.	
4. To test the performance of the SMW-on-a-stick in different Computers.	

Technical Dificulties

- Performance was tested in three different computers, having

  + an average time to enter “Identification Data” of about 4,33 s.,
  + an average time to save one change in “Edit Identification Data” of about 108,77 s.
  + an average time to save five changes in “Edit identification Data” of 97,63 s.
  + and an average to enter a random page of 6,3 s.

Tasks to do in Surgipedia on SMW on a Stick

- **File Imports (to SMW on a Stick)**
- **Result Formats Extension**
- **Debugging (e.g.: path to usb drive)**

Thank you!