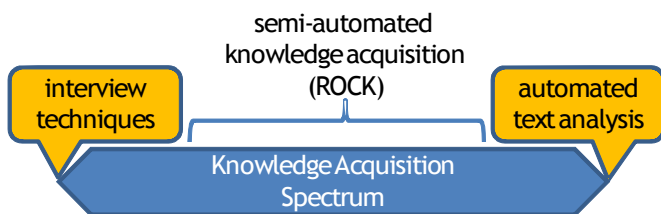


ROCK -- Rapid Ontology Construction Kit

Introduction

The Information Management Group of A&F has developed the ROCK method. This method can be used by a domain expert to produce proto-ontologies. Proto-ontologies contain an overview of the domain expert's knowledge for a specific task.



Knowledge Acquisition

In traditional knowledge acquisition, experts are interviewed. The knowledge engineer constructs the gathered knowledge in an ontology. Another way to construct an ontology is to carry out full automated text analysis on a corpus of relevant documents. We have developed an alternative to these two extremes: ROCK. This best-of-both-worlds solution combines the **low effort** of automated text-analysis and the **nuance** and quality of the traditional knowledge acquisition.

The ROCK-method

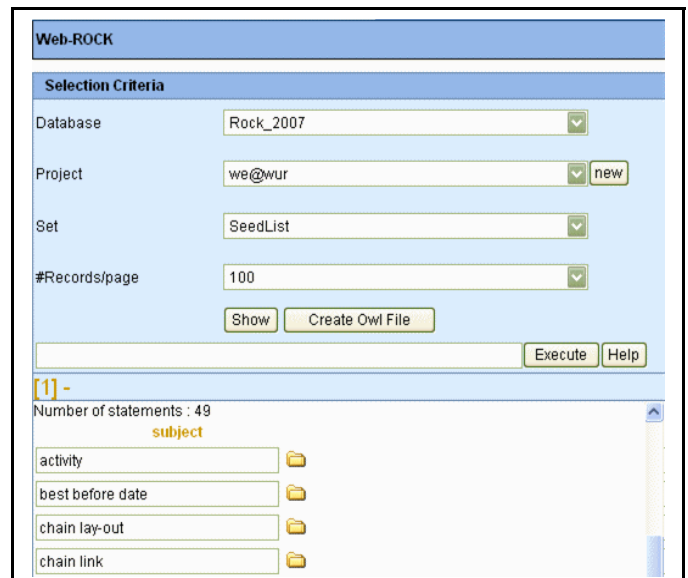
The preparation phase

A lot of knowledge is accumulated in public accessible sources like the internet. Those sources with a certain degree of structure easily harvest knowledge fragments in a **term-relation-term** format. Currently we have harvested over more than 1,000,000 of these fragments from existing ontologies, thesauri, glossaries and other semi-structured sources.

term	relation	term
sugar	is_a	sweetener
sugar	is_part_of	soft drink
soft drink	is_a	beverage
sugar	is_gained_from	sugar beet
sugar beet	is_a	crop

The Knowledge Engineer Effort

A list of so-called **seed concepts** is the starting point of the ROCK construction process. These seed concepts are identified by the expert. They are used to look up related terms in the collection of harvested knowledge fragments. When for example 'sugar' is a seed concept, the associated terms 'sweetener', 'soft drink' and 'sugar beet' (see table) are presented to the expert to judge their relevance for the specific task. When the expert only finds 'soft drink' relevant, ROCK only provides associated terms to 'soft drink' and discards the links to 'sweetener' and 'sugar beet'. This approach leads to a network of relevant knowledge terms. In the next stage the knowledge engineer enriches this network to a sound ontology.



Track Record

The ROCK method has been used to develop the following proto-ontologies:

- **The ingredients ontology**, containing ingredients that are used in sensoric research carried out by TIFN
- **The geometric ontology**, containing knowledge on automated selection of seedlings
- **The chain and water ontology**, containing domain terms to link experts on water and chains to user search terms