

Squiggle a semantic search Engine at work

<http://squiggle.cefriel.it>

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Conceptual Indexing

- The **media analysis** (i.e. the extraction of relevant information) is **decoupled from indexing**: *Squiggle* is designed as a plug-in architecture that allows for adding new components developed by the multimedia community
- *Squiggle* needs a domain-specific **knowledge base** (ontology and instances), created or derived by available sources and **expressed** with regards to the **SKOS** model (see <http://www.w3.org/2004/02/skos/core/>)
- The Conceptual Indexing is based on 3 steps: concepts and entities recognition (wrt the domain k-base), semantic annotations of media (with concepts' URIs) and creation of indexes for fast and optimized search at run-time

Semantic Search

1st step: Semantic Interpretation

- On the one hand, a traditional search displays syntactically-matching results (that can be very different from user's intended meaning)
- On the other hand, the query is analysed to identify its possible **meanings** that are proposed to the user's manual disambiguation

2nd step: Semantic Search

- After user's explicit choices, *Squiggle* **returns** those **media** that are **indexed with the corresponding concepts** or instances from the domain-specific ontology
- An **explanation box** illustrates how the result is achieved, by considering different wordings and different languages of the selected meanings

3rd step: Semantic Suggestions

- By accessing the domain k-base, *Squiggle* is able to suggest other **related meanings** that can be of interest for the user
- *Squiggle* exploits **SKOS** primitives (e.g., skos:narrower, skos:broader, skos:relatedPartOf), but can also be configured to exploit domain-specific queries

Results

- *Squiggle* is an **intuitive** search engine with strong characteristics of usability (simple and self-explaining boxes)
- The semantic capabilities of *Squiggle* improve both the **precision** and the **recall** of traditional search engines
- *Squiggle* demonstrates its potentialities in some **real-world implementations**:

Squiggle Ski, for alpine skiing images developed for the XX Winter Olympic Games of Torino2006.
 Try it on-line at <http://squiggle.cefriel.it/ski> !

Squiggle Music, for personal collections of music files indexed by author, title and music genre.
 Try it on-line at <http://squiggle.cefriel.it/music> !

Squiggle Med, for medical literature bibliographic references, based on PubMed and MeSH. Coming soon at <http://squiggle.cefriel.it/med>

Semantic Web Activities group @ CEFRIEL

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