

# Combining Cross-ontology Navigation with Semantic Autocompletion

Eetu Mäkelä, Reetta Sinkkilä, and Eero Hyvönen

Semantic Computing Research Group (SeCo),  
Helsinki University of Technology (TKK) and University of Helsinki  
`first.last@tkk.fi`, <http://www.seco.tkk.fi/>\*\*

**Abstract.** Semantic autocompletion interfaces offer an efficient way for concept selection useful in both search and annotation applications. However, these interfaces usually do not expose the semantic context of the matched concepts, thereby making it hard to know if a matched concept is the right one, as well as hiding possibly more appropriate choices. To lessen these problems, we present an in-place ontological context navigation interface to be used with semantic autocompletion.

## 1 Introduction

Semantic autocompletion [1] interfaces have recently become prevalent in semantic search [2] and annotation [3] applications. Here, the idea is that the user can expediently find concepts to be used in annotation or further semantic search by typing in parts of their labels, with the interface speedily returning matching concepts for selection as they type. This basic approach works very well when the user knows the vocabulary, but has drawbacks compared to simple class-tree browsing when they do not. For example, in annotation, it is quite easy for the annotator to find suitable indexing concepts by trying different query strings, but hard to be sure that the concepts they have found are the best for that particular item. In order to keep the advantages of speed and low screen space usage of semantic autocompletion interfaces, but lessen the previously mentioned drawbacks, we have devised an in-place ontological context navigation interface to be used with semantic autocompletion.

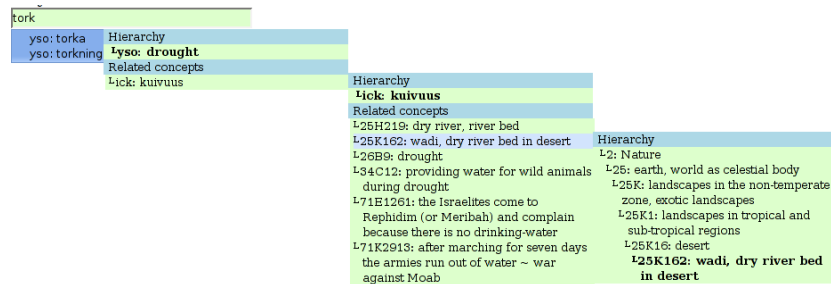
## 2 The In-place Ontological Context Navigation Interface

Our implemented in-place context navigation interface<sup>1</sup> is depicted in figure 1. Here, mousing over any concept brings up the semantic context of that concept, by which the user can be assured of the meaning of that concept, as well as

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<sup>1</sup> Available at [http://demo.seco.tkk.fi/ossi/app/autocompletion\\_test1.html](http://demo.seco.tkk.fi/ossi/app/autocompletion_test1.html)



**Fig. 1.** Semantic autocompletion with in-place ontological context navigation

look for more appropriate choices. In addition, this functionality is repeated for each of these revealed contexts, thus enabling limited navigation of the ontology based on related concepts, class tree, etc.

This functionality also allows us to widen the scope for autocompletion matching beyond the range normally applicable. Here, concepts matched in in-applicable domains merely act as pointers to the right direction. For example, in the annotation system from which figure 1 is taken, only ICONCLASS<sup>2</sup> concepts (identified by a notation preceding them) are allowed indexing terms. Here, the user has typed in “tork”, grasping for “torka”, the Swedish word for drought. Yet, of the ontologies in the system, only the general Finnish upper ontology YSO<sup>3</sup> has Swedish labels and thus, with a normal autocompletion interface, the user would be left stymied. With this interface and the underlying relations in the ontologies however, the user can first browse through the YSO concept to the ICONCLASS keyword “kuivuus” (Finnish for drought), and finally through there to the ICONCLASS concepts permissible for annotation. And even here, the user has not selected the ICONCLASS concept for drought, but has elected “wadi”, or dry river bed, as more appropriate from the choices that the context visualization made available and evaluatable. Also note that the choice does not even contain the original query keyword in any language.

## References

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<sup>2</sup> <http://www.iconclass.nl/>

<sup>3</sup> <http://www.yso.fi/onto/yso>

## **The In-place Ontological Context Navigation Interface Demo**

The demo will show the interface and functionality depicted in the preceding paper in action.