M4.11—Prototype of collaborative community interface

Milestone report for ViBRANT

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Standardisation of ontology vocabularies and their documentation in a collaborative manner is an important basis to establish a virtual biodiversity infrastructure. The present milestone explores the possibility to use a MediaWiki system with it's built in collaboration and trust-building mechanisms, including full revision control. MediaWiki provides semantic web extensions (which are presently planned to deploy in the near future on Wikipedia itself). The major extensions are SemanticMediaWiki and SemanticForms, providing a markup-mechanism, to enrich simple text data with defined semantic properties, that combine human-readable text content with semantic markup. The semantic markup itself is used only to a limited extent for reasoning purposes within the wiki itself. However, it is exposed and provided for harvesting in the form of RDF, allowing third parties to leverage on the full power of semantic machine reasoning.

At the present point of this milestone (6 month after the project start), the following progress has been made:

- The MediaWiki and server setup have been optimized for ViBRANT use.
- The Semantic MediaWiki extension have been installed and extensively tested.
- A prototype interface was developed on http://species-id.net/wiki/ to illustrate the possibilities of a collaborative community interface for an ontology standardisation.
- An example vocabulary case using the taxpub vocabulary (together with the ViBRANT partner Pensoft) has been imported.
- As an external vocabulary to be used in the definition of new terms, the mapping relation definitions of the Simple Knowledge Organisation System[1] (SKOS) have been imported. (In SemanticMediaWiki it is possible to reuse external ontology vocabularies by creating a special import definition, Terms can then be related internally to each other by setting up sub-property relationships (figure 2). Local term definitions within the Wiki system can be exported using the Resource Description Framework[2] (RDF) export function of SemanticMediaWiki and thus they can be read for instance by RDF/ontology browsers[3].)
- To facilitate data inputs by biologists, web forms are provided, helping users to fill in appropriate data without having to know the technical background or the syntax of semantic properties (figure 1). Appropriate form data can be provided as selectable options or by saving input data internally in semantic properties and let them be proposed using automatic word completion while typing in words.

Conclusions

We conclude that Semantic MediaWiki is a powerful medium for human readable and potentially richly illustrated term definitions.

Future work:

We need a real case involving a community of interested users to integrate this approach with the Drupal-based ViBRANT Scratchpads and the identification tools. Ideally would be a rich glossary-like vocabulary that is available as open content (Creative Commons CC by, CC by-sa, or CC0).

[1] http://www.w3.org/TR/skos-reference/skos.html
[2] http://www.w3.org/RDF/
[3] http://owl.cs.manchester.ac.uk/browser/ or http://pellet.owldl.com/ontology-browser

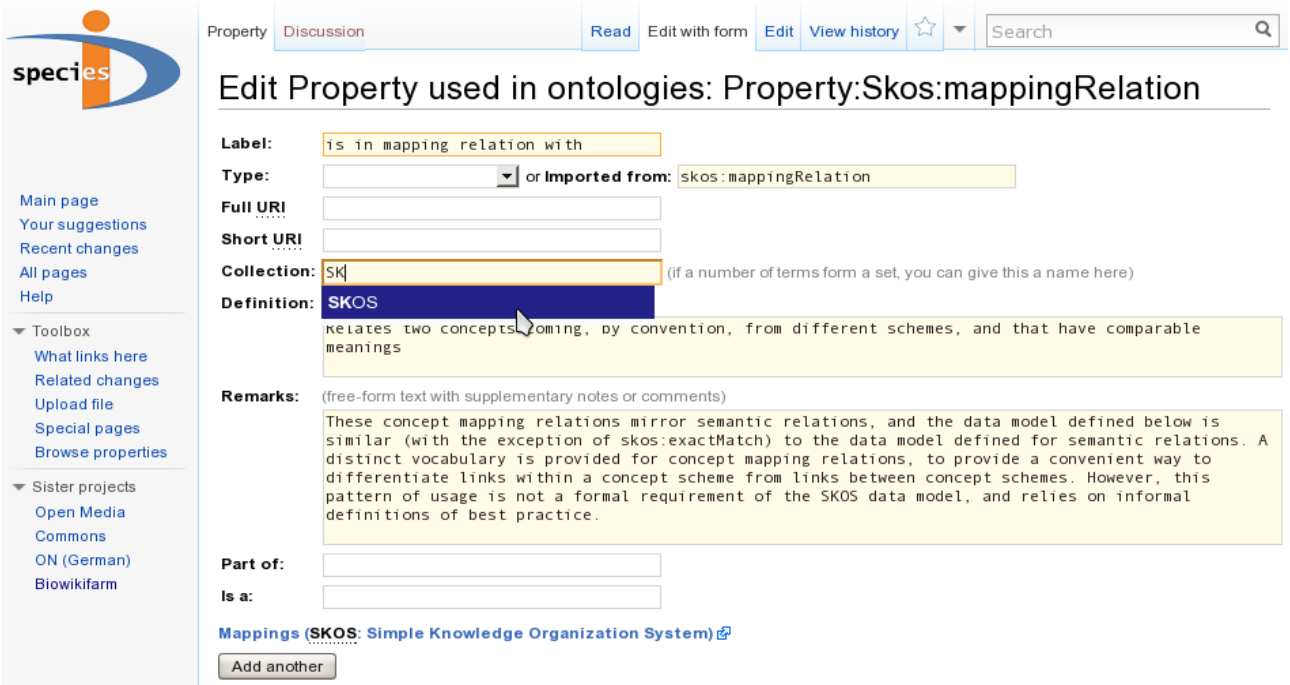

Figure 1: Editing the page "Property:Skos:mappingRelation" on http://species-id.net/wiki/ for an imported property from the Simple Knowledge Organisation System using the extension SemanticForms. All types of form elements can be used: options, radio buttons etc. In addition, auto completion lists (dark blue) provide appropriate data values; fields in pale yellow indicate filled data (a customization created by JKI).

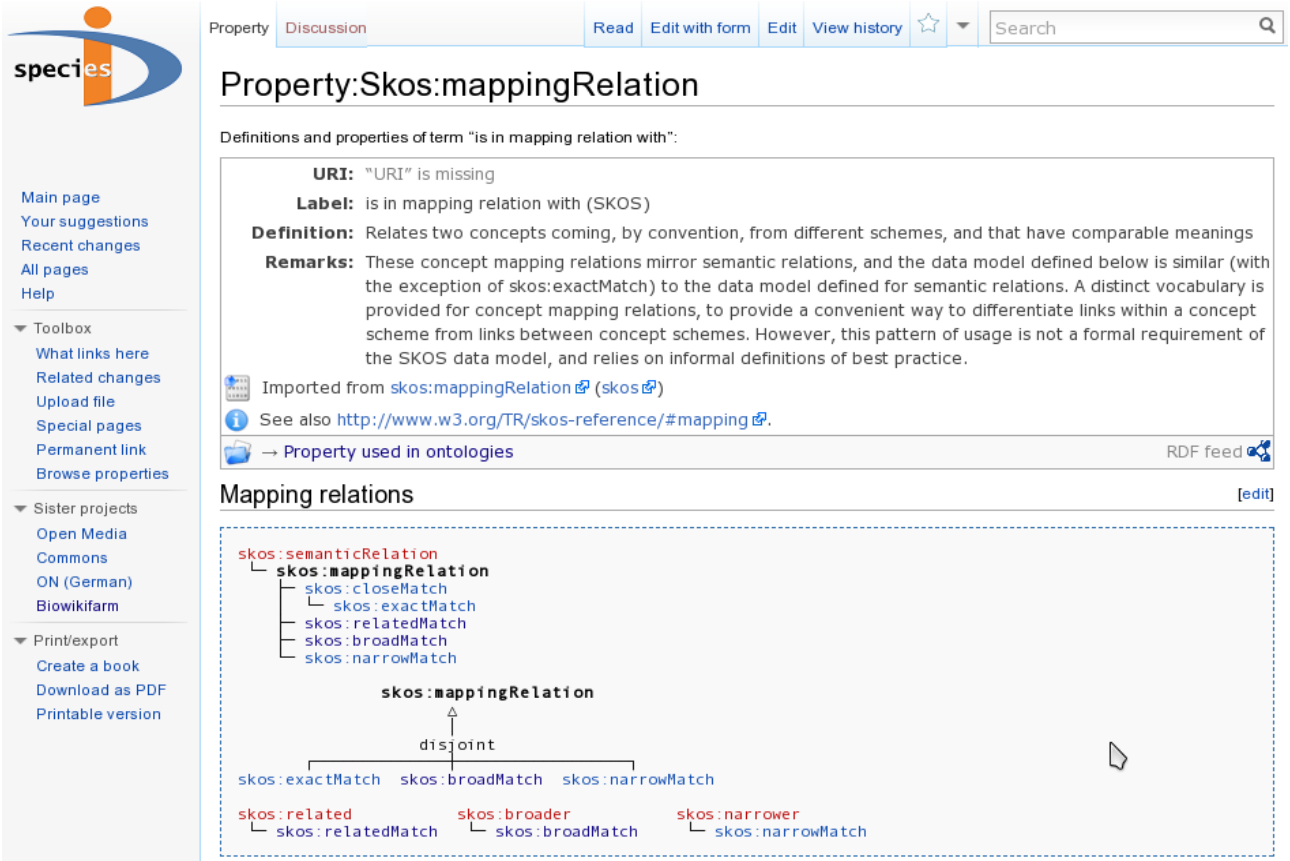

Figure 2: Rendered wiki page "Property:Skos:mappingRelation" on http://species-id.net/wiki/ after filling in the web form. In addition, mapping relations are illustrated below the property definitions using a simple MediaWiki template.