AceWiki: A Semantic Wiki Using Controlled English

Tobias Kuhn

Department of Informatics and Institute of Computational Linguistics,
University of Zurich, Switzerland
`tkuhn@ifi.uzh.ch`
`http://www.ifi.uzh.ch/cl/tkuhn`

Abstract. We present AceWiki that shows how controlled English — concretely Attempto Controlled English (ACE) — can give semantic wikis an intuitive interface while supporting a high degree of expressivity.

Semantic wikis combine the philosophy of wikis with the concepts and techniques of the Semantic Web. Semantic wikis seem to be a very promising approach to get the domain experts better involved in the creation and maintenance of ontologies. However, we see two major problems with the existing semantic wikis. First, most of them have a very technical interface that is hard to understand and use for untrained persons. Second, existing semantic wikis support only a relatively low degree of expressivity (mostly just "subject predicate object"-structures) and do not allow the users to assert complex axioms. In order to solve these problems, we propose to use controlled natural language for semantic wikis.

Controlled natural languages are subsets of natural languages that are controlled (in both syntax and semantics) in a way that removes or reduces the ambiguity of the language. Recently, several controlled natural languages have been proposed for the Semantic Web [5]. Attempto Controlled English (ACE) [1] is one of them. While looking like natural English, it can be translated automatically and unambiguously into logic (e.g. OWL). Evaluation has shown that ACE is understood very well, very quickly, and without training [3].

We developed AceWiki [2] that is a semantic wiki that tries to solve the identified problems of existing semantic wikis by using a subset of ACE as its knowledge representation language. The goal of AceWiki is to show that semantic wikis can be more natural and at the same time more expressive than existing systems. Figure 1 shows a screenshot of the AceWiki interface. Evaluation has shown that untrained people are able to use AceWiki [2].

AceWiki supports a wide range of English constructs: nouns, proper names, verbs, adjectives, plurals, passive voice, pronouns, relative phrases, disjunction, quantifiers, negation, cardinality restrictions, anaphoric references, and more. In order to enable the easy creation of ACE sentences, users are supported by an intelligent predictive text editor [4] that is able to look ahead and to show the possible words and phrases to continue the sentence. Furthermore, AceWiki seamlessly integrates a reasoner that gives feedback to the users, ensures the
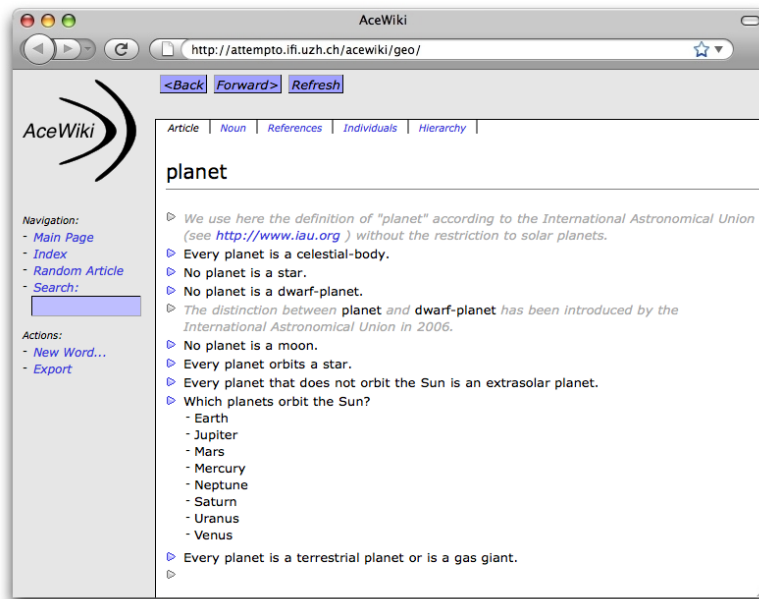
Fig. 1. This is the AceWiki interface. Articles consist of declarative ACE sentences and ACE questions (in black) and of unrestricted natural language comments (in gray).

consistency of the ontology, shows its semantic structure, and answers queries that are formulated as ACE questions.

In general, AceWiki shows how controlled natural language can bring the Semantic Web closer to its end users.

References

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