Reviews and Ratings on the Semantic Web

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Abstract. We present a system for creating online reviews and ratings, based on Semantic Web technologies. This approach overcomes many of the limitations of conventional reviewing and rating systems on the web, such as: a closed world in terms of what can be reviewed, poor integration with reviews or data from other sources, and the inability to aggregate reviews from known and trusted individuals. We detail how the system overcomes these issues, and conclude with an outline of ongoing and future work that exploits its benefits.

1 Introduction: Limitations of Reviews and Ratings on the Web

Conventional reviewing and rating services on the web have a number of limitations. They typically represent closed worlds, by limiting the focus of reviews to items from a specific domain[1], sold by a particular company[2], or catalogued in the database of a reviewing and rating web site[3]. Secondly reviews or ratings from different sites can not be easily integrated as they generally do not adhere to a common interchange format, and without the use of universal identifiers machines cannot easily determine if two reviews refer to the same item. Thirdly, one can rarely base decisions about the trustworthiness or value of a review on knowledge of the reviewer, as nicknames obscure their true identity or one may be unable to locate all reviews by known individuals. Instead, characteristics such as writing style must be relied upon in judging the suitability or trustworthiness of a review. Similarly recommender systems based on ratings by others use statistical techniques such as collaborative filtering [1], rather than exploiting explicit trust relationships between known individuals.

2 A System for Semantic Web-compatible Reviews and Ratings

In response to these limitations we have developed *Revyu*[4], a system for producing Semantic Web-compatible reviews and ratings. *Revyu* allows users to provide reviews

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[1] e.g. http://www.beerintheevening.com/ , http://imdb.com/
[2] e.g. http://www.amazon.co.uk/
[3] e.g. http://www.epinions.com/
[4] http://revyu.com/

and ratings through a web form, without any knowledge of RDF or the Semantic Web. Users can also *tag* items being reviewed to aid browsing and retrieval. Items being reviewed are identified by a URI minted by the application. This provides greater flexibility and scope in what can be reviewed, by allowing any item to be reviewed without first being catalogued in a database or needing an existing URI. URLs related to the item are also stored where possible, in case further information about the item can be retrieved from these locations. *Revyu* is implemented using PHP and the RAP library[5], and expresses reviews and ratings with a combination of the existing Review[6], FOAF[7] and Tag[8] ontologies. A SPARQL interface is provided to the review data, enabling third parties to add value to existing services by integrating data from *Revyu*.

3 User Benefit and Future Work

A critical feature of *Revyu* is the unique identification of reviewers using a hash of their mailbox URI and the FOAF *mbox_sha1sum* property, thereby allowing those who already know a person's email address to determine that they wrote the review, whereas others cannot easily do the same. Associating one's real name with a review is optional. This feature is crucial in allowing people to access and aggregate reviews from members of their social network, a capability we see as essential in overcoming limitations of existing reviewing and rating systems.

In our ongoing work we are using data from *Revyu* to compute trust relationships between users and members of their social network, according to trust factors identified in previous research [2]. This will form the basis for personalizing search results, and providing recommendations, based on which members of their social network a user is most likely to trust for recommendations in a given scenario [3].

References

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2. Heath, T., Motta, E., Petre, M.: Person to Person Trust Factors in Word of Mouth Recommendation. In: Proc. CHI2006 Workshop on Reinventing Trust, Collaboration, and Compliance in Social Systems (Reinvent06) (2006)
3. Heath, T., Motta, E.: Personalizing Relevance on the Semantic Web through Trusted Recommendations from a Social Network. In: Proc. ESWC2006 Workshop on Semantic Web Personalization (2006)

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[5] http://www.wiwiss.fu-berlin.de/suhl/bizer/rdfapi/

[6] http://purl.org/stuff/rev#

[7] http://xmlns.com/foaf/0.1/

[8] http://www.holygoat.co.uk/owl/redwood/0.1/tags/