Colibrary: Linking Communities of Readers on the Social Semantic Web

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Abstract. Colibrary is a Web API, which combines classic bibliographic metadata and content from different communities of readers with the goal to share user-generated content across web applications rather than locking it within 'walled gardens'. Aggregated information is represented and provided through Semantic Web technologies such as RDF linked data to allow machine computation and foster reuse among different applications.

1 Motivation

Social libraries encourage user feedback and participation, through advanced web applications, but they are affected by inadequate APIs or, worst, the lack of APIs. Collaboration and information sharing is restricted to each single application and data cannot flow from one point on the Web to another. We thus paradoxically face a situation where the same paperback can be tagged and reviewed in multiple social libraries, but there is no way to know that people refers to the same resource in Amazon, LibraryThing, or Anobii. We propose a Web API, called Colibrary, whose main goal is to combine such data from different communities of book readers, as they can be shared rather than locked within 'walled gardens'.

2 The Colibrary Web Service

Colibrary is a RESTful Web service that, given as input the identifier of a specific resource, returns RDF descriptions including bibliographic information as well as social data coming from different communities of readers. The service is implemented through PHP scripts which handle HTTP requests from clients, invoke original content providers, filter the results and finally serialize the output as RDF Linked Data using a Semantic Web toolkit for PHP developers, named RAP[1]. Currently, Colibrary exploits three content providers for retrieving data about books: Amazon, Anobii and LibraryThing; while data about scientific publications are retrieved from CiteULike, BibSonomy and the ACM portal.

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[1] http://www.seasr.org/wp-content/plugins/meandre/rdfapi-php/doc/

3 Publishing and Linking Data from Communities of Readers

The Colibrary Web Service has been published on the Web as two distinct APIs: the former is available only for books[2] and requires a valid ISBN as input, the latter is available for scientific publications[3] and the required input parameter is an interhash code[4]. A generic client can invoke the service through simple HTTP GET requests. Colibrary provides different URIs for all the available information concerning the book or the publication. For example, given as input a specific ISBN we have a URI to obtain the full RDF description of that paperback, another URI to get just bibliographic data, and a different URI to retrieve just social data. Social data denote tags, reviews and users (as reviewers) related to the specific paperback. The system also provides URIs to retrieve just tags, just reviews or just users. We can even ask for the RDF description of a single user, of a single review or of a single tag.

All Colibrary RDF descriptions reuse existing vocabularies: Dublin Core is used for describing bibliographic information, Holygoat Tag ontology[5] and MOAT[6] for tags, RDF Review Vocabulary[7] for reviews and FOAF for describing reviews contributors. Moreover, Colibrary RDF descriptions automatically generate outgoing links to other data sources that exploit Semantic Web technologies. An outgoing *owl:sameAs* link from book authors to corresponding topics on Freebase is generated through the Freebase RDF service[8]. Then, two other *rdfs:seeAlso* links are generated, one for the title of the book again to the corresponding topic on Freebase and another for the ISBN to the corresponding description in RDF Book Mashup. Outgoing *rdfs:seeAlso* links are also generated for tag descriptions. Using the tag name three different links are created to corresponding descriptions on Freebase, Sindice and Falcons[9]. Finally, we define meanings of tags using URIs from DBpedia.

Linking RDF data enables any third party to make reference to such information in other RDF statements, opening the way for links between Colibrary and other data sets. Incoming links can be also set between URIs provided by Colibrary and other RDF descriptions about books created by other services such as the RDF Book Mashup, Revyu and DBpedia. Thus, by publishing and linking these data in RDF we aim to help the Web users with links between different data sets, supporting thus the vision of a Web of Linked Data.

Finally, a Web-based interface[10], that enables users to search for both bibliographic and social data about books, has been developed as a client of the Colibrary service. Users have been allowed to search for a book also by title and author and the RDF output of Colibrary is rendered as a classic HTML page which includes three distinct sections: bibliographic information, tag cloud and review list.

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[2] http://collab.di.uniba.it/Colibrary/books/

[3] http://collab.di.uniba.it/Colibrary/publications/

[4] http://www.bibsonomy.org/help/doc/inside.html

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

[6] http://moat-project.org/

[7] http://danja.talis.com/xmlns/rev_2007-11-09/index.html

[8] http://rdf.freebase.com/

[9] http://iws.seu.edu.cn/services/falcons/api/index.jsp

[10] http://collab.di.uniba.it/ColibraryClient/