

RDF Annotated Semantic Web- From a Research perspective

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Abstract: The scope of this section is to give a common outline to some of the information related to Semantic web which adopts RDF based deductions that has wide range of applications that can be linked together to achieve machine processing terminology to global scale. Here the RDF schema which is based on trust and proof theory that provides in a major role on the Semantic Web based machine processing, and to adopt the formal foundations of those languages. Web semantic RDF Schema will be the key players of the information that we will want to explore and migrate for machine learning. It also concentrates on machine accessible information which can be highly exploited by ontology based deductions. To motivate the process RDF and XML have been adopted as the basis for information integration.

Keywords: RDF Schema, XML

I. INTRODUCTION

The preliminary attribute of the World Wide Web is its global accessibility. The influence of a hypertext link is that "everything can link to everything." On Web based technology, there must not be any differentiation between the illegible outline and the refined performance, as well as between that marketable and educational information, and also among social, linguistic, political and so on. Information diverges along many leagues. One of the principle differences is the differentiation between information created primarily for human evaluation and the information generated focusing only for machines. At various poles of information spectra we have the of the range of everything from the advertisement for the commercials which last even about five second to high degree creative poetry. In contrast, looking at the other end we have advanced databases, genetic algorithms based programs and Internet Of Thing (IOT) related data. At present, the Web has evolved one of the most fast growing sectors as a sector of evidences for the users. Hence forth the Semantic Web can be seen with the potential having a huge scope of solutions for the complex research problems and also the gateway for the Automaton of machine processing to greater heights. It is common to come across the huge variety of Semantic Web applications that could be applied for carrying out different performance criteria through module programming at higher degree but the conceptual reasoning will be difficult to categorize as the data sets will have different standards as well as the formats to be clustered under a single common data format which gives a

common acceptable solution based on machine processing. Hence the idea of decentralization has to be adopted into the area of semantic web in order to achieve the consistency in data across the various stages of machine processing which ultimately leads to greater efficiency of information retrieval to the users. The ultimate goal of semantic web based is make web based automation with high degree of clarity and coherence in the information integration and sharing. But to achieve such realization with the existing technologies is highly ambitious and the highly optimal solution for the surmounting problems in the domain could open more research ideas that needs to addressed ,which can be carried out by integrating with knowledge management , rule based systems, functional programming from multiple sources to achieve optimal solution in machine automation.

2. RDF SCHEMA ANNOTATIONS

The problem with information sharing and retrieval using semantic web based processing is that the data generated from various sources sometimes, do not contain any data format specification as well as in most the data sources collected from different locations are in most cases are highly unstructured. The most commonly followed solution to this uprising problem that is followed among the researchers is the RDF based schema annotations to the unstructured data sets and unformatted data for deductions. RDF provides a solution by taking a set of phrases or terms in a data set and fixing a annotation to it by which the semantic i.e. the meaning of the particular term agreeing to the realization of the users. Here the problem arises when defining a particular term in a data set in which the flexibility to achieve the solution with optimal realization evidences is a complex scenario since it difficult to generalize a particular term or a data set to be semantically annotated to the entirely collected data sets. The optimized solution to this problem would be to follow a universally accepted language for defining the meaning of terms in the data set by combining the definitions from various terms and restrictions to existing data sets. The realization of semantic web based querying can be achieved with the help of Ontologies which adopts definitions from wide range of natural languages and vocabularies of each terms adhering to practical realization of the users. For example to demonstrate a suitable ontology for the term “parliament” is that it needs to include information’s i.e. parliament is headed by prime minister who is under the president and the president is the head of the country “India”.. The solution could be achieved by using annotation tags to retrieve the information to the existing problem.

The RDF is fast developing semantic web language that is designed to establish relationship among the different datasets among the resources in a flexible manner.URL (Uniform Resource Locator) and IRI (Internationalized Resource Identifier) are the two components of RDF.

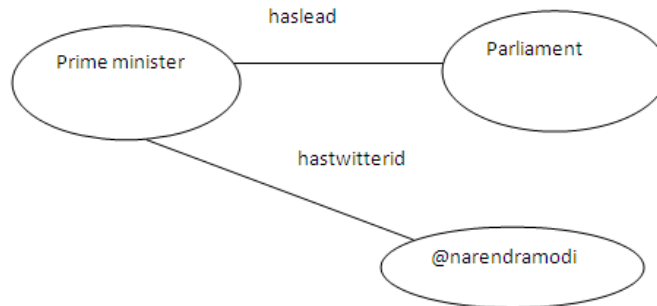


Fig 1: An Example of RDF Graph

RDF adopts binary relationship concept in which it includes a triple i.e. subject, predicate, object. The binary relationship between the subject and object is achieved through the relationship which is the predicate of the statement in the natural language.

Prime Minister haslead parliament.

In the above example the **Prime minister** is the subject, **haslead** is the predicate, and **parliament** is the object which forms a triple constituting an IRI part of an RDF.

<http://www.twitter.com/@narendramodi>

The above part is the URL which is able to locate the twitter id of the primeminister.

The RDF is constituted by the set of triples. In order to achieve optimal sharing and exchange of RDF information data , XML/RDF serialisation has been widely followed obtained by generating RDF graph.

```
<rdf: description rdf: about="#primeminister">
  <haslead rdf: resource="#parliament"/>
<hastwitterid>www.twitter.com/@narendramodi
</hastwitterid>
</rdf: description
```

Here the #primeminister and #parliament are denoted as fragment identifiers.

3. BENFITS OF RDF BASED ANNOTATIONS

The syntactic web which followed in the current generation of web processing adopts Hyper Text Markup Language (HTML) or XML based query processing of web based information. But the latest semantic web based query processing follows RDF/XML serialization. The need to follow RDF based annotations is that decentralization which is discussed in the earlier section can be achieved can be modeled as universally accepted format for unstructured data.RDF annotations can also incorporate tag information from

HTML and XML tags for the serialisation of datasets for semantic web processing,. Since XML is purely a syntactic language for web processing. In Serialization with RDF it provides a great of structuring the unstructured datasets for semantic web processing. With the Serialisation of XML/RDF the semantic web based query processing provides possibility of optimal solution instead of traditional strict yes/no result of query processing.

4. CONCLUSION

The Serialization of RDF/XML in semantic web processing has wide range research solution in the field of automated machine processing and machine learning. The Serialization has a high scope of integrating and extending the datasets deduced from the process to the ontology language based semantic web processing. Since Ontology based semantic web processing is carried out by reasoning mechanisms in trust and logic theory, the serialization result obtained from the RDF can be used as an intermediately step in the Ontology based web processing. The integration of RDF dataset results with the ontology based OWL can open may research problems for automated machine learning to obtain completeness and consistency of optimal solution to the unstructured datasets generated from various resources.

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Thangamani completed her B.E., from Government College of Technology, Coimbatore, India. She completed her M.E in Computer Science and Engineering from Anna University and PhD in Information and Communication Engineering from the renowned Anna University, Chennai, India in the year 2013. Dr. M. Thangamani possesses nearly 23 years of experience in research, teaching, consulting and practical application development to solve real-world business problems using analytics.

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