Context Representation for the Semantic Web

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What are contexts?
Contexts capture the relativity of meaning of data and knowledge. Some aspects of contexts include the following (among others).

Assumption
Is there a Southwest flight from MHT to RDU on Apr 24th, 2010?

Hotwire
No
Yes
(Does on whether the knowledge base is complete w.r.t. SW flights and thus impacts use of the Closed World Assumption)

Partial Info
A white sheep or a sheep with a white side facing us?

Scope
Bart Simpson hates Family Guy. True in “Simpsons” or in “South Park”?

Formalizing Contexts
Extending McCarthy’s context theory
A context is an object (so we can say something about it)
A context has a jurisdiction to interpret some data [isin(c, data)]
Relations between contexts control knowledge flow and inference w.r.t. contexts

Representing Contexts on the SW
Ontology relations (e.g., importing, citation)
Ontology doc
Context doc
Context Relations (Determines if/how knowledge is combined)
Context doc

Other aspects of contexts
Institution
(Semantic Assumptions)
Relation to other Contexts
(e.g., Nesting)
Context
Provenance


• Jie Bao, Li Ding & Deborah L. McGuinness (2010). Contextualized RDF Importing. Submitted to W3C Workshop on RDF Next Steps. Stanford, CA, USA.
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