Dublin Core Application Profiles

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SINGAPORE FRAMEWORK FOR DUBLIN CORE APPLICATION PROFILES
Towards RDF-based profiles with XML-like data constraints

• **1995** Dublin Core as “simple metadata record”
• **1999** Dublin Core as an RDF vocabulary
• **2000** “Application profiles” mix-and-match
• **2003-2007** DCMI Abstract Model
  – Basis for templating validatable record formats
  – Formats straightforwardly mappable to RDF triples
• **2007** Singapore Framework for Dublin Core Application Profiles
Singapore Framework for Dublin Core Application Profiles

Application Profile

- Usage Guidelines
- Annotates

Domain Standards

- Functional Requirements
- Domain Model
- Description Set Profile
- Data Format
- Metadata Vocabularies
- DCMI Abstract Model
- DCAM-compatible Syntaxes

Foundation Standards

- RDFS
- RDF
What functions must your application support?
What “things” do you want to describe? Books, people...?
With what properties will you describe those things?
DCMI Abstract Model (developed 2003-2007)
Description Set Profile Constraint Language (2008)
Defined (closed-world) constraints separately from underlying vocabularies
BRIDGING THE RDF AND XML MINDSETS
Bridging two mindsets

• Oriented to *Record Formats*
  – Bounded sets of fields to be “filled in” with information

• Oriented to *Graphs*
  – Unbounded webs of information connected by statements
Let’s take a graph...
…view it in terms of a “record”…
...focusing on components that can be validated...
..and abstract those components to a generalized model.
...using grouping constructs with no equivalent in RDF.
2008 *draft* Description Set
Profile Constraint Language

• Constraints commonly required for validation:
  
  – *minOccurs/maxOccurs*
  
  – *resourceClass* (what is the Description about?)
  
  – *standalone* (describe Person without describing Book?)
  
  – *valueURI* (mandate a particular controlled vocabulary)
Broad humor and bitter irony collide in this fictional autobiography of Rabo Karabekian, who, at age seventy-one, wants to be left alone on his Long Island estate with the secret he has locked inside his potato barn. But then a voluptuous young widow badgers Rabo into telling his life story—and Vonnegut in turn tells us the plain, heart-hammering truth about man’s careless fancy to create or destroy what he loves."

"hasInstance": "http://bibfra.me/instance/u2-1"
Broad humor and bitter irony collide in this fictional autobiography of Rabo Karabekian, who, at age seventy-one, wants to be left alone on his Long Island estate with the secret he has locked inside his potato barn. But then a voluptuous young widow badgers Rabo into telling his life story—and Vonnegut in turn tells us the plain, heart-hammering truth about man's careless fancy to create or destroy what he loves.

```
"hasInstance": "http://bibfra.me/instance/u2-1"
```
Show the user readable/editable document...

http://dublincore.org/documents/2008/10/06/dsp-wiki-syntax/DescriptionSetProfile-dist.zip
...with embedded constraints...

http://dublincore.org/documents/2008/10/06/dsp-wiki-syntax/DescriptionSetProfile-dist.zip
...extractable to a generic representation...

http://dublincore.org/documents/2008/10/06/dsp-wiki-syntax/DescriptionSetProfile-dist.zip
...usable to generate editor, validator, etc.

http://dublincore.org/documents/2008/10/06/dsp-wiki-syntax/DescriptionSetProfile-dist.zip
RDF Application Profiles today

• After 2008 (Description Set Profiles draft), not much happened, until 2013…:
  – **W3C RDF Validation Workshop**: life sciences need to validate RDF-based data!
  – **SWIB meeting in Hamburg**: cultural heritage and libraries need DSP (or similar)!
  – **DCMI RDF Application Profiles Working Group** forms
  – **W3C RDF Data Shapes Working Group** forms
RDF APs at this conference

• **Tutorial** (today)
  – “RDF validation in the cultural heritage community
  – Karen Coyle, Kai Eckert, Thomas Bosch, Stefanie Ruehle, Tom Johnson

• **Keynote**, Thursday morning

• **Special session**, Thursday afternoon
  – “RDF Application Profiles and Tools for Metadata Validation and Quality Control”
  – Mark Matienzo, Kevin Ford, Eric Prud’hommeaux, Dave Wood, Tom Johnson

• **Papers**
  • Requirements on RDF Constraint Formulation and Validation, Eckert, Bosch
  • Towards DSPs for RDF using SPARQL, Eckert, Bosch
  • Extracting DSPs from RDF Datasets, Tsunagu Honma, Kei Tanaka, Mitsuharu Nagamori, Shigeo Sugimoto