Reuse of Content from ISO 15926 and FIBO

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January 23 2014

Agenda

- Really quick overviews
 - ISO 15926
 - iRING User Group
 - FIBO
- Network Management Motivation
- Reuse Specifics
- Experiences

ISO 15926

- http://en.wikipedia.org/wiki/ISO 15926
- Designed for data integration and exchange regarding the lifecycle of an "installation" and its components
 - A "babel fish" for project information
- Established for the process industry
 - Large projects with many participants, being built and maintained for long periods of time
- Technology useful outside the process industry if have a vocabulary of reference data

iRING

- Acronym for ISO 15926 Realtime Interoperability Network Grid
- http://iringug.org/wiki/index.php?title=Main Page
- Four purposes:
 - Prove that information exchange is possible using the full ISO 15926 spec
 - Develop tools and make them available under an opensource license
 - Supporting configuration and execution
 - Develop best practices
 - Encourage vendors to collaborate and support iRING interfaces within their products

FIBO

- Acronym for the Financial Industry Business Ontology
- http://edmcouncil.org/financialbusiness
- Effort to standardize the language and define:
 - Terms, conditions, and characteristics of financial instruments
 - Legal and relationship structure of business entities
 - Market data
 - Obligations and process aspects of corporate actions

Motivation for Reuse for Network Mgmt

- Overlapping semantics
 - Key concepts such as physical and planned entities and service level agreements between various parties
- Reuse of iRING tooling
 - Data needs to be defined and exchanged across multiple products and sites in an enterprise
 - Similar to the process industry customer, vendor and supplier environment
- Small budget and tight timeframe
 - Can't/shouldn't create an ontology from the ground up, want to find/reuse basic concepts

Concepts from ISO 15926 (I)

- Possible versus actual individuals
 - In support of network planning
- Property and indirect property
- Activities with beginnings and endings
 - Configuring, monitoring, following, occurring, process, creating, completing, ... (especially for trouble ticketing)
- Role
- Information, note, data sheet, guideline, ...

Concepts from ISO 15926 (II)

- Units of measure (interlaced with the QUDT ontology)
- System and feature
- Physical object, container, compartment, component, connector, ... (especially for inventory and sparing)
- Connection (would have been nice)
 - Problematic since it is defined as transferring "matter, energy or both", ~physical

To Use iRING Tools, Extend ...

- Class_of_arranged_individual with network_individual concepts
- Standard_class with relevant standards (such as IETF)
- Class_of_activity with both operator, user and equipment/service activities (such as establishing connection)
- Class_of_direct/indirect_property with networking values (such as jitter or bandwidth)
- •

 Would be defined regardless of the use/reuse of ISO 15926

Concepts from FIBO

- Agreements, commitments, contracts, contractual elements, and objectives
- General concept of autonomous agent, person, organization, role and group
 - But legal specifics are not relevant at this time
- Physical location and address
- Many of the:
 - Object properties ("relations")
 - Data properties
 - Annotation properties

Object property hierarchy: topObject × topObjectProperty causes characterizes classifies comprises confers

'has context'

'has identity'

'has party'

'has part '

'has role'

has member'

'has member'

'has member list'

'has top concept'

'has in force'

constrains

controls

designates

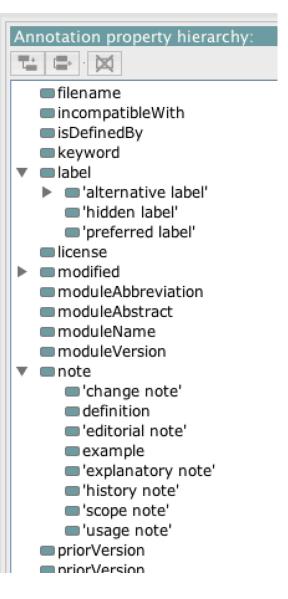
governs

has

embodies



Data property hierarchy: topDataPro topDataProperty 'has acquisition date' 'has address component' 'has country name' 'has locality' 'has post office box' 'has postal code' 'has state name' 'has street address' 'state abbreviation' 'has date of birth' 'has date of issuance' 'has disposition date' 'has effective date' 'has expiration date' 'has gender' has name 'has alias' 'has common name' 'has formal name' 'has person name' 'was formerly known as' 'has place of birth' 'has unique identifier' notation



identifies

involves

holds

ISO 15926 Experiences

- Valuable concepts, especially when coupled with domain-specific insights
- Too physically oriented
- No single source for a complete explanation
 - http://iringug.org/wiki/index.php?
 title=Beginners Guide to ISO 15926 Modeling (text)
 - http://www.15926.info (text)
 - https://www.posccaesar.org/wiki/ISO15926#Resources (browsable interfaces)
 - http://www.iso15926.net (more condensed, targeted browser)
 - https://www.posccaesar.org/wiki/ISO15926inOWL (OWL definitions)

ISO 15926 Experiences

- Intimidating ...
 - Too much complexity, mind-boggling tens of thousands of classes
 - Annotations (definitions and examples) separate from class definitions for "Part 2"
 - General concepts in "Part 2"; Specific concepts in "Part 4"; Groupings/templates in "Part 7"
- OWL 1 (DL) definition
 - Programmatic/syntactical, generated from EXPRESS
 - Limited use of OWL semantics/constructs
 - Defined using Class, subClassOf, disjointWith, equivalentClass
 - But independent concepts of relationship and possible_/ actual_individual (versus object properties and named individuals)

FIBO Experiences

- Reuse more limited than ISO 15926 due to targeted nature of the specification
 - But more specificity meant that info was more obvious and easier to immediately use or discard
- Still early in development and too generic
 - Depth and details
- Zip file contained all the necessary OWL files except:
 - OMG's SpecificationMetadata (which was obvious but annoying on import to a tool like Protégé)
- Defined in OWL (versus translated)
 - Much easier to understand, import, ...
 - Annotations integrated with the concept definitions

General Comments

- Difficult to find specific semantics in ontologies
- Could not reuse full ontologies
 - Specific concepts/semantics very valuable
- Other (small) general ontologies were imported/ used directly
 - For example, W3C's Time and Provenance ontologies
- Targeted semantics very useful as starting points
 - Not open-ended
 - More complete analysis than network mgmt perspective alone could have provided
 - Room to grow as needed

