HC-05: Ontology of Ontology Evaluation

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Ontology Summit 2013 Symposium
Purpose, Goals, & Realities

• Vision:
  – Use ontologies, don’t just talk about them
  – Use process of ontological analysis to clarify thinking
  – Create product that can be used

• Reality: 1 day
  – Focused on analysis, informal modeling
  – Used simple graphs and text to capture analysis during and after discussion

• Participants:
  Joel Bender   Mike Dean   Doug Foxvog   Ali Hashemi
  Bob Smith     Pavithra Kenjige   Astrid Duque   Amanda Vizedom
  David Whitten  Peter Yim   Ramos

• Materials:
  – Outputs and continuing development: [https://www.zotero.org/groups/ontologysummit2013/items/collectionKey/PVGF24A6](https://www.zotero.org/groups/ontologysummit2013/items/collectionKey/PVGF24A6)
Requirements Development: First Steps

• Initial statement: Cover important evaluation-related concepts “from various materials presented during the summit, especially those that identify:
  – evaluable characteristics of ontologies,
  – metrics and methods for such evaluation,
  – lifecycle stages
  – maturity models of ontologies and/or evaluation
  – useful faceting characteristics of ontology characteristics
  – characterizing ontology internally,
  – characterizing ontology externally,
  – characterizing relation of ontology specifics to particular use or application context
  – context dependence of relevance of characteristic to quality/suitability
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  – automatability ...

• Envisioned uses:
  – Ontology Summit PSMW
  – Modeling capabilities of tools & what their metrics, etc., mean
  – Capturing evaluation results for individual ontologies (for repository use?)

• Many references gathered into shared doc and reviewed
Requirements Development: High Level Conceptual Model

- An **Ontology** is an entity that is generally realized as a (possibly singular) set of **artifacts** within an **organizational context**.
- An Ontology should have a defined **scope**.
- An Ontology should have an **intended use**.
- An Ontology should have **stakeholders**, ...
- An Ontology can be **evaluated** according to a set of **criteria** (defined by **specifications** and **requirements**?), which can be divided along a **continuum** with two poles: **Intrinsic** and **Extrinsic**.
- An ontology evaluation criteria is defined by specifications and requirements.
- An ontology evaluation criteria may be intrinsic, extrinsic, or something between.
- Each evaluation event/activity has an accompanying **method**.
- There is a broader **context** which **motivates** the **creation** of the ontology.
- There is a broader **context** which **motivates** the **team** which creates an ontology.
- An ontology also has a particular **lifecycle**, with a set of **phases** or **stages**, each of which may have particular evaluation criteria and characteristics which may **apply**.
- Additionally, the **purpose** and **intended use** of an ontology may imply that it has a set of characteristics, may **select a subset of evaluation criteria**.
- The **purpose** and **intended use** of an ontology may **select a subset of evaluation criteria**.
- Moreover, there exist a number of **metrics** which can be deployed, which provide **visibility** into ontology characteristics.
- Characteristics, specification and requirements may also be **hierarchically** connected within themselves.
Results

• Drafts of
  – concept definitions & (some) associated terminology
  – sub-graphs around focal concepts:
    • Evaluation Method, Life cycle, Organizational Process and Maturity Models, Ontology Usage, Ontology Characteristics, Ontology, Metrics, Evaluation Process, OntologyCharacteristicsOQuaRE

• Covered ground on some relationships less central in main summit, e.g.:
  – What goes into Ontology Usage
  – How does requirements development happen? Who is involved?
  – How do business and technical requirements relate?
  – How do requirements relate to Metrics?
  – How can Ontology Characteristics at different levels be related?
  – How should we understand different ways of grouping Ontology characteristics (or requirements)
  – How can this picture be help understand use of individual methods and tools (Generic Metrics - OQuaRE Metrics)
End-of-hackathon to-do list

• Consolidate informal model pieces into single, intelligible model
  – In graphs
  – In English
  – Review and import or align with ICOM and OMV ontologies

• Formalize in OWL
• Formalize in CLIF
• Evaluate (and compare versions)
• Offer for use
Sample- Informal Model: Ontology Usage
(work in progress)
Plans & Status

• Complete 1st set of models:
  – Consolidated informal model (Cmap): in progress
  – Consolidated informal model (English) in progress
  – OWL formal model: first pass done, based on end-of-hackathon graph; will revisit after informal models done.
  – CLIF formal model: held for informal model completion.

• Evaluate & revise:
  – Evaluate each version with corresponding tools.
  – Compare models to each other.
  – Invite general review.

• Release:
  – into repository/ collaboration space.

• Coordination:
  – All interested, meet during Small Groups / Birds of a Feather session (Friday, 2013-05-03 at 3:15pm)