Ontology Summit 2013:
Ontology Evaluation Across the Ontology Lifecycle
Virtual Panel Session 03 - January 31, 2013

Track A: Intrinsic Aspects of Ontology Evaluation: Practice & Theory

Co-Champions:

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Track A: Intrinsic Aspects of Ontology Evaluation: **Mission** (1)

- Ultimately an ontology's worth can be measured by the effectiveness with which it helps in solving a particular problem

- But as a designed artifact, there are a number of intrinsic characteristics that can be measured for any ontology that give an indication of how "well-designed" it is:
  - Proper use of various relations found within an ontology
  - Proper separation of concepts and facts (sometimes referred to as classes vs. instance distinctions)
  - Proper handling of data type declarations
  - Avoidance of assuming semantics in naming (sometimes called "optimistic naming")
  - Consistent range & domain constraints
  - Better class/subclass determination
  - The sound use of principles of ontological analysis

Track A: Intrinsic Aspects of Ontology Evaluation: **Mission** (2)

- This Track aims to enumerate, characterize, and disseminate information on approaches, methodologies, and tools designed to identify such intrinsic characteristics, with the aim of raising the quality of ontologies in the future

- Scope:
  - Dimensions of evaluation: structure, logic, semantics, analysis
  - Methods of evaluation
  - Criteria
  - Properties to measure

Intrinsic Aspects:
Help Us Determine These!

- Ontological analysis
- Accuracy, Precision/Recall, Granularity, Correctness, Consistency
- Coverage, Density, Robustness, Richness, Cohesion, Tangledness, other Graph properties
- Best Practices (some KR language dependencies)
- Adherence to established ontology design patterns, Modularity, Mappings
- Documentation, annotation, examples, etc.

- **Some Questions:**
- Intrinsic Aspects Comparable to White/Glass Box Testing?
- Differentiable from Extrinsic Aspects?
  - Perhaps some extrinsic aspects are intrinsic aspects indexed with specific domains & requirements?
  - Example Precision_With_Respect_To(domain D, requirement R)
- How do Intrinsic Aspects Change Over the Ontology Lifecyle?
- Consider Auxiliary Issues: E.g., Vocabularies Linked to Ontologies?
- Distinguish Ontological from Epistemological from Semantic Aspects?

Speakers / Panelists

- **<u>Detecting Intrinsic Errors:</u>**
  - **Ms. Maria Poveda Villalon** (Universidad Politécnica de Madrid), Dr. Mari Carmen Suárez-Figueroa (Universidad Politécnica de Madrid), Dr Asunción Gómez Pérez(Universidad Politécnica de Madrid):
    - *A Pitfall Catalogue and OOPS!: An Approach to Ontology Validation*
- **<u>Intrinsic Ontology Metrics:</u>**
  - **Dr. Samir Tartir** (Philadelphia University, Amman, Jordan), Dr. Ismailcem Budak Arpinar (University of Georgia), Dr. Amit Sheth (Wright State University):
    - *Ontology Evaluation and Ranking using OntoQA*
  - **Dr. Jesualdo Tomas Fernandez Breis** (Universidad de Murcia), Ms. Astrid Duque Ramos (Universidad de Murcia), Dr. Robert Stevens (University of Manchester), Dr. Nathalie Aussenac Gilles (Institute de Recherche en Informatique de Toulouse (IRIT), Université Paul Sabatier):
    - *The OQuaRE Framework for Ontology Evaluation*