14 Ways to Use Your Enterprise Ontology

Semantic Arts, Inc.
So what exactly do you intend to do with this so-called “Enterprise Ontology?”
What is an Enterprise Ontology

- It is a model
- Of the key, shared information in an Enterprise
- Developed using Semantic Technology
- And is therefore machine interpretable and processable

EntOnt
The Role of an Enterprise Ontology

• We think an Enterprise Ontology is useful even if you only use it for one purpose.

• This is largely because of the intellectual rigor it focuses on the problem of definition.

• But we think the value multiplies when you use a single Enterprise Ontology for multiple purposes.
Remainder of this Session

• Is about how you might use your Enterprise Ontology

• What characteristics of an Enterprise Ontology promote those uses?

• How gist supports those characteristics.

• How to understand gist.
Design Time and Run Time

• There are two major usage groups regarding enterprise ontologies:
  • Design Time usages
  • Run Time Usages
Design Time – Vision/Communication

- The mere existence of a single understandable whole moves many people from despair to action.
Design Time – Deriving Consistent SOA Messages

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<plaintiff>
  <repBy>
    <attorney></attorney>
  </repBy>
</plaintiff>

<attorney>
  <reping>
    <plaintiff></plaintiff>
  </reping>
</attorney>

<attorney>
  <worksFor>
    <lawFirm></lawFirm>
  </worksFor>
</attorney>
Design Time – Adaptor Design

<plaintiff>
  <repBy>
    <attorney></attorney>
  </repBy>
</plaintiff>

Adaptor

EntOnt

MapOnt

AppOnt
Design Time – Repository Management
Design Time –
Taxonomy and Vocabulary Management

- item1
- item2
- item3
Design Time – Integrating External Nomenclature

- snomed1
- snomed2
- snomed3

? • item1
? • item2
? • item3

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A run time ontology is one that is participating while the system is running.
Run Time – Conceptual Federated Query

Find Attorneys Who Worked on Hazardous Materials in Ohio

TopTax  EntOnt

MapOnt  MapOnt
Run Time – Semantic Search

Browser

Lexicon

TopTax

EntOnt

TS
Run Time – Faceted Search
Run Time – Mash ups

isln
score
handicap

EntOnt
MapOnt
TS

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Run Time – Social Media Integration

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Run Time – Entity Extraction

MDM -> Match Spec -> EntOnt -> NetOwlOnt -> TS

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Run Time – Integrating Structured and Unstructured Data
Run Time – Inference

Reasoner → EntOnt

TS
TS
Run Time – Dynamic Apps

EntOnt

isIn
score
handicap
course
Each of the previous could be done without an Enterprise Ontology.

Some could be done without any kind of ontology.

But we believe they all benefit from an Enterprise Ontology and especially from using the same Enterprise Ontology.
Some Useful Shared Characteristics of the Enterprise Ontology

- **Elegance**
  
  Being able to define the most concepts with the fewest primitives pays off in most of the preceding use cases.

- **Highly Axiomized**
  
  The more axioms (formal definitions), the more likely the ontology is consistent; and the more likely it is consistent, the more it can be used for inference.

- **Complete**
  
  The more complete the Enterprise Ontology is, the less likely people will create concepts outside it.
Some Useful Shared Characteristics of the Enterprise Ontology

• Understandable

For people to use it they need to understand it, partially by using well-agreed terms, but also by virtue of good documentation and visualization.

• Unambiguous

It should be clear where given concepts need to live in the ontology.

• Consistent

Consistency is both a formal property (are axioms in the ontology in contradiction?) and a property of the usage of terms.
gist

- Semantic Arts’ minimalist upper ontology
- Freely available through a creative commons license
- Current version (now 6.1) available at
  http://ontologies.semanticarts.com/gist/gist.owl
- Modular
  - Core gist
  - Plus seven sub gists: events, durable temporal relations, process, measures, finance, states and concepts
gist Core

• 138 Classes
• 125 Object Properties
• 20 Data Type properties
Learning gist

• We’re working on ways to make gist simpler to approach.
• There are about 12 “prime” classes.
• And another 24 “primitive” classes.
• The properties are in six families.
gist Core – Major Families of Classes

- Time
- Place
- Landmark
- Person/UniqueItem
- Substance
- Organization
- Documents
- Agreements
- Behavior
- Intention

- UnitOfMeasure
- Magnitude
- Other (Collections, Concept, Language)
Key gist Properties

- **hasA**
  (Subject exclusively possesses Object)
  [Person hasMagnitude Weight]

- **geoContains[T]**
  (Spatial Relations)
  [FortCollins geoContains MyHouse]

- **regarding**
  (About or descriptive)
  [Book about Horses]

- **hasPart[T]**
  (Mereology)
  [Car hasDirectPart Engine]

- **affects**
  (Teleology)
  [Dave produce Presentation]

- **connectedTo**
  (GenericAssociations)
  [Message fromAgent Dave]
gist Primes
gist Primitives

- Magnitude
- UnitOfMeasure
- MonetaryAmount
- Currency
- Language
- ID
- Text
- FormattedText
- Language Specific Text
- Date/Datetime
- Time
- DateInterval

- GeoPoint/Origin (as special case)
- GeoSegment
- GeoRegion
- Address
- Audio
- Video
- Graphics (bit)
- Graphics (vector)
- Actuator
- Sensor
- Collection
- Position
Most enterprise ontology classes will be subclasses of gist.
This is the rendered version of some part of the docket that a court chooses to make public.
Key SubOntologies of gist
(not yet on our web site as they are not as stable)

• Events – Historical and Planned Events, Physical Events, Tasks and Projects
• Durable Temporal Relationships – Reified properties that exist for a long time such as ownership, location, supervision, employment and membership
• Concepts – skos, measurable concepts and [controlled vocabularies]
• Measures – Relates measurement procedure with the act of measurement, the thing being measured and the four types of measurement (nominal, ordinal, ratio and interval)
Additional gist sub ontologies

• Process – Decomposes a lot of the key manufacturing processes

• Finance – a way of modeling events, transactions, obligations and allocations

• States – as in a “Finite State Machine”
Questions?