

TOPIC: *Transportation Research Thesaurus: Taxonomy Development and Use Cases*



14 February 2008

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Presented by Jay Ven Eman, Ph.D., CEO

Access Innovations, Inc. / Data Harmony

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Access Innovations, Inc.

- 30 years in business!
 - Founded in 1978 by Marjorie M.K. Hlava
- Woman-owned, small business
- GSA MAS contractor – GS-35F-0820N





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Kimberly-Clark

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National Transportation Library

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Naval Postgraduate School

New Jersey Hospital Association

NIH – National Institutes of Environmental Health

OCLC

Reader's Digest

Santa Fe Institute

Society of Automotive Engineers

State of Illinois

State of Minnesota

Transportation Research Board – IS

Weather Channel

Transportation Research Thesaurus (TRT)

- ❑ Appropriate uses
- ❑ Moving TRT to an ontology

Appropriate uses

- ❑ Preparation – indexing & meta-data
- ❑ Organization – database design
- ❑ Presentation – Web, intranet
 - ❑ Guided navigation
 - ❑ Search by browsing
- ❑ Retrieval – search
 - ❑ Query resolution & disambiguation
 - ❑ Query expansion



Moving TRT to an ontology

- Ontology
- Standards
- Semantic Web

Taxonomy, Thesaurus, & Ontology

- Taxonomies and thesauri are not ontologies
- They are entities
- Ontology – science of describing kinds of entities
 - “an explicit and formal specification of a conceptualization”

Ontology

- From philosophy – the science of describing
 - Kinds of entities in the world
 - How they are related

Defining and refining

Body

Head

Defining and refining

BT Body
NT Head

- Define BT and NT
 - Broader term/Narrower term
 - OWL - <http://www.w3.org/TR/2004/Rec-owl-guide-20040210/>
 - SKOS - <http://www.w3.org/TR/swbp-skos-core-guide>
- Refine Body/head relationship
 - Whole/part
 - ANSI/NISO Z39.19-2005 – <http://www.niso.org>

ANSI/NISO Z39.19-200x

Table 1: Selected semantic relationships among terms

Relationship Type	Example
Equivalency	
Synonymy	UN / United Nations
Lexical variants	pediatrics / paediatrics
Near synonymy	sea water / salt water smoothness / roughness
Hierarchy	
Generic or IsA	birds / parrots
Instance or IsA	sea / Mediterranean Sea
Whole / Part	brain / brain stem
Associative	
Cause / Effect	accident / injury
Process / Agent	velocity measurement / speedometer
Process / Counter-agent	fire / flame retardant
Action / Product	writing / publication
Action / Property	communication / communication skills
Action / Target	teaching / student
Concept or Object / Property	steel alloy / corrosion resistance
Concept or Object/ Origins	water / well
Concept or Object / Measurement Unit or Mechanism	chronometer / minute
Raw material / Product	grapes / wine
Discipline or Field / Object or Practitioner	neonatology / infant

Thank you!

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