SKOS and the Ontogenesis of Vocabularies
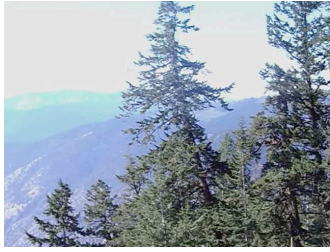
Joseph T. Tennis

The University of British Columbia

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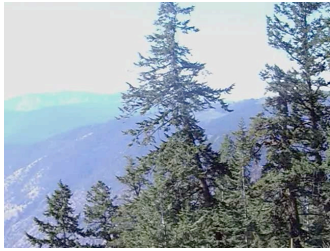jtennis@interchange.ubc.ca

Outline

- Purpose of Talk
- Definitions (Ontogenesis, Vocabularies, SKOS)
- SKOS and Ontogenesis
- Types of Ontogenesis
- Extending SKOS to express Ontogenesis

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Purpose of the Talk

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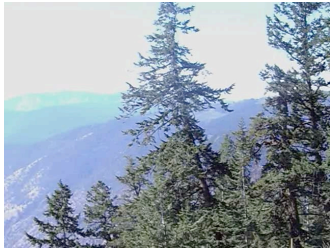jtennis@interchange.ubc.ca

Purpose of the Talk

- Vocabularies change - they evolved through use, updating, management, etc.

- In the digital environment we wrap terms from vocabularies with resources.

- And we identify concepts with URIs.

- Those resources get stored, but we do not re-index those terms.
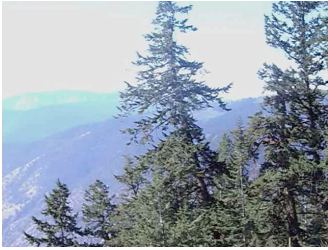
Purpose of the Talk

- Once assigned in vocabulary version 1.0 we do not re-index with version 2.0
- But we want to retrieve those documents that might be lost through vocabulary revision
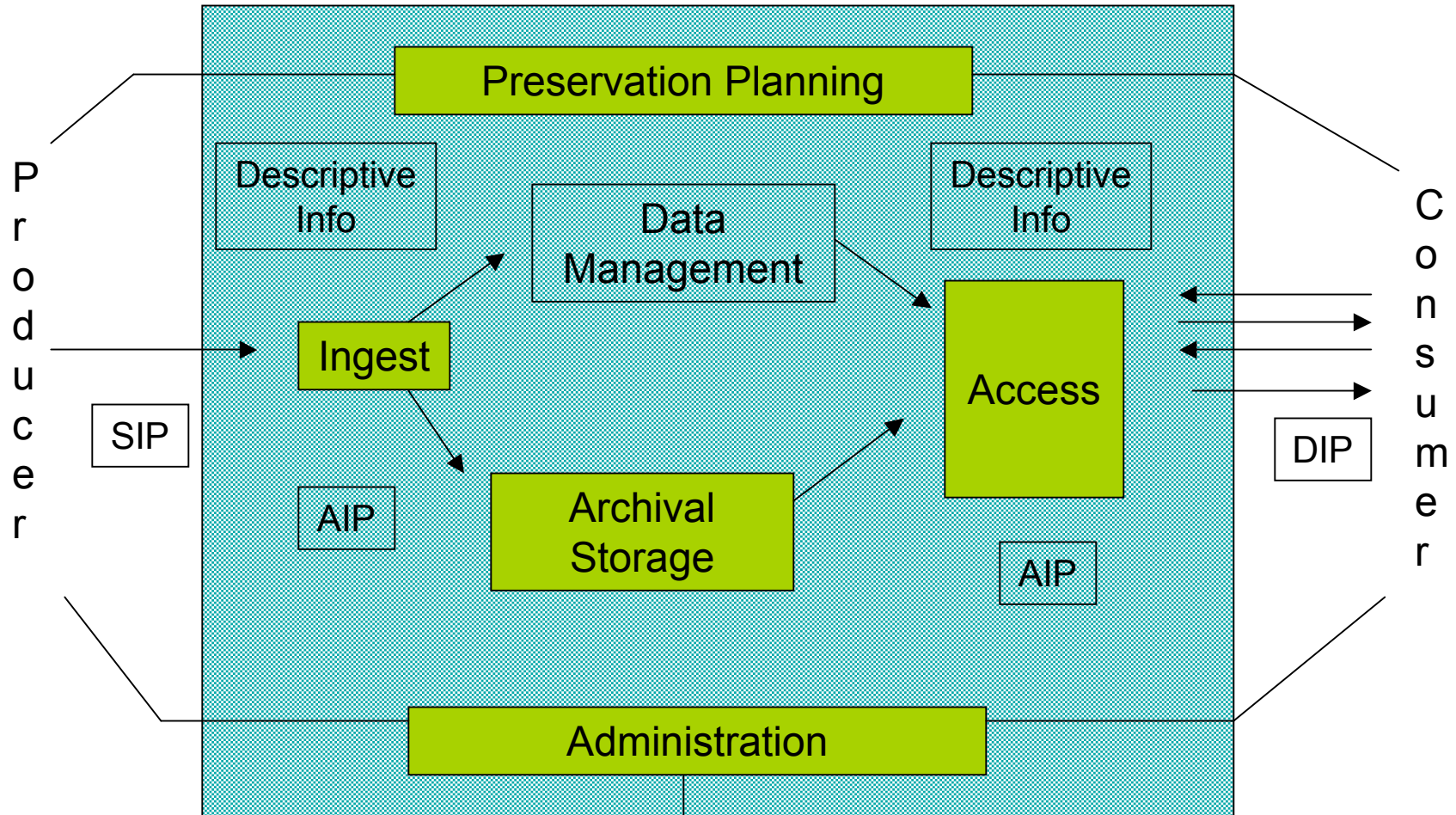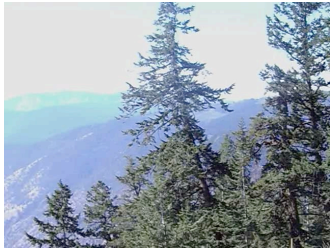
Purpose of the Talk

- For example, Yale University Library is archiving electronic journals using the Open Archival Information Systems (OAIS) Reference Model

- These ask for "information packages to store" and I'd like SKOS extensions like these provided here to be part of that…
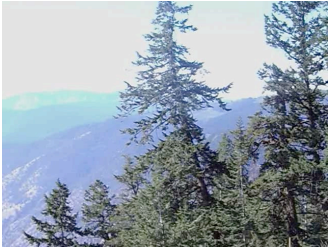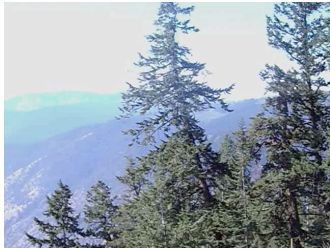
Purpose of the Talk

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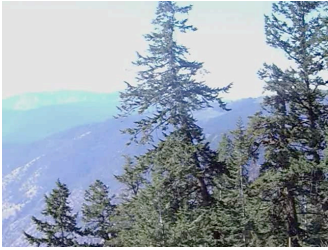
Definitions

Ontogenesis, Vocabularies, and SKOS

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Definitions

- SKOS
  - Simple Knowledge Organisation Systems [1]

- Vocabularies
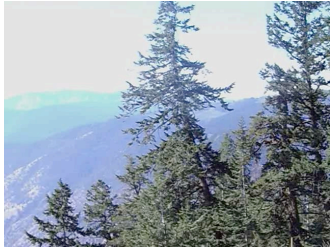 - Terms used (a) organize knowledge and (b)) to describe resources

Definitions

- Ontogenesis
  - Drawn from biology
  - In that context it means the development of an individual from conception through the full life-cycle
  - In a vocabulary context it means the development of the vocabulary through its lifetime
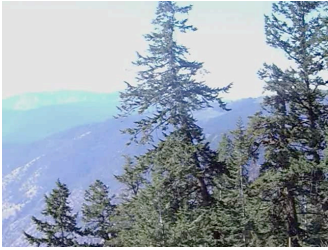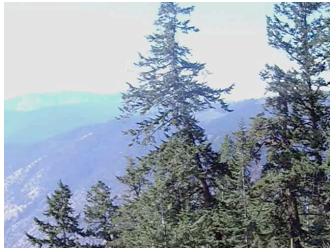
Definitions

- Ontogenesis of vocabularies maps the changes in a vocabulary as it moves from one version to another
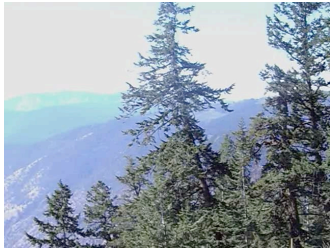
SKOS and the Ontogenesis of Vocabularies

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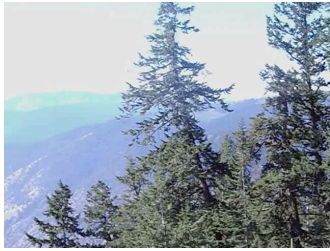# SKOS and Ontogenesis of Vocabularies

- I am providing here an extension to SKOS that helps map the ontogenesis of vocabularies

- skos:changeNote and skos:historyNote don't account, in the Guide, for formal traces between versions of vocabularies
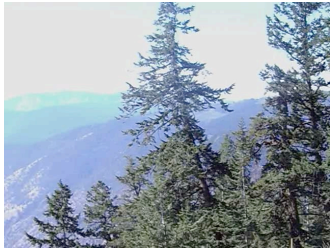
SKOS and Ontogenesis of Vocabularies

- I want to start to make explicit and formal traces between changes in concepts from one version of a vocabulary to another
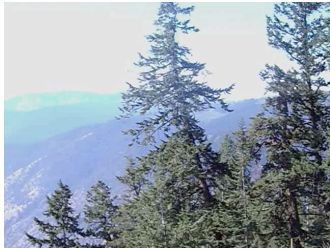
SKOS and Ontogenesis of Vocabularies

- I want talk about:
  - Lumping
  - Relationship Changes
  - Refining

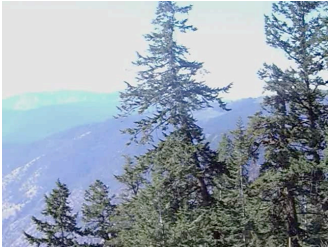# Types of Ontogenesis

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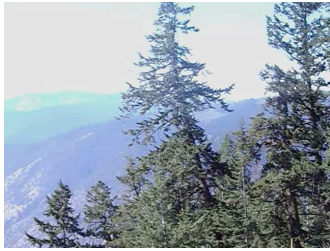jtennis@interchange.ubc.ca

Types of Ontogenesis

- Using the DC Metadata Thesaurus
  - Changes from 2002 to 2003 [2,3]
- Writing this in Turtle [4]
  - skos:Concept "metadata applications"
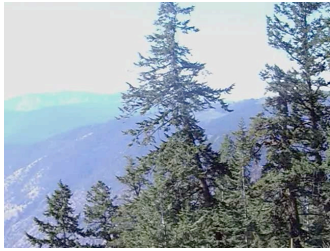- Lumping, Relationship Changes, and Refining

Types of Ontogenesis

- Lumping
  - Pulls together two concepts

- We want to keep track of the fact that they were different in 2002 (term list), and now they are the same in 2003 (thesaurus)

Types of Ontogenesis

- dc2002 Terms:
  - (a)   metadata harvesting
  - (b)   Open Archives Initiative

- dc2003 Metadata Thesaurus
  - (a) Open Archives Initiative Protocol for Metadata Harvesting
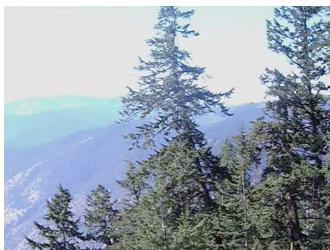
Types of Ontogenesis

- Lumping

dc2002

   skos:Concept "metadata harvesting"
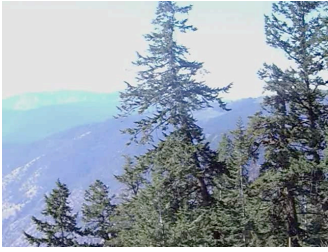
   skos:Concept "Open Archives Initiative"

Types of Ontogenesis
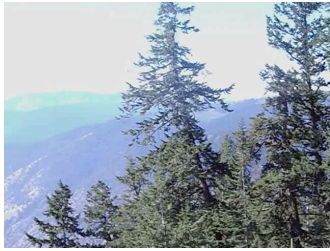
- Lumping cont.

dc2003

  - skos:ConceptLump "Open Archives Initiative Protocol for Metadata Harvesting"

  - skos:ConceptLumpTrace "metadata harvesting"

 - skos:ConceptLumpTrace "Open Archives Initiative"

Types of Ontogenesis

- Relationship Changes
  - When a term in a vocabulary moves from an **associative relationship** to a **hierarchical relationship** [5]
  - Associative = related in some way
  - Hierarchical = on term has a broader meaning and the other has a more narrow meaning

Types of Ontogenesis

- Relationship Changes cont.

- dc2002 Terms

    (a)   applications

    (b)   web services

- dc2003 Metadata Thesaurus

    (a)   Applications

         NT Web Services
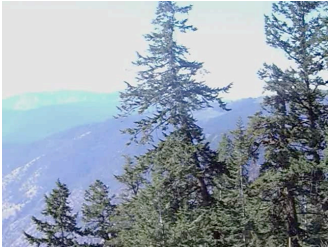
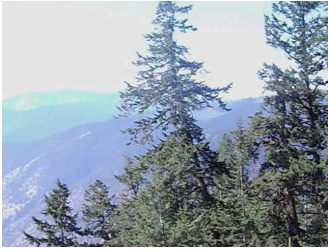# Types of Ontogenesis

- Relationship Changes cont.

- dc2003

    skos:Concept "Web Services"
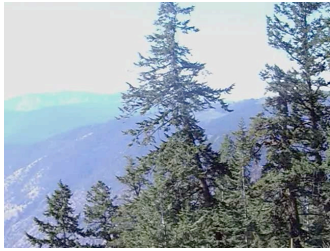
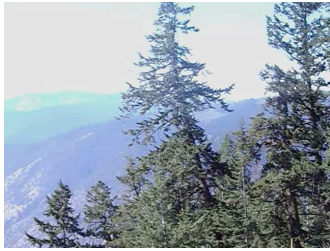   skos:wasRelated "Applications"

        skos:narrower "Applications"

Types of Ontogenesis

- Refining
    - When a term is refined by the addition of another term in the new version of the vocabulary

Types of Ontogenesis

- Refining cont.
- dc2003 Metadata Thesaurus:
  - (a)   Cultural Heritage

    [no other concepts]

- dc2004 Metadata Thesaurus
  - (a)   Cultural Heritage

    NT Sekisui-zu

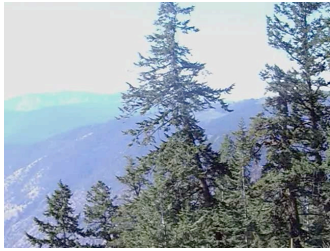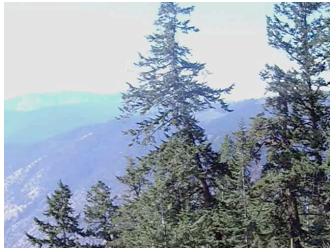(c) Joseph T. Tennis |
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Types of Ontogenesis

- Refining cont.

  skos: Concept "Cultural Heritage"
  skos:ConceptRefinement "Sekisui-zu"

Extending SKOS to Express Ontogenesis

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Extending SKOS to Express Ontogenesis

- These changes from dc2002 to dc2003 required these extensions:
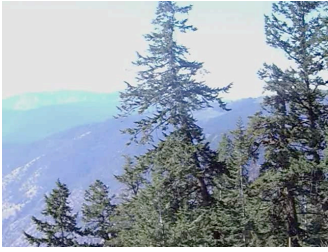
  skos:ConceptLump

  skos:ConceptLumpTrace (2)

  skos:wasRelated

  [used with existing skos:narrower]

  skos:ConceptRefinement

Thank you

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References

[1] A. Miles and D. Brickley. SKOS Core Guide. Available:
http://www.w3.org/2004/02/skos/core/guide

[2] B. P. Allen. DC2002 Terms Available:
http://purl.oclc.org/METADATARESEARCH/dc2002_termsrdf

[3] B. P. Allen and J. T. Tennis. DC2003 Metadata Thesaurus Available:
http://purl.oclc.org/METADATARESEARCH/dc2003_thesaurus.rdf

[4] D. Beckett. *Turtle – Terse RDF Triple Language*. Available:
http://www.ilrt.bris.ac.uk/discovery/2004/01/turtle/

[5] J. Aitchison, A. Gilchrist, D. Bawden. *Thesaurus construction and use: a practical manual.* 4th edition. Fitzroy Dearborn Publishers, Chicago. 2000.