The Melting Pot of Information

Enabling Multiple Perspectives including Auditing

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Fifth Semantic Interoperability Conference, MITRE Conference Center
Semantic Interoperability vs. Multiple Perspectives
  ▶ Contradictory Requirements
  ▶ A solution: The Data Projection Model

A use case: Auditing Information
  ▶ Where do Topics come from in IRS Tax Map?
Contradictory Requirements

- Information is a mess – and will always be!
  - We need to handle the mess, not deny it.

- We are all different – and will always be!
  - One format, one schema for all: forget it! There are many different things we want to do, and there are multiple ways in which we can view the information.

- Information comes from everywhere --and will always do.
  - We need information that can be trusted.
  - Especially from government sources...
Proposed Solution

- Every information item is a step in a process.
- All processes can be expressed as a set of one-to-one relationships.
- This is the same idea which is at the core of RDF, Topic Maps and other graph-driven information models. Back to the core!
- From the elements, rebuild views with multiple perspectives.
Integration of taxonomies, ontologies, emanating from various sources, various people, at various times.

Creation of specific views for specific purposes: including maintenance, quality control, reporting, auditing
Google “Whatever”. Do you care?

Whatever - [ Translate this page ]
The Scalzi.com listing lists 1192 blogs linking to me, while the Whatever listing features 1140, which puts both listings in the 1000 range for most popular ...
www.scalzi.com/whatever/ - 100k - 1 Oct 2006 - Cached - Similar pages

Whatever: Being Poor
Scalzi’s latest post on The Whatever is thought provoking for all of us who are just ...
Being poor, from Whatever: Being poor is knowing exactly how much ...
www.scalzi.com/whatever/003704.html - 360k - Cached - Similar pages

www.whatever.com/
Similar pages
:: whatever.com.sg
Offering yoga classes and retreats. There is also a bookstore and cafe.
www.whatever.com.sg/ - 73k - Cached - Similar pages

Whatever. Whenever
E pluribus unum

- Provide a hospitable environment for items to coexist and connect with each other, even from different origins.
- Enable freedom of speech: various perspectives on the same information objects.
- Provide accountability, transparency, so that clear policies can be established.
- Sounds familiar?
Interoperability in Two Steps

- **1st step**: decompose a system into its elementary processes expressed as binary relationships
  
  Example: `< 2 | + | 3 >`
  
  **PERSPECTOR**: `< x | o | y >`
  
  x operand, operator, y operand

- **2nd step**: rebuild views integrating the components.
  
  - Each view conforms to a given perspective.
  - Multiple perspectives possible.
Perspective

- Perspective = methods to represent 3-dimensional space on a flat surface.

- Geometry: laws of perspective express what's invariant given various points of view.
3D Reality
2D Projection on a plane.
Perspective expresses projection from 3D to 2D.

Multidimensional (nD) models
Binary Relations Form a 2D-like space.
Perspectives appear when viewing projected data expressed as binary relations.
Information systems can be made accountable the same way financial information is.

Auditing Information = Viewing information within one given perspective.
  ▶ Auditing is no more than one particular way of navigating information.
IRS Tax Map

- Electronic Research Tool for assistors in call centers & taxpayers
  - Network navigational model (Topic Map)- Enables research by subject.
  - Easy to use. Doesn't require any change in the workflow.
  - Uses combination of automatic processes/manual input.

- Contains:
  - Forms/Instructions, Publications, Tax Law FAQ, Tele-Tax Topics

- Built on XML/SGML work.

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Income Earned Abroad

Publication 593 - Tax Highlights for U.S. Citizens and Residents Going Abroad - Income Earned Abroad

Index

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5 | URL | ts0/tp6717.htm
U.S. Citizens and Resident Aliens Abroad
American citizens abroad
Living Abroad

Forms and Instructions

Form 2350 Application for Extension of Time to File U.S. Income Tax Return

Form 2555 Foreign Earned Income

2555 Instructions

Related Publications

Publication 54 Tax Guide for U.S. Citizens and Resident Aliens Abroad

Publication 516 U.S. Government Civilian Employees Stationed Abroad

Publication 593 Tax Highlights for U.S. Citizens and Residents Going Abroad

Related Topic Links
› Alien, Resident
› Bona Fide Residence Test
› Employment Abroad
› Foreign Corporation
› Foreign Income
› Income Earned Abroad
› International Issues
› Physical Presence Test
› U.S. Citizen
› U.S. Citizens and Resident and Nonresident Aliens
› VISA Status
# Living Abroad

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Three Words In Common - Rule

Topics that have three words in common get automatically related.
Applications

● Generalization
  ▶ Record processes involved, expressed with a common notation.
  ▶ Some processes are contained into standard applications: hierarchy in XML documents, taxonomies, relational databases, etc.

● Applicability:
  ● Semantic Integration
More Information

- http://www.infoloom.com

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