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SDForum – Emerging Technologies Panel

Ontology vs. Folksonomy, Tortoise and the Hare?

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Ontology vs. Folksonomy

Two industry memes are seemingly at odds, but are they mutually exclusive?

INDUSTRY POPULARISMS	REALITY
1. *Web 2.0 leverages dynamic, folksonomy tagging*	**There is no mutual exclusivity!**
2. *Semantic Web relies on rigid, top-down ontology*	
3. *Web 2.0 captures group intelligence*	**Folksonomy is merely a simplistic, emergent TYPE OF ontology**
4. *Semantic Web is a top-down and ivory tower design*	
5. *Web 2.0 is new technology fueling new markets*	
6. *Semantic Web is limited to deductive logics*	
7. *Web 2.0 is simple*	
8. *Semantic Web is too difficult for it to catch on*	
9. *Web 2.0 is the Semantic Web for today*	
10. *Semantic Web is a dream far off in the future*	

Debunking Conventional Wisdom

MYTHOLOGY

1. *Web 2.0 leverages dynamic, folksonomy tagging*
2. *Semantic Web relies on rigid, top-down ontology*

REALITY

Web 2.0 also relies on data models and schemas from databases, XML content, UML and other object technologies…

Semantic Web ontologies ARE POLITICALLY AGNOSTIC…they can be developed, adopted, and controlled in:

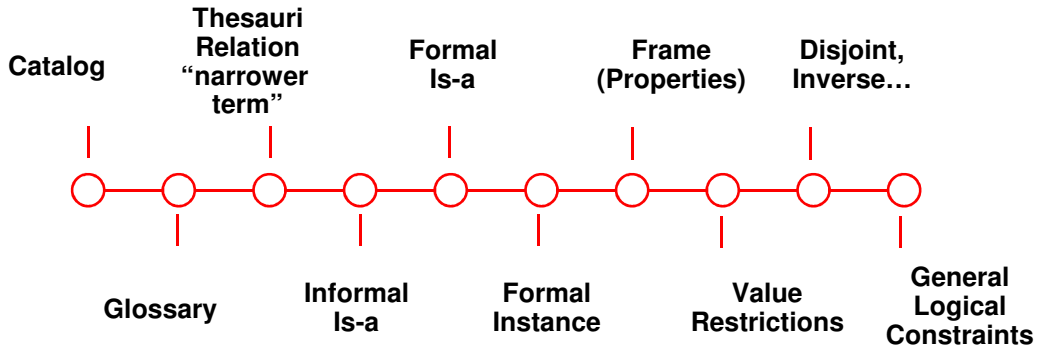
- *Anarchies – ontology may be mob-driven or automatically generated*
- *Democracies – ontology can be created/adopted by teams of equals*
- *Republics – ontology can be created/adopted with checks & balances*
- *Autocracies – ontology can be top-down and mandated by authority*

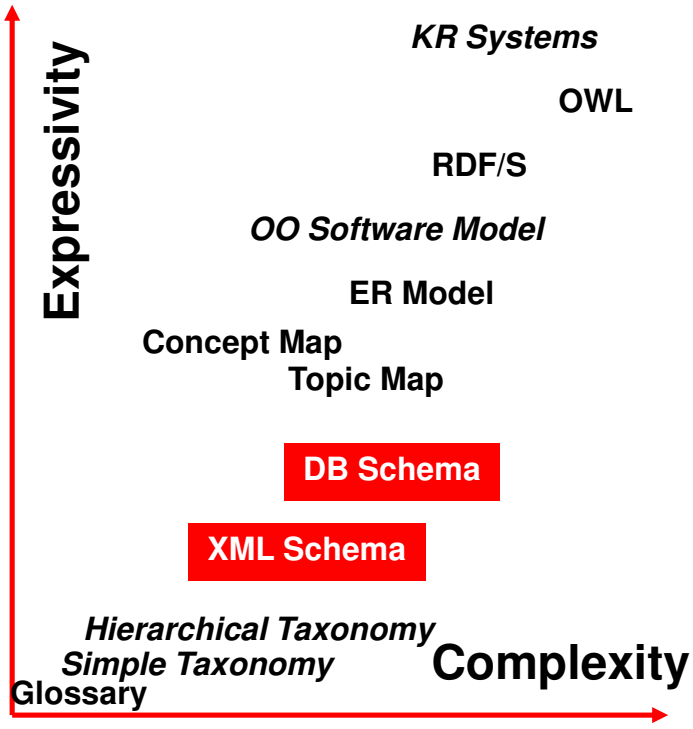
The Big Picture on Metadata

...Data Formats Are Measurable By Expressiveness [1]

Schema:

The Greek origin means, "shape." More commonly to mean, a description of the structure of data. The less expressive a schema, the more meaning goes into the code.





Debunking Conventional Wisdom

MYTHOLOGY

3. *Web 2.0 captures group intelligence*
4. *Semantic Web is a top-down and ivory tower design*

REALITY

Web 2.0 is a powerful movement, predominantly focused in the consumer-oriented online community. The principles of Web 2.0, largely defined by Tim O'Reilly, are admirable examples of user-centric design and the accompanying technology makes it easer for HUMANS TO FIND MEANING IN THE WEB.

Semantic Web has been a long-brewing effort to achieve more efficient ways for MACHINES TO FIND MEANING IN WEB-BASED DATA.

Debunking Conventional Wisdom

MYTHOLOGY

6. *Web 2.0 is new technology fueling new markets*
7. *Semantic Web is limited to deductive logics*

REALITY

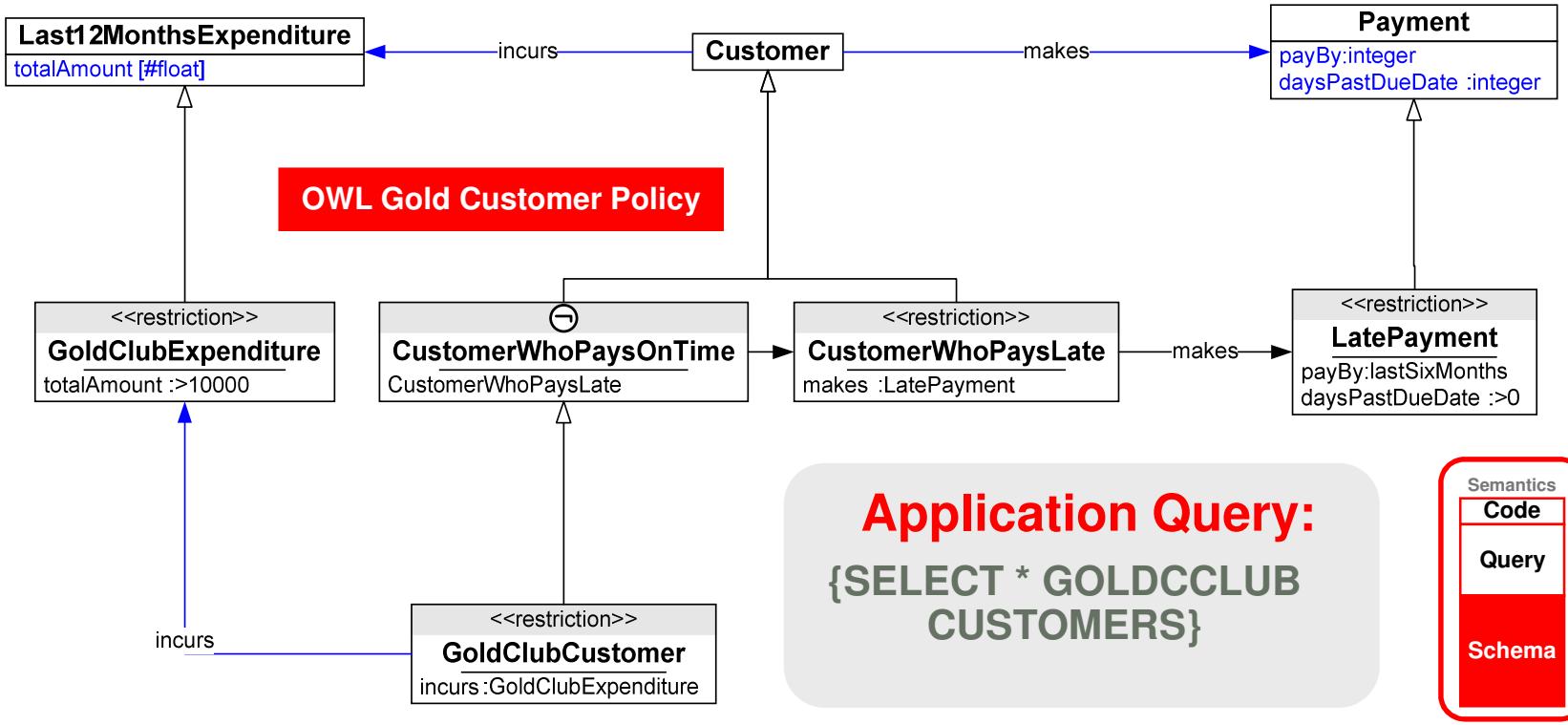
Wired Magazine, March 2007, "GOOGLE BAIT … today's [Web 2.0] startups are built, by design, on small ideas – simple snippets of code novel enough to lure a big fish."

Semantic Web is 30 year old new technology (graph data, semantic nets, and frame systems) RECONSTITUTED WITH WEB D.N.A. There is no computational limit to the type of logics or rules (deterministic, non-deterministic, deductive, inductive, abductive, etc) that may be applied to Semantic Web data.

Expressivity = Policy, Rules, Logic

Expressivity in a Schema Insulates Apps From Change [2]

Policy: GoldCustomers - those customers that have been spending more than $10000 in the past 12 months - except those that have not paid their bills at least once in the past 6 months.



Application Query:

{SELECT * GOLDCCLUB CUSTOMERS}

Debunking Conventional Wisdom

MYTHOLOGY

7. *Web 2.0 is simple*
8. *Semantic Web is too difficult for it to catch on*

REALITY

Web 2.0 ideas may be simple to understand, and they may improve the simplicity of how humans use web pages, but it IS NOT ANY SIMPLER TO WORK WITH VAST AMOUNTS OF DATA than any other programming technology – it's still hard to map all those data tables to screens and find exactly what you're looking for.

…that's what they said about the relational database, object technology, etc. back in 1990. Professional programmers are smart enough to deal with it.

Debunking Conventional Wisdom

MYTHOLOGY

9. *Web 2.0 is the Semantic Web for today*
10. *Semantic Web is a dream far off in the future*

REALITY

Web 2.0 implementations may indeed be the 'Consumer Semantic Web' for today (FOAF enabled social networking for example) but WEB 2.0 CANNOT SOLVE THE CHALLENGES that Semantic Web technology was created and funded to solve.
(cite: DARPA, Geospatial, Pharma, etc. originating use cases)

Semantic Web is happening. The R&D stage is over, Early Adopters are executing on the vision. You can buy Semantic Web software from 30+ vendors TODAY.
(but, yes, that "giant database in the sky" is probably a few years off ;-)

Observational Hypothesis

Hypothesis: Web 2.0 businesses are easier for VC's to grok, SW businesses tackle problems that are too hard

OBSERVATIONS

- *Web 2.0 companies that I've seen*
  - *A. Seem to predominantly cater to Internet consumers*
  - *B. Seem to rely predominantly on ad-based revenue models*
    - Or subscription-based, or none at all…
  - *C. Seem to have an easy (ish) time getting angel/a round funding*
  - *D. Seem to sell relatively early or fade away*

- *Semantic Web companies that I've seen*
  - *A. Seem to predominantly cater to enterprise software markets*
  - *B. Seem to rely predominantly on high license-fee revenue models*
  - *C. Seem to have a hard time getting angel/a round funding*
  - *D. Seem to last several years, but have difficulty "breaking-out"*

Potential Semantic Web Market Impact

Semantic Web impacts the way existing markets cope with exponentially data volume and complexity

Horizontal Market Scope

- *Integration (including SOA)*
  - *Process Integration, Data Integration, Data Quality, Message Integration, Metadata Repositories*
- *Enterprise Search*
- *Business Rules*
- *Master Data Management*
- *Enterprise Content Management*
- *Decision Support / Business Intelligence*
- *Infrastructure Management*
- *Hardware / Parallel Processing*
- *Mobile Computing*

Market Value

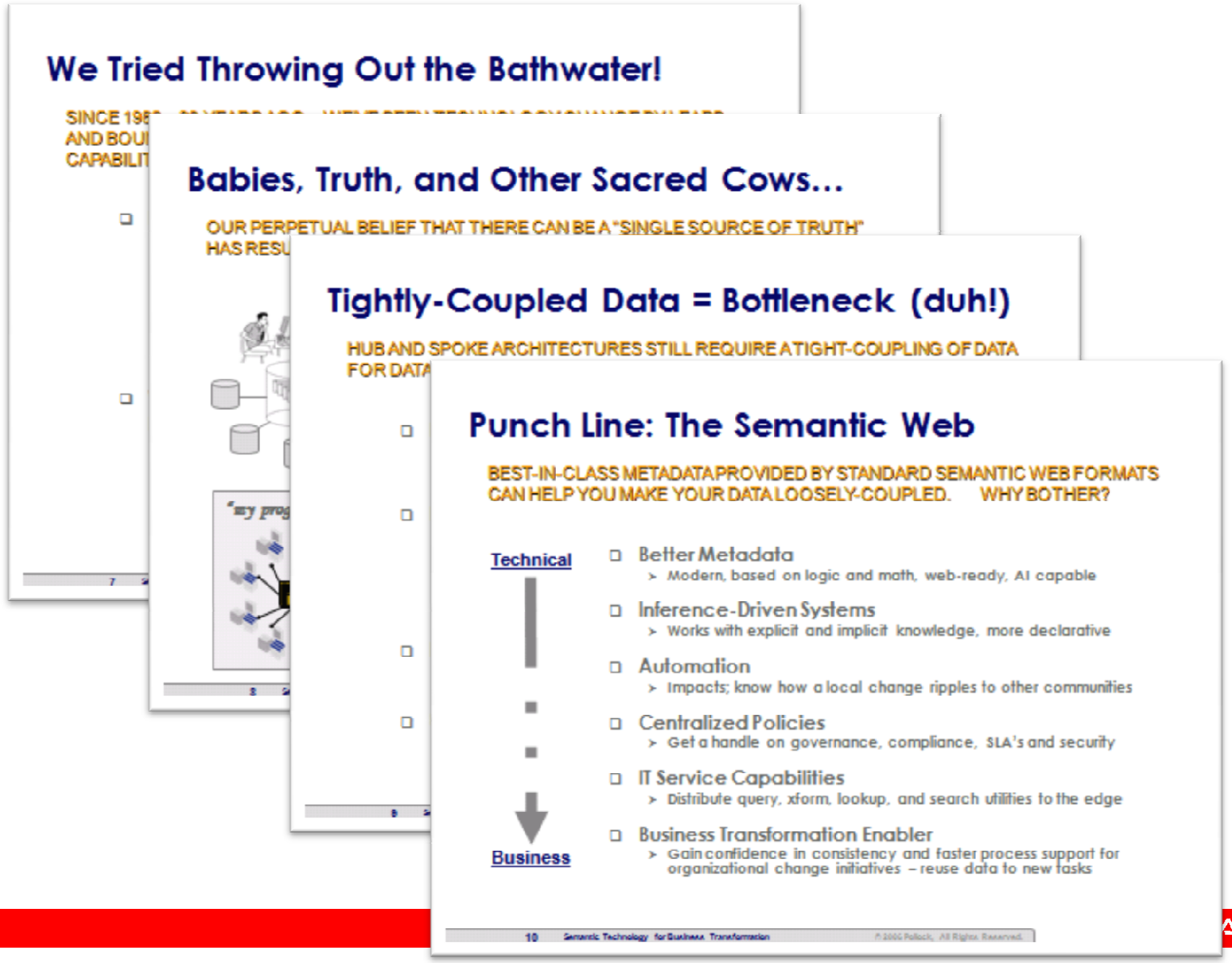
The total market value is defined by the degree to which new efficiencies are created within existing markets:

$$$ Trillions?

SW software market revenues alone have been projected at:

$52.4B by 2010 [3]

Jeff Pollock: “Enterprise Semantics” [4]



Project 10x: “Huge Market Potential” [3]



Predictions

Web 2.0 hyperbole will fade from public consciousness

- *Lingering value from interactive Web widgets, personalization, and the value of "hive thinking" will remain an embedded part of everyday experiences (**more**: "Cisco buys Tribe.com")*

Semantic Web hyperbole will remain unfulfilled in the next decade, prompting critics who will say, "just another failed AI technology…"

- *Meanwhile, Semantic Web specifications (RDF, OWL, etc.) will infiltrate most desktop, enterprise, and web software and become the preferred choice of metadata for professional programmers (**more**: "webMethods buys Cerebra")*

Big ideas (or lucky little ones) that make 5 guys in a garage rich will remain just as elusive as they've always been
*(**neutral**: "Google buys YouTube.com for billions")*

Pundits will eventually realize human interaction is different than machine interaction – and that only machine interaction can enable meaningful automation
*(**less**: "Web 2.0 is today's Semantic Web"*


Q&A

1. Kendall, Elisa. ODM Presentation,
   Object Management Group 2006
2. Pollock, Jeff. Enterprise Semantic Web,
   Semantic Technology Conference 2006
3. Davis, Mills. Executive Guide to Billion Dollar Markets
   Technology Whitepaper, 2006
4. Pollock, Jeff. Data Bottlenecks, Beyond the Hub & Spoke,
   Business Transformation Conference 2006

