Why Are We Here?

- Semantic Web and semantic technologies are increasingly becoming mainstream topics
- Engineers/Developers naturally want to learn more about them
- Traditional Semantic Web initiation methods aren’t engaging, functional
  - Web 2.0 is much easier to jump start
    - Blogs, YouTube, Twitter, Google Maps, AJAX-enablement, mashups, heavy community involvement, …
- Easier than you think
Where’s The Love?

- RDF vs. Microformats
- Academics vs. Common Man Publisher
- Machine vs. Human Readability
- Reinvention vs. Reuse (DRY: Don’t Repeat Yourself)
- Completeness vs. Usability
- Expressivity vs. Simplicity

The focus today is learning, not choosing
Meager Beginnings

- You read/hear about the Semantic Web
  - eBay, Yahoo! is incorporating RDF on a large scale
  - Decide to take it for a test spin

- Typical starting points:
  - Learn about RDF, RDFS, jump into OWL
  - Fire up Protégé: pizza, wine (!)
  - Write an ontology
  - -- Insert Magic Here --

There has to be a better way!
Three Steps To Semantics

1. Identify the information, relationships that you’d like to model

2. Select one or more of the following syntax/technologies to propagate your data

3. Upload it to the Web!
POS\text{H}

- **Plain Old Semantic HTML**
- **Subset of HTML 4.01/XHTML 1.0** that focus on *semantics vs. presentation*

- Elements and Attributes

<table>
<thead>
<tr>
<th>Semantic</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;h1&gt;</code>, <code>&lt;h2&gt;</code>, etc...</td>
<td><code>&lt;p&gt;</code></td>
</tr>
<tr>
<td><code>&lt;... caption ...&gt;</code></td>
<td><code>&lt;i&gt;</code></td>
</tr>
<tr>
<td><code>&lt;... class ...&gt;</code></td>
<td><code>&lt;br&gt;</code></td>
</tr>
<tr>
<td><code>&lt;... title ...&gt;</code></td>
<td></td>
</tr>
</tbody>
</table>
POSH Checklist

• Validate, Validate, Validate!
• Bypass `<tables>` for presentation, spacer GIFs
• Goodbye `<B>ed and `<Br>`eakfast
• Anorexic (Empty) Anchors
• Semantically-helpful class names
  • Just like Cool URIs
  • Design for the long haul, shouldn’t change
  • Human and machine readable

1http://microformats.org/wiki/posh
XFN Friendliness

- XFN: XHTML Friends Network
  - Not W3C Semantic Web standards based
  - Lightweight, few rules/values, limited functionality
  - Let endpoints reuse existing URLs (focus on relations)
  - Success is in its simplicity!

- [http://gmpg.org/xfn/11](http://gmpg.org/xfn/11) for specification
- [http://gmpg.org/xfn/creator](http://gmpg.org/xfn/creator) to create XFN links
- Solid community use
Create FOAF Profile

- FOAF: Friend of a Friend
  - Specification for people, social relationships
  - v0.91, http://xmlns.com/foaf/0.1/

- Create with foaf-a-matic but I really like foaf-O-matic

- Handles most of the ‘stable’ and well-known entities of FOAF

- Creation of RDF-based description about YOU
  - Google’s Social Graph API will do the heavy lifting
Google Social Graph API

- Let’s pretend I’m Tim Berners-Lee
- Published FOAF, blog – linky goodness!
- Utilize Google’s crawlers, indexing, Timely representation of relationships
  - Concentration on FOAF, XFN
- Demo: [Google Social Graph API](#) with result
Google Social Graph API

{
  "canonical_mapping": {
    "http://www.w3.org/People/Berners-Lee/": "http://www.w3.org/People/Berners-Lee/",
    "http://www.w3.org/People/Berners-Lee/card#i": "http://www.w3.org/People/Berners-Lee/card#i"
  },
  "nodes": {
    "http://dig.csail.mit.edu/breadcrumbs/blog/4": {
      "attributes": {
      },
      "claimed_nodes": [
      ],
      "unverified_claiming_nodes": [
      ],
      "nodes_referenced": {
      },
      "nodes_referenced_by": {
        "http://deeptest.wordpress.com/": {
          "types": [
            "colleague"
          ]
        },
        "http://electrica.wordpress.com/": {
          "types": [
            "colleague"
          ]
        },
        "http://isegserv.ird.ri.ac.uk/blogs/alistair/": {
        }
      }
    }
  }
}

Resulting output is in JSON

- AJAXy
- Readable
- Lightweight
- Widespread

Three Steps to Semantics!
eRDF

- Embedded RDF
- Strong feel of XFN but more extensible
- Great middle ground for RDF & Microformats
  - Embedded in HTML/XHTML
  - Don’t repeat yourself
  - Compliant RDF triples
- Main website: Talis
- Slides from Xtech 2006
eRDF

- No autogenerator (that I’ve found)

- Main Concepts:
  - Profile
    
    
    `<head profile="http://purl.org/NET/erdf/profile">

  - Schema declarations
    
    `<link rel="schema.dc" href="http://purl.org/dc/elements/1.1/" />

  - `<meta>` for literals, `<link>` for objects
    
    `<meta name="dc.creator" content="Matt Fisher" />

    `<link rel="foaf.knows" href="http://www.daml.org/people/mdean/" />

- Don’t see any strong use since 2005 announcement
RDFa

- Part of the Semantic Web Deployment WG
- **Syntax Last Call, Primer** released in Feb, Mar 2008
  - *Subject* is generally indicated using @about
  - *Predicates* are represented using @property, @rel or @rev
  - *Objects* are represented using @href, @resource or @src
  - *Literals* are represented either with @content or the content of the element in question.

- CURIEs (Compact URIs) are handy, intuitive, allow for relativity
  
  ```xml
  <div xmlns:db="http://dbpedia.org/">
  <div about="[db:resource/Albert_Einstein]">
  ```
RDFa in Action

- Create **XHTML page from FOAF file**
- Utilize Firefox **Operator** add-on with **Jack Bauer’s page**
- Three Steps to Semantics!
GRDDL

- Gleaning Resource Descriptions from Dialects of Languages
- W3C Recommendation

Working Group Mission

...complement the concrete RDF/XML syntax with a mechanism to relate other XML syntaxes (especially XHTML dialects or "microformats") to the RDF abstract syntax via transformations identified by URIs.

Freedom to take any XML that’s “good enough” and realize it as RDF

Welcome to the Semantic Web!
GRDDL

- Use of XSLT to handle transformation of non-RDF XHTML to RDF serialization
  - Could be Java, C, etc…
  - XSLT are made for XML to XML so good fit
  - Use of Tidy HTML to conform pages to XHTML

- Data providers (you!) can provide transformation or rely on profiles developed by others

- Recursive Ability
GRDDL – Owning the RDF

- Markup your pages as desired
  - eRDF, hCard, hCalendar, etc…

- Identify as GRDDL capable
  `<head profile="http://www.w3.org/2003/g/data-view">`

- Specify transformation
  `<link rel="transformation" href="http://www.w3.org/2000/06/dc-extract/dc-extract.xsl" />`

Dublin Core
GRDDL – Powerful Profiles

- Signals to GRDDL Client to find transformation based on URI
  `<head profile="http://purl.org/NET/erdf/profile">`
- Data providers can rely on community to develop, maintain, reuse existing transformations
- Incredible incentive to create semantic pages!
- DRY and plenty of reuse
- Profiles can call other profiles
- Demo: Sample [home page](#) with resulting [RDF](#)
Helpful Hyperlinks

- [www.getsemantic.com](http://www.getsemantic.com)
  - More ‘layman’ access to Semantic Web, wiki-based
- [W3C RDF Validator](http://xml.mfd-consult.dk/foaf/explorer/)
  - Shows ‘neighborhood’ around a FOAF file + usability links
- [Danny Ayer’s GRDDL Quick Reference Guide](http://www.w3.org/2006/08/GRDDL-services/)
  - W3C GRDDL Service
    - Python-based GRDDL Client
In Conclusion…

- The dream of a Web of Data (GGG: Giant Global Graph) is getting closer every day
  - Machine-readable!
  - Community is working at keeping paths convergent
- Semantic Web, just like WWW, is experiencing growing pains
- Get involved!
  - Get a URL, embed your information and share it
- The hardest part? Getting started…

2008 Semantic Technology Conference
May 18-22 — San Jose, California

Progeny Systems
Questions?

Thank You!

http://purl.org/net/mfisher