Semantic technologies

• Structured data is the new SEO?
• Microformats and RDFa
• Some examples
• Semantic web
  – The Semantic Web is the abstract representation of data on the World Wide Web (based on the RDF standards and other standards to be defined).
  – “The Semantic Web is an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation.”
The Current Web

• Resources:
  • identified by URI's
  • untyped
• Links:
  • href, src, ...
  • limited, non-descriptive
• Humans:
  • Characteristics of the documents is (normally) clear to those with a grasp of English.
• Machines:
  • Very little information available.
The Semantic Web

- **Resources:**
  - Common naming syntax (URI's)
- **Links:**
  - Common naming syntax (URI's)
- **User:**
  - Richer user experience
- **Machine:**
  - More processable information is available
- **Computers and people:**
  - Work, learn and exchange knowledge effectively
Semantic technologies

<table>
<thead>
<tr>
<th>Current web</th>
<th>Semantic web</th>
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</thead>
<tbody>
<tr>
<td>URL</td>
<td>URI</td>
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<td>Humans</td>
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<td>Documents</td>
<td>Things</td>
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<td>Text</td>
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<td>Presentation</td>
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<td>Prose</td>
<td>Properties</td>
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<tr>
<td>Links</td>
<td>Relationships</td>
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</tbody>
</table>
Semantic technologies

• Enhance machine interpretation
  – XML: Semiformal documents range between non-formatted texts and fully formatted databases
  – Microformats and RDFa add semantic attributes to existing web content.
  – RDF (Resource Description Framework): Structured metadata describe arbitrary heterogeneous Web pages/objects in a homogeneous manner
  – Machines (e.g. search engines, user agents) can analyze structured data better than full HTML
Search Engine Optimization

- Process of ensuring website is visible
  - Appear among top of search returns
  - Make search more predictable and reliable
- Types of search
  - Sample
  - Existence
  - Exhaustive
- Google Webmaster Guidelines
- Search is the new navigation?
- COI Web standards and guidelines
- Structured Data the new SEO?
Semantic technologies

- Microformats
  - Add limited semantics to HTML
  - Uses class attributes, e.g. ‘div’, ‘span’ tags
  - E.g., `<span class="street-address">London Rd.</span>`
  - `<span class="postal-code">BS99 3PQ</span>`
  - Interoperability through standard microformats, e.g.
  - Elemental microformats (consist of just one tag)
    - Rel-home links to homepage `<link href="http://technorati.com" rel="home" />
    - Rel-License links to content license `<a href="http://creativecommons.org/licenses/by/2.0/" rel="license">cc by2.0</a>`
  - Compound microformats (more complex structures)
    - Often based on existing standard
    - E.g. hCard, hCalendar, hEvent, hReview

- Microformats in Google Maps + Operator
Organization of information

• Separation of content and presentation
  – Promotes machine readability
  – Aides distinguishing things that are presented in the same way, but have different meaning
  – Content can be presented on a number of device
  – Example from Wikipedia
Organization of information

- **Classification**
- **Taxonomy**
- **Folksonomy**
- **Ontology**
  - RDF lets you make statements about things but doesn’t say what they mean.
  - Ontology is a formal representation of the knowledge by a set of concepts within a domain and the relationships between those concepts. It is used to reason about the properties of that domain, and may be used to describe the domain.
Semantic technologies

- RDFa
- Resource Description Framework in attribute
- Is a W3C recommendation extension to XHTML
- Significantly simpler than RDF
- Easy to transform RDFa into RDF data.
- **RDFa primer** from W3C

- [RDFa on Drupal](#)
- [W3C recommendation](#)
Semantic Technologies

- Examples:
  - Facebook [Open Graph protocol](#)
  - [Google Rich Snippets](#)
  - [Semantic Drupal](#)
  - [Siri by Tom Gruber](#)
  - Semantic web