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## SEMANTICS AND CONTEXT

# Future Interfaces: Semantic Web User Interaction

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We hear that the Semantic Web is coming – do you realize it’s already here? Many sites are now “semantically-enabled,” but does this affect user experience? What new interfaces are available from the research labs? This year, Web 2.0 and data entry/management are hot. It is becoming part of the new data foundation of the web – witness Yahoo’s announcement in March 2008 that they are going to start processing semantic data formats in their search crawlers, offering a huge incentive for people to begin publishing semantic data along with their web content. However, some of the old questions remain: Why do it? How might the user interact with a fully realized Semantic Web? What do we need to consider?

*Get the latest information:* Current references and information about user interaction for the Semantic Web, materials from this and other talks, and links to example applications that will demonstrated, can all be found at: [www.ipgems.com/swui](http://www.ipgems.com/swui) and [swui.webscience.org](http://swui.webscience.org). The presentation slides are available online at: [www.ipgems.com/present/swui\\_pres\\_2008.html](http://www.ipgems.com/present/swui_pres_2008.html).

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## What can we gain by using semantics?

If we think of the challenges and limitations we have when designing currently to meet user needs, then we need to think about how the Semantic Web can help us by providing:

- Greater user context available to make application/site behavior more user-centered
- More flexible and adaptive language parsing and “understanding” to make the conversation with the computer more effective
- Better visualizations and representations of complex data and interactions
- Availability of agents that can manage routine background tasks and reduce the need for users to hunt and search among thousands, millions, or billions of items of information without adequate support
- Sharable ontologies and vocabularies, allowing all the applications and sites that a user sees to speak a “similar language” and reducing the demand on the user to interpret language when trying to complete a task that requires more than one site or application at a time
- Logical inferencing that can help synthesize information from disparate sources, compare and organize that information, then present it to the user in a more seamless way, reducing the cognitive burden
- Support for user concerns about privacy and traceability of information, given the greater ability to integrate and mash-up information that could be possible.

While it entices us, it also challenges us to consider *where* and *how* “semantic enabling” user interactions will allow for increasing usability of the web and other software applications. It also challenges us to consider the risks and complications that arise from these technologies, and the role we need to play as user advocates and representatives in the ongoing development of these technologies.

*This paper is an outline of ideas presented at the UPA international conference, Baltimore, MD., June 19, 2008.*

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## Some of the topics that will be discussed and illustrated in demonstrations

### User concerns and issues: personalization, privacy, establishing trust relationships

- Personal data to support personalization
- Impact on privacy and “informed consent”
- Structures for data, provenance, and consent in social spaces – long-term questions

### Business concerns and issues: value and effort

- Enabling interaction between applications and content that are not easy/possible today
- Reducing the cost of “not knowing” important information
- Challenges and capabilities when maintaining semantic metadata and relationships

### Browsing, faceted browsing, visualizing link/data browsing

- Current approaches to faceted browsing
- Interesting/varied Semantic Web applications, navigation, and visualizations
- Increasing potential to blend personal and public information spaces for greater context

### Searching and filtering

- Search engines and a whole new wave of changes/innovations
- Metadata-driven search and semantic-driven search, results presentation

### Viewing content

- Metadata appearing on content pages
- Mixing authored content with social/annotated content

### Finding, using and sharing data/vocabulary

- Publicly available vocabularies, taxonomies, and ontologies
- Searching for Semantic Web resources (RDF, OWL data sets)

### Attaching semantic metadata to content

- Lightweight tagging, annotation, and interpretation of data, including background-level collection of context data
- Significant new sites for tagging, social tagging... from informal to formal representations
- Evolution of semantic wiki categorization interfaces
- Annotation and assigning terminology from an ontology
- Concept extraction and automated support to identify keywords in content

### Ontology management, including representation and visualization

- RDF data creation
- Ontology development tools and visualization

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## Further exploration

- Degler, D. (2007). *What you should know about the Semantic Web*. User Interaction (UX) magazine. Vol 6, Issue 2, pp. 24-26. June 2007. (available online for UPA members)
- Duane's overview and links page for Semantic Web reference info. [www.ipgems.com/swui](http://www.ipgems.com/swui)
- **Semantic Web User Interaction Workshop Series**. Five workshops held at various conferences since 2004, including CHI, the International Semantic Web Conference, and the World Wide Web conference. The workshops provide current information on new interaction techniques and research for the Semantic Web.  
<http://swui.webscience.org>
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[http://www.designforcontext.com/publications/dd\\_semweb-ui\\_upa200806.pdf](http://www.designforcontext.com/publications/dd_semweb-ui_upa200806.pdf)

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