

# **Semantic Web, “Web 2.0”, and Beyond: Why All This Really Matters**

**Ora Lassila**

**Research Fellow, Nokia Research Center Cambridge**

**Visiting Scientist, MIT Computer Science & Artificial Intelligence Laboratory**

**Elected Member of Advisory Board, World Wide Web Consortium**

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# Ingredients of my talk:

- **Technology (a little)**
- **Vision (a bit more – I hope)**
- **Attitude (even more – sorry...)**

# What do we really want...?

- **(from information & communications technologies)**
- **Things have gotten out of hand**
  - technology is hard to use
  - technology does not serve us (quite the contrary, in fact...)
- **We use technology the way we use tools**
  - (e.g., a hammer)
- **Why don't computers work on our behalf?**
- **This is particularly true of personal computing**

# I believe it is all about data

- **Current applications/systems “imprison” data**
  - users are not in control
  - same is true for “content”
- **Crossing application boundaries is hard**
  - particularly if systems in question were not designed and engineered to interoperate
- **Ongoing attempts that try to “free” data**
  - “Web 2.0”
  - Semantic Web

# “Web 2.0”

- **More a social rather than a technical development**
- **New social phenomena**
  - blogs, wikis, mashups, users as “content producers”
  - tags, folksonomies, mass creation of structure and meaning
  - the “Long Tail”
- **Some new technical stuff**
  - “rich user experience”, AJAX
  - “new” kinds of data (e.g., microformats, RSS)
- **Plays “fast and loose” with standards**
  - whatever you manage to deploy becomes a standard

# “Web 2.0”

- **Version numbers are stupid**
  - misguided philosophy (Web evolves)
- **Lots of marketing**
  - little new technology
  - (note: HTTP and HTML still rule...)

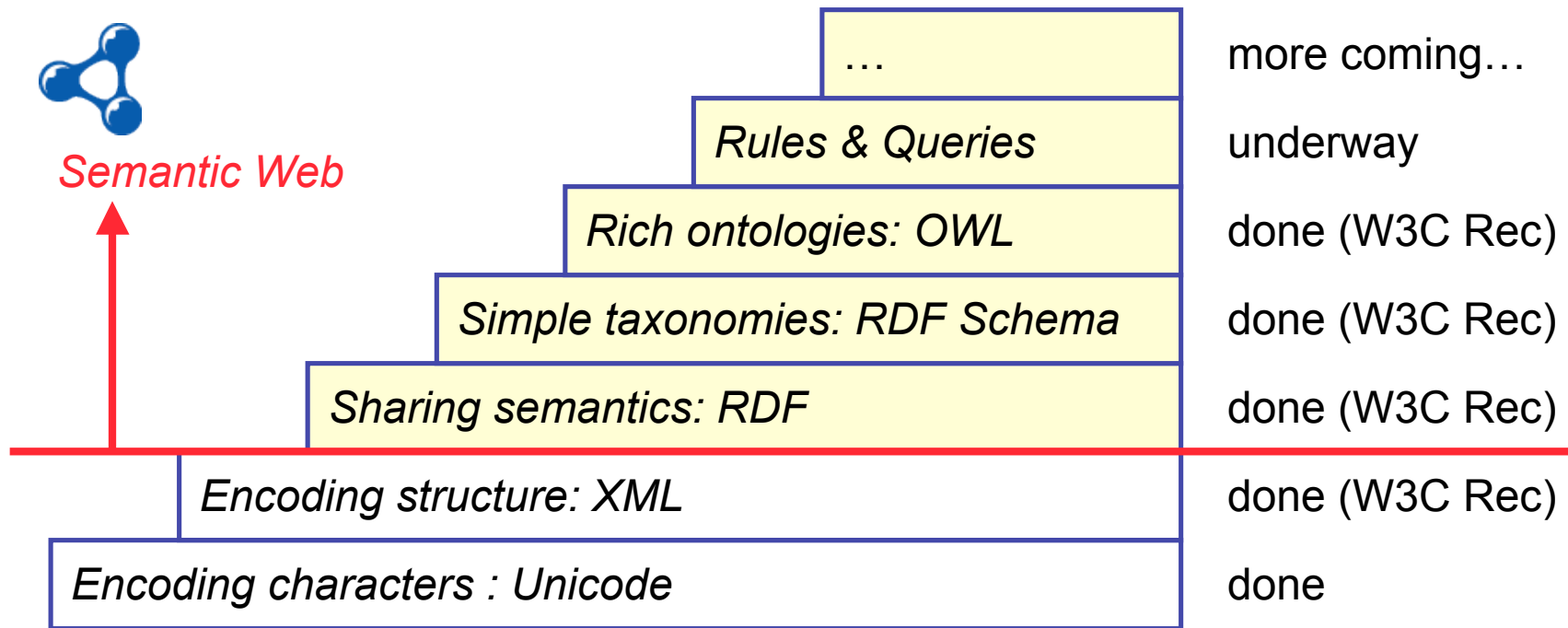
*I just wanted to say how much I've come to dislike this “Web 2.0” faux-meme. It's not only vacuous marketing hype, it can't possibly be right. [...]*

*- Tim Bray (one of the creators of XML), August 2005*

# What is the Semantic Web...?

- **Attempt to enable automation of tasks on the Web**
  - this is difficult, since all content is intended for humans
  - we need “machine-friendly” content
- **Approach: Content with accessible formal semantics**
  - use logic as a universal language
  - take advantage of logical inference (reasoning)
  - ontologies as data schemata
- **Drivers**
  - metadata, content rating
  - “open” data, information integration, “mash-ups”
  - automation, agents

# Stepping towards the Semantic Web



- **Semantic Web is built in a layered manner**
- **Not everybody needs all the layers**



# Problematic technology to evangelize

- **Most problems, once you articulate them, will have a non-Semantic Web solution**
  - typical question: “Can I do this just with XML...?”
- **Semantic Web is an interoperability technology**
  - good for “future-proofing”
  - but: what is the monetary benefit of interoperability?
- **Relationship to “Web 2.0” needs to be elaborated**
  - complementary, not adversary
  - e.g., microformats can be a good source of data
  - how do we connect ontologies and folksonomies?

# Semantic Web and Personal Computing

- **Often advertised as “no humans in the loop”**
  - this technology is very “user-oriented”, however
  - ultimately, it is about giving users more control
- **Interesting application areas & developments**
  - PIM data – “Semantic Desktop”
  - Semantic Web services
  - device & system interoperability – ubiquitous computing
- **Basic principles**
  - maximize users’ freedom (e.g., to make use of data)
  - minimize users’ need to deal with (meaningless) details

# NRC Cambridge and Semantic Web

- **Project “Connecting Me”**
  - social networks are central to information management
- **Many applications possible once we have a good model of people and interpersonal relationships**
  - explaining relationships to unknown people, finding people you do not know, etc.
  - expressing policies using interpersonal relationships
- **Implementation involves**
  - running Semantic Web software on the phone
  - rethinking data management



# Summary: Why is all this important?

- **Personal computing technology is hard to use**
  - users' needs are not served
- **Information overload**
  - “thirsty for information, drowning in data...”
  - solutions involve someone else being in control
- **Realization of the ubiquitous computing vision**
  - paradigm shift, but can it really be implemented?
  - (ubiquitous computing as an “interoperability nightmare”)

# Questions? Comments?

- <mailto:ora.lassila@nokia.com>