## Purpose of this lecture

* Explain why the Semantic Web looks like Nick introduced it yesterday
* Principles not facts
* You have various backgrounds: in this lecture you should be able to relate to your background. If you do not have a certain background that is not an issue, you can still use the principles without relating to other specific technologies. I need you to work with me to relate to your background

## You know:

Web architecture

Triples

## Examples (from Wednesday lecture):

Dublin core

BBC

Cidoc CRM

SKOS

Provenance

Web annotation

Good relations

## Relating the Web and the Semantic Web

|  |  |
| --- | --- |
| Why do you want to have the Web:   * Share documents * Explore documents * Find documents * Read documents | Why do you want to have the Semantic Web   * Share data * Explore data * Find data * Consume data |
| Organizational constraints for success:   * Application&platform independence * Autonomy of document providers * Identify documents * Relate documents | Organizational constraints for success:   * Application&platform independence * Autonomy of data providers * Identify data * Relate data |
| **Core idea for this purpose:**  **Link documents in the web** | **Core idea for this purpose:**  **Link data in the Web** |
| Core to Web architecture:  Global Identifiers (URIs)  Common document format (HTML)  Internet-based protocol (http) | Core to Semantic Web architecture:  Global Identifiers (URIs / IRIs)  Common data format (RDF)  Internet-based protocols (http, SPARQL)  Application and platform independent |
| What was a good document model?  SGML, XML | What would be a good data model? |

Document model / Data Model

* Be aware of ambiguities of these terms
  + How are my families of documents structured vs how is this document structured?
  + How is all my data structured (data model-1) vs how is a particular subset of data structured (data model-2)?

## What would be a good data model?

Desired Properties

Scale to the web

Linking

Universality: integrate / subsume existing data and data formats

High-level abstraction

What are other data formats?

CSV

Tables / Relational

Tree (XML)

Arrays

Streams

**Graphs**

## High-level abstraction

Which abstraction layers do you know?

Hardware Layers

Von Neumann architecture

Logic circuits

Gates

Transistors

Programming languages

Scala, Haskell, ..

Java

C++

C

Assembler

Machine Language

Data layers

**Conceptual Data Models**

Abstract Data Types

Records

Bytes

Bits

## Link conceptual data models

## Summary

The Semantic Web lets people share and link data

## What you should have learned today

* Few principles explain the core shape of the Web and the semantic web
* Both Web and Semantic Web have ideosyncracies that are not part of these principles, they are not necessary for the success of the Web or the Semantic Web, but happen to be around historically

## Backup

Metamodelling