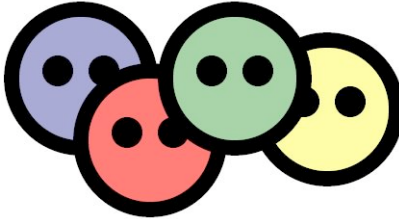# Getting Onto the Semantic Web

- A practical introduction to creating and using semantic metadata
- Motivating example: social networks using **FOAF** (Friend-Of-A-Friend)
- **http://www.csd.abdn.ac.uk/foaf/**

Before You Start

- You'll need a Web browser (and that's all)
- Use **Mozilla / Firefox / Netscape**

- (Not fully tested with Internet Explorer!)

The World Wide Web

- The WWW is a global network of interlinked information
- A piece of information ("Web page", "fragment", **resource**) is referenced by a **URI** (Uniform Resource Identifier)
- On the "traditional" Web, information is designed for direct human consumption: **it is marked-up for people to read**

The Semantic Web

- On the Semantic Web, information is designed for machine consumption: **it is marked-up for software to read**
- The vision: "better enabling humans and computers to work in cooperation"
- Key CS/IS idea: the information exists independently of the various ways it can be processed - it is **meaningful**…

OK, But Where Do I Start?

- Most of us "got onto the Web" by writing a home page
- We used HTML to mark-up things like:
  – who we are
  – a photo
  – things we like and do
  – links to the home pages of people we know
- Now we'll do the same on the SWeb

Creating a "Semantic Homepage"

- Go to **http://www.csd.abdn.ac.uk/foaf**
- Click on Add Your Profile
- Fill out the form
  – the more you say, the more useful the info is likely to be
- Click the OK, Save My Details! button

Finding Friends…

- After submitting your profile, you can browse the data in several ways:
  - from your profile, click things you like (or dislike) and see others with the same…
  - on the main page
    http://www.csd.abdn.ac.uk/foaf/
    - View people on UK map or
    - Browse people by interest or
    - Search by email address or postcode

So Far, So What?

- So far, this is much less than you can get at any **social networking** website
- To see the point, go to your profile page, and click the RDF button:

```
<foaf:Person rdf:nodeID="bNode5">
  <foaf:name>Alun Preece</foaf:name>
  <foaf:firstName>Alun</foaf:firstName>
  <foaf:surname>Preece</foaf:surname>
  <foaf:homepage>http:/www.csd.abdn.ac.uk/~apreece</foaf:homepage>
  <foaf:mbox_sha1sum>1d7e49a9d75b5a9354fc5c22af344848103fcfa5
    </foaf:mbox_sha1sum>
  <foaf:schoolHomepage>http:/www.csd.abdn.ac.uk/</foaf:schoolHomepage>
  <wil:has rdf:resource="http://dmoz.org//Recreation/Pets/Cats/" />
  <wil:has rdf:resource="http://www.whatilike.org/gadget/digital_camera" />
  <wil:likes
    rdf:resource="http://www.dmoz.org/Arts/Literature/Genres/Science_Fiction/" />
  <wil:likes rdf:resource="http://www.dmoz.org/Arts/Literature/Short_Stories/" />
  <wil:likes rdf:resource="http://www.dmoz.org/Arts/Movies/Genres/Comedy/" />
  <wil:likes rdf:resource="http://www.dmoz.org/Arts/Movies/Genres/Cult_Movies/"
    />
  <wil:likes rdf:resource="http://www.london-eating.co.uk/cuisines/pizza.asp" />
  <wil:likes rdf:resource="http://www.london-eating.co.uk/cuisines/polish.asp" />
  <wil:likes rdf:resource="http://www.whatilike.org/travel/train" />
  <foaf:depiction
    rdf:resource="http://www.csd.abdn.ac.uk/~apreece/images/apreece.jpg" />
</foaf:Person>
```

```
Person
  name   Alun Preece
  firstName   Alun
  surname   Preece
  homepage   http:/www.csd.abdn.ac.uk/~apreece
  mbox_sha1sum   1d7e49a9d75b5a9354fc5c22af344848103fcfa5

  schoolHomepage   http:/www.csd.abdn.ac.uk
  has                                Pets/Cats
  has                        gadget/digital_camera
  likes
                            Literature/Genres/Science_Fiction
  likes                        Literature/Short_Stories
  likes                        Movies/Genres/Comedy
  likes                        Movies/Genres/Cult_Movies

  likes                            cuisines/pizza
  likes                            cuisines/polish
  likes                        travel/train
  depiction
              http://www.csd.abdn.ac.uk/~apreece/images/apreece.jpg
```

What Does the Code Mean? (1)

- This code is RDF written in XML
- Tags are defined in RDF Schema "vocabularies"
  - tags beginning **foaf:** are from the **FOAF** vocab, defined at http://xmlns.com/foaf/0.1/
  - tags beginning **wil:** are from the **WhatILike** vocab, defined at http://whatilike.org/ontology

What Does the Code Mean? (2)

- Where possible, URIs are used to name things, rather than plain text
  - literature & movie categories from **dmoz.org**
  - Cuisine types from **london-eating.co.uk**
- This is to promote standardised descriptions (and thus exact matches)

It's Not What You Know…

- Now <u>edit</u> your profile, to indicate <u>who you know</u> (suggest you at least choose **Alun Preece**!)
- Look again at your RDF code, to see the new **foaf:knows** tags - each of these refer to another **foaf:Person**
- You can browse their profiles by clicking their names…

Linking Up…

- So far we've just been browsing a closed system of local data
- Use the side buttons to submit your data to public sites
  - **plink.org**
  - **rdfweb.org**
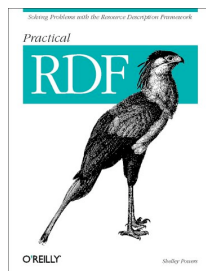- This works only because these sites **"understand"** the FOAF vocab

Summary of Key Points

- Allows definition of standard, open information schemas
- New schemas can extend existing ones
- SW resources can refer to each other, and to "traditional" Web resources
- Info and applications are kept separate
- RDF parsers are widely available
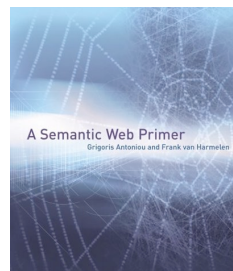- (RDF is founded on a formal semantics)

Semantic Web Pointers

- http://www.w3.org/2001/sw/

Practical RDF, O'Reilly (2003)

Semantic Web Primer, MIT Press (2004)

- http://www.csd.abdn.ac.uk/foaf/