Building a World-Model with RDF

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Think about a current or potential web-based architecture or design project.
Got it? Great. Now, does your project meet any of the following 3 criteria?
1. It involves some structured data.
2. Your data or content *just might* change over time.
3. At some point, you might like to re-use your data in a different format.
Pro tip #1:

Consider building an enterprise-wide world-model.
WORLD-MODEL
Examples of Published World-Models

- Art & Architecture Thesaurus (Getty)
- SNOMED-CT (IHTSDO)
- Dublin Core Terms (DCMI)
- Schema.org (Google/Bing/Yahoo/Yandex)
Pro tip #2:

Consider building it with RDF.
RDF?

Resource Description Framework

RDF
The triple.
Remember middle school language arts class?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Predicate</th>
<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxonomists</td>
<td>like</td>
<td>beer.</td>
</tr>
</tbody>
</table>
We can make lots of these statements.

<table>
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</thead>
<tbody>
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<td>like</td>
<td>beer</td>
</tr>
<tr>
<td>Taxonomists</td>
<td>like</td>
<td>Mountain Dew</td>
</tr>
<tr>
<td>Ontologists</td>
<td>like</td>
<td>beer</td>
</tr>
<tr>
<td>Ontologists</td>
<td>like</td>
<td>coffee</td>
</tr>
<tr>
<td>Information architects</td>
<td>hate</td>
<td>Mountain Dew</td>
</tr>
<tr>
<td>Information architects</td>
<td>enjoy</td>
<td>beer</td>
</tr>
<tr>
<td>Taxonomists</td>
<td>like</td>
<td>ponies</td>
</tr>
<tr>
<td>Kids named Jimmy</td>
<td>like</td>
<td>ponies</td>
</tr>
<tr>
<td>Ontologists</td>
<td>hate</td>
<td>ponies</td>
</tr>
</tbody>
</table>
We can ask questions about the data.

```
SELECT ?subject ?predicate ?object
WHERE { :Taxonomists :like ?object }
```

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</tr>
<tr>
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<td>like</td>
<td>ponies</td>
</tr>
</tbody>
</table>
Or...

```
SELECT ?subject ?predicate ?object
WHERE { ?subject ?predicate :Ponies }
```

<table>
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<tr>
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</tr>
</thead>
<tbody>
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</tbody>
</table>
Anyone can say anything about anything.

Hey, I like ponies too!
Introducing the Healthwise Consumer Vocabulary (HWCV)

- A world-model for health care & wellness
- An enterprise taxonomy for current and future Healthwise information products
- An RDF document with 300,000+ triples describing the concepts we care about and discuss in our content
### A few RDF triples from the HWCV

<table>
<thead>
<tr>
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<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>:HWCV_20705</td>
<td>skos:prefLabel</td>
<td>“Coronary Artery Disease”</td>
</tr>
<tr>
<td>:HWCV_20705</td>
<td>:abbreviation</td>
<td>“CAD”</td>
</tr>
<tr>
<td>:HWCV_20705</td>
<td>:caused_by</td>
<td>:HWCV_20703</td>
</tr>
<tr>
<td>:HWCV_20705</td>
<td>:causes</td>
<td>:HWCV_20706</td>
</tr>
<tr>
<td>:HWCV_20703</td>
<td>skos:prefLabel</td>
<td>“Atherosclerosis”</td>
</tr>
<tr>
<td>:HWCV_20706</td>
<td>skos:prefLabel</td>
<td>“Heart Failure”</td>
</tr>
<tr>
<td>content:abl3279</td>
<td>dct:subject</td>
<td>:HWCV_20705</td>
</tr>
<tr>
<td>content:abl3279</td>
<td>dct:title</td>
<td>“Heart Disease”</td>
</tr>
</tbody>
</table>
How did we build it?

May 10, 1869
The Golden Spike

Consumer-oriented faceted thesaurus

+ Clinically-oriented vocabulary with links to standard medical codes and terms
What is it good for?

- Describing our content [now]
- Taxonomy, content & search APIs [now]
- Coach, Communicate, EMR module [future]
- Knowledgebase [future]
- Health campaigns [future]
mainPoint
A heart-healthy lifestyle can help you manage

fullDetail
You can help prevent coronary artery disease by making lifestyle changes...

Should I Have Bypass Surgery?

"CHD"

Condition

Heart or Vascular Condition

Hardening of the Arteries

Heart Attack

Coronary Angiogram

Blood Tests
coronary angiogram
coronary calcium scan
coronary heart disease
coronary artery bypass graft (cabg)
coronary artery disease (cad)
acute coronary syndrome

Flu Complications
Although most cases of influenza (flu) get better without causing other problems, complications sometimes develop.

Medical History and Physical Exam for Nearsightedness
During an exam for nearsightedness, your doctor will ask questions about your health, lifestyle, medicines you are taking, and past eye problems. Answers to questions about your family members can help determine whether you may have...

Eye and Vision Tests for Children and Teens
Use the guidelines below to schedule routine vision checks and eye exams with your pediatrician or family doctor.

Eye Exams for Adults
Use the guidelines below to schedule routine vision checks and eye exams with your doctor.
A knowledge graph for CAD

Coronary Artery Disease (CAD)

Condition

About
Coronary artery disease happens when fatty deposits called plaque (say "plak") build up inside your coronary arteries. Those are the blood vessels that supply blood and oxygen to your heart. Plaque buildup may reduce the amount of blood that gets to your heart. Coronary artery disease can cause angina symptoms, such as chest pain or pressure. It can lead to a heart attack.

Coronary artery disease (also called CAD) is the most common type of heart disease. It's also the number one killer of both men and women in the United States.

Resources

Decision Aids
- Should I Have Bypass Surgery?
- Should I Have an Angiogram?
- Should I Have Angioplasty for Stable Angina?

Related

Other names: CHD, Coronary Heart Disease, CAD, Coronary Artery Disease

Tests: Blood Tests, Coronary Angiogram, Electrocardiogram, Physical exam and medical history, Chest X-ray

Symptoms: Angina, Shortness of Breath

Risks: Family history of a disease, High Cholesterol, Diabetes, High Blood Pressure

Treatments: Lifestyle Changes, Beta Blockers, ARBs, ACE Inhibitors, Cardiac Rehab Program, Diuretics, Calcium Channel Blockers, Coronary Angioplasty, Coronary Artery Bypass Surgery

Explore
- Heart and Vascular Conditions
To review...

1. If you want your structured data to be reusable and scalable, build an enterprise world-model.

2. If you want to integrate data from different sources or share it with the world, build your model using semantic web technologies (RDF).
What could you build with a world-model representing your domain?