

Representing SNOMED CT in OWL

State of affairs

OWL Refset covers the semantic portion of SNOMED International Core module

- Other editions and extensions will have OWL Refsets as well
- Not obvious, however, that OWL Refset \equiv OWL Representation
 - FSN, Prefname, Synonyms
 - Modularization and imports statements
 - Ontology Metadata (copyright, version info, ...)
 - MRCM?

FSN, Prefname, Synonym and Definition

Prefname, Synonym and Definition

sct:91313006 skos:prefLabel “Pelvic appendicitis”@en-us.

sct:91313006 skos:altLabel “Appendicitis of a pelvic appendix”@en-us.

sct:91313006 skos:definition “...”@en-us.

FSN

sct:91313006 rdfs:label “Appendicitis of a pelvic appendix (disorder)”@en-us.

Points of Discussion

Language

- ‘en’ vs. ‘en-gb’ and ‘en-us’ (CTS2 spec and implementation worked through this...)
- SKOS vs. SKOS-XL
 - XL allows provenance and other information
 - Beginning to be accepted and used

Modularization and Import Statements

- OWL Refset shows *result* of imports
- OWL normally uses *import* to pull in other modules
 - While not formalized (to my knowledge), tools and sop treat imported ontologies as immutable
 - CTS2 notion of identity — A particular version of a particular ontology is immutable.
- SNOMED Model Component module is an interesting example (w/ additional issues)

Ontology Metadata

MODULE	int	SCTID of the module being transformed to owl
VERSION	int	VERSION identifier of particular release or extension
VERSION_DESCRIPTION	str	A description of the version
LANGUAGES	List[int]	A list of language refset SCTIDS
LANGUAGE_MAP	Map[int, str]	A map from a language refset to an english language
description		
MODULE_LABEL	str	The label of the module/ontology
MODULE_DESCRIPTION	str	A description of the module
MODULE_COPYRIGHT	str	The module copyright

PERL Conversion Script

Only works with SNOMED International Edition Core Module

One language at a time (default: en-gb)

Generates:

- Preferred name: <http://snomed.info/field/Description.term.en-gb.preferred>
- Synonym: <http://snomed.info/field/Description.term.en-gb.synonym>
- Text definition: <http://snomed.info/field/Textdefinition.term>

Documentation at:

<https://confluence.ihtsdotools.org/display/mag/Spackman+Perl+Transform+--+End+User+Guide>

Python Conversion Script

Works with most SNOMED Editions and Modules (including model component file)

Multiple languages possible

Generates either:

- Preferred name: <http://snomed.info/field/Description.term.en-gb.preferred>
- Synonym: <http://snomed.info/field/Description.term.en-gb.synonym>
- Text definition: <http://snomed.info/field/Textdefinition.term>

Or:

- Preferred name: <http://www.w3.org/2004/02/skos/core#prefLabel> “<text>”@<lang> (ex: “Disease”@en-us)
- Synonym: <http://www.w3.org/2004/02/skos/core#altLabel> “<text>”@<lang>
- Text definition: <http://www.w3.org/2004/02/skos/core#definition>. “<text>”@<lang>

Developed to support proposed OWL Representation Document

Requires tweaking with configuration files (could use some work...)

<https://github.com/hsolbrig/SNOMEDToOWL>

SNOMED OWL Toolkit

**Only works with SNOMED International
Edition Core Module**

Supports MRCM domains (!)

Only FSN

See: <https://github.com/IHTSDO/snomed-owl-toolkit>