Acute Software

AIKIF - Ontology

- AIKIF Home
- Ontology Review
- About
- Contact

Links

Source Code
Ontology Review

list of upper ontologies with comments/ratings for possible use in AI applications.

Ontology Datasets

WordNet
page = http://wordnet.princeton.edu/wordnet/download/
data = http://wordnetcode.princeton.edu/wn3.1.dict.tar.gz
Best word list, not in OWL format, though qualifies as an upper ontology by including the most general concepts as well as more specialized concepts, related to each other not only by the subsumption relations, but by other semantic relations as well, such as part-of and cause. However, unlike Cyc, it has not been formally axiomatized so as to make the logical relations between the concepts precise. It has been widely used in Natural language processing research
Sample file saved to S:\DATA\opendata\ontology\WordNet\dict\data.noun (15,325,523 bytes)
20 files in folder, totalling 37,405,206 bytes

SUMO - Suggested Upper Merged Ontology
page = http://www.ontologyportal.org/
data = http://sigmakee.cvs.sourceforge.net/viewvc/sigmakee/KBs/?view=tar
Created by the IEEE working group P1600.1 - has multiple files by subject area which includes an upper ontology (which file?)
Sample file saved to S:\DATA\opendata\ontology\SUMO\KBs\Mid-level-ontology.kif (879,032 bytes)
47 files in folder, totalling 17,591,907 bytes

DOLCE - Descriptive Ontology for Linguistic and Cognitive Engineering
page = http://www.loa.istc.cnr.it/
data = http://www.loa-cnr.it/ontologies/DOLCE-Lite.owl
Not an active project on website, but has a clear cognitive bias, in that it aims at capturing the ontological

categories underlying natural language and human common sense
Sample file saved to S:\DATA\opendata\ontology\DOLCE\DOLCE-Lite.owl (106,827 bytes)
10 files in folder, totalling 624,366 bytes

DBPedia
page = http://wiki.dbpedia.org/Datasets
data = http://wiki.dbpedia.org/Downloads39
The most comprehensive set of data based on Wikipedia (470M facts)
Sample file saved to S:\DATA\opendata\ontology\wikipedia_categories\dbpedia-ontology.owl.bz2.owl.bz2.owl (259,244 bytes)
24 files in folder, totalling 2,414,659,446 bytes

BFO - Basic Formal Ontology
page = http://www.ifomis.org/bfo
data = http://www.ifomis.org/bfo/1.1
Incorporates both three-dimensionalist and four-dimensionalist perspectives on reality within a single framework. Has over 100 other ontologies build based on this
Sample file saved to S:\DATA\opendata\ontology\BFO\bfo-1.1.owl (45,264 bytes)
7 files in folder, totalling 238,453 bytes

UMBEL
page = http://structureddynamics.com/resources.html#Ontologies
data = https://github.com/structureddynamics/UMBEL/blob/master/Ontology/umbel.n3
Maps to a simplified subset of the OpenCyc ontology (28,000 entries)
Sample file saved to S:\DATA\opendata\ontology\UMBEL\umbel.n3 (505,824 bytes)
1 files in folder, totalling 505,824 bytes

DnS - Descriptions and Situations (implementation of DOLCE+DnS-Ultralite abbreviated to DUL)
page = http://stlab.istc.cnr.it/stlab/The_Semantic_Technology_Laboratory_%28STLab%29
data = http://www.ontologydesignpatterns.org/ont/dul/DUL.owl
constructivist ontology that pushes DOLCEs descriptive stance even further allowing for context-sensitive redescriptions of the types and relations postulated by other given ontologies
Sample file saved to S:\DATA\opendata\ontology\DnS\DUL.owl (244,258 bytes)
1 files in folder, totalling 244,258 bytes

GFO - General Formal Ontology
page = http://www.onto-med.de/ontologies/index.jsp
data = http://www.onto-med.de/ontologies/gfo.owl
have developed a top level ontology and a biological core ontology. OWL file is copyright, but redistribution allowed
Sample file saved to S:\DATA\opendata\ontology\GFO\gfo-ato.owl (20,855 bytes)
9 files in folder, totalling 420,717 bytes

UFO - Unified Foundation Ontology
page = https://oxygen.informatik.tu-cottbus.de/drupal7/ufo/

data =
new, pretty good. tested for complex domains, combines DOLCE and GFO. Count not find single download OWL file
Not downloaded

CIDOC Conceptual Reference Model
page = http://en.wikipedia.org/wiki/CIDOC_Conceptual_Reference_Model
data = http://www.cidoc-crm.org/rdfs/cidoc_crm_v5.0.4_official_release.rdfs
provides an extensible ontology for concepts and information in cultural heritage and museum documentation. Includes its own version of an upper ontology in its core classes
Sample file saved to S:\DATA\opendata\ontology\CIDOC\cidoc_crm_v5.0.4_official_release.rdfs (307,674 bytes)
1 files in folder, totalling 307,674 bytes

COSMO - COmmon Semantic MOdel
page = http://ontolog.cim3.net/cgi-bin/wiki.pl?COSMO
data = http://www.micra.com/COSMO/COSMO.owl
The current (May 2009) OWL version of COSMO has over 6400 types (OWL classes), over 700 relations, and over 1400 restrictions
Sample file saved to S:\DATA\opendata\ontology\COSMO\COSMO.owl (10,036,090 bytes)
8 files in folder, totalling 16,186,390 bytes

YAMATO - Yet Another More Advanced Top Ontology
page = http://www.ei.sanken.osaka-u.ac.jp/hozo/onto_library/upperOnto.htm
data = http://www.ei.sanken.osaka-u.ac.jp/hozo/onto_library/download.php?filename=YAMATO20120714owl.zip
complex but very advanced
Sample file saved to S:\DATA\opendata\ontology\YAMATO\YAMATO20120714.owl (530,486 bytes)
3 files in folder, totalling 1,448,966 bytes

OpenCyc
page = http://en.wikipedia.org/wiki/Cyc#OpenCyc
data = http://sourceforge.net/projects/texai/files/open-cyc-rdf/1.1/open-cyc.rdf.ZIP/download
Proprietry but fairly precise
Sample file saved to S:\DATA\opendata\ontology\OpenCyc\open-cyc.rdf (103,037,985 bytes)
3 files in folder, totalling 248,942,337 bytes

PROTON
page = http://www.ontotext.com/proton-ontology
data = http://www.ontotext.com/sites/default/files/proton/protontop.ttl
basic subsumption hierarchy which provides coverage of most of the upper-level concepts necessary for semantic annotation, indexing, and retrieval
Sample file saved to S:\DATA\opendata\ontology\PROTON\protontop.ttl (40,080 bytes)
2 files in folder, totalling 230,791 bytes

IDEAS
page = http://www.ideasgroup.org/7Documents/
data = http://www.ideasgroup.org/file_download/5/IDEAS+Foundation+v1_0+Released+2009-04-24.xmi.zip
The most common usage of IDEAS will be in direct exchange of information between architectural modelling tools are repositories
Sample file saved to S:\DATA\opendata\ontology\IDEAS\IDEAS Foundation v1_0 Released 2009-04-24.xmi (3,073,554 bytes)
3 files in folder, totalling 7,946,504 bytes

MarineTLO
page = http://www.ics.forth.gr/isl/MarineTLO/
data = http://www.ics.forth.gr/isl/MarineTLO/v3/core_v3.owl
MarineTLO is a top-level ontology for the marine domain (also applicable to the terrestrial domain)
Sample file saved to S:\DATA\opendata\ontology\MarineTLO\core_v3.owl (21,541 bytes)
4 files in folder, totalling 1,844,662 bytes

MindOntology (OpenCog)
page = http://wiki.opencog.org/w/MindOntology
data = http://wiki.opencog.org/wikihome/index.php?title=Special:AllPages&namespace=104
Focussed for AGI use, but no single download found (arranged as wiki pages)
Sample file saved to S:\DATA\opendata\ontology\MindOntology\All pages (MindOntology namespace) - OpenCog.htm (29,611 bytes)
1 files in folder, totalling 29,611 bytes

DIY - eg build your own Ontology
page = http://localhost
data =
Not ideal - better to use existing sets, but best method to get a concise set of tuples
Not downloaded

Useful Links for Ontological development

A Comparison of Upper Ontologies (Technical Report DISI-TR-06-21)
http://www.disi.unige.it/person/MascardiV/Download/DISI-TR-06-21.pdf
Summary of ontologies - compares BFO, cyc, DOLCE, GFO, PROTON, Sowas, SUMO

Ontology-based data integration
http://en.wikipedia.org/wiki/Ontology-based_data_integration
short article with examples of approaches to use

Python RDF library
https://github.com/RDFLib/rdflib

good simple examples for using RDFLIB at https://rdflib.readthedocs.org/en/latest/

Protege - ontology editor
http://protege.stanford.edu/products.php#desktop-protege
feature rich ontology editing environment with full support for the OWL 2 Web Ontology Language, and direct in-memory connections to description logic reasoners like HermiT and Pellet

ontogenesis - upper level ontologies
http://ontogenesis.knowledgeblog.org/740
basic overview of ontologies with descriptions of time/space and objects/processes

DAML Ontology Library
http://www.daml.org/ontologies/
Not a single ontology, but has links to other ontologies of various grains

Toward the Use of an Upper Ontology for U.S. Government and U.S. Military Domains: An Evaluation
http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA459575
very good explanation of the types of ontological choices such as 3d/4d, descriptive vs revisionary, mult vs reduct, ...

ROMULUS - A repository of foundational ontologies
http://www.thezfiles.co.za/ROMULUS/downloads.html
Very good list of links to ontologies

Ontological realism: A methodology for coordinated evolution of scientic ontologies
http://iospress.metapress.com/content/1551884412214u67/fulltext.pdf
technical focus on biological and biomedical ontologies within the framework of the OBO (Open Biomedical Ontologies) Foundry initiative

Some Ideas and Examples to Evaluate Ontologies
http://oa.upm.es/6242/1/Some_Ideas_and_Examples_to_Evaluate_Ontologies.pdf
Paper shows ideas and methods to review ontologies

Ontology Development 101: A Guide to Creating Your First Ontology
http://protege.stanford.edu/publications/ontology_development/ontology101-noy-mcguinness.html
Good introduction and examples of building an ontology - key points: reuse parts if possible, but build yourself to keep it short and valid

KSL Ontonlingua
http://www.ksl.stanford.edu/software/ontolingua/
Ontolingua provides a distributed collaborative environment to browse, create, edit, modify, and use ontologies. The server supports over 150 active users, some of whom have provided us with descriptions of their projects.

OCHRE

http://en.wikipedia.org/wiki/Object-centered_high-level_reference_ontology
Descriptive document, not an actual ontology - has a focus on conceptual simplicity, so that the number of basic (primitive) concepts and relations is as small as possible in order to simplify the theory

Onto-Med Report Nr. 8
http://www.onto-med.de/publications/2010/gfo-basic-principles.pdf
basic principles of GFO