

**Course: Information Semantics 101: Semantics, Semantic Models, Ontologies, Knowledge Representation, and the Semantic Web**, Ontologies for the Intelligence Community (OIC) Conference tutorial, George Mason University, Fairfax, VA, October 20, 2009

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### **Books on Ontologies and the Semantic Web: \*[1]-Suggested Reading Order**

- \*[2] Allemang, Dean; James Hendler. 2008. Semantic Web for the Working Ontologist: Effective Modeling in RDFS and OWL. Elsevier. April, 2008.
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- \*[4] Brachman, R.J.; Levesque, H. 2004. Knowledge Representation and Reasoning. San Francisco et al: Morgan Kaufman, Elsevier, Inc.
- \*[3] Davies, John; Dieter Fensel; Frank van Harmelen. 2003. Towards the Semantic Web: Ontology-Driven Knowledge Management John Wiley and Sons, January, 2003.
- \*[1] Daconta, M., K. Smith, L. Obrst. The Semantic Web: The Future of XML, Web Services, and Knowledge Management. John Wiley, Inc., May, 2003.
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- Fensel, Dieter; Wolfgang Wahlster; Henry Lieberman; James Hendler, eds. 2002. Spinning the Semantic Web: Bringing the World Wide Web to Its Full Potential. MIT Press, November, 2002.
- Fensel, Dieter; Michael L. Brodie. 2003. Ontologies: A Silver Bullet for Knowledge Management and Electronic Commerce. Second Edition, December, 2003. Springer-Verlag.
- \*[2] Frost, Richard. 1986. Introduction to Knowledge Base Systems. New York: MacMillan Publishing Co.
- \*[3] Gasevic, Dragan; Dragan Djuric; Vladan Devedzic; Bran V. Selic. 2006. Model Driven Architecture and Ontology Development. Springer. July, 2006.
- \*[2] Guarino, N, ed. 1998. Formal Ontology in Information Systems. Amsterdam.: IOS Press. Proceedings of the First International Conference (FOIS'98), June 6-8, Trento, Italy.
- \*[3] Guarino, N.; C. Welty; B. Smith, ed. 2001. The Proceedings of the 2<sup>nd</sup> International Conference on Formal Ontology in Information Systems (FOIS-01), October 16-19, 2001, Ogunquit, Maine. ACM Press Book Series, Sheridan Publishing, Inc. <http://www.fois.org/fois-2001/index.html>. <http://www.ontology.uni-leipzig.de/Publications/Paper-FOIS-Herre-2001.pdf>.
- \*[4] Gomez-Perez, Asuncion; Oscar Corcho, Mariano Fernandez-Lopez. 2003. Ontological Engineering: With Examples from the Areas of Knowledge Management, E-Commerce and Semantic Web (Advanced Information and Knowledge Processing), Springer-Verlag, November 2003.
- \*[4] Healy, Michael; Achilles Kameas; Roberto Poli, eds. 2010. TAO – Theory and Applications of Ontology, Volume 2: The Information-science Stance. Forthcoming, 2010, Springer.
- \*[3] Hebel, John; Matthew Fisher; Ryan Blace; Andrew Perez-Lopez. 2009. Semantic Web Programming. Wiley. April, 2009.
- Iwanska, Lucja M.; Stuart C. Shapiro, eds. 2000. Natural Language Processing and Knowledge Representation: Language for Knowledge and Knowledge for Language. AAAI Press, July, 2000.
- \*[2] Lacey, Lee. 2005. OWL: Representing Information Using the Web Ontology Language. Trafford Publishing, January 1, 2005.
- Levesque, Hector J.; Gerhard Lakemeyer. 2001. The Logic of Knowledge Bases. MIT Press, February, 2001.

- Lenat, D. and R. Guha. 1990. *Building Large Knowledge Based Systems*. Reading, Massachusetts: Addison Wesley.
- Park, Jack; Sam Hunting, eds. 2003. *XML Topic Maps*, Addison Wesley, July, 2002.
- \*[4] Poli, Roberto; Johanna Seibt; John Symons. 2010. *TAO – Theory and Applications of Ontology, Volume 1: Ontology: The Philosophical Stance*. Forthcoming, 2010, Springer.
- \*[1] Pollock, Jeffrey. 2009. *Semantic Web For Dummies*. For Dummies. March, 2009.
- \*[2] Segaran, Toby; Colin Evans; Jamie Taylor. 2009. *Programming the Semantic Web*. O'Reilly Media. July, 2009.
- \*[2] Sowa, John F. 1999. *Knowledge Representation: Logical, Philosophical, and Computational Foundations*. PWS Publishing Co., Boston, 1999.
- \*[4] Staab, Steffen; Rudi Stude, eds. 2004. *Handbook on Ontologies*. Springer-Verlag.

**Books on Semantics, Formal Ontology, Formal Methods, etc.: These are generally more difficult**

- Barwise, Jon; Seligman, Jerry. 1997. *Information Flow: The Logic of Distributed Systems*. Cambridge University Press, Cambridge, UK.
- Brewka, Gerhard, ed. 1996. *Principles of Knowledge Representation*. CSLI Publications, Center for the Study of Language and Information, Stanford University, and FoLLI, The European Association for Language, Logic, and Information.
- Burkhardt, H.; Smith, B., eds. 1991. *Handbook of Metaphysics and Ontology*. Munich: Philosophia.
- Casati, R. and A. Varzi, eds. 1996. *Events*. Dartmouth, Aldershots, USA.
- \*[5] Casati, Roberto, and Achille C. Varzi. 1995. *Holes and Other Superficialities*. Cambridge, MA: MIT Press.
- \*[5] Casati, Roberto, and Achille C. Varzi. 1999. *Parts and Places: The Structures of Spatial Representation*. Cambridge, MA: MIT Press.
- Chance, Samuel G.; Marty G. Hagenston. 2003. *Assessing The Potential Value Of Semantic Web Technologies In Support Of Military Operations*. MS Thesis, Monterey Naval Postgraduate School, Monterey, CA. September, 2003.
- \*[2] Davey, B.A.; Priestley, H.A. 1991. *Introduction to Lattices and Order*. Cambridge University Press, Cambridge, UK.
- Fagin, Ronald; Halpern, Joseph; Moses, Yoram; Vardi, Moshe. 1996. *Reasoning about Knowledge*. 2nd Edition, MIT Press, Cambridge, MA.
- Gamut, L.T.F. 1991. *Logic, Language, and Meaning, Volume 2: Intensional Logic and Logical Grammar*. The University of Chicago Press, Chicago and London.
- Ganter, Bernhard, and Rudolf Wille. 1996. *Formal Concept Analysis: Mathematical Foundations*. Springer-Verlag: Berlin, Heidelberg, New York.
- Green, Rebecca; Carol A. Bean; Sung Hyon Myaeng, eds. 2002. *The Semantics of Relationships: An Interdisciplinary Perspective*. Dordrecht: Kluwer.
- Higginbotham, James; Pianesi, Fabio; Varzi, Achille, eds. 2000. *Speaking of Events*. Oxford University Press.
- Hodges, Wilfred. 2000. *A Shorter Model Theory*, reprinted 2000, Cambridge U. Press.
- Horwich, P. *Meaning*. Oxford University Press, Oxford, 1998.
- Kamp, Hans; Reyle, Uwe. 1993. *From Discourse to Logic: Introduction to Modeltheoretic Semantics of Natural Language, Formal Logic and Representation Theory, Part 1 and 2*, Kluwer Academic Publishers, The Netherlands.
- Landman, Fred. 1991. *Structures for Semantics*. Studies in Linguistics and Philosophy 45. Dordrecht, Boston, London: Kluwer Academic Publishers.
- Link, Godehard. 1998. *Algebraic Semantics in Language and Philosophy*. CSLI Lecture Notes No. 74, CSLI Publications, Center for the Study of Language and Information, Stanford University.
- \*[1] Lyons, John. 1979. *Semantics 1 & 2*. Cambridge: Cambridge University Press.
- M. Heller. *The Ontology of Physical Objects. Four Dimensional Hunks of Matter*. Cambridge University Press, 1990.
- \*[3] Margolis, E.; S. Laurence. 1999. *Concepts: Core Readings*, MIT Press.
- Meixner, Uwe. 1997. *Axiomatic Formal Ontology*. Dordrecht, Boston, London: Kluwer Academic Publishers.
- Minker, Jack, ed. 1988. *Foundations of Deductive Databases and Logic Programming*. Los Altos, CA: Morgan Kaufman Publishers, Inc.

- \*[2] Mylopoulos, John; Brodie, Michael L., ed. 1989. Readings in Artificial Intelligence and Databases. San Mateo, CA: Morgan Kaufman.
- P. Gardenfors. *Conceptual Spaces: the Geometry of Thought*. MIT Press, Cambridge, Massachusetts, 2000.
- Portner, Paul; Barbara H. Partee, eds. *Formal Semantics: The Essential Readings*. Blackwell, August, 2002.
- Simons, P. 1987. *Parts: a Study in Ontology*. Oxford: Clarendon Press.
- \*[4] Ullman, J. 1988, 1989. *Database and Knowledge Base Systems, Volumes 1-2*, New York: Computer Science Press.
- Yi, Chi-Wei. 2003. *A Comparison of Semantic Web Languages for a Terrorist Collection and Analysis System*. MS Thesis, University of Virginia, Charlottesville, VA, August, 2003.

## **Good Introductory Papers on Ontologies, Semantic Web:**

- \*[3] Noy, Natalya; Hafner, Carole. 1997. The State of the Art in Ontology Design: A Survey and Comparative Review. *Artificial Intelligence Magazine*, Fall, 1997, pp. 53-74.
- \*[1] T. Berners-Lee, J. Hendler, and O. Lassila. 2001. The Semantic Web. In *The Scientific American*, May, 2001. <http://www.scientificamerican.com/2001/0501issue/0501berners-lee.html>.
- \*[2] Noy, Natalya, F., and Deborah L. McGuinness. 2000. *Ontology Development 101: A Guide to Creating Your First Ontology*. Stanford University, Stanford, CA.
- Gruber, Thomas. 1995. Towards Principles for the Design of Ontologies used for Knowledge Sharing. *International Journal of Human and Computer Studies*, 43(5/6), pp. 907-928.
- Gruber, Tom. 1993. A Translation Approach to Portable Ontology Specifications. *Knowledge Acquisition*, V. 5, pp. 199-220.
- Noy, N. F., R. W. Ferguson, & M. A. Musen. 2000a. The knowledge model of Protege-2000: Combining interoperability and flexibility. 2th International Conference on Knowledge Engineering and Knowledge Management (EKAW'2000), Juan-les-Pins, France. SMI-2000-0830 Technical Report, Stanford Medical Informatics, Stanford University. [http://smi-web.stanford.edu/pubs/SMI\\_Abstracts/SMI-2000-0830.html](http://smi-web.stanford.edu/pubs/SMI_Abstracts/SMI-2000-0830.html).
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## **Tutorials: Ontologies, Knowledge Representation, Description Logics, Semantic Web, Semantic Web Services**

- Bechholder, Sean; Ian Horrocks; Peter Patel-Schneider. 2003. Tutorial on OWL. <http://www.cs.man.ac.uk/%7Ehorrocks/ISWC2003/Tutorial/>.
- Blomqvist, Eva; Francois Sharffe; Valentina Presutti; Aldo Gangemi. 2009. Extreme Design (XD): Pattern-based Ontology Design. K-CAP 2009. The Fifth International Conference on Knowledge Capture, 1 – 4 September 2009, Redondo Beach, California, USA. [http://ontologydesignpatterns.org/wiki/Training:Extreme\\_Design\\_%28XD%29:\\_Pattern-based\\_Ontology\\_Design](http://ontologydesignpatterns.org/wiki/Training:Extreme_Design_%28XD%29:_Pattern-based_Ontology_Design).
- Cardosa, J.; C. Bussler; A. Sheth; D. Fensel. 2004. Tutorial: Semantic Web Services. <http://lsdis.cs.uga.edu/lib/presentations/SWSP-tutorial-resource.htm>.
- Description Logics Courses and Tutorials: <http://dl.kr.org/courses.html>
- Finin, T. 2003. Ontology tutorial: <http://ilit.umbc.edu/Ontology-tutorial-content.pdf>.
- Guarino, N. 2003. Ontologies: <http://www.ladseb.pd.cnr.it/infor/ontology/Tutorials.html>.
- Guarino, Nicola. 2002. Ontology-Driven Conceptual Modelling - ER2002. <http://www.loa-cnr.it/odcm.html>.
- Hardin, Joseph . 2006. Course: SI 514: Introduction to the Semantic Web. [http://www-personal.si.umich.edu/~hardin/semantic\\_course.htm](http://www-personal.si.umich.edu/~hardin/semantic_course.htm)
- Herman, Ivan. 2008. Tutorial on Semantic Web. <http://www.w3.org/People/Ivan/CorePresentations/SWTutorial/>.
- Hitzler, Pascal ; Markus Krötzsch; Sebastian Rudolph. 2009. Foundations of Semantic Web Technologies. Knowledge Representation and Reasoning for the Semantic Web – OWL 2 Rules. tutorial at 32nd Annual Conference on Artificial Intelligence, KI 2009, Paderborn, Germany, September 15 2009. [http://www.semantic-web-book.org/page/KI\\_2009\\_Tutorial](http://www.semantic-web-book.org/page/KI_2009_Tutorial).

Horrocks, I. 2003. Logical Foundations of the Semantic Web.  
<http://www.cs.man.ac.uk/~horrocks/Slides/glasgow.pdf>.

Horrocks, Ian. 2004. The Semantic Web, Ontologies, and OWL.  
<http://www.cs.manchester.ac.uk/~horrocks/Teaching/cs646/>.

Hotho, Andreas; Sure, York. 2006. A short Tutorial on Semantic Web (video lectures).  
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Jupp, Simon; Timothy Redmond. 2009. Developing OWL Ontologies with Protege 4. K-CAP 2009. The Fifth International Conference on Knowledge Capture, 1 – 4 September 2009, Redondo Beach, California, USA.

May, Wolfgang. 2006/2007. Semantic Web Tutorial. Winter 2006-2007. University of Gottingen, Germany.  
<http://www.dbis.informatik.uni-goettingen.de/Teaching/SemWeb-WS0607/>.

Noy, Natalya; Deborah McGuinness. 2001. Ontology Development 101: A Guide to Creating Your First Ontology,  
<http://www-ksl.stanford.edu/people/dlm/papers/ontology-tutorial-noy-mcguinness-abstract.html>.

Obitko, Marek. 2007. Introduction to Ontologies and the Semantic Web.  
<http://www.obitko.com/tutorials/ontologies-semantic-web/introduction.html>.

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