

18.302 Beschreibungslogiken

Wintersemester 2007 / 2008
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General Articles (Shared Background)

		Berners-Lee, Tim, James Hendler & Ora Lassila (2001). The semantic web. A new form of web content that is meaningful to computers will unleash a revolution of new possibilities. <i>Scientific American</i> 284 (5). 34–43. http://www.sciam.com/print_version.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21
General		Nardi, Daniele & Ronald J. Brachman (2003). An introduction to description logics. In F. Baader, D. Calvanese, D.L. McGuinness, D. Nardi & P. Patel-Schneider (eds.) <i>The Description Logic Handbook. Theory, Implementation and Application</i> (pp. 1–40). Cambridge UP: Cambridge, NY.
General		Baader, Franz & Werner Nutt (2003). Basic description logics. In F. Baader, D. Calvanese, D.L. McGuinness, D. Nardi & P. Patel-Schneider (eds.) <i>The Description Logic Handbook. Theory, Implementation and Application</i> (pp. 43–95). Cambridge UP: Cambridge, NY.
General		Baader, Franz (2003). Appendix I. Description logic terminology. In F. Baader, D. Calvanese, D.L. McGuinness, D. Nardi & P. Patel-Schneider (eds.) <i>The Description Logic Handbook. Theory, Implementation and Application</i> (pp. 485–495). Cambridge UP: Cambridge, NY.

OWL: Language Family

Ontology, semantic web	Owl	Antoniou, G. & F. van Harmelen (2004). <i>Web Ontology Language: OWL</i> . In S. Staab & Rudi Studer (eds.) <i>Handbook on Ontologies</i> (pp. 67–92). Springer.
Ontology, semantic web	Owl	Horrocks, Ian, Peter F. Patel-Schneider & Frank van Harmelen (2003). From SHIQ and RDF to OWL: The making of a web ontology language. <i>Journal of Web Semantics</i> 1. 7–26.
Ontology, semantic web	Owl	Patel-Schneider, Peter F., Patrick Hayes & Ian Horrocks (2004). OWL web ontology language semantics and abstract syntax. In W3C Recommendation, 10 February 2004. http://www.w3.org/TR/owl-semantics/
Ontology, semantic web	Oil	Baader, Franz, Ian Horrocks & Ulrike Sattler (2005). Description Logics as Ontology Languages for the Semantic Web. In D. Hutter & W. Stephan (eds.) <i>Mechanizing Mathematical Reasoning</i> (pp. 228–248). Springer.

Restricted DLs and Databases

Restrictions	DL-Lite	Calvanese, Diego, Giuseppe De Giacomo, Domenico Lembo, Maurizio Lenzerini & Riccardo Rosati (2005). DL-Lite: Tractable description logics for ontologies. In Proc. of AAAI 2005 (pp. 602–607). http://www.dis.uniroma1.it/~quonto/articoli/calv-et-al-AAAI-2005.pdf
Restrictions	DL-Lite	Calvanese, Diego, Giuseppe De Giacomo, Domenico Lembo, Maurizio Lenzerini & Riccardo Rosati (2007). Tractable Reasoning and Efficient Query Answering in Description Logics: The DL-Lite family. <i>Journal of Automated Reasoning</i> 39:3. 385–429. http://www.springerlink.com/content/n17338715966v81h/
Database Query		Calvanese, Diego, Giuseppe De Giacomo, Domenico Lembo, Maurizio Lenzerini & Riccardo Rosati (2006). Data complexity of query answering in description logics. In Proc. of KR 2006 (pp. 260–270). http://www.inf.unibz.it/~calvanese/papers/calv-et-al-DL-2005.pdf
Database Query	AL-log	Donini, F. M., M. Lenzerini, D. Nardi & A. Schaerf (1998). AL-log: Integrating Datalog and Description Logics. <i>Journal of Intelligent Information Systems</i> 3:10. 227-252.
Restrictions	EL+	Baader, Franz, Carsten Lutz & Boontawee Sontisrivaraporn (2006). Efficient Reasoning in EL+. In Proceedings of the 2006 International Workshop on Description Logics (DL2006) (pp. 15–26).

DL Provers

Provers, Tableau		Baader, Franz & Ulrike Sattler (2001). An overview of tableau algorithms for description logics. <i>Studia Logica</i> 69. 5–40.
Provers, Tableau	S = ALC _R ⁺	Sattler, Ulrike (1996). A concept language extended with different kinds of transitive roles. In G. Görz & S. Hölldobler (eds.) 20. Deutsche Jahrestagung für Künstliche Intelligenz (pp. 333–345). Springer Verlag.
Provers, Tableau		Buchheit, Martin, Francesco M. Donini & Andrea Schaerf (1993). Decidable reasoning in terminological knowledge representation systems. <i>Journal of Artificial Intelligence Research</i> 1. 109–138.

Reasoning with TBoxes

Tractability, Optimization		Horrocks, I. & S. Tobies (2000). Reasoning with axioms: Theory and practice. In Proc. of the 7th Int. Conf. on the Principles of Knowledge Representation and Reasoning (KR'2000) (pp. 285–296). http://citeseer.ist.psu.edu/horrocks00reasoning.html
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DL Provers: Implementation and Optimization

Tractability, Optimization		Horrocks, Ian (2003). Implementation and optimisation techniques. In F. Baader, D. Calvanese, D.L. McGuinness, D. Nardi & P. Patel-Schneider (eds.) The Description Logic Handbook. Theory, Implementation and Application (pp. 313–355). Cambridge UP: Cambridge, NY.
Provers, Tableau		Horrocks, Ian (1998). The FaCT system. In H. de Swart (ed.) Automated Reasoning with Analytic Tableaux and Related Methods: International Conference Tableaux'98 (pp. 307–312). Springer-Verlag. http://citeseer.ist.psu.edu/horrocks98fact.html
Tractability, Optimization		Horrocks, Ian & Peter Patel-Schneider (1999). Optimizing description logic subsumption. Journal of Logic and Computation 9. 267–293.
Tractability, Optimization		Horrocks, Ian R. (1998). Using an expressive description logic: FaCT or fiction?. In Anthony G. Cohn, Lenhart Schubert & Stuart C. Shapiro (eds.) KR'98: Principles of Knowledge Representation and Reasoning (pp. 636–645). Morgan Kaufmann: San Francisco, California. citeseer.ist.psu.edu/horrocks98using.html
Tractability		Haarslev, Volker & Ralf Möller (2001). High Performance Reasoning with Very Large Knowledge Bases: A Practical Case Study. In B. Nebel (ed.) Proceedings of Seventeenth International Joint Conference on Artificial Intelligence, IJCAI-01 (pp. 161–166). Seattle, Washington.
Tractability, Optimization		Baader, Franz, Bernhard Hollunder, Bernhard Nebel, Hans-Jürgen Profitlich & Enrico Franconi (1992). An empirical analysis of optimization techniques for terminological representation systems or: Making KRIS get a move on. In B. Nebel, W. Swartout & C. Rich (eds.) Principles of Knowledge Representation and Reasoning: Proceedings of the 3rd International Conference (pp. 270–281). Morgan Kaufmann: San Mateo. http://www.cs.man.ac.uk/~franconi/papers/kr-92.ps.gz

DL Reasoning Services

Reasoning Services	Owl	Horrocks, Ian & Peter F. Patel-Schneider (2003). Reducing OWL entailment to description logic satisfiability. In Dieter Fensel, Katia Sycara & John Mylopoulos (eds.) Proc. of the 2003 International Semantic Web Conference (ISWC 2003) (pp. 17–29). Springer.
Reasoning services		Donini, Francesco M., Maurizio Lenzerini, Daniele Nardi & Andrea Schaerf (1994). Deduction in concept languages: From subsumption to instance checking. Journal of Logic and Computation 4. 423–452.

More expressive DL

Tractability, Optimization	SHIQ, SI	Horrocks, I., U. Sattler & S. Tobies (1999). Practical reasoning for expressive description logics. In H. Ganzinger, D. McAllester & A. Voronkov (eds.) Proc. of the 17th Conf. on Automated Reasoning (LPAR'99) (pp. 161–180). Springer: Berlin.
Provers, Tableau	SHOIQ	Horrocks, Ian & Ulrike Sattler (2005). A tableaux decision procedure for SHOIQ. In Proc. of the 19th Int. Joint Conf. on Artificial Intelligence (IJCAI 2005) (pp. 448–453). http://web.comlab.ox.ac.uk/oucl/work/ian.horrocks/Publications/download/2005/HoS05a.pdf
Extensions	Owl	Calvanese, Diego, Giuseppe De Giacomo, Domenico Lembo, Maurizio Lenzerini & Riccardo Rosati (2007). Can OWL model football leagues?. In Proceedings of the 2007 International Workshop on OWL: Experiences and directions (OWLED 2007). http://www.webont.org/owlled/2007/PapersPDF/paper_19.pdf
Provers, Tableau	SHIQ	Motik, Boris, Rob Shearer & Ian Horrocks (2004). A Hypertableau Calculus for SHIQ. In D. Calvanese, E. Franconi, V. Haarslev, D. Lembo, B. Motik, S. Tessaris & A.-Y. Turhan (eds.) Proceedings of the 20th International Workshop on Description Logics. DL'07 (pp. 419–426). Bolzano University Press: Bolzano.
Provers, Decidability	SHIQ +	Horrocks, I. & U. Sattler (2003). Decidability of SHIQ with Complex Role Inclusion Axioms. In Proc. of the International Joint Conference on Artificial Intelligence (IJCAI-2003). Morgan-Kaufmann Publishers.
Provers, Tableau	ALBO	Schmidt, Renate & Dmitry Tishkovsky (2004). Deciding ALBO With Tableau. In D. Calvanese, E. Franconi, V. Haarslev, D. Lembo, B. Motik, S. Tessaris & A.-Y. Turhan (eds.) Proceedings of the 20th International Workshop on Description Logics. DL'07 (pp. 135–146). Bolzano University Press: Bolzano.

Support for Ontology development

Ontology reuse		Cuenca Grau, Bernardo, Ian Horrocks, Yevgeny Kazakov & Ulrike Sattler (2004). Ontology Reuse: Better Safe than Sorry. In D. Calvanese, E. Franconi, V. Haarslev, D. Lembo, B. Motik, S. Tessaris & A.-Y. Turhan (eds.) Proceedings of the 20th International Workshop on Description Logics. DL'07 (pp. 41–52). Bolzano University Press: Bolzano.
Ontology extension		Ghilardi, Silvio, Carsten Lutz & Frank Wolter (2006). Did I Damage my Ontology? A Case for Conservative Extensions in Description Logics. In Tenth International Conference on Principles of Knowledge Representation and Reasoning (KR06).
Ontology multiple		Cuenca Grau, B., B. Parsia & E. Sirin (2004). Working with Multiple Ontologies on the Semantic Web. In Proceedings of the 3th International Semantic Web Conference (ISWC-2004). http://www.mindswap.org/2004/multipleOnt/papers/multipleOnt.pdf