

References

- [1] Agirre, E. and Rigau, G. (1996). Word Sense Disambiguation using Conceptual Density. In *Proceedings of the 16th International Conference on Computational Linguistics (Coling'96)*, pages 16–22, Copenhagen, Denmark.
- [2] Ahmed, K. (2000). Topic maps for repositories. In *XML Europe*, Paris, France.
- [3] Alani, H., Jones, C., and Tudhope, D. (2000). Associative and Spatial Relationships in Thesaurus-based Retrieval. *Lecture Notes in Computer Science. Research and Advanced Technology for Digital Libraries: 4th European Conference, ECDL.*, 1923/2000:45–55.
- [4] Albertoni, R., Bertone, A., Demšar, U., Martino, M. D., and Hauska, H. (2003). Knowledge Extraction by Visual Data Mining of Metadata in Site Planning. In *Proceedings of the 9th Scandinavian Research Conference on Geographic Information Science, ScanGIS2003*, pages 119–130, Espoo, Finland.
- [5] Aleksovski, Z., Klein, M., ten Kate, W., and van Harmelen, F. (2006). Matching unstructured vocabularies using a background ontology. *Lecture Notes in Computer Science*, 4248:182–197.
- [6] Alfons, J. (2005). Reconeixement de Formes. Technical report, Universidad Politecnica de Valencia.
- [7] Amann, B., Fundulaki, I., and Scholl, M. (2000). Integrating ontologies and thesauri for RDF schema creation and metadata querying. *International Journal on Digital Libraries*, 3(3):221–236.
- [8] ANSI/NISO (2003). Information Retrieval: Application Service Definition and Protocol Specification. Final draft for review Z39.50, Z39.50 Maintenance Agency. American National Standards Institute (ANSI). <http://lcweb.loc.gov/z3950/agency/profiles/collections.html>.
- [9] ANSI/NISO (2005). Guidelines for the Construction, Format, and Management of Monolingual Thesauri. ANSI/NISO Z39.19-2005, American National Standards Institute (ANSI). Revision of Z39.19-1983.
- [10] Antoniou, G. and van Harmelen, F. (2004). *A Semantic Web Primer*, chapter Ontology engineering, pages 205–222. Massachusetts Institute of Technology.

- [11] Astrova, I. (2004). Reverse engineering of relational databases to ontologies. In *Proceedings of the 1st European Semantic Web Symposium (ESWS)*, volume 3053 of *LNCS*, page 327341.
- [12] Astrova, I. and Stantic, B. (2005). An html-form-driven approach to reverse engineering of relational databases to ontologies. In *Databases and Applications*, pages 246–251.
- [13] Baeza-Yates, R. and Ribeiro-Neto, B. (1999). *Modern Information Retrieval*. New York. ACM Press, Addison Wesley.
- [14] Ball, G. and Hall, D. (1965). ISODATA, A novel method of data analysis and pattern classification. NTIS AD699616, Standford Research Institute, Standford, California.
- [15] Batschi, W.-D., Felluga, B., Legat, R., Plini, P., Stallbaumer, H., and Zirm, K. L. (2002). SuperThes: A New Software for Construction, Maintenance and Visualisation of Multilingual Thesauri. In *Proceedings of the Environmental Communication in the Information Society*, Vienna.
- [16] Bechhofer, S., van Harmelen, F., Hendler, J., Horrocks, I., McGuinness, D. L., Patel-Schneider, P. F., and Stein, L. A. (2004). *OWL Web Ontology Language Reference*. W3C, W3C Recommendation 10 February 2004. <http://www.w3.org/TR/2004/REC-owl-ref-20040210/>.
- [17] Bermudez, L. and Piasecki, M. (2006). Metadata Community Profiles for the Semantic Web. *Geoinformatica*, 10:159–176.
- [18] Berry, M., Drmac, Z., and Jessup, E. (1999). Matrices, Vector Spaces, and Information Retrieval. *SIAM Review*, 41:335362.
- [19] Binding, C. and Tudhope, D. (2004). KOS at your Service: Programmatic Access to Knowledge Organisation Systems. *Journal of Digital Information*, 4 Issue 4. 26 pages.
- [20] Borgida, A., Brachman, R. J., McGuinness, D. L., and Resnick, L. A. (1989). CLASSIC: A Structural Data Model for Objects. In *Proceedings of the 1989 ACM SIGMOD International Conference on Management of Data*, pages 59–67.
- [21] Borgo, S. (2007). *Ontologies for Urban Development*, volume 61 of *Studies in Computational Intelligence*, chapter How Formal Ontology can help Civil Engineers, pages 37–45. Springer Berlin / Heidelberg.
- [22] Boulos, M. N. K., Roudsari, A. V., and Carson, E. R. (2001). Towards a Semantic Medical Web: HealthCyberMaps Dublin Core Ontology in Protégé-2000. In *Fifth International Protégé Workshop*, SCHIN, Newcastle, UK.
- [23] Bouquet, P., Serafini, L., Zanobini, S., and Sceffer, S. (2006). Bootstrapping semantics on the web: meaning elicitation from schemas. In *Proceedings of the 15th international conference on World Wide Web table of contents*, pages 505 – 512, Edinburgh, Scotland.
- [24] Brachman, R. J. (1983). What IS-A Is and Isn't: An Analysis of Taxonomic Links in Semantic Networks. *Computer*, 16(10):30 – 36.
- [25] British Standards Institute (1985). Guide to establishment and development of multilingual thesauri. BS 6723, British Standards Institute (BSI).
- [26] British Standards Institute (1987). Guide to establishment and development of monolingual thesauri. BS 5723, British Standards Institute (BSI).

- [27] British Standards Institute (2007). Structured vocabularies for information retrieval. Guide. BS 8723, British Standards Institute (BSI).
- [28] Calvanese, D., Giacomo, G. D., and Lenzerini, M. (2001). A framework for ontology integration. In *Proceedings of the 1st Internationally Semantic Web Working Symposium (SWWS)*, Stanford, CA, USA.
- [29] Chaudhri, V. K., Farquhar, A., Fikes, R., Karp, P. D., and Rice, J. P. (1998). Open Knowledge Base Connectivity 2.0. Technical Report KSL-98-06, Knowledge Systems Laboratory, Stanford, CA.
- [30] Cimiano, P. (2006). *Ontology Learning and Population from Text. Algorithms, Evaluation and Applications*. Springer Science+Business Media, LLC, New York.
- [31] Clark, P., Thompson, J., Holmback, H., and Duncan, L. (2000). Exploiting a thesaurus-based semantic net for knowledge-based search. In *Proc 12th Conf on Innovative Application of AI (AAAI/IAAI'00)*, pages 988–995.
- [32] Cohen, W. W., Ravikumar, P., and Fienberg, S. E. (2003). A comparison of string metrics for matching names and records. In *Proceedings of the KKD Workshop on Data cleaning and Object Consolidation*, pages 73 – 78, Washington (DC US).
- [33] Compatangelo, E. and Meisel, H. (2002). Intelligent support to knowledge sharing through the articulation of class schemas. In *Proceedings of the 6th International Conference on Knowledge-Based Intelligent Information & Engineering Systems*, Crema, Italy.
- [34] Cross, P., Brickley, D., and Koch, T. (2001). RDF Thesaurus Specification. Technical Report 1011, Intitute for Learning and Research Technology.
- [35] Cutting, D. R., Karger, D. R., Pedersen, J. O., and W.Tukey, J. (1992). Scatter/Gather: A Cluster-based Approach to Browsing Large Document Collections. In *Proceedings of the 15th annual international ACM SIGIR conference on Research and development in information retrieval*, pages 318–329, Copenhagen, Denmark.
- [36] d’Aquin, M., Baldassarre, C., Gridinoc, L., Sabou, M., Angeletou, S., and Motta, E. (2007). Watson: Supporting next generation semantic web applications. In *Proceedings of the WWW/Internet conference*, Vila real, Spain.
- [37] Davis, R., Shrobe, H., and Szolovits, P. (1993). What is a knowledge representation? *AI Magazine*, Spring:17–33.
- [38] Demšar, U. (2004). A visualization of a Hierarchical Structure in Geographical metadata. In *Proceedings of the 7th AGILE Conference on Geographic Information Science*, pages 213–221. Heraklion, Greece.
- [39] Denny, M. (2002). Ontology building: a Survey of Editing tools. *XML.com*, November:1–4. <http://xml.com/pub/a/2002/11/06/ontologies.html>.
- [40] Dewey, M. (1876). *A Classification and Subject Index for Cataloguing and Arranging the Books and Pamphlets of a Library (Dewey Decimal Classification)*. Project Gutenberg Literary Archive Foundation.
- [41] Ding, L., Finin, T., Joshi, A., Peng, Y., Cost, R. S., Sachs, J., Pan, R., Reddipari, P., and Doshi, V. (2004). Swoogle: A semantic web search and metadata

- engine. In *Proceedings of the Thirteenth ACM Conference on Information and Knowledge Management*.
- [42] Doan, A., Madhavan, J., Domingos, P., and Halevy, A. (2002). Learning to Map between Ontologies on the Semantic Web. In *The Eleventh International WWW Conference*, Hawaii, US.
- [43] Doerr, M. (2001). Semantic Problems of Thesaurus Mapping. *Journal of Digital Information*, 1, Issue 8(52):1–25.
- [44] Dubes, R. C. and Jain, A. K. (1988). *Algorithms for Clustering Data*. Prentice Hall.
- [45] Ehrig, M. (2007). *Ontology Aligment: Bridging the Semantic Gap*. Semantic Web and Beyond: Computing for Human Experience. Springer, 1 edition.
- [46] European Union Commission (1994). Report on Europe and the Global Information Society: Recommendations of the High-level Group on the Information Society to the Corfu European Council. EU Commission - COM Document Supplement No. 2/94, European Union Commission. Bangemann Report.
- [47] Euzenat, J., Bach, T. L., Barrasa, J., Bouquet, P., Bo, J. D., Dieng, R., Ehrig, M., Hauswirth, M., Jarrar, M., Lara, R., Maynard, D., Napoli, A., Stamou, G., Stuckenschmidt, H., Shvaiko, P., Tessaris, S., Acker, S. V., and Zaihrayeu, I. (2004). State of the art on ontology alignment. Technical Report D2.2.3, Knowledge Web.
- [48] Euzenat, J. and Shvaiko, P. (2007). *Ontology Matching*. Springer Berlin Heidelberg New York.
- [49] Faro, S., Francesconi, E., and Sandrucci, V. (2007). Thesauri kos analysis and selected thesaurus mapping methodology on the project case-study. TENDER N 10118 - EUROVOC Studies LOT2 1.5, ITTIG-CNR Institute of Legal Information Theory and Techniques.
- [50] Farquhar, A., Fikes, R., and Rice, J. (1996). The Ontolingua Server: A Tool for Collaborative Ontology Construction. Technical Report KSL 96-26, Stanford University, Knowledge Systems Laboratory.
- [51] Federal Geographic Data Committee (FGDC) (1998). Content Standard for Digital Geospatial Metadata, version 2.0. Document FGDC-STD-001-1998, Metadata Ad Hoc Working Group.
- [52] Fellbaum, C., editor (1998). *WordNet. An Electronic Lexical Database*. MIT Press.
- [53] Fernández-Breis, J. T. and Martínez-Béjar, R. (2002). A cooperative framework for integrating ontologies. *International Journal of Human-Computer Studies*, 56(6):665–720.
- [54] Fikes, R. and Kehler, T. (1985). The role of frame based representation in reasoning. *Communications of ACM*, 28(9):904–920.
- [55] Fisher, D. H. (1987). Knowledge Acquisition Via Incremental Conceptual Clustering. *Machine Learning*, 2:139–172.
- [56] Fisher, D. H. (1998). *Structures and relations in knowledge organization: proc. 5th Int. ISKO Conference*, chapter From thesauri towards ontologies?, pages 18–30. Number 18-30. Würzburg: Ergon, Lille (France).

- [57] Foskett, D. J. (1997). *Readings in Information Retrieval*, chapter Thesaurus, pages 111–134. Morgan Kaufmann.
- [58] Friedman-Hill, E. (2003). *Jess in Action: Rule-Based Systems in Java*. Manning Publication Co.
- [59] Garshol, L. M. (2004). Metadata? Thesauri? Taxonomies? Topic Maps!. Making sense of it all. Technical report, Ontopia.
- [60] Geller, J., Chun, S. A., and Jung, Y. (2008). Toward the Semantic Deep Web. *Computer*, 41(9):95–97.
- [61] Genesereth, M. R. and Fikes, R. E. (1992). Knowledge Interchange Format, Version 3.0 Reference Manual. Technical Report Logic-92-1, Computer Science Department, Stanford University.
- [62] Giarratano, J. and Riley, G. (1998). *Expert Systems: Principles and Programming*. PWS-Kent, Boston, MA., 3rd edition.
- [63] Gil-García, R. J., Badía-Contelles, J. M., and Pons-Porrata, A. (2003). *Progress in Pattern Recognition, Speech and Image Analysis*, volume 2905 of *Lecture Notes in Computer Science*, chapter Extended Star Clustering Algorithm, pages 480–487. Springer.
- [64] Giunchiglia, F. and Shvaiko, P. (2003). Semantic matching. *The Knowledge Engineering Review*, 18(3):265–280.
- [65] Gómez-Pérez, A., Fernández-López, M., and Corcho, O. (2003). *Ontological Engineering*, chapter Methodologies and Methods for Building Ontologies. Springer-Verlag, London (United Kingdom).
- [66] Gómez-Pérez, A. and Manzano-Macho, D. (2003). A survey of ontology learning methods and techniques. Deliberable 1.5, OntoWeb Consortium.
- [67] Golbeck, J., Frago, G., Hartel, F., Hendler, J., Parsia, B., and Oberthaler, J. (2003). The national cancer institute’s thesaurus and ontology. *Journal of Web Semantics*, 1(1):1–5.
- [68] Gonzalo, J., Verdejo, F., Peters, C., and Calzolari, N. (1998). Applying EuroWordNet to Cross-Language Text Retrieval. *Computers and the Humanities*, Special Issue on EuroWord-Net(2-3):185–207.
- [69] Gruber, T. (1993). A translation approach to portable ontology specifications. *ACM Knowledge Acquisition, Special issue: Current issues in knowledge modeling*, 5, Issue 2(KSL 92-71):199–220.
- [70] Gruber, T. R. (1992). Ontolingua: A mechanism to support portable ontologies. Technical Report KSL-91-66, Stanford University, Knowledge Systems Laboratory,. Revision.
- [71] Guarino, N. (1998). Formal Ontologies and Information Systems. In Amsterdam, I. P., editor, *Proceedings of FOIS’98*, pages 3–15, Trento, Italy.
- [72] Guarino, N. and Boldrin, L. (1993). Ontological requirements for knowledge sharing. In *Paper presented at the IJCAI workshop for knowledge sharing and information interchange*, Chambéry, France.
- [73] Guarino, N., Masolo, C., and Vetere, G. (1999). OntoSeek: Content-Based Access to the Web. *IEEE Intelligent Systems*, 14(3):70–80.
- [74] Heath, B., McArthur, D., and Vetter, R. (2005). Metadata lessons from the iLumina digital library. *Communications of the ACM*, 48(7):68–74.

- [75] Heery, R., Johnston, P., Beckett, D., and Rogers, N. (2005). JISC metadata schema registry. In *5th ACM/IEEE-CS joint conference on Digital libraries*, page 381.
- [76] Hepp, M. and de Bruijn, J. (2007). Gentax: A generic methodology for deriving owl and rdf-s ontologies from hierarchical classifications, thesauri, and inconsistent taxonomies. In *LNCS, Proceedings of the 4th European Semantic Web Conference (ESWC 2007)*, volume 4519, pages 129–144, Innsbruck, Austria. Springer.
- [77] Hodge, G. (2000). *Systems of Knowledge Organization for Digital Libraries: Beyond Traditional Authority Files*. The Digital Library Federation, Washington DC.
- [78] Horrocks, I. and Patel-Schneider, P. (2003). Foundations of the semantic web: Three theses of representation in the semantic web. *Proceedings of the Twelfth International World Wide Web Conference*, 1:39 – 47.
- [79] International Council on Archives (2004). International Standard Archival Authority Record for Corporate Bodies, Persons and Families. Technical Report ISAAR (CPF), International Council on Archives (ICA).
- [80] International Organization for Standardization (1985). Guidelines for the establishment and development of multilingual thesauri. ISO 5964, International Organization for Standardization (ISO).
- [81] International Organization for Standardization (1986). Guidelines for the establishment and development of monolingual thesauri. ISO 2788, International Organization for Standardization (ISO).
- [82] International Organization for Standardization (2002). Codes for the representation of names of languages. ISO 639, International Organization for Standardization (ISO). ISO/TC 37/SC 2.
- [83] International Organization for Standardization (2003a). Computer applications in terminology - terminological markup framework. ISO/DIS 16642, International Organization for Standardization (ISO).
- [84] International Organization for Standardization (2003b). Geographic information - Metadata. ISO 19115:2003, International Organization for Standardization (ISO).
- [85] International Organization for Standardization (2003c). Information and documentation - The Dublin Core metadata element set. ISO 15836:2003, International Organization for Standardization (ISO).
- [86] International Organization for Standardization (2003d). Information technology – SGML applications – Topic Maps. ISO/IEC 13250, International Organization for Standardization (ISO).
- [87] International Organization for Standardization (2005). Geographic information - Services. ISO/DIS 19119, International Organization for Standardization (ISO), ISO/TC 211.
- [88] International Organization for Standardization (2007a). Geographic information – Metadata – XML schema implementation. ISO/WD 19139, International Organization for Standardization (ISO), ISO/TC 211.

- [89] International Organization for Standardization (2007b). Information technology – Common Logic (CL): a framework for a family of logic-based languages. Technical report, International Organization for Standardization (ISO).
- [90] International Organization for Standardization (2008a). Language resource management lexical markup framework (lrm). ISO/FDIS 24613, International Organization for Standardization (ISO).
- [91] International Organization for Standardization (2008b). Terminology and other language and content resources computer applications in terminology termbase exchange format specification (tbx). ISO/DIS 30042.2, International Organization for Standardization (ISO).
- [92] International Organization for Standardization (2010). Thesauri and Interoperability with other Vocabularies. Technical report, International Organization for Standardization (ISO).
- [93] International Terminology Working Group (1996). Guidelines for Forming Language Equivalents: A Model Based on the Art&Architecture Thesaurus. Technical report, Getty Information Institute.
- [94] Isaac, A. and Summers, E., editors (2009). *SKOS Simple Knowledge Organization System Primer*. W3C Candidate Recommendation. W3C. <http://www.w3.org/TR/skos-primer/>.
- [95] Jain, A. K. and Dubes, R. C. (1988). *Algorithms for Clustering Data*. Prentice Hall.
- [96] Janée, G. and Frew, J. (2002). The ADEPT digital library architecture. In *Proceedings of the second ACM/IEEE-CS joint conference on Digital libraries*, pages 342 – 350, Portland, Oregon, USA.
- [97] Janée, G., Ikeda, S., and Hill, L. L. (2003). The ADL Thesaurus Protocol. Technical report, Alexandria Digital Library Project.
- [98] Jannink, J. (1999). Thesaurus entry extraction from an on-line dictionary. In *Proceedings of Fusion '99*.
- [99] Johannesson, P. (1994). A Method for Transforming Relational Schemas into Conceptual Schemas. In Rusinkiewicz, M., editor, *10th International Conference on Data Engineering*, pages 115 – 122, Houston. IEEE Press.
- [100] Jones, C. B., Alani, H., and Tudhope, D. (2001). Geographical Information Retrieval with Ontologies of Place. *Lecture Notes in Computer Science*, 2205:322–335.
- [101] Kalfoglou, Y. and Hu, B. (2005). CROSI Mapping System (CMS) Results of the 2005 Ontology Alignment Contest. In *Integrating Ontologies workshop at the 3rd International Conference on Knowledge Capture*, Banff, Canada.
- [102] Kalfoglou, Y. and Schorlemmer, M. (2002). Information Flow based Ontology Mapping. In *1st International Conference on Ontologies, Databases and Application of Semantics (ODBASE'02)*, Irvine, CA, USA.
- [103] Kalfoglou, Y. and Schorlemmer, M. (2003a). If-map: an ontology mapping method based on information flow theory. *Journal on Data Semantics*, 1:98127.
- [104] Kalfoglou, Y. and Schorlemmer, M. (2003b). Ontology Mapping: The state of the art. *The Knowledge Engineering Review*, 18(1):1–31.

- [105] Kalyanpur, A., Parsia, B., Sirin, E., Cuenca-Grau, B., and Hendler, J. (2005). Swoop: A 'Web' Ontology Editing Browser. *Web Semantics: Science, Services and Agents on the World Wide Web*, 4(2):144–153.
- [106] Kang, S.-S. (2003). Keyword-based document clustering. In *Proceedings of the Sixth International Workshop on Information Retrieval with Asian Languages*, pages 132–137.
- [107] Kashyap, V. (1999). Design and creation of ontologies for environmental information retrieval. In *12th Workshop on Knowledge Acquisition Modeling and Management (KAW'99)*, Banff, Canada.
- [108] Kaufman, L. and Rousseeuw, P. J. (1990). *Finding Groups in Data: an Introduction to Cluster Analysis*. John Wiley & Sons.
- [109] Kawtrakul, A., Imsombut, A., Thunkijjanukit, A., Soergel, D., Liang, A., Sini, M., Johannsen, G., and Keizer, J. (2005). Automatic Term Relationship Cleaning and Refinement for AGROVOC. In *Workshop on The Sixth Agricultural Ontology Service*, Vila Real, Portugal.
- [110] Kietz, J. U., Maedche, A., and Volz, R. (2000). A method for semi-automatic ontology acquisition from a corporate intranet. In *Proceedings of Workshop Ontologies and Text, EKAW'2000*.
- [111] Klein, M. and Fensel, D. (2001). Ontology versioning for the Semantic Web. In *International Semantic Web Working Symposium (SWWS)*.
- [112] Koch, T., Neuroth, H., and Day, M. (2001). *Subject Retrieval in a Networked Environment: Papers Presented at an IFLA Satellite Meeting*, chapter Renardus: cross-browsing european subject gateways via a common classification system (DDC), pages 1–8. IFLA Section on Classification and Indexing & IFLA Section on Information Technology.
- [113] Kotis, K. and Vouros, G. (2004). The HCONE Approach to Ontology Merging. *Lecture Notes in Computer Science*, 3053:137–151.
- [114] Krowne, A. and Halbert, M. (2004). An Evaluation of Clustering and Automatic Classification For Digital Library Browse Ontologies. Metacombine project report, <http://metacombine.org>.
- [115] Lacasta, J., Muro-Medrano, P. R., Nogueras-Iso, J., and Zarazaga-Soria, F. J. (2005). Web ontology service, a key component of a spatial data infrastructure. In *Proceedings of the 11th EC GI & GIS Workshop, ESDI Setting the Framework*. 10 Pages.
- [116] Lacasta, J., Nogueras-Iso, J., Béjar, R., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. (2007a). A Web Ontology Service to facilitate interoperability within a Spatial Data Infrastructure: applicability to discovery. *Data & Knowledge Engineering*, 63(3):947–971.
- [117] Lacasta, J., Nogueras-Iso, J., López-Pellicer, F. J., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. J. (2007b). ThManager: An Open Source Tool for creating and visualizing SKOS. *Information Technology and Libraries (ITAL)*, 26(3):39–51.
- [118] Lacasta, J., Nogueras-Iso, J., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. (2007c). Thematic clustering of geographic resource metadata collections. *Lec-*

- ture Notes in Computer Science (LNCS), 7th International Symposium on Web and Wireless GIS (W2GIS 2007), 4857:30–43.
- [119] Lacasta, J., Nogueras-Iso, J., Tolosana-Calasanz, R., López-Pellicer, F. J., and Zarazaga-Soria, F. J. (2006). Automating the Thematic Characterization of Geographic Resource Collections by Means of Topic Maps. In *Proceedings of the 9th AGILE International Conference on Geographic Information Science*, pages 81–89. Visegrád, Hungary.
- [120] Lacasta, J., Nogueras-Iso, J., Torres, M. P., and Zarazaga-Soria, F. J. (2003). Towards the geographic metadata standard interoperability. In *Proceedings of AGILE 2003: 6th AGILE Conference on Geographic Information Science*, pages 555–565.
- [121] Lacasta, J., Nogueras-Iso, J., Zarazaga-Soria, F. J., and Muro-Medrano, P. R. (2008). *Conceptual Models for Urban Practitioners.*, chapter Generating an urban domain ontology through the merging of cross-domain lexical ontologies, pages 69–84. Società Editrice Esculapio, Bologna.
- [122] Lacher, M. S. and Groh, G. (2001). Facilitating the exchange of explicit knowledge through ontology mappings. In *Proceedings of the 14th International FLAIRS Conference*, Key West FL, USA.
- [123] Lassila, O. and MacGuinness, D. (2001). The Role of Frame-Based Representations on the Semantic Web. Technical Report KSL-01-02, Knowledge Systems Laboratory, Stanford University, Stanford, California.
- [124] Latre, M. A., Lacasta, J., Mojica, E., Nogueras-Iso, J., and Zarazaga-Soria, F. J. (2009). An approach to facilitate the integration of hydrological data by means of ontologies and multilingual thesauri. In Sester, M., Bernard, L., and Paelke, V., editors, *Advances in GIScience. Lecture Notes in Geoinformation and Cartography (LNGC)*, pages 155–171.
- [125] Latre, M. A., Zarazaga-Soria, F. J., Nogueras-Iso, J., Béjar, R., and Muro-Medrano, P. R. (2005). SDIGER: A cross-border inter-administration SDI to support WFD information access for Adour-Garonne and Ebro River Basins. In *Proceedings of the 11th EC GI & GIS Workshop, ESDI Setting the Framework*, Alguero, Italy.
- [126] Lauser, B., Sini, M., Salokhe, G., Keizer, J., and Katz, S. (2006). Agrovoc Web Services: Improved, real-time access to an agricultural thesaurus. *Quarterly Bulletin of the International Association of Agricultural Information Specialists (IAALD)*, 1019-9926(2):79–81.
- [127] Lenat, D. B. (1995). CYC: A large-scale investment in knowledge infrastructure. *Communications of the ACM*, 38(11):33–38.
- [128] Lenat, D. B. and Guha, R. V. (1991). The evolution of CycL, the Cyc representation language. *ACM SIGART Bulletin, Special issue on implemented knowledge representation and reasoning systems*, 2(3):84 – 87.
- [129] Lesk, M. (1997). *Practical Digital Libraries*. Morgan Kaufmann, San Francisco.
- [130] Lieberman, J., editor (2003). *OpenGIS Web Services Architecture, v0.3*. Number 0.3 in OGC. Open Geospatial Consortium.

- [131] Lim, E.-P., Srivastava, J., Prabhakar, S., and Richardson, J. (1993). Entity identification in database integration. In *Proceedings of the 9th International Conference on Data Engineering (ICDE)*.
- [132] Lindberg, D., Humphreys, B., and McCray, A. (1998). The unified medical language system. *Journal of the American Medical Informatics Association*, 32(4):281–291.
- [133] Maedche, A. and Staab, S. (2002). Measuring similarity between ontologies. *Lecture Notes In Computer Science*, 2473:251–263.
- [134] Masolo, C., Borgo, S., Gangemi, A., Guarino, N., Oltramari, A., and Schneider, L. (2003). Wonderweb deliverable d17: The wonderweb library of foundational ontologies. Technical report, ISTC-CNR.
- [135] Matthews, B. M., Wilson, M. D., Miller, K., and Ryssevik, J. (2001). Internationalising data access through LIMBER. In *Third international workshop on internationalisation of products and systems*.
- [136] McGuinness, D. L., Fikes, R., Rice, J., and Wilder, S. (2000). An environment for merging and testing large ontologies. In *Proceedings of the Seventh International Conference on Principles of Knowledge Representation and Reasoning (KR2000)*, pages 12–15, Breckenridge, Colorado.
- [137] McIlwaine, I. C. (1998). The Universal Decimal Classification: Some factors concerning its origins, development, and influence. *Journal of the American Society for Information Science*, 48(4):331–339.
- [138] McIlwaine, I. C. (2000). *The Universal Decimal Classification: A guide to its use*. Number P035 in UDC Publication. UDC Publication, 3rd edition.
- [139] Miles, A. and Bechhofer, S., editors (2009). *SKOS Simple Knowledge Organization System Reference*. W3C Candidate Recommendation. W3C. <http://www.w3.org/TR/skos-reference/>.
- [140] Miles, A. and Brickley, D., editors (2004). *SKOS Mapping Vocabulary Specification*. W3C. <http://www.w3.org/2004/02/skos/mapping/spec/2004-11-11.html>.
- [141] Miles, A., Matthews, B., and Wilson, M. (2005). SKOS Core: Simple Knowledge organization for the WEB. In *Proceedings of the International Conference on Dublin Core and Metadata Applications*, pages 5–13, Madrid, Spain.
- [142] Miles, A., Rogers, N., and Beckett, D. (2004). Migrating thesauri to the semantic web - guidelines and case studies for generating rdf encodings of existing thesauri. Technical Report Deliverable 8.8, SWAD-Europe.
- [143] Minsky, M. (1981). *Mind design. Philosophy, Psychology, and Artificial Intelligence*, chapter A framework for representing knowledge, pages 95–128. MIT Press, Cambridge MA.
- [144] Missikoff, M., Velardi, P., and Fabriani, P. (2003). Text mining techniques to automatically enrich a domain ontology. *Applied Intelligence*, 18:323–340.
- [145] Mizoguchi, R., Vanwelkenhuysen, J., and Ikeda, M. (1995). *Towards Very Large Knowledge Bases: Knowledge Building & Knowledge Sharing*, chapter Task Ontology for Reuse of Problem Solving Knowledge, pages 46–59. IOS Press.

- [146] Navigli, R., Velardi, P., and Gangemi, A. (2003). Ontology learning and its application to automated terminology translation. *IEEE Intelligent Systems*, 18(1).
- [147] Nebert, D., editor (2004). *Developing Spatial Data Infrastructures: The SDI Cookbook v.2.0*. Global Spatial Data Infrastructure (GSDI), <http://www.gsdi.org>.
- [148] Network development and Marc Standard Office (2006a). Marc 21 Concise format for Authority Data. MARC 21, Library of Congress.
- [149] Network development and Marc Standard Office (2006b). Marc 21 Concise format for Bibliographic Data. MARC 21, Library of Congress.
- [150] Niles, I. and Pease, A. (2001). Towards a standard upper ontology. In *Proceedings of the international conference on Formal Ontology in Information Systems*, pages 2 – 9, Ogunquit, Maine, USA.
- [151] Nogueras-Iso, J., Bañares, J. A., Lacasta, J., and Zarazaga-Soria, F. J. (2003). A software tool for thesauri management, browsing and supporting advanced searches. In *Geodaten- und Geodienste-Infrastrukturen - von der Forschung zur praktischen Anwendung. Beiträge zu den Münsteraner GI-Tagen 26./27. Juni 2003*, volume 18, pages 105–118, Münster, Germany. IFGIprints.
- [152] Nogueras-Iso, J., Lacasta, J., Teller, J., Falquet, G., and Guyot, J. (2010). *Ontology Theory, Management and Design: Advanced Tools and Models*, chapter Ontology learning from thesauri: an experience in the urban domain (chap. 11). IGI Global Publisher. ISBN 978-1615208593.
- [153] Nogueras-Iso, J., López-Pellicer, F. J., Lacasta, J., Zarazaga-Soria, F. J., and Muro-Medrano, P. R. (2007). *Ontologies for Urban Development: Interfacing Urban Information Systems*, volume 61 of *Studies in Computational Intelligence*, chapter Building an Address Gazetteer on top of an Urban Network Ontology, pages 157–167. Springer.
- [154] Nogueras-Iso, J., Zarazaga-Soria, F. J., Lacasta, J., Béjar, R., and Muro-Medrano, P. R. (2004a). Metadata Standard Interoperability: Application in the Geographic Information Domain. *Computers, Environment and Urban Systems*, 28(6):611–634.
- [155] Nogueras-Iso, J., Zarazaga-Soria, F. J., Lacasta, J., Tolosana-Calasanz, R., and Muro-Medrano, P. R. (2004b). Improving multilingual catalog search services by means of multilingual thesaurus disambiguation. In *Proceedings of the 10th European Commission GI&GIS Workshop, ESDI: The State of the Art*, Warsaw, Poland. 14 pages.
- [156] Nogueras-Iso, J., Zarazaga-Soria, F. J., and Muro-Medrano, P. R. (2005). *Geographic Information Metadata for Spatial Data Infrastructures - Resources, Interoperability and Information Retrieval*. Springer Verlag.
- [157] Noy, N., editor (2005). *Representing Classes As Property Values on the Semantic Web*. W3C.
- [158] Noy, N. F., Fergerson, R. W., and Musen, M. A. (2000). *Proceedings of the 12th European Workshop on Knowledge Acquisition, Modeling and Management*, volume 1937 of *Lecture Notes In Computer Science*, chapter The knowledge model of Protégé-2000: Combining interoperability and flexibility, pages 17–32. Springer-Verlag, Juan-les-Pins, France.

- [159] Noy, N. F. and Musen, M. A. (1999). SMART: Automated Support for Ontology Merging and Alignment. In *Twelfth Workshop on Knowledge Acquisition, Modeling, and Management*, Banff, Canada.
- [160] Noy, N. F. and Musen, M. A. (2000). PROMPT: Algorithm and tool for automated ontology merging and alignment. In *Proceedings of the 17th National Conference on Artificial Intelligence*, pages 450–455.
- [161] Online Computer Library Center (2003). *Dewey Decimal Classification System, 22nd edition*. Online Computer Library Center (OCLC).
- [162] Palma, R., Haase, P., and In, A. G.-P. . . (2006). Oyster: sharing and re-using ontologies in a peer-to-peer community. In ACM Press, New York, N., editor, *Proceedings of the 15th International Conference on World Wide Web*, pages 1009–1010, Edinburgh, Scotland.
- [163] Pepper, S., Moore, G. (eds.) (2001). XML Topic Maps (XTM) 1.0. Technical report, <http://www.topicmaps.org>.
- [164] Podolak, I. and Demšar, U. (2004). Discovering structure in geographical metadata. In *Proceedings of the 12th conference in Geoinformatics*, pages 1–7, Galve, Sweden.
- [165] Prasad, S., Peng, Y., and Finin, T. (2002). Using explicit information to map between two ontologies. In *Proceedings of the AAMAS Workshop on Ontologies in Agent Systems*, Bologna, Italy.
- [166] Rahm, E. and Bernstein, P. A. (2001). A survey of approaches to automatic schema matching. *The VLDB Journal The International Journal on Very Large Data Bases archive*, 10(4):334 – 350.
- [167] Rahm, E., Do, H.-H., and Maßmann, S. (2004). Matching large xml schemas. *ACM SIGMOD Record archive*, 33(4):26 – 31.
- [168] Ranganathan, S. R. (1962). *Elements of library classification*. Asia Publishing House, Bombay.
- [169] Resnik, P. (1995). Disambiguating noun groupings with respect to WordNet senses. In *Proc. of the 3rd Workshop on Very Large Corpora*. MIT.
- [170] Rigau, G., Rodríguez, H., and Agirre, E. (1998). Building accurate semantic taxonomies from monolingual mrds. In *Proc. 17th International Conference on Computational Linguistics and 36th Annual Meeting of the Association for Computational Linguistics COLING-ACL'98*, Montreal, Canada.
- [171] Roussey, C. (2005). Guidelines to build ontologies : A bibliographic study. Technical report nr. 1, COST Action C21. <http://www.towntology.net/Documents/guidelines.pdf>.
- [172] Schaerf, A. (1994). *Query answering in Concept-Based Knowledge Representation Systems: Algorithms, Complexity and Semantic Issues*. PhD thesis, Dipartimento di Informatica e Sistemistica. Università di Roma 'La Sapienza'.
- [173] Schlieder, C. and Vögele, T. (2002). Indexing and Browsing Digital Maps with Intelligent Thumbnails. In *Spatial Data Handling 2002 (SDH'02)*, Ottawa, Canada. 12 pages.
- [174] Schlieder, C., Vögele, T., and Visser, U. (2001). Qualitative Spatial Representation for Information Retrieval by Gazetteers. In *Proceedings of Conference*

- of Spatial Information Theory COSIT*, volume 2205, pages 336–351, Morrow Bay, CA.
- [175] Sigel, A. (2006). From traditional Knowledge Organization Systems (authority files, classifications, thesauri) towards ontologies on the web. In *Workshop Introducing Terminology-based Ontologies at the 9th International Conference of the International Society for Knowledge Organization (ISKO)*, pages 3–53, Vienna, Austria. Published electronically on E-LIS (E-prints in Library and Information Science, <http://eprints.rclis.org>), 2006-07-14.
- [176] Soergel, D., Lauser, B., Liang, A., Fisseha, F., Keizer, J., and Katz, S. (2004). Reengineering Thesauri for New Applications: the AGROVOC Example. *Journal of Digital Information*, 4(4):1–19.
- [177] Soualmia, L., Goldbreich, C., and Darmoni, S. (2004). Representing the mesh in owl: Towards a semi-automatic migration. In *Proceedings of the 1st Intl Workshop on Formal Biomedical Knowledge Representation (KR-MED 2004)*, page 8187, Whistler, Canada.
- [178] Sowa, J. F. (1996). Ontologies for Knowledge Sharing. In *Manuscript of the invited talk at Terminology and Knowledge Engineering Congress (TKE '96)*, Vienna.
- [179] Steinbach, M., Karypis, G., and Kumar, V. (2000). A comparison of document clustering techniques. In *Proceedings of the KDD Workshop on Text Mining*, pages 1–20, Boston, USA.
- [180] Stock, K., editor (2009). *OGC Catalogue Services OWL Application Profile of CSW. Version 0.3.0*. Open Geospatial Consortium (OGC).
- [181] Stojanovic, L., Stojanovic, N., and Volz, R. (2002). Migrating data-intensive web sites into the semantic web. In *Proceedings of the ACM Symposium on Applied Computing SAC-02*, Madrid.
- [182] Stumme, G. and Maedche, A. (2001). Ontology Merging for Federated Ontologies on the Semantic Web. In *Proceedings of the International Workshop for Foundations of Models for Information Integration (FMII-2001)*, Viterbo, Italy.
- [183] Sure, Y., Angele, J., and Staab, S. (2002). *On the Move to Meaningful Internet Systems 2002: CoopIS, DOA, and ODBASE*, volume 2519/2002 of *Lecture Notes in Computer Science*, chapter OntoEdit: Guiding Ontology Development by Methodology and Inferencing, pages 1205–1222. Springer Berlin / Heidelberg.
- [184] Sussna, M. (1993). Word sense disambiguation for free-text indexing using a massive semantic network. In *Proc. of the Second International Conference on Information and Knowledge Management (CIKM-93)*, Arlington, Virginia.
- [185] Tennis, J. T. (2005). SKOS and the Ontogenesis of Vocabularies. In *Dublin Core Conferece: Vocabularies in Practice*.
- [186] Tolosana-Calasanz, R., Alvarez-Robles, J. A., Lacasta, J., Nogueras-Iso, J., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. (2006a). On the problem of identifying the quality of geographic metadata. *Lecture Notes in Computer Science (LNCS), Research and Advanced Technology for Digital Libraries, ECDL 2006*, 4172:232–243.

- [187] Tolosana-Calasanz, R., Noguera-Iso, J., Béjar, R., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. (2006b). Semantic interoperability based on Dublin Core hierarchical one-to-one mappings. *International Journal of Metadata, Semantics and Ontologies*, 1(3):183–188.
- [188] Tolosana-Calasanz, R., Portolés-Rodríguez, D., Noguera-Iso, J., Muro-Medrano, P. R., and Zarazaga-Soria, F. J. (2005). CatServer: A Server of GATOS. In *Proceedings of AGILE 2005: 8th Conference on Geographic Information Science*, pages 359–366.
- [189] Torra, V., Miyamoto, S., and Lanau, S. (2005). Exploration of textual document archives using a fuzzy hierarchical clustering algorithm in the GAMBAL system. *Information Processing and Management*, 41:587–598.
- [190] Tudhope, D., Alani, H., and Jones, C. (2001). Augmenting Thesaurus Relationships: Possibilities for Retrieval. *Journal of Digital Information*, 1, Issue 8(41, 2001-02-05). 22 pages.
- [191] Tudhope, D. and Binding, C. (2005). Towards Terminology Services: experiences with a pilot web service thesaurus browser. In *Proceedings of the International Conference on Dublin Core and Metadata Applications*.
- [192] Tudhope, D., Binding, C., Blocks, D., and Cunliffe, D. (2006a). Query expansion via conceptual distance in thesaurus indexed collections. *Journal of Documentation*, 62(4):509–533.
- [193] Tudhope, D., Koch, T., and Heery, R. (2006b). Terminology services and technology. jisc state of the art review. Technical report, UKOLN.
- [194] United Nations Educational, Scientific and Cultural Organization (UNESCO) (1995). *UNESCO Thesaurus: A Structured List of Descriptors for Indexing and Retrieving Literature in the Fields of Education, Science, Social and Human Science, Culture, Communication and Information*. UNESCO Publishing, Paris. <http://www.ulcc.ac.uk/unesco/>.
- [195] U.S. Congress (1991). *High Performance Computing and Communications Act of 1991*. Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.
- [196] Usländer, T. (2005). Trends of environmental information systems in the context of the European Water Framework directive. *Environmental Modelling & Software*, 20(12):1532–1542.
- [197] van Assem, M., Malaisé, V., Miles, A., and Schreiber, G. (2006). A Method to Convert Thesauri to SKOS. In *Proceedings of the 3rd European Semantic Web Conference (ESWC-06)*, pages 95–109, Budva, Montenegro.
- [198] van Assem, M., Menken, M. R., Schreiber, G., Wielemaker, J., and Wielinga, B. (2004). A method for converting thesauri to RDF/OWL. In McIlraith, S. A., Plexousakis, D., and van Harmelen, F., editors, *Proceedings of the Third International Semantic Web Conference (ISWC 2004)*, Hiroshima, Japan. Springer.
- [199] van Heijst, G., Schreiber, A. T., and Wielinga, B. J. (1997). Using explicit ontologies in KBS development. *International Journal of Human-Computer Studies*, 46(2-3):183 – 292.
- [200] van Heist, G., Schreiber, A. T., and Wielinga, B. J. (1997). Using explicit ontologies in kbs development. *Int J Hum Comput Stud*, 46(2/3):183292.

- [201] Velardi, P., Fabriani, P., and Missikoff, M. (2001). Using text processing techniques to automatically enrich a domain ontology. In *Proceedings of the international conference on Formal Ontology in Information Systems, FOIS 2001*, pages 270–284.
- [202] Volz, R., Oberle, D., Motik, B., and Staab, S. (2003). KAON SERVER - A Semantic Web Management System. In *12th World Wide Web, Alternate Tracks - Practice and Experience*, Hungary, Budapest.
- [203] Vossen, P. (1998). Introduction to EuroWordNet. *Computers and the Humanities (Special Issue on EuroWordNet)*, 32(2-3):73–89.
- [204] Vretanos(Eds), P. (2005). Filter Encoding Implementation Specification, Version 1.1. OpenGIS project document OGC 04-095, OpenGIS Consortium Inc.
- [205] Whiteside, A., editor (2007). *OGC Web Services Common Specification. Version 1.1.0*. Open Geospatial Consortium (OGC).
- [206] Wielemaker, J., Schreiber, G., and Wielinga1, B. (2005). Using Triples for Implementation: The Triple20 Ontology-Manipulation Tool. *Lecture Notes in Computer Science (LNCS)*, 3729:773–785.
- [207] Wielinga, B. J., Schreiber, A. T., Wielemaker, J., and Sandberg, J. A. C. (2001). From Thesaurus to Ontology. In *Proceedings of the 1st international conference on Knowledge capture*, pages 194 – 201, Victoria, British Columbia, Canada.
- [208] Zarazaga-Soria, F., Nogueras-Iso, J., Latre, M., Rodríguez, A., López, E., Vivas, P., and Muro-Medrano, P. (2007). *Research and Theory in Advancing Spatial Data Infrastructure Concepts*, chapter Providing SDI Services in a Cross-Border Scenario: the SDIGER Project Use Case, pages 107–119. ESRI Press.
- [209] Zarazaga-Soria, F., Torres, M., Nogueras-Iso, J., Lacasta, J., and Cantán, O. (2003a). Integrating geographic and non-geographic data search services using metadata crosswalks. In *Proceedings of the 9th EC-GI&GIS Workshop: ESDI: Serving the User*. 12 pages.
- [210] Zarazaga-Soria, F. J., Lacasta, J., Nogueras-Iso, J., Torres, M. P., and Muro-Medrano, P. R. (2003b). A Java Tool for Creating ISO/FGDC Geographic Metadata. In *Geodaten - und Geodienste-Infrastrukturen - von der Forschung zur praktischen Anwendung (Beiträge zu den Münsteraner GI-Tagen)*, volume 18 of *IFGIprints*, pages 17–30, Münster, Germany.
- [211] Zeng, M. and Chan, L. (2004). Trends and issues in establishing interoperability among knowledge organization systems. *Journal of American Society for Information Science and Technology*, 55(5):377–395.

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