LingNet: Networking Linguistic and Terminological Ontologies

Wim Peters
Department of Computer Science
University of Sheffield, UK
w.peters@dcs.shef.ac.uk

Abstract. Linguistic description and linguistically-based re-engineering techniques depend on standardized models. LingNet aims at the alignment of multiple standard description models from the terminological, linguistic and localization fields.

1 Motivation

Linguistic and terminological standards are in daily use for the purpose of linguistic and terminological resource creation (term banks, dictionaries, translation memories etc.). Since there is a variety of standard models available. Examples of terminological and linguistic models are the ISO standard initiatives ISO16620 and the Lexical Markup Framework (LMF) [1]. Furthermore, the purpose of e.g. LexInfo [2] and the Linguistic Information Repository (LIR) [3] is to associate multilingual linguistic knowledge with conceptual ontology elements. In the translation memory area standards such as TMX[1] (Translation Memory eXchange) and XLIFF[2] (XML Localization Interchange File Format) are widely used.

In order to enable interdisciplinary re-use and complementarity it is necessary to establish interoperability between their vocabularies in a principled way. **LingNet**[3] is a model for mapping linguistic and terminological (standard) information in a distributed fashion. The LingNet model adopts a number of modelling decisions from the literature: a knowledge-based, formalism-independent metamodel for capturing semantic alignments between ontologies for linguistic/terminological description [4], references to external mapping patterns for structural mappings [5], and a the integration of a lexicalization relation for linking linguistic/terminological resource to ontological concepts [6].

The novelty of the LingNet model lies in its combination of selected mapping methods and its application to the linguistic/terminological domain. The basic structure of LingNet is illustrated in figure 1 below.

[1] http://www.lisa.org/tmx/
[2] http://docs.oasis-open.org/xliff/v1.2/os/xliff-core.pdf
[3] first version: http://www.gate.ac.uk/ns/ontologies/LingNet/LingNet-v0.1.owl.

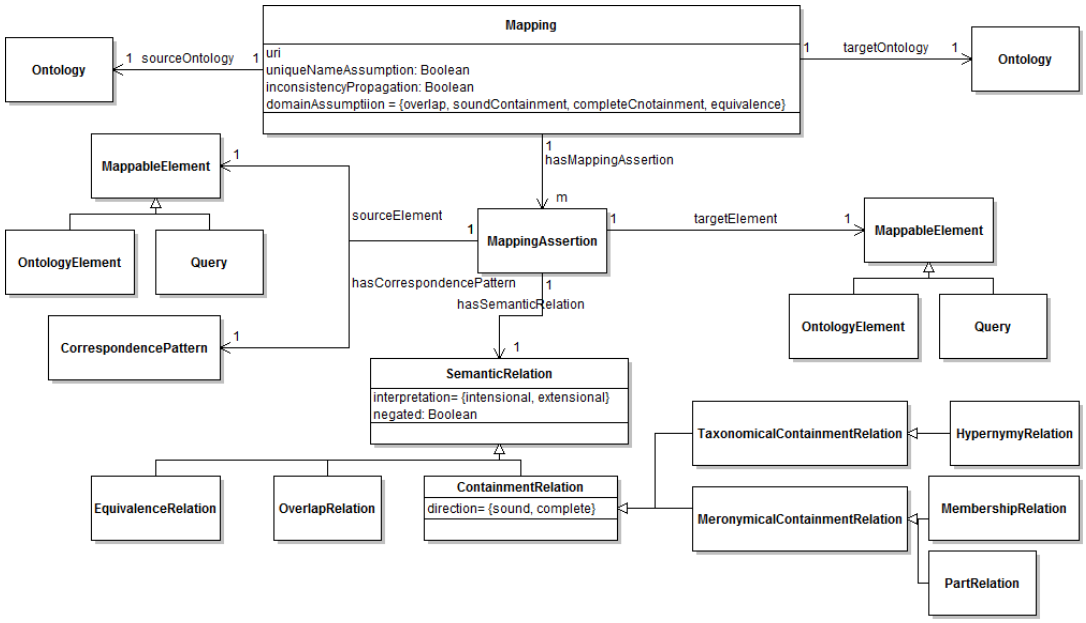

Fig. 1. The LingNet Model

References

1. Francopoulo, G., Monte George, Nicoletta Calzolari, Monica Monachini, Nuria Bel, Mandy Pet, Claudia Soria: LMF for multilingual, specialized lexicons. In: LREC, Genova, Italy (2006)

2. Buitelaar, P., Cimiano, P., Haase, P. and Sintek, M.: Towards Linguistically Grounded Ontologies, in: The Semantic Web: Research and Applications, 6th European Semantic Web Conference, proceedings of ESWC 2009, Heraklion, Crete, Greece, Springer Berlin / Heidelberg, Volume 5554 (2009)

3. Peters, W. Montiel-Ponsoda, E. Aguado de Cea, G.: Localizing Ontologies in OWL. In: Proceedings of the ISWC07 OntoLex workshop, Busan, Korea (2007)

4. Brockmans, S., Haase, P., Stuckenschmidt, H.: Formalism-Independent Specification of Ontology Mappings - A Metamodeling Approach, In: Robert Meersman, R., Tari, Z. et al. (eds), OTM 2006 Conferences, Springer Verlag, Montpellier, France (2006)

5 Scharffe, F. Euzenat, J. and Fensel, D.: Towards design patterns for ontology alignment. In R.L. Wainwright and H. Haddad (eds.): Proceedings of the 2008 ACM Symposium on Applied Computing (SAC), Fortaleza, Ceara, Brazil, March 2008: 2321-2325 (2008)

6 Picca, D., Gangemi, A., and Gliozzo, A.: LMM: an OWL Metamodel to Represent Heterogeneous Lexical Knowledge. In Proc. of the International Conference on Language Resources and Evaluation (LREC), Marrakech, Morocco (2008)