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Using background knowledge in ontology matching

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Abstract of the PhD thesis titled:
Using background knowledge in ontology matching

The current information systems (IS) are improved through an increasing use of knowledge bases (KB). Simply, the KB adds intelligence to the IS. It can improve the quality of information search, help organize the immense amount of information, and reduce the manual effort. Since the knowledge of one domain can be diverse and varying, an IS may use multiple KBs. However, this often needs their integration prior the usage. Solving this particular problem of integrating KBs has a central role in the KB research. At the moment many prototype systems are available which use different approaches or combination of multiple approaches to solve the problem.

This thesis investigates the approach of using background knowledge in KB integration. It provides evidence that integrating KBs can be substantially boosted by using external KBs. This approach is practically feasible and useful. It provides a clear added value to the other integration techniques. Importantly, it shows the following desirable properties: combining multiple background KBs result in cumulative benefit, and even different types of background knowledge can be successfully combined for cumulative benefit. Finally the success of using background knowledge is not limited to structured sources, but unstructured sources can be successfully used as well.

The potential of this approach is undisputed as it recently became a practice to implement mechanism for using background knowledge in the integration systems. Hence, the value of the research presented here - this thesis provides good guidance about what benefits to expect from using it.