What's missing?
DLs, OWL and the Ecology of Semantic Systems

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Description logics are about to take off. Or are they? We've said it before. "Ontologies" and "OWL" have become buzz words. But there are barriers for anyone not in a centre of DL expertise, and sometimes even there. We use DLs/OWL in our commercial collaborations to manage concept composition, heterogeneity, indexing and context. We do not see how to do without them. In some areas, progress has been stunning. However, we still find gaps, e.g.: a) expressiveness and interaction with other knowledge representation paradigms b) Interaction with software engineering, c) tooling and user-friendly "intermediate representations" d) predictability and stability. This talk deals with the first three.

Before DLs emerged in the 1980s, most Knowledge Representation Systems were massively hybrid. They were messy, heuristic, certainly neither complete nor decidable. DLs have brought rigour but at the cost of a narrow focus, often too narrow we argue. Ontologies/DL models are not all of knowledge representation. Most knowledge is particular rather than universal; much is probabilistic, possibilistic, heuristic, or just navigational. Many other modelling paradigms - e.g. Frames, UML, RDF(S), Object oriented programming - are template based whereas DLs are axiom based. How do we bridge the gaps?

Most users and many software engineers naturally express and understand their knowledge at higher level of abstraction than raw DLs. How do we provide them with appropriate "intermediate representations"? How do we best build on their existing software engineering expertise? How do we be clear about when DLs are not suitable? In short, how do we embed DLs in an effective ecology of semantic systems?