

Ontology alignment (also called ontology matching) is the process of identifying correspondences between entities in different, possibly heterogeneous, ontologies. With an increasing number of available ontologies that differ in language and/or model but overlap in scope, the importance of finding effective alignment mechanisms is becoming crucial to knowledge integration. Traditional ontology alignment techniques rely on the full disclosure of the ontological models; however, within open and opportunistic environments, such approaches may not always be pragmatic or even acceptable (due to privacy concerns). Several studies have focussed on collaborative, decentralised approaches to ontology alignment, where agents negotiate the acceptability of single correspondences acquired from past encounters, or try to ascertain novel correspondences on the fly. However, such approaches can lead to logical violations that may undermine their utility, and fail to reflect the fact that stakeholders may want to preserve the privacy of parts of their model and/or knowledge.

In this talk, we present a dialogical approach to correspondence negotiation which takes into account that agents strategically disclose knowledge (based on what has previously been disclosed, and whether or not that knowledge is deemed private). The agents exchange details of viable correspondences, whilst identifying potential violations to the consistency and conservativity principles, where novel but undesirable entailments between named concepts in one of the input ontologies emerge. We present a formal model of the dialogue, and show how agents can repair logical violations during the dialogue by invoking a correspondence repair, thus negotiating and exchanging repair plans. We illustrate this opportunistic alignment mechanism with an example and we empirically show that allowing agents to strategically reject or weaken correspondences when these cause violations does not degrade the effectiveness of the alignment computed, whilst reducing the number of residual violations.