

Alignment between Rule-Enriched Ontologies

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Motivation

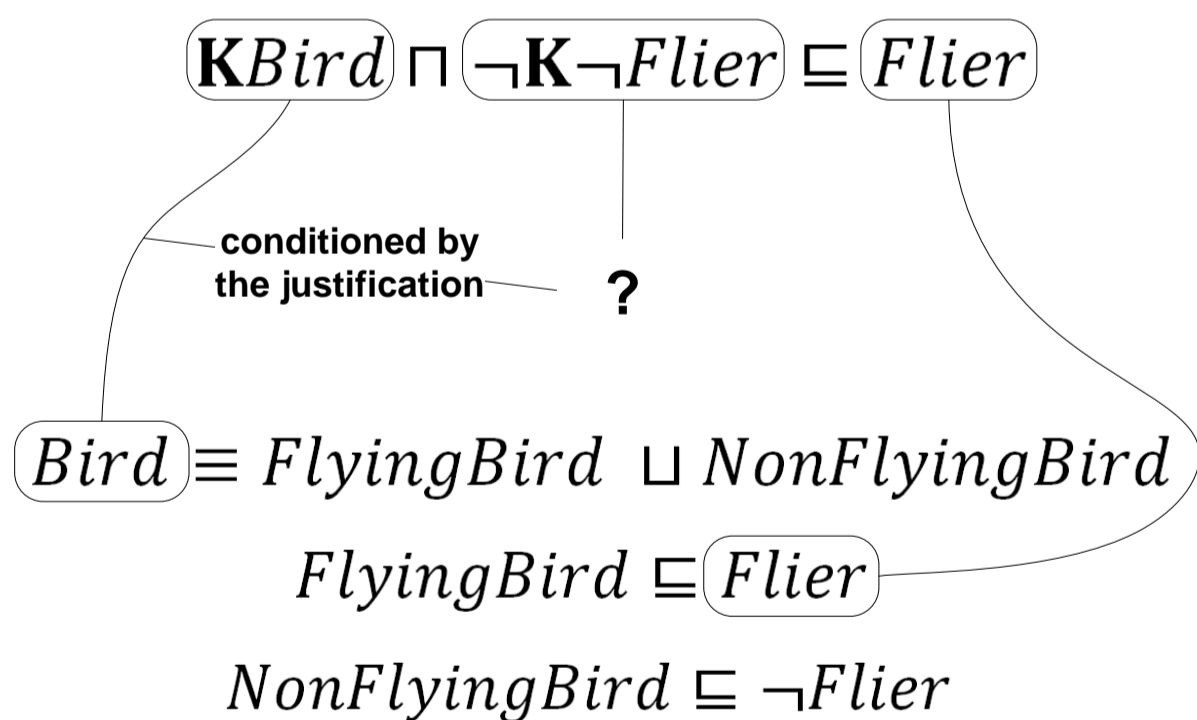
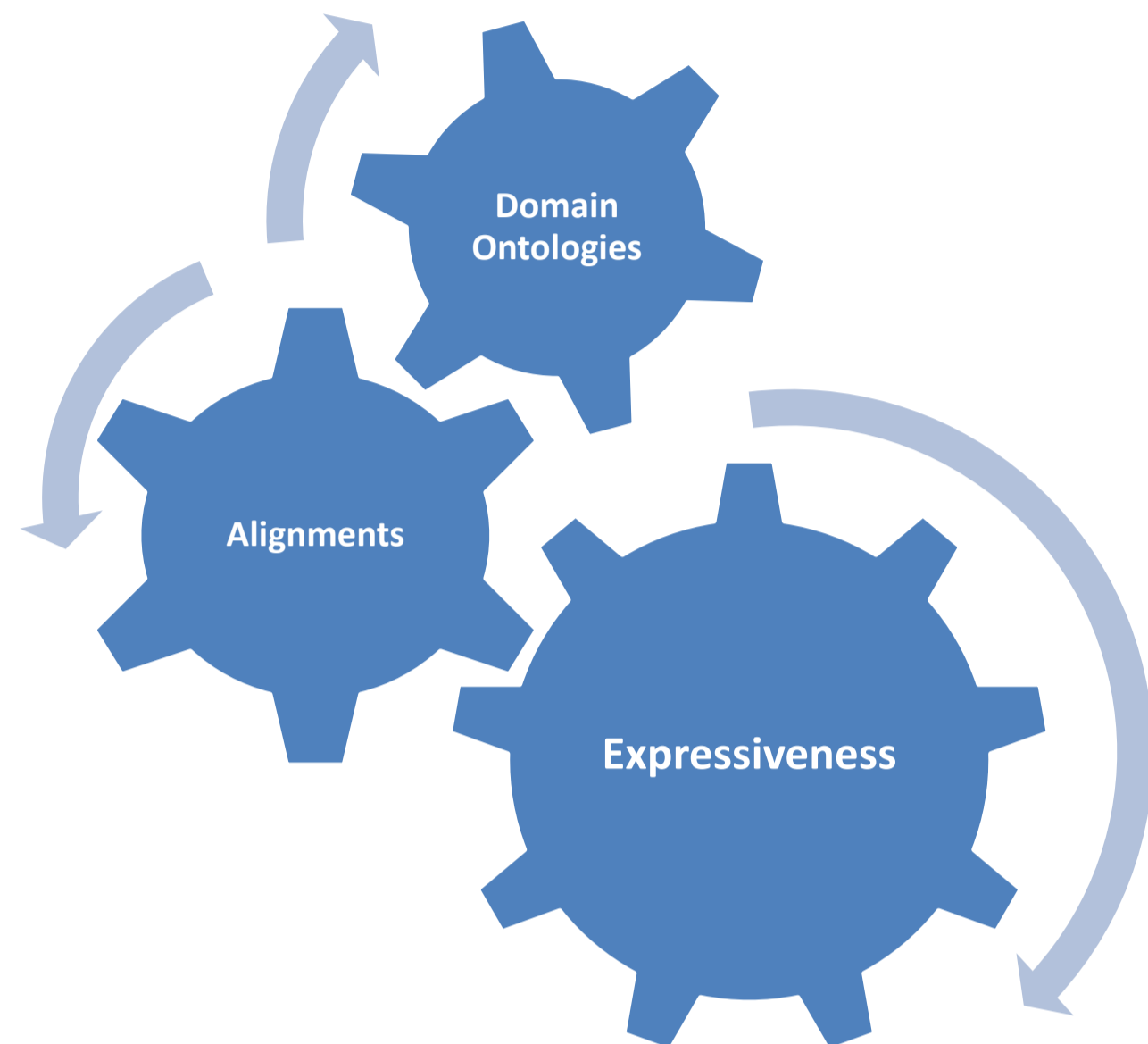
Research in DL (Description Logics) has led to decidability of more expressive languages.

More recently, with the advent of the Semantic Web, new problems emerged, namely of information integration. Although domain ontologies built from standards like RDFS and OWL were supposed to provide semantics over shared and linked data, in many cases, people still prefer to built their own domain ontology, often leading to misinterpretations.

To tackle this issue, a new and still growing community emerged, researching topics like ontology alignment formats, normalization, mapping and automation.

However, with the increasing need for expressiveness, more and more extensions to DL are emerging. This leads to some questions:

- What is the impact of expressiveness in the alignment process?
- How can the expressiveness of the domain ontologies be fully used to infer (part) of the alignment?



Axioms from two different ontologies (O_1 at the top and O_2 at the bottom)

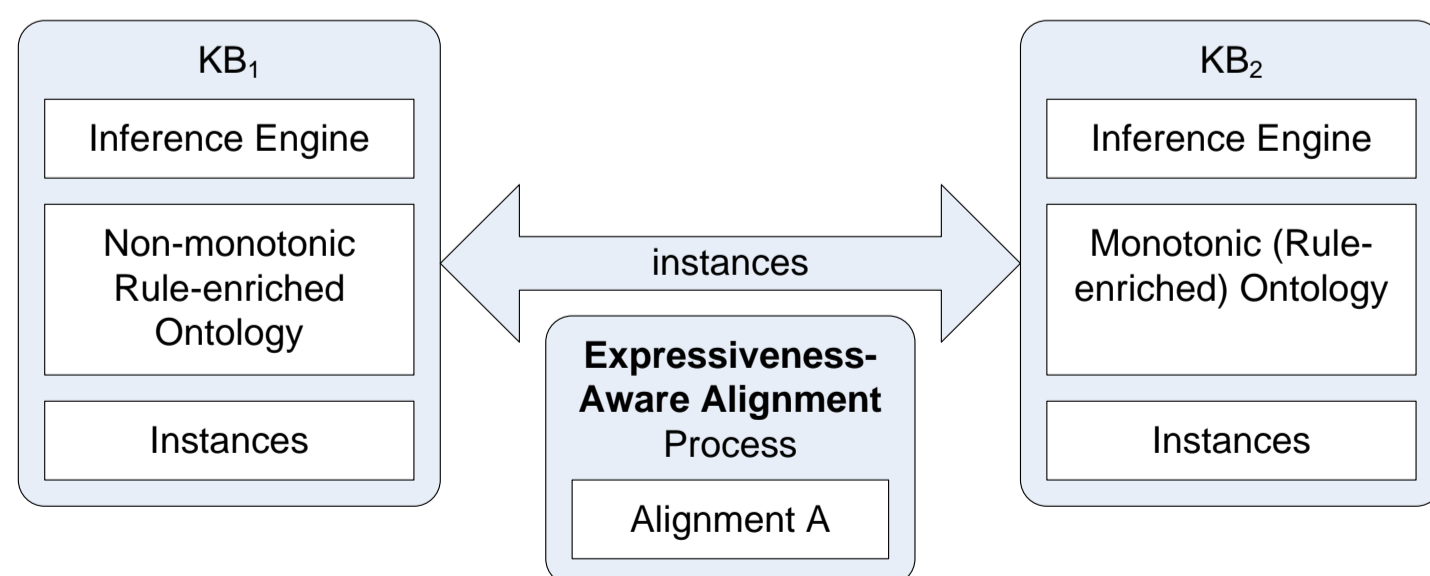
O_1 : if an individual is known to be a Bird, and not known not to be a Flier, then it is a Flier (default).

O_2 : a Bird is either a FlyingBird or a NonFlyingBird; a FlyingBird is a Flier, and a NonFlyingBird is not a Flier.

Scope

In the specific case of non-monotonic rule-enriched ontologies, one can state more specific questions:

- Can (non-monotonic) rules in the domain ontologies be used to improve the alignment process?
- Can we divide such an ontology into modeling and behavioral components?
- Do behavioral components have any impact in the alignment? If not, what about the integration process?



While ontology alignment has to deal with ontologies built on top of different DL fragments, the impact of expressiveness in the alignment process remains unclear.