The Combined Approach to Query Answering in Horn-\textsc{ALCHOIQ}

David Carral, Irina Dragoste, and Markus Krötzsch

In Principles of Knowledge Representation and Reasoning 2018

1. Materialisation Step

- TBox
- Datalog Rule Set
- ABox
- Datalog Rule Engine

2. Filtration Step

Conjunctive query

- Ans. 1
- Ans. 2
- Ans. 3
- Ans. 4

* Complete for CQA
* May not be a model
* Sound (and complete) for instance queries
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Contributions
1. First combined approach for a non-tractable DL fragment
2. Worst-case optimal for standard reasoning and CQ answering for Horn-ALCHOIQ and EL
3. Develop an implementation to solve standard reasoning tasks
4. Conduct an empirical evaluation that shows performance gains over state-of-the-art DL reasoners