Erratum for “Reverse Engineering Queries in Ontology-Enriched Systems: The Case of Expressive Horn Description Logic Ontologies”

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This erratum discusses a mistake regarding the query-by-example problem for ontology languages $\mathcal{ELI}$ and Horn-$\mathcal{ALCI}$ in [2]. In the text between Lemma 4 and Lemma 5 it is claimed that $P$ can be decomposed into a non-tree-shaped part and a tree-shaped part. However, the described decomposition is not possible in the case when inverse roles are present and thus Lemma 5 fails for that case. Since Lemma 5 underlies two upper bound proofs, this lead to two false statements in the paper:

1. Query-by-example in Horn-$\mathcal{ALCI}$ is not in $2\text{-}\text{ExpTime}$ if the separating query is required to be a conjunctive query (claimed in Corollary 7 and Theorem 9).
2. The size of a separating conjunctive query is not bounded by a four-fold exponential in the case of Horn-$\mathcal{ALCI}$ (claimed in Theorem 14).

The other parts of the statements in Corollary 7, Theorem 9 (regarding the UCQ case), and of Theorem 14 remain correct. Also, all results in the paper regarding Horn-$\mathcal{ALC}$ and $\mathcal{EL}$ remain untouched by the mistake. A simplified presentation of these results can be found in [3].

In fact, it was shown in a follow-up paper that the problem in Point 1 is undecidable already for the sublogic $\mathcal{ELI}$ of Horn-$\mathcal{ALCI}$ and thus the size of a separating conjunctive query cannot be bounded [1].

References

