Repair-Based Semantics for Querying Inconsistent Data: From Databases to Knowledge Bases and Back

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Abstract. Consistent query answering was introduced twenty-five years ago as a principled means of querying inconsistent databases. It is based upon a simple idea: when it is impossible or infeasible to identify the true consistent database, then define instead a space of possible repairs (consistent databases that 'minimally' differ from the input database) and output those query answers that hold w.r.t. every repair. This approach has subsequently inspired an active line of research within the KR community, which has extended and adapted the framework to the case of inconsistent knowledge bases (consisting of a dataset and an ontology). In this talk, I will survey recent advances on repair-based semantics and highlight the insights that have been gained, considering both the database and ontology settings.