Forgetting for Logic Programs/Existential Rules (Abstract of Invited Talk)

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The notion of forgetting has been investigated extensively for various types of logic programs. Syntactically, a logic program can be Horn, normal (non- disjunctive), disjunctive, nested and existential. The semantics for most of such logic programs is based on either classical semantics or stable models. In this talk, we will discuss some major approaches to forgetting in logic programming, especially, the class of existential rules, a family of expressive ontology languages, which inherit desired expressive and reasoning properties from both description logics and logic programming. Yet it is challenging to establish a theory of forgetting for existential rules. We will introduce a theory of forgetting for existential rules in terms of query answering based a novel notion of unfolding. A result of forgetting may not be expressible in existential rules, and we then capture the expressibility of forgetting by a variant of boundedness. While the expressibility is undecidable in general, we identify a decidable fragment. Finally, we provide an algorithm for forgetting in this fragment.