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A Family of Dynamic Description Logics for Representing and Reasoning About Actions

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Abstract Description logics provide powerful languages for representing and reasoning about knowledge of static application domains. The main strength of description logics is that they offer considerable expressive power going far beyond propositional logic, while reasoning is still decidable. There is a demand to bring the power and character of description logics into the description and reasoning of dynamic application domains which are characterized by actions. In this paper, based on a combination of the propositional dynamic logic PDL, a family of description logics and an action formalism constructed over description logics, we propose a family of dynamic description logics $DDL(X^{@})$ for representing and reasoning about actions, where X represents well-studied description logics ranging from the

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