

The problem of the formalisation of normative reasoning is relevant to the various aspects of societal and economic life. The most general contribution of such works lies in a better understanding of the nature of normative systems including legal systems, technical regulations, institutional procedures, etc and the way they influence agents' behaviours in real-life situations.

In the project we aim at creating a unified logical framework for reasoning about deontic properties of actions and states of affairs. We shall answer the questions concerning the mutual dependency of deontic properties of actions and states of affairs (e.g., how should we treat legal actions which lead to illegal results?). In particular we shall tackle the problem of the interplay between deontic properties of states and complex actions such as nondeterministic choice, parallel execution, action complement and sequence of actions. We shall examine two kinds of reasoning about action and state norms. One is a derivation of general action and state norms from the general action and state norms already accepted. The other kind of normative reasoning will examine the way of discovering norms for a particular agent in a specific normative situation. The logic developed within the project should provide a better understanding of the discussed issues. Moreover it can be used as a guide for norm-givers, human and artificial agents who have to reason about action and state norms. It can also be applied to the consistency and coherence check of various normative systems.

More specific impact areas are connected with the technical application of the fragments of the formalisation, especially those concerning normative reasoning of agents. They may be used for governing the actions of human and artificial agents in a digital environment, supporting electronic contracts, guiding integrity constraints in database systems, automatically supported checking of the consistency and coherency of normative systems.