

# **Non-monotonic logic and modes of argumentation: the case of conditional obligation**

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Ph.D. dissertation (philosophy)

## Presentation

My principal research interests are in modal logics. Thus far I have focused on deontic logic, a modal logic used to study reasonings that involve norms. In this doctorate, I attempt to enlarge my horizons, dealing with the (potential) interface between argumentation theory and non-monotonic logics, a branch of modal logic originally developed to formalise various aspects of common sense reasoning. Over the past decades, non-monotonic logicians have been increasingly interested in the field of argumentation. Current research programmes in this area tend to fall into three main groups: those focusing on specific argumentative schemes, those dealing with the interface between semantics and pragmatics, and those developing a general theory of how arguments interact.

My aim in this doctorate is twofold. Until now much of the work has not been easily accessible, motivating my attempt to provide a clearer view of this burgeoning research area. Hence I consider, and try to evaluate, reasons for the growth of interest in the field of argumentation. Secondly, I try to evaluate the extent to which deontic logic can be relevant to the study of argumentation. Special attention is given to the study of conversational interaction. In the best tradition of E. Goffman, who thought of remedial interchange as forming the nucleus of social activity, many writers tend to adopt a model of analysis in which reparational obligation is to play a principle role. They often claim to be primarily concerned with the attempt to extract the formal pattern of conversational (face-to-face) interactions. Such a claim may, at first, be rather puzzling. What deontic logic has made especially clear is that, as far as logic is concerned, the notion of a remedial interchange is not an easy one to grasp. The work of those interested in conversational interaction usually goes on as if the intricacies of contrary-to-duty norms had never been heard of. I finally investigate the extent to which some recent advances made in the theory of iterated revision might contribute to the study of contrary-to-duty norms. My emphasis is not on new formal results, but rather on sketching and exploring a type of analysis rarely discussed in the literature. The basic idea is quite simple and highly plausible. It is to assume that, when they learn that an obligation has been transgressed, interactants minimally revise the ideality ordering (over possible worlds) to have the appropriate obligation deconditionalised (or detached). One might refer to this as the *commutation* approach,

because close examination reveals that, at the time of the violation, the set of ‘second best’ worlds commutes with the set of ‘best’ worlds. This is very similar in structure to so-called natural revision, as developed (by Boutilier) in the context of the study of iterated belief change. I am fully aware of the fact that the analyses proposed in my dissertation are still very preliminary. I focus on the following two principal forms of remedial work: apologies and requests. The former characteristically are seen as occurring after the event. The latter typically occur before the questionable event.

This doctorate comprises three chapters. The first two attempt to give an overview of the relevant literature. Chapter 1 surveys the main approaches in the study of argumentation. Chapter 2 surveys those in the study of nonmonotonic reasoning, and gives an idea of the work that has been done in connecting the two fields. In chapter 3, I return to the theme of obligation, around which my research has always been organized. This last chapter begins with material largely adapted from my papers ‘Defeasible conditional obligation’ and ‘Identity, cumulativity and time in deontic logic’ cited in the bibliography of the dissertation.