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by

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*If you want to swim against the current, don't blame the river.
(Alleged text of a Chinese fortune cookie)*

INTRODUCTION

This book is based on a number of papers that I (co-)wrote after finishing *Reasoning with rules*. Those papers were published in heterogeneous journals, conference proceedings, or not at all yet. In my own experience they are united by a common theme, namely the role of logic in the law.

In the first chapter I distinguish two ways of looking at logic. One way, which has been the dominant view during the 20th century, is to interpret logic ontologically, namely as the theory of what *must* be true, given the truth of a number of sentences. The relation between logic and ontology becomes clear if we pay attention to the fact that logic aims at finding general characteristics of arguments that make them good ones. Traditionally an argument is said to be good (in the sense of 'valid'), if its conclusion must be true given the truth of the premises. Logical research is devoted to the discovery of argument forms in which the premises necessitate the truth of the conclusion. A major, if not the only, source of such necessary inference steps is provided by necessary relations between states of affairs. If either P or Q is the case, and P is not the case, then it must be so that Q is the case. This is a necessary relation between states of affairs which is reflected in the truth values of sentences, and this relation justifies the derivation of Q from $P \vee Q$ and $\sim P$.

This example leans strongly on propositional logic, but it is possible to find other necessary connections between states of affairs that are less well accounted for in traditional logic. For instance, if the conditions of a rule are satisfied and there is no exception to this rule, the rule conclusion is attached to the state of affairs that satisfies the rule conditions. This is a necessary connection between states of affairs (satisfaction of the rule conditions, absence of exceptional circumstances, the rule conclusion), and this

connection justifies derivation of the rule conclusion. Logic studies necessary relations between states of affairs (ontology), translates them into necessary relations between truth values of sentences, and exploits them to identify good arguments.

According to the other view, logic deals with the question under which circumstances we can *rationally accept* the conclusion of an argument on basis of the argument's premises. On this view, the emphasis is on the role that logic plays when we deliberate whether to accept, for instance, a belief or a principle. When logic is seen in this way, the relation between logic and epistemology becomes clear. Both disciplines deal with the *justification* of beliefs, or – better – acceptances.¹ It may even be argued that there is essentially one discipline, which deals with justified acceptance and is somewhat artificially subdivided into a part that focuses on arguments by means of which acceptances are justified and a part that focuses on the kind of premises by means of which acceptances can be justified.²

Both views of logic have their value and seem to me to be compatible with each other. Logic as I see it is strongly interwoven with both epistemology and ontology. The interrelations between logic, epistemology and ontology are a recurring theme in the chapters of this volume, which explains the choice of the title 'Studies in Legal Logic'.

The fact that the book is based on a number of papers that were in part published before and that were written with different audiences in mind, explains some peculiarities. One is that there is some overlap between different chapters. This overlap was necessitated by the wish to make the original papers, and the chapters based upon them, understandable by themselves. Another one is that the development of my thoughts in time has caused minor, and sometimes only seeming, inconsistencies between the chapters. For instance, Reason-based Logic is presented in chapter 9 as a non-monotonic logic, while in chapter 3 (which was written later) I emphasize that the non-monotonic aspect of Reason-based Logic is less important. A third peculiarity that I want to mention is that some chapters (in particular 7 and 8) were originally written with the AI and Law community in mind as the intended audience, which explains that chapter 8 discusses computer implementations of reasoning systems, while the most part of the book is directed at an audience of legal, and sometimes even general philosophers.

¹ See chapter 2, section 2, for an explanation of this replacement of beliefs by acceptances.

² This view on the relation between logic and epistemology was inspired by Toulmin (1958, 253f.)

In the first chapter, *Law and Defeasibility*, I try to take a step back from the attempts to develop non-monotonic logics for defeasible reasoning in the law, and address the question what precisely the phenomenon is that we aim to capture by means of these special logics. My answer to this question, that we aim to capture the defeasibility of justification, leads to a view of logic according to which logic deals with *justification* of conclusions on basis of premises, rather than with guaranteeing the *truth* of the conclusion given the truth of the premises. Briefly stated, the development of logics for defeasible reasoning presupposes a re-definition of the traditional object of logic. Besides this general point about the nature of logic, I also argue that legal reasoning involves defeasibility in an essential way, although not all forms of legal reasoning do so.

Law and Defeasibility was presented in earlier forms at a meeting of JURIX (the Dutch-Flemish research group on Law and Computer Science) in Amsterdam 2003, and at a special workshop at the IVR 2003 conference in Lund. I would like to thank the participants in these meetings for their valuable comments. The chapter in (almost) its present form has been published in a special issue of the Artificial Intelligence and Law journal, devoted to papers of the aforementioned special workshop (Hage 2003 LD). This special issue also contains a review of the paper by Bulygin (Bulygin 2003).

The step from logic towards epistemology that was hinted at in the first chapter, is taken completely in the second chapter, *Law and Coherence*. The purpose of this chapter is to show the crucial importance of coherentism for the law. It is not meant to develop criteria to judge the coherence of the law or theories about the law. Although the chapter formulates a criterion for coherence, this criterion is much too abstract to be put to practical use.

In chapter 2, two versions of legal coherence are distinguished. According to one of them, the law is coherent if it is based on a single starting point, or - at least - as few different starting points as possible. The other one holds that (a theory about) the law is coherent if it is part of a coherent theory of everything. This latter notion of coherence is an adapted version of coherence as used in epistemology. I argue that the law *must* be coherent in this second, epistemic sense, and that it *may* be coherent in the first sense, but only if this fits in a coherent theory of everything. In the course of my argument, I develop the already mentioned version of an epistemic coherence theory, which I call integrated coherentism. The main findings of the chapter are used to argue why much of Raz's criticism of coherentism in the law is unfounded. The central theme of this chapter was also addressed by a paper in *Ratio Juris* (Hage 2004).

In the third chapter, *Reason-based Logic*, not published before, I step away from the abstract philosophical issues dealt with in the first two

chapters, and offer an updated version of Reason-based Logic, the logic for legal reasoning developed in, amongst others, my *Reasoning with Rules*.³ The new version of Reason-based Logic differs in at least three aspects from the earlier version. First, the logic has been simplified somewhat, to make it more accessible. Second, the emphasis on its being a non-monotonic logic has been removed. And finally, the presentation of the logic has been adapted to the underlying philosophy of logic that there is no sharp boundary between logic and domain knowledge. As a consequence, I present first a kind of basic version of the logic, which only deals with reasons and their balancing. The logic of legal rules is the subject of the second part of the chapter and is presented as an extension of basic Reason-based Logic, based on necessary connections between states of affairs in the legal domain.

Part of the motivation to present a new version of Reason-based Logic was that a reshuffling of some basic concepts of the logic was needed to use Reason-based logic for comparative reasoning. Comparative reasoning is the topic of the fourth chapter, *Comparing Alternatives*, which was not published before. In this chapter I present another extension to basic Reason-based Logic, this time to make it possible to compare alternatives qualitatively, on basis of the sets of reasons that plead for and against them. I show how this method of qualitative comparison of alternatives can be used to deal with legal theory construction, legal case based reasoning and legal proof. The extension of Reason-based Logic which is necessary to make it deal with comparative reasoning, greatly increases the possibilities of this logic in comparison to the version described in *Reasoning with Rules*.

In the fifth chapter, *Rule Consistency*, the idea is developed that a set of rules is consistent if and only if it is not possible that the conditions of all the rules are satisfied and the conclusions of these rules are incompatible. One of the complications dealt with is that rules are also factors that determine whether it is possible that the conditions of all the rules are satisfied and whether the conclusions are incompatible. The chapter can be seen as an illustration of a theme of this book that there is no sharp boundary between logic and domain knowledge. Rules are treated as domain knowledge when they are evaluated on their consistency, and as (part of) logic when they are used to determine which states of affairs are compatible. Precursors of this chapter have been published in the proceedings of the JURIX 1999 conference, in Law and Philosophy and in Information and Communications Technology Law (Hage 1999 (RC), 2000 (RC) and 2000 (CRN)).

The organizing theme of *What is a norm?*, the sixth chapter, is that the term 'norm' stands for so many different things that it is better abandoned.

³ Hage 1997 (RwR). See also Verheij 1996 and Hage 1996.

The body of the chapter consists of discussions of some theories of what norms are, in particular the command theory and the theory that norms are deontic facts. In my opinion, the main value of the chapter lies in the conceptual distinctions it makes between orders, commands, rules, descriptive counterparts of rules and deontic facts, and its discussion of speech acts as means to create law. The chapter also contains a discussion of the moderately idealistic background (in the sense of ontological idealism) that underlies much of this work. *What is a norm?* has not been published before. Some of the implications of this chapter for deontic logic have been described in Hage 1999 (MNDL).

The ontological theme of chapter six is continued in the seventh chapter *Legal Statics and Legal Dynamics*. It elaborates the idea that the law consists of static and dynamic connections between states of affairs. These connections, causation and constitution, are analyzed in some detail and are related to, amongst others, MacCormick and Weinberger's institutional theory of the law⁴, rights as legal status, and to juristic acts as means to modify the law. This chapter is based on a paper that I co-wrote with Bart Verheij (Hage and Verheij 1999). I want to thank Bart and Elsevier, the publisher of the original paper, for their permission to adapt the paper for the present volume. Obviously, I take the full responsibility for the changes made.

Chapter 8. *Dialectical Models in Artificial Intelligence and Law*, is based on a presentation that I gave at a workshop related to Royakker's defense of his thesis.⁵ It discusses the several uses to which dialogs and dialectics are put in logical theory and the analysis of legal reasoning. Apart from a systematic overview of the field, the chapter offers a theory about the relation between dialogs, dialectics and (legal) justification. It also elaborates the idealistic theme of chapter 6.

The chapter is a slight reworking of Hage 2000 (DM). Thanks go to Ronald Leenes, Arno Lodder and Bart Verheij for many discussions about legal dialogues that inspired the ideas presented here, to Tom Gordon for pointing out some weakness in the purely procedural view of the law which I hope have been overcome, to José Plug for suggesting many improvements in the formulation and to Henry Prakken and an anonymous referee of the *Artificial Intelligence and Law Journal* for suggesting many additional improvements.

After the paper on which this chapter is based was published, much relevant new material has been published. I do not have the impression,

⁴ MacCormick and Weinberger 1986.

⁵ Royakkers 1996.

however, that this material necessitates modification of the main argument line of this chapter and therefore I only mentioned some of the more recent publications, without striving for completeness.

Chapter 9, *Legal Reasoning and Legal Integration*, illustrates how the theoretical work of, in particular, the chapters 3 and 4, can be put to practical use. It contains an elaborate argument why case-based reasoning does not necessarily give a legal decision maker more leeway than rule based reasoning. By means of this argument it is argued why Legrand's view that a uniform civil law code cannot lead to uniform private law, is based on a wrong premise. This chapter is a slightly modified version of Hage 2003 (LRLI). I want to thank Jan Smits for valuable comments that made it possible to clarify some obscure parts in the argument of this chapter.

Writing a book is much easier with the help of others. In this connection I want to thank the Law Faculty of the University of Maastricht for providing me with a working environment that made my research possible. Several persons have so much influenced my thinking on the topics of this work that it is impossible to point out precise passages that have benefited from my discussions with them. First and foremost in this connection are my former near colleague Bart Verheij, who is in the above indicated sense co-author of (but not co-responsible for) several chapters, and Aleksander Peczenik who helped me make the return from Law and AI to (legal) philosophy in general. Henry Prakken and Giovanni Sartor have provided me since the beginnings of the nineties with intellectual challenges, helpful comments and an ongoing discussion from which I profited very much. Later on, Carsten Heidemann has come to fulfill a similar role, especially with regard to ontological idealism. Bob Brouwer, Jan Sieckmann, Jan Wolenski, Eugenio Bulygin and Arend Soeteman and an anonymous reader for Springer have, directly or indirectly, given comments on (parts of) this book from which I learned a lot. Most thanks, however, go to my wife Loes and my daughter Suzanne, for providing me with a pleasant home where I could write.