

Knowing the law

**Legal information systems
as a source of knowledge**

Laurens Mommers

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Foreword

This report results from a short-term research project called 'epistemological aspects of legal information systems'. The project was funded by ITeR, the National Programme for Law and Information Technology (project number 01437229). P.W. Brouwer, A.A. Derksen, J.C. Hage, H.J. van den Herik, and A.H.J. Schmidt have contributed by extensive comments on previous versions of this report. The current project is an interdisciplinary research project, involving general epistemology, legal philosophy, and artificial intelligence & law.

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1. Introduction

Information systems enter the legal domain, slowly but steadily. They influence the way information is found, documents are drafted, and decisions are made. These influences can be examined from different perspectives. In this report, a knowledge-theoretical perspective is employed. Knowledge theory or epistemology studies, among other things, the question under what conditions we may call a belief a piece of knowledge.

From the early eighties onwards, knowledge-based systems and information systems have entered the legal domain. Where expectations regarding the potential of such systems were raised to a high level in the beginning, optimism gradually diminished until both the commissioner and the knowledge engineer adopted a more realistic approach towards those systems. Instead of the assumption that computers could *take over* the role of human professionals, it is now often supposed that they merely *support* their users. Although most systems are nowadays more properly called 'information systems', some of the assumptions from the beginning still last, such as the assumption that it is possible to represent legal knowledge in a computer.

Assume someone has to make a decision in a certain case. There are three relevant items: the procedure that leads to a decision, the decision itself, and its justification. These three items are interrelated; sometimes part of the justification is given by referring to the procedure. In the legal domain, justification is important, because the acceptability of verdicts depends on it. Where information technology is used as a replacement of part of the task of, for example, a judge, it is important that an acceptable justification is given, even if a judge would *not* give such justification. The confidence in judges who are assisted by a computer may, if necessary, be raised if the justification of their decisions remains intact or becomes better.

There may seem to be an incongruity in imposing higher demands on a justification given by a computer than on one given by a human being. Most people, however, would still put more trust in the way a judge reasons than in a computer producing a verdict. This is the case, even though we generally have no idea how those decisions are attained. It is just that we have an inclination towards putting trust in our congeners. Although this may be irrational on itself, it *is* rational to take this situation as the starting point of the investigation.

One of the main reasons for the research that underlies this report is the uneasiness caused by the introduction of computer applications for all kinds of

tasks. Recent developments tend to raise all kinds of questions – ethical, practical, technical, legal – and some of these have a philosophical nature. When people have had more time to get used to those developments, some of these questions will be no longer relevant, or they will be answered by other disciplines. It is likely that information systems will establish a firm base in the legal domain, and their functioning is no longer questioned. The use of legal information systems will become as common as the use of codes of law is now, and the way the systems are built and used will no longer be a subject of discussion. But this will only occur when there has been a debate about these matters among legal professionals and information scientists. In this report, I would like to contribute to this debate by analysing the concept of knowledge in the legal domain, and use this concept to evaluate the way in which legal information systems work.

1.1 Problem definition

Legal information systems are used for providing legal professionals with information on the legal domain, for the justification of decisions, and for making decisions. As such, they may be considered as a new source of knowledge for the law, *i.e.*, they may provide someone with a new perspective on the content of the law. Due to this observation, the problem definition of this report is: to what extent and under what conditions can legal information systems be considered as a source of knowledge for the law? And: what are the implications of the existence of legal information systems for the demands that should be imposed upon legal justification?

1.2 Research goal

The goal of this research project follows from the problem definition in the previous subsection: to provide the means for analysing the belief-content of legal information systems. These means should provide insight in the role legal information systems play in acquiring (legal) knowledge.

1.3 Research questions

To give an answer to the problem definition, the relation between beliefs and knowledge in the legal domain has to be clarified. To attain this, the following research questions will be answered. First, what types of knowledge should we

distinguish in the legal domain? Second, in the philosophical discipline of epistemology, what criteria determine whether some belief is knowledge? Third, are criteria in the legal domain different from these? Fourth, what role can legal information systems play in fulfilling criteria that transform belief into knowledge?

1.4 Structure of the report

In chapter 2, I give an introduction to legal information systems in general, and I discuss the four systems taken as examples in this report. Chapter 3 covers legal ontology, *i.e.*, the object of legal knowledge. This subject is discussed because an answer to the question how the law can be known cannot be given without developing a view on the object of knowledge in the legal domain. In chapter 4, I discuss a typology of legal knowledge, and different view on the nature of such knowledge. Chapter 5 is dedicated to regular knowledge. In chapter 6, I discuss how knowledge criteria can be employed to transform legal belief into legal knowledge. In chapter 7, these criteria are employed to evaluate the four legal information systems. In chapter 8, finally, I provide a summary of the report and I draw conclusions.

The first research question, about the types of knowledge to be distinguished in the legal domain, is answered in chapter 4. The second research question, about the criteria determining whether a belief is knowledge, is answered in chapter 5. The third research question, about knowledge criteria in the legal domain, is answered in chapter 6. The fourth research question, about the role legal information systems play in fulfilling knowledge criteria, is answered in chapter 7.

2. Legal information systems

This chapter is dedicated to the discussion of general characteristics of legal information systems. In addition, it provides an overview of four different legal information systems. In section 2.1, I provide an overview of the general features of such systems, and I discuss the legal tasks they may perform, and the knowledge that users need in performing these legal tasks. In section 2.2, I give an overview of the goals, functions, and techniques that are encountered in IVS, ESM, TESSEC, and LEDA. Finally, in section 2.3, I list some concluding remarks.

2.1 On legal information systems

Legal information systems perform different tasks. There are straight database applications, offering information by executing queries. There are also systems yielding a solution, given the answers to a number of questions. The relevant questions here are: is the output of the system an advice or a decision? And: is the output *regarded* as such, by the user or by a community?

Let me take a sentencing information system as an example. Assume that the system says that in case of a burglary a sentence of two years on average is given. A judge, who uses that system, takes this advice into account. However, she also considers the fact that the perpetrator has performed a burglary before (which could justify a more severe punishment), and that he has undergone psychological treatment for kleptomania (which could justify a less severe punishment). The factors compensate for each other, the judge thinks, and she sentences the perpetrator to two years of imprisonment. The perpetrator knows that the judge uses the information system. However, he does not know what the judge's considerations for the sentence are. He could obtain the impression that the judge has followed the system blindly, and after he has spent his time in prison, he has become a vindictive man.

In this example, the use of an information system does not have the desired result relative to the perpetrator. The success of legal information systems partly depends on the nature, proper use, and quality of explanation of its advice. Normally we consider the relation between an information system and its users. But in case of legal information systems that affect society, the social acceptability of the system becomes relevant. The social acceptability is partly determined by the assigned role or function of the information system, and partly by

its capabilities. An assessment of an information system is thus not only a matter of evaluating its capabilities, but also a matter of taking notice of the ways in which it is used, and what interactions occur between the system and its users (for a discussion of proper use, I refer to the principles of proper use of information technology, introduced by Franken, *cf. e.g.* Franken 1993).

In subsection 2.1.1, a typology of legal information systems is given. In subsection 2.1.2, I provide an overview of the legal tasks that may be performed by such systems. In 2.1.3, I indicate what types of knowledge users of legal information systems need.

2.1.1 A typology of legal information systems

In this report, the term 'legal information system' is used in a somewhat broader sense than usual. I use it as a general term for the following categories of systems (*cf.* Franken *et al.* 1997, p. 55-56):

- Systems that support administrative activities: word processors, financial packages, *etc.*
- Systems for information retrieval: databases with legal information
- Knowledge-based systems that support problem solution or making decisions: systems that take over a part of some decision process

The boundaries among these categories are vague. The first category is not of my concern in this report. The second and third categories are intertwined, in that an information retrieval system can be used for the same purposes as knowledge-based systems, namely structuring decision processes. An example of the second category CD-ROMs with laws and regulations and a search function. An example of the third system is TESSEC, which structures the decision process involved in social security law. An example of a system that exceeds the boundaries between the two is LEDA, which features both information-retrieval and knowledge-based functions.

To which category a system is assigned is not only a matter of its technical details and predefined functions. It is also a matter of how the functions of the system are perceived by its users, and maybe even by the general public. A system that is meant to provide only general statistical information on previous decisions, but is perceived as giving advice on making decisions, is 'made' into a knowledge-based system by its users. Thus, if IVS (*cf.* subsection 2.2.1) were used as if giving advice on sentences, it would be employed as a decision-making system, instead of a decision-supporting system, giving advice to its user.

The systems described in this chapter are representatives of the different goals assigned to information technology. They have been selected on the basis of two criteria: they should represent different lines of thought concerning legal information systems, and they should be thoroughly documented (all are described in Ph.D. dissertations). All four systems have been built in The Netherlands. ESM resembles TESSEC in that they both work with production rules. LEDA and IVS represent a different way of approaching legal information systems. They support the user, merely giving advice, not making decisions. But they perform this task in different ways. I refer to section 2.2 for a discussion of the individual systems.

2.1.2 Legal tasks

In section 2.2, I will give an overview of the tasks of four legal information systems. The tasks described there can also be typified in a more abstract way. In this subsection, legal tasks are characterised through three general categories: rule application, drafting, and systematisation. The first category regards the tasks involved with the application of legal rules to cases. The second category regards the tasks that are connected to legal drafting. The third category concerns tasks that are part of the systematisation of legal rules and cases.

Tasks that could be distinguished in relation to the category of rule application are (*cf.* section 3.3): rule identification (finding relevant legal rules, given a certain case), classification (describing a case in terms of legal categories), interpretation (turning the relevant legal rules into rules that are applicable to legal categories distinguished in the case description), and rule application (applying the interpreted rule to the classified case) (for the latter three tasks, *cf.* Hage 1997, p. 95).

Legislative drafting is constituted to a large extent by a number of tasks that are not legal tasks. These are not mentioned here. Legal tasks within the category of legislative drafting are: isolating relevant legal preconditions with respect to the domain of legislation, isolating relevant legal preconditions with respect to legislative drafting in general, and determining the legal goals of the new legislation.

Systematisation consists of finding systematical agreements among cases or legal rules, and taking positive law to a higher level of abstraction and unity. It is more often a theoretical exercise than a practical one. It consists of isolating the criteria through which the systematisation is carried out, and determining which rules conform with these criteria.

Legal tasks in the first two categories (rule application and legislative drafting) are actually claimed to be performed by legal information systems (*cf.* section 2.2). These include, among other ones, rule application in TESSEC and ESM, and isolating relevant legal preconditions with respect to legislative drafting in LEDA.

2.1.3 A need for knowledge

What types of knowledge do users need to perform legal tasks? We can derive these knowledge types from the characterisation of those tasks in the previous section. Three categories of tasks were distinguished: rule application, drafting, and systematisation.

With respect to the first category of legal tasks, users need knowledge about the *content* of legal rules, legal cases, legal goals, and legal principles. They need knowledge about the *interpretation* and *applicability* of rules, the *classification* of cases, and the *legitimacy* of goals and principles. And they need knowledge about the *methods* by which they can interpret rules and classify cases.

With respect to the second category of tasks, users need knowledge about the *content* of (legal) rules that apply to legislative drafting, and about the domain the legislation applies to. They need knowledge about the *validity* of the (legal) rules that apply to legislative drafting. They also need knowledge about the *method* by which they can perform legislative drafting.

With respect to the third category of legal tasks, the user needs knowledge about the *content* of the legal domain in general, about the domain of the systematisation, about the *validity* of legal rules and systematisation criteria, and about the *methods* by which systematisation criteria are applied, and the validity of systematisation criteria is determined.

From this enumeration, we can form a provisional typology of knowledge: factual knowledge about content, factual knowledge about validity, and factual knowledge about method. The characterisation of legal knowledge in legal information systems will be further scrutinised in chapter 7, after a discussion of the object of legal knowledge in chapter 3, a discussion of legal knowledge in chapter 4, a discussion of regular knowledge in chapter 5, and a comparison of legal knowledge and regular knowledge in chapter 6.

2.2 Four representative systems

In this report, the goal, functions, and techniques of information systems are evaluated. The goal of a system is the purpose with which it was built; what should be the effect of its application? For instance, the system is meant to assist in education, legislative drafting, interpreting legal regulations, or implementing legal regulations (see also Quast 1996, p. 4). The functions of a system are the tools users have at their disposal when they use it. For instance, a system has a search function that yields relevant case law. The techniques employed in a system are the processes with which the system executes its functions. For instance, a system may employ statistical techniques to compare cases.

Goal and functions of information systems are realised by employing different techniques: the mechanisms used for providing relevant data and calculating advice. The combination of a certain goal of the system with a certain function may lead to undesired results. This is the case if, for example, a sentencing information system with a function of information retrieval would be used as a decision-making system.

In this section, I discuss four legal information systems: IVS (subsection 2.2.1), ESM (subsection 2.2.2), TESSEC (subsection 2.2.3), and LEDA (subsection 2.2.4). For each system, I provide an overview of what it is capable of, listing its goal, its functions, and the techniques employed.

2.2.1 IVS

IVS (an abbreviation of Informatievoorziening voor Straftoemeting) was developed by Oskamp and Schmidt (*cf.* Oskamp 1998) for supporting judges in sentencing.

Goal: The goal of IVS is to make visible the current sentencing practice in order to help the judge sentence in an individual case (*ibid.*, p. 14). The system is also meant to reduce dissimilarities in sentences in similar cases, and thus to improve equality of rights. In its use, IVS serves three sub-goals. First, it is a general means of study for judges to enhance their knowledge of sanctions imposed. Second, it can be used as a preparation for the hearing (Dutch: onderzoek ter terechtzitting), *e.g.* to collect the characteristics that are relevant for determining a sanction and to use these as a checklist. Third, it is an aid during the decision process regarding the sanction, when all relevant characteristics of the case are known (*ibid.*, p. 164-165).

Functions: IVS makes available information concerning individual cases. This information consists of a description of the case in terms of relevant descriptors, the sanction imposed, and the considerations that led to that sanction. The information is searched for with the help of relevant characteristics of the new case the user specifies. The system gives a measure for the agreement among cases. It can also provide statistical information. On the basis of the similarities and dissimilarities among cases and the sentences imposed in those cases, the user can decide on the sentence to be imposed in the new case. IVS has three main functions: registration, selection, and maintenance.

The registration function enables the user to add new cases to the system. The user of IVS can use either of two selection functions. The first function is a statistical one. It makes a selection on the basis of a limited number of case characteristics and yields an overview of the bandwidth of sentences imposed (*e.g.*, between 3 and 6 months of imprisonment). The second function regards the content of cases. It makes a selection on the basis of a comparison of rele-

vant characteristics in the case at hand with the cases in the case file (*ibid.*, p. 173). The results of applying a selection function are either graphical representations of sanction types and bandwidths given a number of relevant characteristics of a case, or a list of comparable cases whose characteristics can be viewed individually. IVS never provides a suggestion regarding a sanction. It only means to provide relevant data on comparable cases. The maintenance function allows the users of IVS to add and change data on cases.

Techniques: Both statistical and case-based reasoning techniques are used for the comparison of cases. The case-based reasoning technique employed is the *k-Nearest Neighbour* algorithm (*ibid.*, p. 130). This algorithm determines the similarity between the given case and a case from the case file. It does so with the help of weights assigned to relevant characteristics, and an ordering of those characteristics. The model that serves as the basis for the comparison of cases was developed in accordance with the *CommonKADS* methodology. In Oskamp (1998) emphasis is on the domain model and task model of IVS. In these models different entities, concepts, and the relations among them are represented. In IVS, the domain and task models contain entities, concepts, and relations concerning the domain of sentencing.

2.2.2 ESM

ESM was developed by De Vey Mestdagh. This system is described in De Vey Mestdagh (1997).

Goal: The primary goal of ESM is to provide the user with a reconstruction of the decision process underlying the issuing of permits in environmental law. The user asks the system to provide a conclusion, given a set of data. She can also ask the system to justify that conclusion by showing the underlying rules and facts. Apart from this, ESM is a research instrument for testing hypotheses on the representation and application of legal knowledge.

Functions: ESM provides the user with five functions: *facts*, *rules*, *save*, *explanation*, and *how* (*ibid.*, p. 201-203). The facts function shows unchallenged data on cases and on the domain in general. The rules function enables the user to perform deductive inferences on facts and regulations. The save function enables the user to establish data as facts. With new facts, the system can make more inferences. The explanation function gives additional information on questions asked by the system. The how function, on request, tells the user how a fact or conclusion was derived. It does so by showing the source of the fact, or the applicable rule that leads to the conclusion.

Techniques: The inference engine behind ESM is based on the logic of reasonable inference. This is an adapted form of first-order predicate logic, with an extra notion of semantic derivability. This notion, called reasonable inference, is based

on the assumption that from a position, *i.e.*, a subset of statements within the theory, valid inferences can be made. This enables us to reason from an inconsistent set of premises. The usual notion of semantic derivability enables us to derive any statement from an inconsistent set of premises, which makes it (nearly) impossible to perform deductive inferences within the legal domain, as the presence of inconsistent premises is a characteristic of the legal domain.

2.2.3 TESSEC

TESSEC is an expert system, meant to be an aid in the execution of social security law. TESSEC was described in Nieuwenhuis (1989). It was one of the first expert systems in the field of legal information technology, and it still serves as a means of reference.

Goal: The goal of TESSEC was to improve the quality of decision-making by civil servants implementing social security acts. It is observed that civil servants may treat people differently under similar circumstances. This is partly the result of the increasing complexity of social security legislation (*ibid.*, p. 13).

Functions: The expert-system shell used for TESSEC consists of a screen that contains questions, forms, explanations, conclusions or other data, depending on the function currently selected. The main functions of TESSEC are explanation, proof, and why (*ibid.*, p. 81-87). Other functions are forget, status, save, and note. The explanation function gives information on the concepts used in questions the system asks (*ibid.*, p. 81-82). The proof function shows the production rules applied to derive the conclusion, as well as the original legal rules. If a proof consists of multiple steps, each step can be made explicit by applying the proof function again (*ibid.*, p. 82-85). The why function is meant to explain the reason why a certain question is asked by the system. The system shows for which rule it needs the answer to that question (*ibid.*, p. 86-87). The forget function enables the user to revise a number of answers to questions asked earlier. The status function shows the values parameters currently have. The save function saves data in a client file. The note function allows the user to add additional information to answers (*ibid.*, p. 87-88).

Techniques: The knowledge base of TESSEC is built with the help of production rules. Production rules are if-then-rules containing the conditions under which the rule applies, and the consequence of applying the rule. It was attempted to retain the structure of the original legislation the production rules were based on (*ibid.*, p. 53). The production rules are evaluated through the backward-chaining technique, which means that some goal (*e.g.*, the answer to the question what the amount of the social security benefit is someone is entitled to) is the basis for the questions that are asked by the system. A backward-chaining

mechanism is more efficient when it comes to answering a specific question (*ibid.*, p. 79).

2.2.4 LEDA

LEDA supports the drafting process for regulations and laws. The Dutch Directives for Regulations (Dutch: Aanwijzingen voor de regelgeving) contains directives that should enhance the quality of new regulations. LEDA provides tools to facilitate the drafting process and to provide easy access to the contents of the Directives (Voermans 1995, p. 93). Unlike the relatively homogenous functionality of the previously discussed information systems, LEDA unites different functions and techniques.

Goal: The goal of LEDA is to make accessible the directives in the Dutch Directives for Regulations for a person who drafts a new regulation. In the different stages of the process of drafting, LEDA provides the user with information regarding structure and content. Also, it should provide the information referred to in the Directives themselves. Moreover, it is meant to provide knowledge-based support for some sub-tasks of the drafting process.

Functions: LEDA has two main functions, namely, providing information about structure, and providing information about content. The first function reflects the drafting process for legislation expressed in the Directives. The second function reflects the content of the Directives: it gives information regarding its actual subject matter (*ibid.*, p. 104-111). The structure of the design process is provided as an 'information window' in the word processor. Part of the content of the design process can be executed through graphical schemas. The user can always take notes (*ibid.*, p. 108-109). The user is thus never forced into a deterministic procedure, losing control over the design process. The content information is provided in a static and a dynamic manner. The static provision of information amounts to an extensive access to the content of the Directives (full-text search, abridged table of contents *etc.*). The dynamic provision of information amounts to the active support of the user through pattern recognition. The system supports the user whenever certain keywords, or certain combinations of words, are entered.

Techniques: The main technique used in LEDA is hypertext. A hypertext system contains terms (words or sentences) that are linked to other terms or sentences. The structure that constitutes the hypertext network is comparable to the structure of the World Wide Web: a link connects the user to a different part of the same text, or to a different text. Hypertext enables the user to navigate quickly through a text, and it is therefore suitable to clarify the structure of, in the case of LEDA, the Directives. The hypertext representation of the Directives can be regarded as the static part of knowledge representation. In addition to

this, pattern recognition allows the system to find certain combinations of words. Such combinations indicate that the text written by the user refers to the contents of the Directives.

2.3 Concluding remarks

Item discussed	Intermediate conclusions
Types of legal information systems	There are three types of legal information systems: administrative systems, information-retrieval systems, and knowledge-based systems.
Legal tasks	Three categories of legal tasks are distinguished: rule application, legislative drafting, and systematisation.
Need for knowledge	Users need factual knowledge about content, factual knowledge about validity, and factual knowledge about method.
IVS	The goal of IVS is to make visible the current sentencing practice in order to help the judge sentence in an individual case.
ESM	The goal of ESM is to provide the user with a reconstruction of the decision process underlying the issuing of permits in environmental law.
TESSEC	The goal of TESSEC is to improve the quality of decision-making by civil servants implementing social security acts.
LEDA	The goal of LEDA is to make accessible the directives in the Dutch Directives for Regulations for a person who drafts a new regulation.

Table 2.1. Concluding remarks

3. Legal ontology

A discussion of the epistemological aspects of knowledge in the legal domain should take into consideration the particular problems involved with the nature of the *object* of legal knowledge. The philosophical discipline that considers the object of knowledge (*i.e.*, reality) is called ontology. In this chapter, I pay attention to the nature of the legal part of reality. Legal ontology is a brand quite different from ‘traditional’ ontology; its object is the law, and the existence of the law depends, at least in some views, on the existence of human beings.

Below, I subsequently discuss the main stances on the ontological status of the law (section 3.1), the relation between ontology and epistemology (section 3.2), and a choice for a conception of law, necessary to develop a view on legal knowledge (section 3.3). Finally, I list some conclusions (section 3.4).

3.1 Theories about the ontological status of the law

Belief and knowledge are usually *about* something. This means that there is some state of affairs to which a belief is compared for the determination of its correctness. But are there objects that the various entities we call ‘the law’ refer to? One of the issues in the natural law-legal positivism debate is precisely the ontological status of the law: what are we talking about when we refer to rules and norms? In my discussion of natural law (subsection 3.1.1), legal positivism (subsection 3.1.2), and institutional theories of law (subsection 3.1.3), I refer only to general characteristics. These should suffice to indicate the ontological stances they may induce. After comparing these claims (subsection 3.1.4), I sketch an alternative picture, provided by Peczenik and Hage (1999), in subsection 3.1.5.

3.1.1 Natural law

Cliteur (1989, p. 363) characterises the natural law view by six items. First, there is law that has absolute validity. Second, this law can be derived from human nature or the nature of reality. Third, human reasoning capabilities are sufficient to know this law. Fourth, the validity of positive law depends on the test of content constituted by natural law. Fifth, positive law that does not pass this test is invalid. Sixth, the test consists of a set of speculative and metaphysical ideas.

These items contain an ontological claim, namely that natural law exists; it provides a framework for the assessment of positive law (which may also be claimed to exist, but whose existence status is less important than the existence of positive law). The validity of positive law depends on the content of natural law. There is a direct link between morality and the validity of the law. If some law is morally objectionable, *i.e.*, if it does not comply with the moral principles embedded in natural law, that law is not valid.

3.1.2 Legal positivism

The legal positivist view is summarised by Brouwer (1997) in five features. First, authority is the source of the law. The validity of a norm as a legal norm is based on a human source. Second, the validity of a legal norm does not depend on the contents of that norm, but on its presence within the legal system. Third, there is no direct link between the law and morality. The question what is law does not depend on what is morally justified. Fourth, legal norms have the highest authority; norms that are not recognised in the legal system are legally irrelevant. Fifth, the meaning of a legal norm is a factual matter, not a moral one; it refers to the goal the authorities aimed at with that norm.

An ontological claim compatible with these general characteristics of legal positivism is that the law exists, *i.e.*, positive law is valid whenever it is issued by a sovereign power. The absence of a direct link between morality and positive law means that a morally objectionable law can still be a valid law. The only link between morality and positive law is that positive law will often be based on moral principles, and that interpretations of positive law will also be influenced by those principles.

3.1.3 Institutional theories of law

Institutional theories of law give, according to Hage (1998), accounts of different themes in legal philosophy. However, they do have something in common, namely their primary point of departure. Institutional theories assume that legal reality supervenes the world that consists of material facts. Legal reality, however, unites the factual and the normative in its supervenience (*ibid.*, p. 141-142). An institutional theory of law consists of a framework describing the relation between brute facts and institutional legal facts. Brute facts are the object of traditional ontology, institutional legal facts are claimed to be the entities gaining existence through a system of rules. These legal facts are the object of legal ontology. Below I discuss two institutional theories of law. First, the institutional theory of law developed by MacCormick and Weinberger (1986, for a brief discussion see Hage 1998, p. 131-133) claims that legal institutions, such as man-

slaughter, property, and divorce, can yield institutional legal facts under certain conditions. These facts are brought about or terminated by way of institutive rules and terminative rules. And by means of consequential rules, their (legal) consequences are defined. Institutional legal facts exist in time between the point where they are established by an institutive rule, and the point where they are abolished by a terminative rule. In the meantime, the consequential rules hold for those facts. Legal rules themselves can also be considered as institutional facts (*cf.* subsection 3.1.3).

Second, Ruiter (1993) proposes an institutional theory of law. In this theory, he emphasises the importance of speech act theories (such as in Searle 1969) for the establishment of institutional legal facts. Ruiter's theory covers the creation and abolishment of legal norms, based on the different types of speech acts distinguished by Searle. The idea is that a legal system can be analysed in terms of speech acts. These are acts that occur when people say certain things. For instance, when a civil servant says 'I hereby declare you husband and wife' under appropriate circumstances, these words have the result that the two people before her are married. Legal acts can be analysed in terms of such speech acts. In this example, the speech act implies a declarative legal act. A speech act can succeed or fail. For instance, when the person performing the speech act has no right to do so, the speech act fails. In that case, no legal act is performed (at least not the one leading to a marriage). Or the speech act is performed by the proper person, but the community in which the marriage has taken place, does not recognise it. In that case, there is a legal act, but the necessary recognition of that legal act does not occur. The validity of legal norms thus depends on two aspects; an 'ideal' aspect and a 'factual' aspect, where the former is achieved through the proper performance of legal acts, and the latter through social recognition of the norm (see Hage's discussion of Ruiter; Hage 1998, p. 137).

The ontological claim that can be attached to institutional legal theories in general is that the law exists as supervenient on brute facts, and that the institutional legal facts combine the factual dimension of the law with its normative dimension (*cf.* Hage 1998, p. 141-142).

3.1.4 Comparing the claims

What is the difference between the ontological claims of natural law, legal positivism and institutional theories? The existence claims apply to different objects. Validity is taken to be a mode of existence. Thus, where the term 'validity' is used in the subsequent discussion, a special type of existence is meant. Natural law is something different from positive law. In a traditional natural-law view, the existence claim applies to the law as an entity existing independently from human beings. The validity of positive law depends on its conformity with natural

law. Moral principles are interwoven with natural law, and thus, there is a link between the validity of law and the presence of moral principles. In legal positivism, the law is identified with positive law, and the validity of positive law depends on the sovereign power promulgating positive law. Institutional theories of the law make explicit ontological claims about legal entities: the law is regarded as supervenient on brute facts. Thus, the existence of normative entities, like norms, is given appropriate attention. However, by addressing the normative dimension of legal norms, one has not yet solved the problem of the link with morality. In their handling of morality, institutional theories of law seem to conform with legal positivism.

3.1.5 A conventional-*cum*-institutional approach

In Peczenik and Hage (1999), a conventional-*cum*-institutional (CI) theory of law is taken as a starting point for a discussion of the ontology of law. The final approach adopted in the article is a coherence theory of law, but the CI theory fits in nicely with the need for a more precisely defined object of legal knowledge in this report.

The first concept that is adopted in the CI theory is supervenience. Hage (1998, p. 128) defines supervenience as follows. A set of characteristics A is supervenient relative to another set of characteristics B if there cannot be a difference in set A without there being a difference in set B, while there can be a difference in set B without a difference in set A. Thus, while the supervenient characteristic (say, the colour red) can rest on different phenomena (a red sheet of paper versus a white sheet of paper illuminated by red light), the supervenient characteristic is always the same when the set of characteristics on which it rests remains the same (a red sheet of paper remains red).

The second concept adopted is conventional fact. The existence of a conventional fact rests on the conditions that a sufficiently large amount of people within the relevant community believes that fact, and also believes that everyone believes that fact. In addition, the situation in which the relevant community believes that fact is partly reason for the people belonging to it to perform actions. Those actions are meaningful because of the existence of the conventional fact (adjusted from Lagerspetz by Peczenik and Hage 1999, p. 4).

The third concept adopted is institutional fact. An institutional fact derives its existence from the following conditions. There should be a rule in the relevant population, of which the conditions are fulfilled, and there is no exception to that rule, and the conclusion of the rule is that the fact exists (adjusted from Lagerspetz in *ibid.*).

Together, conventional facts and institutional facts can account for the structure of a legal system. The definition of an institutional fact is recursive. Conven-

tional, institutional and brute facts may form an input to it, and conventional facts and institutional facts may form an output. These facts may again form an input to the definition of an institutional fact. Rules, according to Peczenik and Hage (*ibid.*) may be considered as facts. Thus, rules can exist, either as conventional facts, or as institutional facts, or as both.

3.2 Ontology versus epistemology

Ontology regards the mode of existence of objects. Legal ontology thus concerns the questions *whether* legal entities (such as norms and rules) exist, and *in what way* they exist. Epistemology regards the question what knowledge is. Legal epistemology thus is about the question what legal knowledge is. The link between legal ontology and legal epistemology is that the object of legal knowledge (the domain of legal epistemology) is legal reality (the domain of legal ontology). I elaborate on the nature of the object of legal knowledge in subsection 3.2.1, and on certain specific parts of this object, namely systematisations and interpretations, in subsection 3.2.2.

3.2.1 Legal knowledge and its object

The object of legal knowledge and legal knowledge itself are hard to distinguish. To clarify this assertion, I discern four object categories of *legally relevant* knowledge (the object of *legal knowledge* consists of the latter three object categories). First, there are situations in the world that are relevant for the legal domain. Examples of this are: John hits a pedestrian with his car, Blair signs a contract, and I buy a book. Second, there are sources containing statute law, case law, and treaties, *i.e.*, established legal regulations (formal sources of law). Third, there are systematisations and interpretations, made and used in legal practice and legal theory, but not established as undisputed sources. For example, a systematisation of Dutch intellectual property law could be employed by a lawyer for making his case, but it does not count as a formal source of law. And fourth, there are objects that are classified according to the law and thus acquire a legal status. For instance, the fact that John hit a pedestrian with his car, is classified as criminal negligence.

It is easy to distinguish the situation that John hits a pedestrian from the belief 'John hits a pedestrian'. It is somewhat harder to distinguish the fact that some law applies from having beliefs about the content of that law. And it is even harder to distinguish an interpretation from a belief about that interpretation. The reason for this is that interpretations are not objects in the same way as we can regard toys as objects: we cannot hold, feel, and look at interpretations from

different angles, while in the case of toys, we can. We construct interpretations ourselves, and by doing this we ‘make’ knowledge. At the same time we add something to the world: a new interpretation, a new object. Whether an interpretation is an object, and what kind of object it is, depends on one’s ontological stance.

3.2.2 Systematisation and interpretation

There exist different views in legal theory about the activities of systematisation and interpretation, and, consequently, about their ontological status. I subsequently discuss the views of Aarnio, Peczenik and Hage, and Brouwer. Aarnio (1987, p. 136) regards systematisation of the law as a theoretical, scientific activity, while he regards interpretation as a practical activity, essential to legal practice. The object of systematisations and interpretations, and their product, he claims, are both (part of) the legal system (*ibid.*, p. 136-137). The systematisation activity classifies legal norms into different classes, according to some conceptual schema that has been prepared for that purpose. The interpretation activity chooses an interpretation of a specific norm from the realm of possible interpretations. Both activities make up legal reality. If some systematisation or interpretation remains unchallenged, this is not even problematic. But in many cases different, competing and mutually inconsistent (or incoherent) systematisations and interpretations exist for the same legal system and legal rules respectively. This characteristic is essential to the legal domain, but it may threaten the consistency of legal reality.

In subsection 3.1.5, I discussed a conventional-*cum*-institutional theory of law. Peczenik and Hage (1999) embed this theory in a coherence theory of law, in which systematisations and interpretations are accommodated. Legal dogmatics also connects the legal system ‘with its background in the form of morality and (political) philosophy’ (*ibid.*, p. 6). Thus, not only internal coherence (coherence in the system of legal rules), but also external coherence (coherence among the legal system and its background) is aimed at. But what does such a theory say about the existence of systematisations and interpretations? Can there be a correspondence between some belief about an entity and the entity itself (such as a systematisation)? Or is a systematisation only established when it is introduced and – maybe – believed by a certain number of people?

It is claimed by Peczenik and Hage (*ibid.*) that a procedural theory of law can account both for knowledge of the law and existence of the law. Procedures can be used to acquire knowledge of the law by using those procedures for exchanging reasons for a certain opinion (for instance an interpretation). Thereby we attain (a form of) justification for that opinion. Thus, contrary to the situation in which we have a justification for believing some brute fact, we have a

justification for a procedurally constructed fact. In case we have a belief about a brute fact, the justification itself does not influence that fact (as the fact is independent of our beliefs about it, and independent of our justification for those beliefs). In case we have a belief about a procedurally constructed fact, the justification (the reasons we provide for the fact) constitutes – at least partially – the existence of that fact (*cf. ibid.*, p. 9-10, Hage 1997, p. 30-31).

The systematisation of positive law is, according to Brouwer (1998), an attempt at rationality. The rationality consists in two demands. First, an individual legal decision should be sufficiently justified. Second, together, the justifying reasons for individual legal decisions should cohere (*ibid.*, p. 1). Justifying reasons derive their status from legal norms, and thus, according to Brouwer, one could also say that legal norms should cohere. Systematisation, he claims, is a theory-laden activity. Depending on the theoretical points of departure, the criteria on which the systematisation is based, may differ. Different aspects play a role in determining such criteria. First, the view on the elements present in the domain, that are subject to the systematisation. Second, the relations among these elements. Third, the demands that are deemed necessary to attain a well-ordered system (*ibid.*). The systematisation activity thus partly depends on the view one has on the ontology of the domain: what are the elements in that domain, and what are the relations among them? These are ontological questions *prior to* establishing systematisations. What about the ontological status of systematisations themselves? From Brouwer's discussion, we may cautiously conclude that, insofar as we can attach any ontological status to systematisation, it depends entirely on ontological decisions made earlier, on a level below the systematisation.

On the nature of interpretation, Brouwer (1997, p. 141) remarks that the meaning of a legal norm is given by the authorities responsible for establishing that norm and/or modifying it. The meaning of a norm is determined by the rules of language and the rules stating conventions for some of these terms (the meaning of legal terms may differ from the 'natural' meaning of the same term, which is the case with terms like 'murder'). In most cases, the meaning of legal norms is clear, and sufficient to determine whether it applies to a certain case. In those cases where it is not, and a judge determines the meaning by filling in the norm, he performs judicial *construction*, on the assumption that judicial construction starts where judicial application ends.

3.3 An ontological conception of law

In this section I introduce a system of ontological claims regarding the different elements in the law and those elements that are not part of the law, but are relevant to it. For the elements that should be distinguished, I use the two

classes provided by Peczenik and Hage (1999, p. 1). The non-legal entities are human beliefs, preferences, actions, dispositions and artefacts (the entities on which the law supervenes). The legal entities are (valid) law, legal rules, legal principles, legal values, and legal actions. In addition, I distinguish a class of legal categorisations: interpretations, systematisations, and classifications.

The latter class arises from Hage (1997, p. 95-97), who claims that the essence of application of law lies in a level of abstraction where the conditions of the rule are on the same level of abstraction as the facts of the case. There are, Hage claims, two processes at work to reach this state. First, legal sources are *interpreted* to construct a rule of law. Second, the facts of the case are *classified* so as to yield a classified case. As soon as we have a classified case and the rule of law, the application of the law amounts to simply applying the rule of law to the classified case.

The system of ontological claims thus consists of three layers. The first layer consists of non-legal entities. The second layer consists of the legal entities distinguished above. The third layer consists of legal categorisations. The second layer supervenes on the first layer in the way described in subsection 3.1.5. The third layer supervenes on the second layer, but in a different way. While entities of the second layer exist through institutional or conventional rules, entities of the third level tend to have small institutional and conventional bases – if they have any at all. Only when such entities are institutionalised or become a convention, they become part of the second level. Thus, when an interpretation of a legal rule is provided by a judge, and she classifies the case at hand according to that interpreted rule, the resulting decision is valid law (as a precedent), and it becomes an entity at the second level. As long as an entity is present on the third level, its existence is merely constituted by reasons, where these reasons are not widely accepted as being sufficient for its acceptance.

Choosing such an ontological position means limiting the possibilities there are for taking an epistemological stance. Where, in the subsequent chapters, an epistemological view is explained, the reader should realise that the content of one's epistemological view depends on the content of one's ontological view. Explaining what legal knowledge is cannot be done without determining what the object of legal knowledge is. The ontological view explained here will be the guiding line, but where the epistemological view discussed demands it (for instance in the discussion of hermeneutic theories of the law), the corresponding ontological claims will be different.

3.4 Concluding remarks

Item discussed	Intermediate conclusions
Theories about the existence of the law	There are different theories about the existence of the law: in a natural-law view, existence (validity) of the law is linked to morality; in a legal-positivist or institutional view, existence of the law depends on its recognition by some proper authority. Besides this, mutual belief (convention) can play a role.
The relation between knowledge about the law and the law itself	Depending on the ontological stance taken, existence of the law is either independent or dependent on human or authoritative recognition. Thus, knowledge about the law is either about an independent object or about a dependent object. In either case, knowledge of the law can still be distinguished from its object.
Ontological commitments	Three ontological layers are distinguished. The first layer consists of the non-legal entities. The second layer consists of the legal entities that exist through convention or through an institutional rule. The third layer consists of legal categorisations that are made by individuals, while they still lack existence through convention or institutional rules.

Table 3.1. Concluding remarks

4. Legal knowledge

The concept of legal knowledge is hard to define. To be able to give a definition of legal knowledge, we have to find out under what circumstances legal beliefs qualify as legal knowledge, and what types of legal knowledge exist. Each attempt to define the concept of legal knowledge is a provisional one, not only because different persons define legal knowledge in different manners, but also because its definition depends on the context in which the concept is used, and on the type of knowledge involved. Any proposal for definition of legal knowledge is thus tentative. This is the reason that such an attempt is also normative: it prescribes the way we should regard the meaning of legal knowledge.

In this report, the point of view taken is epistemological, and the answer to the question has a theoretical rather than a practical nature. Legal knowledge is the category of knowledge about legal entities. Legal entities are valid law, legal rules, legal principles, legal values and legal actions (*cf.* Peczenik and Hage 1999). Apart from legal knowledge itself, we may distinguish the category of legally relevant knowledge. This is knowledge that is necessary for making judgements. Knowledge in the legal domain consists of both legally relevant knowledge and legal knowledge. The former type is a subset of the category of regular knowledge, which is discussed in chapter 5. The latter category is discussed in the current chapter.

Below, I discuss what types of legal knowledge there are. I apply two restrictions on my discussion. First, 'knowing that' is the main subject of my discussion. 'Knowing how' is discussed only briefly as a part of the typology of knowledge in the legal domain provided in this chapter. 'Knowing that' amounts to factual knowledge, knowledge about what is the case. This type of knowledge can be made explicit. 'Knowing how' refers to intelligent skills we perform. We often cannot make explicit this type of knowledge. Insofar as we can make explicit such intelligent skills, the specified procedures needed to perform them become factual knowledge. The second restriction on my discussion is that it is limited to the discussion of a concept of knowledge. I do not go into the matters of knowledge acquisition and knowledge growth, although they are part of epistemology.

In this chapter, the following subjects are dealt with. In section **Error! Reference source not found.**, different types of legal knowledge are listed. In section 4.2, I discuss the matter of judicial interpretation, and its relation it has with legal knowledge. Next, in section 4.3, I provide an overview of the characteris-

tics of hermeneutic theories of law. Subsequently, in section 4.4, an overview is given of the epistemic claims for different stances in legal theory. Finally, in section 4.5, I provide a typology of knowledge in the legal domain.

4.1 Sources of legal knowledge

The term 'legal knowledge' refers to all knowledge that is about the law. In the three subsections below, I clarify the sources of such legal knowledge. First, I explain the distinction between abstract and concrete knowledge (subsection 4.1.1). Second, I discuss the distinction between material and formal sources of law (subsection 4.1.2). And third, I deal with knowledge sources for the law (subsection 4.1.3).

4.1.1 Abstract versus concrete knowledge

Hage (1999) distinguishes between abstract and concrete legal knowledge. The former category consists of knowledge about valid law, legal rules, legal principles, legal values and legal actions. The latter category consists of knowledge about cases. These two types of legal knowledge represent two sides of a range, between which the character of an actual piece of knowledge may vary.

The difference between abstract and concrete knowledge needs to be combined with Ryle's (1949) distinction between knowing how and knowing that. Abstract 'knowing how' is, for example, the competence to interpret legal sources. Concrete 'knowing how' refers to classifying cases. Abstract 'knowing that' is factual knowledge about legal rules. And concrete 'knowing that' is factual knowledge about classified cases.

'Knowing how' is about how to solve cases. 'Knowing that' refers to explicit knowledge: what one regards as valid law can be expressed in language. 'Knowing how' is often implicit; few lawyers can explain how they solve cases. This kind of practical legal knowledge can still be made explicit to a certain extent, in the form of a reconstruction of the procedure followed. Even though this procedure may not be an exact reflection of what actually happens (it may even be completely different from that procedure), such a reconstructed procedure may prove useful in learning the skills.

4.1.2 Formal and material sources of law

Sources of law are the starting point for the acquisition of legal knowledge. Depending on the ontological stance taken, knowledge of the law may be derived directly or indirectly from sources of law. The concept 'source of law' is

ambiguous. There is a distinction between formal and material sources of law. Formal sources of law are, as some authors state (*cf.* Algra and Van Duyvendijk 1989, p. 19, also referred to in Bruggink 1990, p. 16), the knowledge sources for the law. These are statute law, treaties, and legal precedents (*ibid.*). Customary law is not considered as a formal source of law in this report.

Material sources of law are the origination sources of law, *i.e.*, the practical and theoretical basis for the formal sources of law. Material sources of law do not themselves amount to legal rules or legal norms. They form, however, the grounds for those rules and norms. For instance, as soon as a judge has made a decision in a case following customary law (considered as a material source of law), she establishes a verdict from which we may derive a rule of law (the verdict, being a legal precedent, is a formal source of law). Algra and Van Duyvendijk (1989, p. 20) distinguish the following material sources of law: political powers, civil servants, pressuregroups, religious beliefs, moral beliefs, socio-economical developments, geographical circumstances, and technological developments. The import of this enumeration is that material sources of law are indeed the external factors relevant to the *origination* of the law.

4.1.3 Knowledge sources for the law

Knowledge sources for the law are the sources through which we acquire knowledge about the law. There are two dimensions in having factual knowledge about the law: knowing its *content* and knowing its *validity*. As noted in the previous subsection, knowledge sources for the law are sometimes regarded as equivalent to the category of formal sources of law. However, I would prefer to make a clear distinction between formal sources of law and knowledge sources for the law.

In a legal-positivist stance, formal sources of law largely coincide with valid law. In such a stance, if one acquires knowledge of the formal sources of law, one will acquire knowledge of both the *content* and the *validity* of law. In a natural-law stance, this is not necessarily the case; the validity of law is determined by principles that are not part of the legal system. In such a stance, knowledge about the content of positive law is derived from the formal sources of law, but knowledge about the validity of positive law is derived from principles outside positive law.

In legal-positivist and natural-law stances, knowledge about the content and validity of the law may also be derived from *material* sources of law. Material sources of law do not provide knowledge about valid law directly, but they are helpful in interpreting the content of formal sources of law. Both formal sources of law and material sources of law can thus function as knowledge

sources for the law. Their precise role may differ, depending on the ontological view of the law taken.

4.2 Judicial interpretation and legal knowledge

In this section, the phenomenon of judicial interpretation is discussed. The main question to be answered here is: what is the relation between judicial interpretation and legal knowledge? To put the question in different words: does judicial interpretation establish legal knowledge, or does it establish something else (something that exists, something with an ontological rather than an epistemic status)?

To be able to discuss this question, I first have to clarify the term 'judicial interpretation'. This term indicates to some extent what we see as the task of a judge. It can be opposed to judicial application and judicial construction (Scholten 1974, p. 7). Both judicial application and judicial construction rest on the assumption that there is a clear distinction between legal rules on the one hand, and facts on the other. Judicial application amounts to rule application; the application of legal rules in which the solution for a case can be found. Judicial construction amounts to adjudication, to assess a case in normative terms without a direct appeal to rules.

Scholten (*ibid.*) rejects the strict distinction between rules and facts. Instead, he employs a view of judicial interpretation in which the law does not only consist in rules, but also in cases (for a discussion of the 'ius in causa positum' principle – the law is situated in the facts – see Smith 1998).

Is Scholten's view a good starting point for a discussion of judicial interpretation? It is a hermeneutic approach (*cf.* section 4.3), which provides a setoff for the often employed assumption that judicial interpretation amounts to the application of a rule to a case, thus enabling the deductive derivation of a conclusion. This assumption is not that naive in its own right: it can be worthwhile to reconstruct the rule applicable to a certain case, to reconstruct the case so that it fits in with the rule, and to derive a judgement from these. The naivety especially applies to the assumption that such a reconstruction is not necessary, and that simple rule application is sufficient for establishing a judgement. Though naive, this assumption underlies much of the work on legal information systems.

In this section, I discuss legal knowledge from the perspective of judicial interpretation. To start with, I deal with the difference between heuristic and legitimisation notions (subsection 4.2.1). Next, I discuss methods of judicial interpretation (subsection 4.2.2). Finally, I scrutinise the link between judicial interpretation and legal knowledge (subsection 4.2.3).

4.2.1 Heuristic versus legitimisation

In judicial construction, we may distinguish the actual way in which an interpretative belief is formed from the way this belief is legitimised (*cf.* Bruggink 1990, p. 57). How the belief is actually formed, may remain unknown to us and even to the person who forms it. The legitimisation is crucial for justifying the result of an interpretative process, and thus, important for the development of a concept of legal knowledge. Explicit legitimisation can be communicated among people. The qualification of belief as knowledge in this report is based on both acquisition (by heuristics) and legitimisation: the knowledge criteria discussed partly concern the way in which beliefs are formed, and partly concern how they are justified.

Can the way in which judicial interpretation is actually performed be discerned from the way in which it is legitimised? Does not the act of interpretation provide an essential part of the legitimisation of its result? The answer to these questions partly depends on one's view on the ontological status of the law, and on the nature of the legitimisation. The distinction between heuristics and legitimisation is parallel to the distinction between descriptive and normative theories of interpretation. Descriptive theories are about what techniques are actually employed to interpret, normative theories are about the 'correctness' of an interpretation. An answer to the question is: insofar as we know how we acquire an interpretation, the acquisition method may serve as a partial legitimisation for that interpretation. Insofar as we do not know how we acquire an interpretation, we have to rely on independent reasons for its legitimisation.

4.2.2 Methods of judicial interpretation

To indicate along what lines judicial interpretation can take place, I briefly discuss eight commonly distinguished interpretation methods (Pontier 1995, p. 26-33). The *grammatical* or *linguistic* interpretation method aims at a close inspection of the literal text of regulations. The meaning of terms may be either interpreted following their 'natural' meaning (their meaning in normal, non-legal use), or the meaning established by conventions in the legal domain. The *systematical* interpretation method calls upon the connection between the norm at hand and the legal system it is part of. The agreement or relation with other norms in the same legal system is central to the interpretation of that norm. The *statute-historical* interpretation method refers to the way the legal norm is accomplished, *i.e.*, it explains the meaning of a norm by clarifying the historical conditions under which the norm has been realised. The *legal-historical* interpretation method does not refer to the history of a specific statute, but to a more

general historical context. This context can be provided by authoritative sources, both legal (for instance, Roman law) and non-legal (general history).

The *teleological* interpretation method concerns the aim with which the norm concerned was formulated. The idea is that not the literal content of the norm itself, but the goal which is expressed by it, is central to its interpretation. The *anticipating* interpretation method applies to those cases where new regulations are being planned, and the current legislation is explained partly in anticipation of those new regulations. The *dynamic-evolutionary* interpretation method takes into account the way in which the explanation of a certain norm has evolved after it has been established. Not only its original goal, but also the way it has been employed through the years influences its interpretation. Finally, the *societal* interpretation method takes into account the social factors relevant to the interpretation of a norm. A legal norm, after all, has a connection with the society it is part of (Bruggink 1990, p. 109).

Not all of these interpretation methods are used frequently, and they are not mutually exclusive, *i.e.*, multiple interpretation methods can be employed to arrive at a single interpretation. Of course, using multiple interpretation methods may also lead to different conclusions, thus complicating the interpretation process. Although they are called interpretation *methods*, they are actually indicative of the sources that are used for interpretation. They do not describe or prescribe the way in which a certain legal norm is interpreted. Rather, they describe or prescribe the source that is employed in the interpretation act, or the direction in which the interpretation should be made. Thus, it would be better to call them interpretation *sources*. Some of these were listed earlier as material sources of law.

What about interpretation *methods*, then? Bruggink (1990, p. 57, 62-95) distinguishes between theories of judicial interpretation as a process and theories of judicial interpretation as a product on the one hand, and he distinguishes between descriptive and normative theories on the other. The two distinctions yield four types of theories. Descriptive theories about judicial interpretation as a process can be constructed by doing empirical research on this process. Descriptive theories about judicial interpretation as a product are based on empirical research focusing on the product. One might, for instance, perform quantitative analyses of decisions. Normative theories about judicial interpretation as a process are for instance deductive and inductive theories, and hermeneutic theories. Deductive theories start with looking at the rules, inductive theories start with closely scrutinising the facts. Hermeneutic theories focus on the interaction between rules and facts, and employ assumptions on the act of understanding a person engages in when she performs an interpretation. Normative theories about judicial interpretation as a product are logic and argu-

mentation theory. These give a reconstruction of the logical inferences and the argumentation lines for a certain legal statement.

Both distinctions (process *vs.* product and descriptive *vs.* normative) are important with respect to a concept of legal knowledge. Insofar as it relates to judicial interpretation, the concept of legal knowledge developed in chapter 6 concerns interpretation as a product. Also, it is normative, as it says what criteria a belief should comply with to become knowledge. But on closer inspection, it does not seem possible to make such stringent distinctions. First, the product of judicial interpretation alone (which would amount to, for instance, a verdict), is not really interesting without knowing either the way it has been established or its motivation. And the way an interpretation is established may on its turn add to its motivation. Second, a normative theory of judicial interpretation is always partially based on the actual process of interpretation, *i.e.*, such a theory does never leave completely aside the reality it refers to.

The interaction between the product of a process and the process itself on the one hand, and between the descriptive and the normative dimension of such a process on the other, leads to the following considerations regarding a concept of legal knowledge. Ideally, such a concept regards knowledge alone, thus not taking into account the process by which the knowledge is acquired. Moreover, it can be normative, in that it only regards what is deemed to be necessary to turn belief into knowledge. However, a concept of *legal* knowledge should also reflect essential parts of the process of acquiring knowledge. For instance, the nature of that process can count as a directive for establishing the applicable knowledge criteria. A belief arising from interpretation may be qualified as knowledge under other conditions than a belief arising from perception.

4.2.3 The link between judicial interpretation and legal knowledge

There is a connection between the notion of judicial interpretation and the notion of legal knowledge. Knowledge about the result of judicial interpretation can be qualified as legal knowledge. However, whether all legal knowledge is based on judicial interpretation depends on the conception of law adopted. In a natural-law view and a positivist view, our knowledge of the law is not the same as the law itself. In a strong natural-law view, the law is completely independent of any interpretation of it. In a positivist view, what the law is depends on what is recognised as such by the proper authorities. In a hermeneutic view, however, what we recognise as the law is the result of judicial interpretation. In such a view the ontological category of the law almost coincides with the epistemological category of legal knowledge. The object of legal knowledge is, in this case, the result of judicial interpretation.

4.3 Hermeneutics in the law

The dominant theory about judicial interpretation in The Netherlands in the second half of the 20th century has been Scholten's theory (see section 4.2), which is inspired by hermeneutics. This section provides an elaboration on hermeneutic theories in the law. First, I provide some general characteristics of such theories (subsection 4.3.1), then I discuss an example of a hermeneutic view, namely Dworkin's theory (subsection 4.3.2).

4.3.1 Hermeneutic theories of judicial interpretation

Hermeneutic theories of law form the main stream in legal theory. Having said that, the differences among those theories are significant, and Dworkin's theory, discussed in the next subsection, is one with relatively few relativistic connotations, *i.e.*, the ontological and epistemological claims are stronger than one might expect in a hermeneutic theory. In the discussion below, ontological and epistemological claims in hermeneutic theories of law are discussed.

According to Smith (1997, p. 224), in hermeneutic theories of the law, the law is defined as an interpretation of a practice. The practice is often a non-explicit one. The interpretation should lead to an identification of what the law is. To clarify the nature of hermeneutics, I start with listing three distinctions that cannot be held in such theories: there is no clear distinction between the descriptive and the normative, between rules and facts, and between the law and its interpretation.

The descriptive/normative distinction signifies the difference between what there is and what there should be. To describe something is to list its characteristics, while assuming that these characteristics are independent of their characterisation. To prescribe something is to say that something should be the case, independently of the question whether it *is* the case: there is a norm, with which reality must comply. Hermeneutics says that such a distinction cannot be maintained, because we cannot describe reality independently of some idea about what reality should look like.

In a reflection on the law, the descriptive/normative distinction means that there is no clear distinction between a rule of a law and a fact it applies to, but that there is an interaction between rule and fact, which yields a new characterisation of both the applicable rule and the fact. Brute facts, or facts that are not perceived or interpreted by a human agent, can only be characterised meaningfully in the light of the rule, and the rule can only be formulated meaningfully in the light of the fact.

The third distinction, namely between the law and the interpretation of the law, is related to the second. However, in this case, we regard the law as being inde-

pendent of its application. The distinction between the two assumes that the law exists, and that its interpretations are about that independently existing law. Hermeneutics denies that this distinction can be made. In practice, the law is only 'found' or 'formed' in its interpretations.

In case we interpret the law without referring to individual cases, we systematise the law. Systematisation requires us to form an idea about the meaning of individual rules of law and their connections with each other, finding out structural distinctions and patterns. Systematisation cannot be seen as an activity that leaves the original rules undisturbed. Instead, the systematisation activity is also an interpretation activity that establishes the content of the law.

Now that I have given a characterisation of the distinctions that *cannot* be made in a hermeneutic theory of law, I give some properties of such a theory with respect to a concept of knowledge. Knowledge about the world, or about the law, is acquired through a form of *understanding* (*Verstehen*). The subject/object distinction – the distinction between the person who knows something and the thing she knows something about – is denied. Before one can know anything, one has to have some form of knowledge about the world; one has to be a part of that world. Any acquired knowledge is related to the position one has in the world; the knowledge that one has previously acquired. Thus, knowledge is neither completely subjective, nor completely objective. The same is valid for the meaning of language. The language one uses is related to the particular stance a person has in the world, and there is no objective relation between a sentence and some part of the world. Therefore, there is no such thing as objective truth either. The fact that all knowledge is the result of interpretation, and that this interpretation constitutes a part of reality, means that an objective distinction between a sentence and the fact that it is about cannot be established (*cf.* Smith 1998, p. 68).

4.3.2 Dworkin: constructive interpretation

Dworkin gives an account of interpretation in his 'Law's Empire' (1986, p. 45-86). This account is a hermeneutic one, roughly because it regards interpretation as a *constructive* activity. Dworkin distinguishes among four types of interpretation (*ibid.*, p. 50-51): conversational interpretation, scientific interpretation, artistic interpretation, and interpretation of social practice. Conversational interpretation occurs when we talk and listen to each other, and try to find out what other persons mean. Scientific interpretation is deemed not to be purposive, *i.e.*, the raw data should speak for themselves, and the interpretation of those data is led by their content. Artistic interpretation consists of attempts to discover the meaning of a work of art, which is projected in that work by the

interpreter. The interpretation of social practice covers legal interpretation. It resembles artistic interpretation to the extent that it is about an object *created by* human beings, but *distinct from* those human beings.

Thus, the types of interpretation are defined relative to their objects: people's words for conversational interpretation, nature's products for scientific interpretation, people's products for artistic interpretation and interpretation of social practice. The agreement in object of artistic interpretation and interpretation of social practice leads Dworkin to accommodate them both under the denominator 'creative interpretation' (*ibid.*, p. 50). The question Dworkin asks with respect to creative interpretation is whether it should be aimed at discovering the author's intention (where the term 'author' is meant to refer to anyone creating something – be it a work of art or a judgement), or by discovering the 'best' interpretation possible, regardless of the author's intention.

The interpretation of social practice is an activity that scrutinises a case at hand. It starts with a preinterpretive demarcation of what is the issue at hand: we have to find out what are the rules and the standards that determine the content of the practice to be interpreted (*ibid.*, p. 65-66). Then the actual interpretation is carried out, by isolating those arguments that contribute to distinguishing the practice at hand (*ibid.*, p. 66). Finally, in the postinterpretive stage, an attempt is made to incorporate all deviant characteristics of the practice into the interpretation by adjusting it to those characteristics (*ibid.*, p. 66). In my opinion, Dworkin aims to express the view that the preinterpretive stage serves to isolate the practice, the interpretive stage serves to construct the interpretation (where the main direction of reasoning is from interpretation to practice), and the postinterpretive stage serves to 'reconstruct' the practice (where the main direction of reasoning is from the practice to the interpretation, altering that interpretation if necessary).

Most notable in the view Dworkin has on interpretation, is that he rejects scepticism. Interpretations can be 'right or wrong', even 'true or false' (*ibid.*, p. 78). Although he adheres to a constructive type of interpretation, where the interpretation does not necessarily reflect the intentions of (members of) a community, he claims that one interpretation can be better than another. According to Dworkin, there are two sceptical stances: internal scepticism says that there is no way to determine whether one interpretation is better than another, in fact, there is no way that an interpretation can earn priority over others, because no actual interpretation provides the unity required for such an enterprise (*ibid.*, p. 78). External scepticism, instead, makes an ontological claim, namely that there is no way to test the correctness of an interpretation, as there is nothing in reality it can be tested against (*ibid.*, p. 79-80). Dworkin emphasises that many sceptic attacks to claims on priority relations among interpretations (one interpretation

is better than another) employ externally sceptic arguments, but make internally sceptic claims. But the claim that there is no independent reality to which interpretations can be checked is quite a different claim from saying that no interpretation can be deemed better than another (*ibid.*, p. 83). Dworkin does not challenge the former claim, but he does dispute the latter one.

4.4 Epistemic claims in legal theory

Epistemic claims in the legal domain depend on the ontological status of the legal entities. The ontological status of legal entities, on its turn, depends on the view one has on the nature of the law. A brief review of some of the leading views in legal philosophy was given in section 3.1. The main epistemological question is: given the supposed existence of certain legal entities, can we know them? In case of a natural-law view, the epistemological claim is that abstract 'knowing that' of natural law, *i.e.* abstract factual knowledge of legal norms, is possible. Concrete 'knowing that' can be established through knowledge of legal norms and knowledge of cases (knowing a case in the light of the legal norms that apply). A claim about abstract 'knowing that' of positive law is not made, but we may assume that such knowledge can be acquired. Whether positive law is really valid law, can be known by testing positive law against natural law. This test consists of checking whether the content of positive law complies with the principles expressed in natural law. Claims about concrete 'knowing that' and concrete 'knowing how' are not made and are difficult to reconstruct.

In case of legal positivism, abstract 'knowing that' of valid law is possible through knowledge of sources of law and knowledge of their recognition as such by the proper authorities. Concrete 'knowing that' is possible through knowledge of valid law and knowledge of cases. For 'knowing how', the same remark can be made for legal positivism as for natural law: explicit epistemic claims are not made. For institutional theories of law, the same epistemic claims can be made as for legal positivism. The existence component is elaborated on in such theories through institutional rules. In the conventional-*cum*-institutional theory of law, conventions may also add to existence.

Hermeneutic theories have a different approach towards knowledge. The distinction between knowing that and knowing how is somewhat vague in such theories. In the hermeneutic view, knowledge is always the product of an interaction between the subject and the object of knowledge. Therefore, factual knowledge (knowing that), and a competence to do something (knowing how), are both partially based on knowledge that was already present. The epistemic claim that can be made about legal knowledge in general is that such knowledge is always dependent on the background knowledge one has. Legal knowledge

cannot be acquired without some sense of what the legal domain amounts to. The process of acquiring such knowledge is a circle in which new knowledge is assessed from the perspective of the knowledge that is already present.

4.5 Typology of knowledge in the legal domain

In the current section, I give an overview of the different types of knowledge discussed in this chapter. Three distinctions have been made (all applicable to the legal domain). The first is between factual knowledge ('knowing that') and practical knowledge ('knowing how'). The former type refers to knowledge that can be expressed in the form of propositions. The latter type refers to knowledge that is 'internalised' in a person: a skill one has, a competence to perform some act. The second distinction is between abstract knowledge and concrete knowledge. Abstract knowledge is about abstract items, such as rules. Concrete knowledge is about actual items, such as cases. The third distinction is between legally relevant knowledge and legal knowledge. Legally relevant knowledge is knowledge about non-legal items that are relevant to performing legal acts or processes. Legal knowledge is knowledge about legal items. In table 4.1, different objects of legal knowledge are classified according to these three distinctions.

Knowledge typology		Legally relevant knowledge	Legal knowledge
Abstract knowledge	Factual knowledge about	<ul style="list-style-type: none"> • material sources of law • moral values 	<ul style="list-style-type: none"> • formal sources of law • interpreted formal sources of law (legal rules) • legal norms • legal principles • legal goals • legal values • systematisations
	Practical knowledge	<ul style="list-style-type: none"> • interpret material sources of law • interpret and apply moral values 	<ul style="list-style-type: none"> • interpret formal sources of law • systematise sources of law

Concrete knowledge	Factual knowledge about	<ul style="list-style-type: none"> • factual aspects of cases 	<ul style="list-style-type: none"> • classified cases • legitimisations of decisions
	Practical knowledge	<ul style="list-style-type: none"> • assess factual aspects of cases • draft legislation 	<ul style="list-style-type: none"> • classify cases • legitimise decisions

Table 4.1. *Typology of knowledge in the legal domain*

4.6 Concluding remarks

Item discussed	Intermediate conclusions
Formal and material sources of law as sources of legal knowledge	Formal sources of law are those sources that have an official status within the legal domain as sources of law. Material sources of law are those sources that may contribute to the understanding and interpretation of formal sources of law. Both types of sources may contribute to knowledge of the content and validity of law.
Judicial interpretation	A discussion of judicial interpretation should distinguish between the process of interpretation, the result of that process, and the legitimisation of the result.
Judicial interpretation versus legal knowledge	Depending on our ontological stance with respect to the law, the result of judicial interpretation may be an object of legal knowledge: in legal positivism, it is (if it is an authoritative interpretation), in natural law, it is not.
Hermeneutic theories of law	In hermeneutic theories of law, the object of knowledge cannot be clearly distinguished from the knowledge itself. Therefore, the knowledge one acquires about the law partly constitutes the law.

Legal knowledge

Epistemic claims	Epistemic claims made by various theories of law directly relate to their view on the ontological status of the law. In a natural-law view, knowledge of the law is attained through knowledge of positive law, and the degree to which it is in accordance with the principles of natural law. In a legal-positivist view, knowledge of the law is attained through knowledge of the content of positive law and knowledge of its validity.
Typology of knowledge in the legal domain	A typology of knowledge in the legal domain is made according to the following distinctions: legally relevant versus legal knowledge, abstract versus concrete knowledge, and factual knowledge ('knowing that') versus practice. ('knowing how').

Table 4.2. Concluding remarks

5. Regular knowledge

The focus of this report is not on general epistemology, but on legal epistemology. However, regular knowledge, the subject matter of general epistemology, is sometimes legally relevant. This is the case when it adds to knowledge of the law. Therefore, in the current chapter, regular knowledge is discussed as well. Legal knowledge differs from regular knowledge. First, the object of legal knowledge differs from the object of regular knowledge. Second, the acquisition methods for legal knowledge differ from the acquisition methods for regular knowledge. Legal epistemology is about the legal domain, and the legal domain contains elements whose ontological status is disputed (*cf.* chapter 3). Acquiring legal knowledge also differs from acquiring regular knowledge, in the sense that we read texts, listen to statements, and interpret rules to acquire legal knowledge. And if we investigate our surroundings in order to be able to give a legal classification for a certain case, we do this by carefully following legal guidelines. When we regard legal knowledge, we should also take into account regular knowledge. Regular knowledge forms part of the foundation for legal knowledge, as legal judgement is partly based on knowledge about facts. Legal knowledge, in the context of this report, is a concept that covers knowledge of the law as an object. Legally relevant knowledge covers the knowledge that is necessary to apply legal knowledge. In this chapter, the subject of regular knowledge is tackled. Legally relevant knowledge is a subset of regular knowledge. First, in section 5.1, I introduce the main concepts and questions in general epistemology. Second, in section 5.2, I discuss five different knowledge criteria. Third, in section 5.3, I indicate how these knowledge criteria can be combined in a concept of knowledge. In section 5.4, finally, I summarise the findings of this chapter.

5.1 An introduction to epistemology

Though legal epistemology differs from general epistemology, there are many concepts that we encounter in both disciplines. One of the basic concepts is 'belief'. A belief is an explicit conviction of a person about some state of affairs. For instance, when a judge sees some piece of evidence, she may think: 'that piece of cloth is evidence', or 'that piece of cloth is going to play a crucial role in my decision'. Other concepts employed in both disciplines are knowledge

criteria, such as truth and justification (though their precise meaning may differ, depending on whether they are used for general or legal knowledge).

Epistemology is a philosophical discipline that deals with questions about knowledge and belief. These questions address the acquisition of knowledge, its justification, and its growth (*cf.* Bradie 1989, p. 396). The acquisition problem concerns the way we acquire our beliefs, as opposed to the way we *should* acquire our beliefs. The way beliefs are acquired may influence the status of such beliefs: it can be a factor in determining whether beliefs are knowledge. The justification of knowledge concerns the ways in which we can defend our beliefs: when does a belief become a piece of knowledge? The growth of knowledge is a typical problem of philosophy of science: in what sense does our knowledge grow? In other words: while science evolves, is there anything that serves as a landmark for progress or growth?

In figure 5.1, the topics of epistemology are arranged as follows:

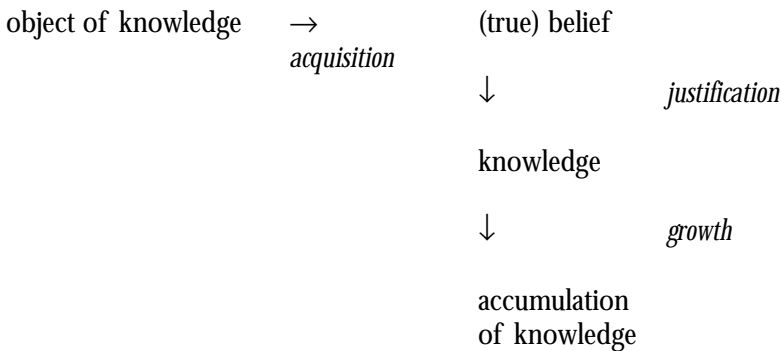


Figure 5.1. Topics of epistemology

The central question in this chapter is: which criteria should be fulfilled to call a belief a piece of knowledge. There are different criteria that may apply. In the next section, I discuss truth, justification proper, reliability, consistency, and coherence. These can be combined to provide different definitions of knowledge. Not all of these criteria can always as easily be distinguished from one another. In some views on epistemology, for example, the coherence criterion constitutes justification, so that they cannot be regarded as two separate criteria. Epistemologists tend to bring up new arguments to ensure that a problem, once it has been discovered, remains a problem. The problem of knowledge is one of these. Just when virtually every philosopher in the Anglo-Saxon tradition was convinced that knowledge was some kind of justified true belief (*cf.* Audi 1998, p. 214), Gettier (1963) showed it was not. Consensus has been rare ever since.

The basis for a piece of knowledge is a *belief*. A belief is a conviction of a person about something, the object of the belief. *Truth* can either be regarded as an epistemic or a non-epistemic criterion. When it is regarded as an epistemic criterion, the truth of a belief depends on the presence of evidence or an opinion, *i.e.*, on epistemic factors. When it is regarded as a non-epistemic criterion, the truth of a belief depends on the relation between the content of that belief and the nature of reality. Epistemic factors, like our evidence for the belief, are not relevant in this case. In the former case truth can be manipulated by humans (insofar as our evidence for a belief can be manipulated), in the latter case truth is independent of human interference. *Justification proper* is the part that should make probable, or prove, the content of the belief. Justification proper of a belief may consist of (1) a proof, for example a proof in case of a mathematical proposition, (2) giving good reasons for a certain belief, or (3) exchanging arguments, leading to an agreement of opinion on a certain belief. *Reliability* amounts to the degree of trust we can put in our cognitive apparatus to yield correct beliefs. *Consistency* concerns the absence of contradictions in a set of beliefs. *Coherence* concerns the degree to which the individual beliefs in a set can be inferred from other beliefs in the same set. The reader finds a more extensive discussion of these criteria in section 5.2.

A definition of knowledge, for example in terms of the criteria listed above, is usually embedded in a more extensive theory of knowledge, as such a theory forms the basis for the definition. Knowledge theories provide us with the answers to epistemological questions like the ones mentioned at the start of this section: (1) how do we acquire knowledge, (2) how do we justify knowledge, and (3) how does knowledge grow. The first step in answering these questions is asking where belief and knowledge come from: what are the sources of belief and knowledge? In subsection 5.1.1, I discuss this question. In subsection 5.1.2, the distinction between doxastic (belief-based) and non-doxastic epistemic theories is clarified. And in subsection 5.1.3, I explain the difference between internalist and externalist epistemic theories.

5.1.1 Sources of belief and knowledge

A belief source is the process or phenomenon that a belief is based upon. A knowledge source is equal to that, except that in this case a piece of knowledge arises from the process or phenomenon. Audi (1998) distinguishes five sources of belief and knowledge: perception, memory, consciousness, reason, and testimony. First, through our perception, we acquire beliefs about what we see, smell, hear, and feel. In most (but not all) cases, our senses provide an accurate picture of the world we live in, and on the basis of that accurate information we form correct beliefs. Second, we may not at present use this information, but

preserve it for later use in our memory. When we recall beliefs stored earlier, or base new beliefs on whatever we stored earlier, we use memory as a source of belief. Third, often, we are conscious of what we are doing and of what we are thinking. This characteristic enables us to reflect on what we are doing and thinking. These reflections are themselves a source of belief, called consciousness. Fourth, reason is a source of belief. Our intelligent skills enable us to produce beliefs that are not directly based on other sources, but whose truth is somehow 'obvious' to us, or can be proved, for example mathematical theses. Fifth, we often acquire beliefs on the basis of something other people tell us. We need not experience or prove everything ourselves, we may also base our beliefs on what other people, or products of other people, tell us.

This brief overview gives an idea of how we acquire beliefs. Extensive literature is available on most of these belief sources. An introduction is given in chapter 1 through 5 in Audi (1998). I restrict myself to a discussion of the characteristics of belief sources relevant to the legal domain, given the assessment of legal information systems as a knowledge source. I give an example to clarify the application of the belief sources from traditional epistemology to legally relevant knowledge.

Assume that there is a case in which five persons play a part: a judge, a plaintiff, a suspect and a lawyer, and a witness. The suspect has supposedly stolen a car radio. The plaintiff, who says the suspect has committed theft, questions the witness. She is – obviously this is a very cliché scenario – an old lady wearing thick glasses. She says that she saw the suspect – she points at our suspect, Mr Fish – breaking a window of a car and stealing the radio.

The lawyer questions the witness as well. She asks her if she actually saw the suspect steal a *radio*. The witness hesitates. 'Well, I saw him removing *something* from the car', she replies. The lawyer turns out the lights in the courtroom. She shows a device to the witness, from a distance of 60 feet. 'This is how far you were from the actual scene', she says, 'could you please identify this device?'. The lady gazes at the device. 'Is it a radio?', she asks, hesitating. 'No', the lawyer responds, 'it is a small briefcase, belonging to Mr Fish'.

In this example, various belief sources have entered. The witness has used memory as a belief source, and the memory was originally based on perception. But to what extent plays memory a role? She may never have formed the belief that the witness stole a car radio until she was asked whether the witness stole such a device. She has seen *something* but she based her answer on a 'suggestive' question about the witness. So, apart from memory, she based her answer on a belief stemming from testimony (the suggestion arising from the question 'was he the person who stole a *car radio*?'), and from reason, deducing the conclusion

that the man took a *car radio* from the premises that she saw the man taking something from the car, that the police told her that it was a car radio, and that what the police tells you is true. She may even be tempted to question her own memory after the lawyer's demonstration, and to try to assess the reliability of her memory by some kind of introspection.

The brief analysis shows that all five belief sources are employed in the acquisition of legally relevant beliefs.

5.1.2 Doxastic *versus* non-doxastic theories

According to Pollock (1986), there are currently two main divisions for knowledge theories: doxastic *versus* non-doxastic theories, and internalist *versus* externalist theories. They are useful to classify the different knowledge criteria that are discussed in this chapter, and I therefore discuss them briefly. In this subsection, I explore the difference between doxastic and non-doxastic theories. In the next subsection, I discuss the distinction between internalist and externalist theories.

Doxastic theories tell us that beliefs are ultimately justified by other beliefs, *i.e.*, the justification of a belief is always attained by relating it to other beliefs. In doxastic theories beliefs are related to each other to form a chain or net of justification: a justification that is constructed for a certain belief can be grounded by a final (basic) belief or by linking it in a system of (coherent) beliefs. Non-doxastic theories tell us that some other element comes in, so that the justification of a belief can ultimately be given by something outside the realm of beliefs. In a non-doxastic theory a justification can *e.g.* be given in terms of the reliability of the mechanism that acquires the belief.

The category of doxastic theories has two main representatives: coherentism and foundationalism (Pollock 1986, p. 19-21). Coherentism says that a belief is justified by its place in a 'net' of beliefs. The relations among beliefs determine whether one of them is justified. The criterion of coherence itself will be dealt with in subsection 5.2.5. All beliefs have the same status; there is no class of beliefs that is 'basic' and is suitable for starting a justification chain, such as in the case of foundationalism. Foundationalism assumes that the chain of justification stops at one or more basic beliefs. These basic beliefs are beliefs caused by our perception of the external world. They should be justified themselves, for if they are not, the chain of beliefs that is based upon them will not be justified. Thus, the status of basic beliefs differs from the status of other beliefs.

The category of non-doxastic theories has three main representatives: direct realism, reliabilism, and probabilism. These are discussed in the next subsection.

5.1.3 Internalist *versus* externalist theories

A different categorisation of knowledge theories is internalist *versus* externalist theories (Pollock 1986, p. 21-25). Internalist theories state that a justification is always given in terms of the internal states of a person. These internal states are present in our cognitive system, and they can be beliefs or signals from our senses. Not all signals we get from that machinery are conscious. And even if they are conscious, they need not yield explicit beliefs. Audi (1997, p. 12) adds to this that internalist theories claim accessibility of these internal states for introspection: the belief-justifying internal state is accessible for the person who has the belief.

Foundationalism and coherentism are internalist theories (they are thus internalist *and* doxastic). An internalist non-doxastic theory is *direct realism*. Direct realism is the view that some judgements about the world are not beliefs about that world, but that they are perceptual states, directly caused by the outside world (*ibid.*, p. 91). Thus, there is no mediation of perceptual judgements by so-called perceptual basic beliefs (which are presupposed by foundationalist theories).

Externalism amounts to all views where other elements than mere beliefs and internal states are relevant to justification. So, if justification is made dependent on the general reliability of one's cognitive system, an externalist view is employed: the tendency of one's cognitive system to yield correct beliefs is determined from an external viewpoint. Externalist theories do not adhere to the doxastic assumption, because ultimately, justification is not given in terms of beliefs. Externalist theories evaluate cognitive procedures from an external viewpoint, so that it can be forecasted under what circumstances those procedures yield reliable beliefs (*ibid.*, p. 23-24). Examples of externalist theories are probabilism and reliabilism. Probabilism explains epistemic justification in terms of the probability of individual beliefs, while reliabilism explains epistemic justification in terms of the general reliability of a cognitive mechanism that yields those beliefs (*ibid.*, p. 105).

Section 5.2 serves to explain the criteria that can be employed to define regular knowledge. In the discussion of some of these criteria, the reader will find a further explanation of some of the epistemological theories discussed above.

5.2 Knowledge criteria

In this section, I discuss five knowledge criteria. These criteria are employed to assess beliefs. In a concept of knowledge, such knowledge criteria are used to decide whether a belief is knowledge. I deal with truth (subsection 5.2.1), justifi-

cation proper (subsection 5.2.2), reliability (subsection 5.2.3), consistency (subsection 5.2.4), and coherence (subsection 5.2.5).

5.2.1 Truth

One of the criteria that make a belief into a piece of knowledge is truth. Truth can be regarded either as an epistemic criterion or as a non-epistemic criterion. In the former case, truth is a function of the presence of a justification for a belief. The truth of a belief then depends, for instance, on the presence of good reasons for that belief. An example of a candidate for replacing the truth criterion is coherence: we may claim that if all beliefs we have cohere, this will constitute some kind of truth. A different epistemic conception of truth is rational acceptability. In Putnam's (*cf.* Alston 1996, p. 189) definition, it is *idealised* rational acceptability. The latter amounts to a view in which there is coherence among beliefs and beliefs constituted by experience. A belief is true when it corresponds to the representation of our experiences in the form of other beliefs.

As a consequence of identifying truth with some epistemic criterion, the truth criterion easily becomes empty. So, for instance, when we identify truth with a sufficient justification, we may as well drop the notion of truth. But if we make the truth of a belief dependent on the fulfilment of several different epistemic criteria, for instance justification and coherence, truth can be a useful predicate.

Non-epistemic truth criteria are independent of our knowledge. They belong to the realm of semantics (the theory of meaning), which is about the relation between language and reality. This means that the truth of a belief does not depend on the belief's relation with other beliefs. Instead, it only depends on the belief's relation with reality. The main representative of the category of non-epistemic truth criteria is correspondence truth (*i.e.*, the correspondence theory of truth). Correspondence truth says that for a sentence to be true, it should be in accordance with a situation in reality. As correspondence truth is non-epistemic, the truth of some sentence should not depend on our conceiving of it as being true or not. The truth of a sentence can be postulated, but it can only be backed by giving reasons or proof for it. Truth can also be established in case of statements about a constructed part of reality. So, after a soccer game, won by the Dutch team by 1-0, the statement 'one goal was scored in this game by the Dutch team' is true. To *know* this, we still have to employ epistemic means. Thus, even with sentences about social reality, we have to know that reality before we can make (supposedly true) statements about it.

What does correspondence truth amount to? I give a slightly adapted definition from Devitt (1991, p. 29):

A sentence is true or false in virtue of: (1) its structure; (2) the referential relations between its parts and reality; (3) the objective and mind-independent nature of that reality.

The first part of this definition refers to the syntactic structure of the sentence under consideration. The second part concerns the referential relation between sentence parts and reality. The third part concerns the nature of reality: reality exists independent of what we believe about it. Together these elements mean that a sentence like 'The cat is sitting on the mat' is true whenever this sentence has the meaning that the cat is sitting on a mat, and there is indeed a cat sitting on a mat. The definition given does not include the existence of things and categories of things that are dependent on the mental. To put this constraint on correspondence truth is to exclude the possibility of determining the truth of sentences containing mind-dependent facts. This is an unnecessary deficit.

In my view, truth is an idealised semantic notion, not an idealised epistemic notion. This means that the question what is true is completely independent from the question what can be justified. There are statements of a certain language that are true but are not proved (yet). Still, we can hold that such a statement is true or false. The fact that there is not any proof for it need not withhold us from leaving open the possibility of assigning a truth-value to it.

An idealised, non-epistemic notion of truth, as presented above, has a major disadvantage. If we succeed in separating epistemic considerations from semantic ones, *i.e.*, if we separate the relation between knowledge and reality from the relation between language and reality, our epistemology should be such that it enables us to form correct beliefs about reality. Otherwise we would never be able to apply the concept of truth in real situations, *i.e.*, we would never be able to say (with an acceptable degree of certainty) whether some statement is true or false. Therefore, we have to find some way of linking our epistemic evidence (in the form of reasons and a reliability measure) to a state of affairs as it is in the objective world. A realist epistemology enables us to do so. In a realist epistemology we may hold the assumption that we form true beliefs whenever they are sufficiently justified.

5.2.2 Justification proper

Before I turn to a discussion of the 'justification proper' criterion, I would like to emphasise that justification can be either a state or a process. If, for instance, a belief p is acquired through a reliable process, p 's being justified is a state. If we are in the process of providing explicit reasons for p , thus justifying p , then its justification is a process. To avoid confusion about the term justification, I distinguish between two concepts: justification and justification proper. Justifi-

cation refers to the state of justification, *i.e.*, it is a qualification for a belief that it is justified, while justification proper refers to the process of justification, *i.e.*, providing reasons. Where the type of justification meant in this report is clear from the context in which the term is used, the addition 'proper' will not always be given.

Beliefs are justified in different ways, depending on their content and on their type. A belief can be justified by other beliefs, such as beliefs based on sensory evidence, or beliefs based on the statement of a different person. The belief that the streets are dry could form a *reason* for me to believe that it has not rained. A belief can be justified for one person while it is not for another. For instance, if I lack reasons for a belief, but a friend of mine has good reasons for a belief with the same content, she will be justified in her belief, while I will not be justified in my belief. When the justification of a belief is linked to a person having that belief, this justification is called personal. If the justification of a belief is not linked to a person, it is called impersonal (Audi 1993, p. 216-217).

The following discussion of justification is based on Pollock (*cf.* Pollock 1974, 1986). Justification consists in giving reasons for a belief. A reason is a ground for a belief, which can be either conclusive or non-conclusive. A conclusive reason entails its conclusion (the belief). A non-conclusive reason does not entail its conclusion. Conclusive reasons constitute the logical entailment of their conclusion. Non-conclusive reasons are inductive reasons and other (non-logical) grounds (*ibid.*, p. 36-39). Pollock (1986, p. 37) claims that most reasons that matter (and are important for justification, and thus for epistemology) are non-conclusive reasons. These reasons, called *prima facie* reasons, can be *defeated*, which means that new information may lead us to reject such a *prima facie* reason for a belief (and thus, maybe, also reject the belief the reason applies to). A defeater in general is defined as follows (*ibid.*, p. 38):

If P is a reason for S to believe Q, R is a *defeater* for this reason if and only if R is logically consistent with P and (P&R) is not a reason for S to believe Q.

The reason P thus only yields a justified belief Q if there is no defeater R, that in a conjunction with P would cancel the reason to believe Q. We cannot always maintain that the absence of a defeater yields justified belief. There may be a reason for which there is no defeater made explicit yet. A procedural element could be added to provide the opportunity to put forward such defeaters, but even a procedure may not guarantee this.

There are two types of defeaters: rebutting defeaters and undercutting defeaters. A rebutting defeater is defined as follows (*ibid.*, p. 38):

If P is a prima facie reason for S to believe Q, R is a *rebutting defeater* for this reason if and only if R is a defeater (for P as a reason for S to believe Q) and R is a reason for S to believe \sim Q.

In this case, R is just another reason. It has basically the same status as P, but its conclusion is opposite to the conclusion of P. An undercutting defeater is defined as follows (*ibid.*, p. 39):

If P is a prima facie reason for S to believe Q, R is an *undercutting defeater* for this reason if and only if R is a defeater (for P as a reason for S to believe Q) and R is a reason for S to deny that P would not be true unless Q were true.

An undercutting defeater differs from a rebutting defeater. It attacks the connection between the reason and the belief held as a consequence of the presence of that reason (*ibid.*, p. 38-39). This amounts to the following. A defeater may attack the conclusion of a reason. However, it is possible that the conclusion is not challenged, but that the reason is attacked. For instance, I assume that there is a reason for me to believe that I will be happy next week. This reason is that I read a prediction in a horoscope. An opponent may attack the reason (I will be happy because the horoscope says so) instead of the conclusion (I will be happy).

I give the following definition of justification proper, making use of the concept of defeaters.

Personal justification proper

For a belief p to be justified there should be a conclusive reason r that entails p , or there should be at least one good non-conclusive reason for the subject to believe that p , and there is no defeater for that reason, nor for p , and the reason for p , nor p itself, is challenged.

In this definition only one justification step is required. Therefore, it is still a relatively weak form of justification. Three demands are imposed: (1) there is a conclusive or a non-conclusive reason for p , (2) there are no defeaters for that reason or for p , and (3) the reason and p are not challenged. With respect to the first demand, we may impose a demand on the length of the justification chain. For example, there should be at least a reason for the reason that p , or a reason for the reason for the reason that p . However, any decision on the length of the justification chain is arbitrary. A better solution would be to focus on the type of belief under consideration, and to base the length of the chain on the demands of the type of belief. For a belief that there is a fierce tiger in front of me, for example, the reason that I see the tiger in front of me suffices. With respect to the second demand, there should not be any defeater present for the belief or for the reason. So, in relation to the example above, for instance, there should

be no big-screen television in front of me with a picture of a fierce tiger on it. The third demand states that the belief or the reason for that belief should not be challenged, *i.e.*, there should be no reasonable demand for (further) evidence (*cf.* Lodder 1998, p. 80).

The definition of personal justification proper lacks a clear sense of context-sensitivity – the problem is that different kinds of knowledge require different kinds and degrees of justification. What is more, part of the justification of specific types of knowledge depends on their application. It is hard to collect such criteria under a general description of justification. The definitions above only provide an onset to such a description.

The definition of justification given above applies to personal beliefs. However, it may also be applied to impersonal beliefs, *i.e.*, beliefs not held by a specific person.

Impersonal justification proper

For a belief p to be justified there should be a conclusive reason r that entails p , or there should be at least one good non-conclusive reason for p , and there is no defeater for that reason, nor for p , and the reason for p , nor p itself, is challenged.

The definition hardly differs from the one for personal justification. But the character of a reason for a belief differs from the character of a reason for someone to believe p . A reason for me to believe p need not be a reason to believe p for anyone.

5.2.3 Reliability

The criterion of reliability mainly applies to perceptual beliefs. The issue that induced the introduction of the reliability criterion is illustrated by the following example, drawn from Goldman (1976, p. 772-773), and paraphrased in Audi (1993, p. 188). A person named Henry enters a district where, along the roads, barns made out of papier-mâché appear. At the border of the district, he sees a barn, which is a *real* one. Now, Henry's belief that he sees a barn is true and it is justified, but is it knowledge? Goldman says we are inclined to say it is not. The criterion that should be complied with is the *reliability* of a belief, which is defined by Goldman as the demand that there should be no event that could cause the same belief, while that belief, which is justified and true, is not a piece of knowledge. Thus, in case of Henry, there should be no papier-mâché barn on the route. If there is one, Henry could form a belief about a real barn on the same route ('there is a barn right here'). He could be justified in believing it, and the belief would be true. But the belief would not be knowledge, because of the possible occurrence of an event that would prevent the belief from being trans-

formed into knowledge. This criterion of reliability primarily concerns perceptual beliefs.

Audi lists a number of subcriteria that determine whether a perceptual belief complies with the reliability criterion (Audi 1993, p. 17):

- 1 the acuteness of the senses relevant to forming, sustaining, and confirming the belief;
- 2 the normality of their operation at the time;
- 3 the appropriateness of the perceptual circumstances to the content of the belief;
- 4 the normality of the perceiver's responses to the sense(s);
- 5 the absence of a justified belief - or of justification *for* believing - that one or more of (1)-(4) fails to hold.

In brief, these criteria amount to the following. Criterion (1) says that we should have the power to discriminate a certain fact. So if I claim that I see a barn, I should be in close distance to it. In that case I can discriminate it clearly from its surroundings, and do not mistake it with some other object (a barn facsimile). Criterion (2) says that our senses should operate properly. Hallucinations and optical illusions can disturb what we perceive. Criterion (3) says that our perception should be appropriate to the kind of belief it is supposed to sustain. This means that when we perceive a colour, the lighting should enable us to distinguish red from green. Criterion (4) says that a disturbance between the act of perceiving and the forming of a belief should not occur. While we see a red thing, we may not believe it is red, just because we are confused in some way. Criterion (5) says that there should be no reason for us to believe that any of these problems occurs at the time (*ibid.*, p. 201-202).

If we want to define the reliability criterion relative to testimonial beliefs, we will have to find out whether the circumstances under which those beliefs are acquired reliably are different from those for perceptual beliefs. The reliable acquisition of perceptual beliefs depends mainly on the reliability of the cognitive apparatus that produces those beliefs. Apart from this, the circumstances under which the belief is formed, such as the lighting, determines whether the reliability of the cognitive system is sufficient; a reliable cognitive system should also be able to discriminate whether the lighting is adequate, and if not, refuse to form a belief. In case a person forms testimonial beliefs, the reliability of this person's cognitive system is relevant. But the reliability of the belief source is also important. While our environment cannot be deemed reliable or unreliable (that would be a category mistake), the sources of testimonial beliefs can. Thus, if I read a newspaper that generally has pretty accurate scoops on the extramarital life of the president, this adds to the reliable acquirement of my beliefs about the extramarital life of the president via that newspaper.

With the help of an example, I explain a problem in applying the reliability criterion. This problem arises from the distinction between perceptual beliefs and testimonial beliefs. The distinction between perceptual beliefs and testimonial beliefs is sometimes hard to maintain in case instruments are used. I assume that a person called Peter holds a certain belief, namely 'John left his house in Amsterdam at 11.20 p.m. last Saturday'. We reconstruct the way in which he has acquired his belief. If he was present at the moment near John's house, he could have acquired the belief 'directly', *i.e.*, by his own senses. But what if he was observing John's house via a closed video circuit from the Westertoren, one mile distant from the actual spot? Belief comes in only after Peter has seen John leaving his house on the monitor. But the extra step involved in using a closed video circuit causes more potential defeaters for the correctness of Peter's belief to accrue.

Let us try to see this situation the other way around. What if he had seen John leaving his house directly from his point of view way up high in the Westertoren. Could this have yielded a more reliable belief for Peter? Without binoculars, it probably would not; he could easily have mistaken John for someone else. So, an instrument can also improve the reliability of a belief.

Insofar as the instruments we use are more or less parallel with our senses, such as in the case of using a pair of glasses, binoculars, or a closed video circuit, possible defeaters are found in the same subcriteria of reliability as those defined for perceptual beliefs. This means, for the subcriterion of acuteness, that the instruments used should be reliable. For the subcriterion of normality of operation, it means that the instruments should operate in a normal manner. For the subcriterion of appropriateness, it implies that the instruments should be used under proper circumstances. For the subcriterion of normality of the perceiver's responses, it means that the instrument should function properly. If it has some built-in mechanism for interpretation, this mechanism should function properly (such as a sensor for warmth, which should properly respond to warmth). Finally, regarding the subcriterion of the absence of justified belief, it means that *for us*, there is no justified belief that those other four subcriteria do not hold.

The subcriteria of reliability for direct perceptual beliefs, (1) through (5), thus can be applied to the instruments we use to extend our senses. But they can also be applied to the reliability of beliefs produced by autonomous (non-human) systems. For instance, the reliability of a computer that registers the temperature each minute through the day can be tested according to the criteria above. Thus, reliability applies to testimonial beliefs as well. This observation is important with respect to legal information systems, as these contain representations of testimonial beliefs.

Concluding, a belief is acquired reliably if the process that leads to the forming of that belief is reliable itself, *i.e.*, if that process generally yields correct beliefs.

5.2.4 Consistency

Consistency is a logical characteristic. We can employ it as a knowledge criterion by requiring that, within a system of beliefs, two beliefs do not contradict each other. If, at some moment, I have the beliefs that 'It is the case that John is a thief' and 'It is not the case that John is a thief', these beliefs are inconsistent with each other. Statements can be made dependent on place, time, and other contextual factors, so that two statements that would have been inconsistent if uttered in the same context, become consistent if uttered in different contexts. Consistency is not only a logical characteristic, it also bears on reality. It is generally supposed that reality itself never shows any inconsistencies, at least the part of reality we deal with in our daily life (not in particle physics). The relevance of consistency as a knowledge criterion is as follows. Insofar as beliefs are about reality, they should be consistent, as reality itself is (supposedly) consistent. If our beliefs are inconsistent, they cannot be knowledge. However, if we extend our concept of reality to things that are constructed by humans, such as institutions and regulations, the premise of inconsistency only applies to a limited degree (*cf.* subsection 6.2.4).

5.2.5 Coherence

Coherence broadens the demands imposed on a set of statements or beliefs as compared to consistency. There are different definitions of coherence, varying from the logical definition of Kirkham (1992) to the extensive definition of BonJour (1985). Kirkham's definition says that a coherent belief set should be consistent, and that there should be inductive or deductive implication relations among the beliefs (*cf.* Kirkham 1992, p. 104):

- Each member of some set of statements or beliefs is consistent with any subset of the other statements or beliefs.
- Each statement or belief is inductively or deductively implied by the set of premises formed by all other statements or beliefs, or by each other statement or belief.

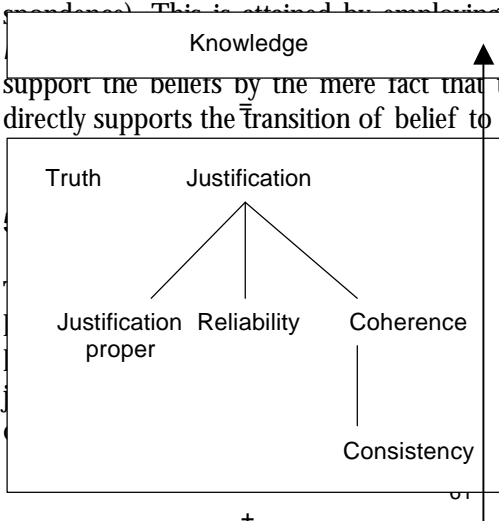
BonJour (1985, paraphrased in Peczenik 1996, p. 316, from Bender 1989, p. 5) lists the following criteria. For a set of beliefs to be coherent,

- it should be logically consistent;

- it has a high degree of probabilistic consistency;
- it has a significant number of relatively strong inferential connections among component beliefs;
- it is relatively unified, *i.e.*, does not divide into relatively unconnected sub-systems;
- it contains few unexplained anomalies;
- it provides a relatively stable conception of the world and remains coherent (*i.e.*, it satisfies the five criteria above in the long run), and
- it satisfies the Observation Requirement, *i.e.*, it must contain laws attributing a high degree of reliability to a reasonable variety of cognitively spontaneous beliefs, including introspective beliefs.

In a comparison between Kirkham's and BonJour's coherence criteria, the striking difference is that Kirkham's criterion refers only to logical characteristics of the belief set, while BonJour's criterion also refers to the content of those beliefs, the degree to which the beliefs in the set are unified, the stability of the belief set, and the link between beliefs and the world (the Observation Requirement). However, coherence is still an internalist criterion, *i.e.*, it concerns the internal relations of some system. It does not concern the relations between the system and reality, unless there are beliefs in the system that concern reality (and that is what the Observation Requirement is about).

The degree of coherence is often regarded as a direct measure for the degree of truth of the beliefs to which it applies. I reject this interpretation, because beliefs can be coherent without being about reality. But even if coherence is not used as a truth criterion itself, it can be used as a knowledge criterion in either of two ways. First, its purpose can be to give epistemic support for the truth of the beliefs involved (instead of being a direct measure for the truth of the beliefs, it gives support for the assumption that the beliefs involved are true by correspondence). This is attained by explaining the assumption that beliefs cohere reality. Second, its purpose can be to support the beliefs by the mere fact that they cohere. In this case, coherence directly supports the transition of belief to knowledge; it is an ideal in itself.



Knowledge equals clarity
 Knowledge becomes clearer when we introduce a sample of a definitional concept of which all five criteria are used), truth and truth is the semantic criterion, justification proper (*viz.* justification proper (*i.e.*,

Figure 5.2. Hierarchy among knowledge criteria

providing reasons), reliability, and coherence. Consistency is a subcriterion of coherence. Justification proper and coherence are related, in that providing of reasons for some belief also establishes some kind of logical support between the reason and the belief, which may increase coherence among beliefs. The hierarchy is depicted in figure 5.2.

Combining such different knowledge criteria is possible. It leads to a concept of knowledge which contains both internalist and externalist criteria. The internalist criteria evaluate the content of a belief relative to an individual (*i.e.*, in terms of that person’s internal states), while the externalist criteria evaluate the content of a belief independent of the internal states of an individual. Truth, considered as correspondence, is not suitable as an evaluation criterion, but can be used as a definitional criterion. In figure 5.3, I give a typology of knowledge criteria, indicating whether some knowledge criterion is internalist or externalist, and epistemic or non-epistemic.

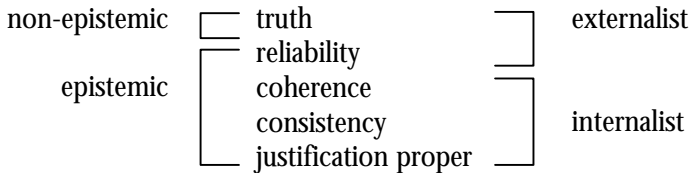


Figure 5.3. Hierarchy among knowledge criteria

5.4 Concluding remarks

In this chapter, the following items have been discussed:

Item discussed	Intermediate conclusions
Epistemology	Epistemology concerns the acquisition, justification and growth of knowledge.
Belief sources	There are five belief sources: perception, memory, consciousness, reason, and testimony.
The doxastic assumption	The doxastic assumption says that justification is given completely in terms of beliefs. It is rejected because it allows only for criteria that concern the content of beliefs.

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The internalist assumption	The internalist assumption says that justification is given completely in terms of internal states. It is rejected because it does not allow for relevant externalist criteria.
Knowledge criteria	A concept of knowledge can be constructed from the five criteria discussed (truth, justification proper, reliability, coherence, and consistency).

Table 5.1. Concluding remarks

6. Knowledge in the legal domain versus regular knowledge

In chapter 4, I explained that there is a distinction between legally relevant knowledge and legal knowledge. The former category of knowledge may be amenable to different knowledge criteria than the latter one. Also, the way these knowledge criteria are defined may differ for the two categories of knowledge. To find out whether this is the case, I investigate to what extent the criteria employed for regular knowledge can be used for knowledge in the legal domain, *i.e.*, legally relevant knowledge and legal knowledge. To do this, I first try to establish what belief sources and belief types we may distinguish in the legal domain (section 6.1). Then I apply five knowledge criteria (discussed in the previous chapter) to knowledge in the legal domain, and I discuss the relevance of the doxastic and externalist assumptions (section 6.2). Next, I try to indicate under what circumstances legal and legally relevant beliefs may be qualified as knowledge (section 6.3). Finally, I make some concluding remarks (section 6.4).

6.1 Belief sources and belief types in the legal domain

In this section, I discuss the sources of legal beliefs (subsection 6.1.1) and the types of legal beliefs (subsection 6.1.2) we may distinguish in the legal domain. For both subjects, a comparison with regular knowledge is made.

6.1.1 Belief sources

Traditional epistemology, in its examination of knowledge acquisition, is heavily biased towards perception as a knowledge source, while legal knowledge, and to a lesser degree legally relevant knowledge, are often based on testimony. The purpose of the current subsection is to find out in greater detail what belief sources are involved in legally relevant knowledge and legal knowledge. In section 4.5, I listed different types of knowledge. Table 6.1, at the end of this subsection, is a copy of the table in that section, except that in this table the belief sources are filled in. In subsection 5.1.1, I listed five belief sources: perception, memory, consciousness, reason, and testimony.

How do these belief sources relate to the different belief types in the legal domain? I first make two general remarks on this relation, and then I discuss the three distinctions made in section 4.5. First, a source of belief may be employed by an agent in order to form a belief. This belief, on its turn, may be qualified as knowledge if it complies with certain specified criteria. So, a belief source need not be a knowledge source; a belief source may for instance provide false information. As such, a source of *legal* belief need not be a source of *legal* knowledge.

Second, the entities called 'knowledge sources for the law' (*cf.* subsection 4.1.3) are to be distinguished from belief sources: the former item is about knowledge, and the latter item is about belief. Moreover, knowledge sources for the law are relevant sources for establishing legal norms. Belief sources refer to the process of belief acquisition that is employed. So, for instance, knowledge of the Constitution can be acquired from the Constitution (a knowledge source for the law, to be more precise, a formal source of law). The way this knowledge is acquired may vary. We can read the Constitution (perception), we may remember its content (memory), or someone might tell us about its content (testimony).

Three distinctions were made to classify knowledge: the distinction between legally relevant knowledge and legal knowledge, between abstract knowledge and concrete knowledge, and between factual knowledge and practical knowledge. As to the first distinction, legally relevant knowledge, being 'regular' knowledge relevant for the legal domain, can be analysed within the paradigm of traditional epistemology. As such, the five belief sources should be adequate for the analysis of acquiring legally relevant knowledge. Legal knowledge may be analysed within the same framework, but at the same time, we should consider the special (normative) status of such knowledge. A belief source like testimony, for instance, may be regulated. When a judge has to disregard some part of evidence that she has already heard about, this is clearly a deviation from regular knowledge acquirement through testimony.

As to the second distinction, abstract knowledge is not directly derived from perception. Reason may be the belief source in this case, but positing such a source does say little, if anything, about the mechanisms that are at work for deriving abstract knowledge. The extensive work done on legal reasoning can throw light on this subject matter (*cf.*, *e.g.*, Hage 1997, MacCormick 1978, Prakken 1993). Memory, consciousness, and testimony can play the same role in acquiring abstract knowledge as in acquiring concrete knowledge. In the acquisition of concrete knowledge all five belief sources play a part.

As to the third distinction, belief sources may be more easily used in the analysis of acquiring factual knowledge than in the analysis of acquiring practical knowledge. My beliefs about the content of the Constitution can be traced back to

perception, testimony, and memory, but my competence of judging cases can hardly be specified in terms of belief sources. The process of acquiring such a competence cannot be reduced to such a simple classification of sources, especially because the way such a competence is acquired is hardly known.

Up till now, focus has been on belief sources borrowed from traditional epistemology. Are there any other belief sources that should be introduced to deal with the different types of knowledge discussed? No new belief sources need to be introduced, but some of them have to be adjusted to the legal domain in order to make sense. This applies to perception, testimony, and reason.

In the legal domain, the primary source of knowledge consists of texts, and reading a text can be both considered as acquiring knowledge via perception, and via testimony. In case just the content of the text is important, perception is the belief source. In case the object the text refers to is concerned, testimony is the belief source. The two are closely related in the legal domain, where a law text expresses the content of legal norms. The content of the law text is acquired by perception, the content of the legal norms by testimony, through the law text. Reason covers the different types of reasoning employed in the legal domain, for instance a-contrario and analogical reasoning. These reasoning types are generally accepted in the legal domain, even though they may yield logically invalid conclusions.

These three belief sources (perception, reason, and testimony) are regulated to a certain extent by the law itself. When a judge has to disregard some part of evidence that he has already seen or heard about, this is clearly a deviation from regular knowledge acquirement through perception or testimony, where all reliable evidence should contribute to our knowledge. An example with respect to reason as a belief source is the use of analogical reasoning. Such reasoning is not permitted in Dutch Penal Law, while it is permitted in Dutch Civil Law.

In the schema below, for all categories of knowledge the applicable belief sources are listed. The difference between legally relevant knowledge and legal knowledge is that acquiring the latter type of knowledge is to a certain degree regulated by the law itself. Reason plays a crucial role in acquiring most knowledge, and covers the many different methods of judicial interpretation (*cf.* subsection 4.2.2).

Knowledge typology		Legally relevant knowl- edge	Legal knowledge
Abstract knowledge	Factual knowledge about	<ul style="list-style-type: none"> • memory • reason • testimony 	belief sources restricted by legal regulations <ul style="list-style-type: none"> • memory • reason (legal reasoning) • testimony
	Practical knowledge	<ul style="list-style-type: none"> • reason 	<ul style="list-style-type: none"> • reason (legal reasoning)
Concrete knowledge	Factual knowledge about	<ul style="list-style-type: none"> • perception • memory • reason • testimony 	belief sources restricted by legal regulations <ul style="list-style-type: none"> • perception • memory • reason (legal reasoning) • testimony
	Practical knowledge	<ul style="list-style-type: none"> • reason 	<ul style="list-style-type: none"> • reason (legal reasoning)

Table 6.1. *Typology of belief sources*

6.1.2 Belief types

The typology of knowledge given in section 4.5 is also a suitable means of giving a typology of *beliefs* in the legal domain. This typology of beliefs is based on the *object* of knowledge. It is constructed through almost the same divisions as the typology of knowledge: the divisions between legally relevant beliefs and legal beliefs, and between abstract and concrete beliefs. The division between factual and practical beliefs is not made, because practical knowledge is not based on explicit beliefs.

Apart from these divisions, a typology of beliefs can be made on the basis of their source. The different belief sources were described in subsection 5.1.1 for regular knowledge and in subsection 6.1.1 for knowledge in the legal domain. My claim is that legal knowledge nominally arises from the same sources as legally relevant knowledge. However, the way in which these sources are employed may differ considerably, as noted in the previous subsection. The belief types arising from these sources are perceptual beliefs (based on perception), memorial beliefs (based on memory), reasoned beliefs (based on some kind of reasoning), and testimonial beliefs (based on testimony). To these, I add the type of interpretative beliefs. The reason why these belief types are distinguished, is that their origination may also have an impact on the way they should be turned into knowledge.

Perceptual beliefs are beliefs that persons acquire directly through their senses. It would be naive to say that this category of beliefs does not require any form of interpretation, as perception is not a passive process. Let us, instead, say that to acquire a perceptual belief does not require any conscious act of reasoning, and that the state of affairs perceived is indeed the object of the belief. An example of a perceptual beliefs is the belief 'John is crossing the street', held by Peter, who sees John crossing the street. Another example is the belief 'the envelope is white', held by Susan, who holds a white envelope in her hands.

Memorial beliefs are formed on the basis of the memory of a person. For instance, a person who has once seen someone passing by on a yellow-painted bicycle, may remember this later. Accordingly, she forms a memorial belief that she once saw a person passing by on a yellow-painted bicycle. Acquiring beliefs from memory may cause distortions due to the specific functioning of human memory.

Reasoned beliefs arise from clearly defined reasoning schemes. Such beliefs, which are 'calculated' by clearly defined mathematical procedures (algorithms), for instance arise from deduction, induction, and argumentation procedures. The demand is that there should be a fixed, verifiable procedure with verifiable input. Together these will lead to a verifiable output.

Testimonial beliefs are derived from indirect evidence, *i.e.*, evidence that signifies that some state of affairs holds, but that does not directly refer to that state of affairs. To elaborate on the two examples given above: if I acquire a belief 'John crosses the street' when Peter tells me so, and I believe him, I acquire a testimonial belief. If I see a written statement saying that Susan thinks the envelope she holds is white, and I believe this statement, then I acquire a testimonial belief as well. These testimonial beliefs require an implicit or explicit inference step (*e.g.*, she tells me *p*, so *p*).

Interpretative beliefs are not derived by a simple inference from other beliefs or evidence. Instead, they depend on certain choices and valuations. The process leading to an interpretation is not completely verifiable, and thus the output is not verifiable either. Interpretative beliefs occur for instance when a judge sentences in a 'hard case', a case in which there appears to be no clear way to apply a valid rule of law to a specific case.

By far the most interesting types of legal belief – taken by this classification – are reasoned beliefs and interpretative beliefs. The former is the category of those beliefs whose origination is clear, *i.e.*, we know how they are derived from other beliefs. The latter is the category of those beliefs of which we do not know exactly what factors played a role in their determination, or how these factors were valued.

6.2 Knowledge criteria for legal beliefs

A belief has to comply with certain criteria in order to qualify as knowledge depend on its type. However, beliefs about situations have to comply with other knowledge criteria to become knowledge than beliefs about regulations or beliefs about interpretations. Thus, knowledge criteria are context-dependent: the set of applicable criteria varies, as well as the exact nature of the applicable criteria. This view is similar to the so-called contextualist view in general epistemology (*cf.* DeRose 1999, p. 187*ff.*). Contextualism says that the truth of a claim about whether a person knows something depends on conditions that vary with the situation in which that claim is made. My claim is that the set of criteria that should apply for a belief to become knowledge depends on the type of belief concerned. The type of a belief is both determined by its source (*e.g.*, testimony), its object (*e.g.*, a legal norm), and the nature of that object (in this case, an abstract factual belief). The belief itself, together with the context in which it is uttered, and the context in which it is evaluated, determines what criteria apply, and exactly how these criteria are defined. Knowledge criteria for beliefs in the legal domain are discussed in this section.

In the following subsections, the five knowledge criteria listed in section 5.2 are discussed from the viewpoint of knowledge in the legal domain. These are, subsequently, truth (subsection 6.2.1), justification (subsection 6.2.2), reliability (subsection 6.2.3), consistency (subsection 6.2.4), and coherence (subsection 6.2.5). Then I discuss the relevance of the doxastic assumption (subsection 6.2.6) and the externalist assumption (subsection 6.2.7) for the assessment of legal knowledge. After that, I provide a proposal for the application of knowledge criteria to the different types of legal beliefs.

6.2.1 Truth

In subsection 5.2.1, I discussed epistemic and non-epistemic conceptions of truth. In the legal domain there are more epistemic than non-epistemic notions of truth. For an extensive discussion of different conceptions of truth in this domain, I refer to Patterson (1996). Truth as correspondence is not very often considered a suitable criterion for application in the legal domain. For instance, Aarnio (1981) thinks the question what is a just interpretation of a certain norm is a problem for correspondence. There are many interpretations possible for any norm, and correspondence truth seems to allow only one: the one that corresponds to the norm. Correspondence truth needs, in other words, the doctrine of the one correct solution (*ibid.*, p. 37). Aarnio's proposal is to replace truth with acceptance. Acceptance is defined relative to some (legal) community:

the whole group or some part of it. However, acceptance is no replacement for truth.

Niiniluoto (1981) criticises Aarnio's rejection of correspondence truth. He says that Aarnio's mistake is to place acceptance and values in the relation between norm propositions and legal order. Acceptance is the degree to which a community (or auditory) adheres to some value. Niiniluoto states that acceptance and values are part of social reality (*ibid.*, p. 74). It thus becomes possible to determine the truth of norm propositions (*i.e.*, statements about norms). To put it in a different way: acceptance and values are relative to an auditory, but the moment they are established, they are prone to correspondence truth.

Even in parts of the legal domain, truth is non-epistemic. And for the parts of this domain where we need an epistemic truth notion, such as acceptability, we should not try to apply truth at all. The legal domain is partly constructed by human beings. This part of reality is often objective, which means that truth remains non-epistemic. The following example illustrates this.

Assume that one day humanity ceases to exist. Assume that there is still a book, called 'Truths about humanity'. It consists of a list of statements. One of these statements is: 'In 1999, Dutch penal law said that killing a person on purpose counts as manslaughter'. The sentence is true. It will still be true if there is no human being to state that it is true and to justify it. It will still be true if some aliens land on earth, find the book, learn the language, find evidence (in other books), and regard the statement as true. And it will still be true if these aliens land on earth, find the wrong evidence, and think it is false.

I adapt the notion of correspondence truth to accommodate mind-dependent facts, *i.e.*, facts that were constructed by human intervention:

A sentence is true or false in virtue of: (a) its structure; (b) the referential relations between its parts and reality; (c) the objective nature of that reality.

In this definition, only part (c) is altered. In the original definition Devitt (1991) refers to the 'objective and mind-independent nature of that reality'. The mind-independence demand is left out because it restricts the application area of the correspondence truth criterion too much. To be able to apply the non-epistemic correspondence truth criterion we just need to guarantee that the parts of reality we are talking about are not true (or false) because we say they are true (or false), but because they have been established already when we state something about them. For instance, the establishment of such facts can be attained by institutional rules or by conventions.

Does the doctrine of the one correct solution coincide with the correspondence truth criterion, or: need there be one exclusive interpretation of some norm to be able to employ correspondence truth? Let us first determine what correspondence truth exactly applies to. Correspondence truth only applies to sentences (in either a formal or a natural language). Take some sentences *s* and *t* that are interpretations of a legal regulation *l*. The question is now whether *s* or *t* is a true interpretation of *l*, and if so, if *s* or *t* is the only true interpretation of *l*. The application of the notion of truth depends on the establishment of interpretations of *l*. Interpretations are established, *e.g.*, when a judge sentences in a specific case. In a legal positivism stance, the legal system itself indicates under what circumstances a person is authorised to interpret the law and make verdicts.

From such a viewpoint, determining truth in the legal domain involves the comparison of statements with facts, just like truth in other contexts. Legal truth follows upon the establishment of facts, and these facts are established by certain qualified legal professionals. Thus, truth itself is not 'human-made', but the reality it refers to is. One of the consequences of this is that the truth of two different interpretations is determined by the consistency of reality. If two interpretations can exist in reality, they can both be true, *if* truth is an applicable criterion. And this is precisely the problem. To apply the notion of truth to interpretative beliefs means that we establish new facts (interpretations), for instance by making statements. By making these statements, we establish the truth of those facts at the same time. Establishing the truth of an interpretative belief should thus be carefully distinguished from the truth of beliefs *about* those interpretative beliefs. Even though the possibility of establishing the truth of interpretative belief may be denied, we can still make true statements *about* those beliefs.

6.2.2 Justification proper

Justification proper is central to knowledge in the legal domain. The focus is somewhat different from justification for regular knowledge. In traditional epistemology, justification is discussed mainly with respect to perceptual beliefs. Justification in the legal domain also applies to interpretative beliefs. The moment interpretation of some law text is demanded, different sources of justification enter. Material and formal sources of law may be adopted as such. Aarnio (1987, p. 123-131) lists six sources of justification: (1) the law text itself, (2) the process that led to the accomplishment of the law text ('travaux préparatoires'), (3) systemic interpretation in accordance with the legal system (coherence criteria), (4) court decisions (case law), (5) doctrinal opinion (legal literature), and (6) practical reasons (goal-directed reasoning) (Aarnio 1987, p. 123-131). Their

justificatory nature is given by a legal tradition which also determines the prevalence of one source over another. Material as well as formal sources of law may be recognised in this list.

I discuss three types of justification: internal justification, justification by coherence, and procedural justification. Next, I discuss the view Hage (1997) has developed on justification. Then I explain the meaning of justification proper in accordance with these different views of justification.

The first type, internal justification, is provided by the presence of explicit rules of law and facts. With a case that fits the description of the law, we can make a subsumption, and thus provide so-called 'internal justification' for the judgement that follows from the premises. Of course, internal justification itself does not involve interpretation. The interpretation steps performed are found in the premises of the subsumption.

The second type is justification by coherence. The idea is: if a set of beliefs is coherent, this constitutes the justification of individual beliefs in that set. It would be more suitable to say the following. The fact that the set S of beliefs, of which p is a member, is coherent, is one of the reasons to believe that p is the case. Thus, rather than assuming that coherence *directly* constitutes justification, it should be regarded as a reason, thus constituting the justification proper of p .

The third type of justification is procedural justification. Procedural justification is based on the idea that a satisfactory defence of some stance can only be established in a process of exchanging arguments, while this process is subject to a set of rules. An example of a procedural criterion is the no-challenge criterion that was accommodated in the notion of justification proper in subsection 5.2.2. I refer to Gordon (1995) and Lodder (1998) for such procedural approaches to justification, in which different moves of an argumentation game are modelled in detail. Models such as these involve at least two parties exchanging arguments. The rules in the model determine what moves are allowed, and how the exchange of arguments is ended (if this demand is part of the rule set).

In an argumentation process between two persons, sometimes a third one decides whether the rules of the argumentation process are properly followed. This third person can also stop the argumentation chain. Not surprisingly, in the legal domain the judge plays this role. Her decisions regarding procedure and content intervene with the argumentation process that is going on between the plaintiff or the public prosecutor and the defendant. Her role thus consists of two main parts: making the participants follow the procedural rules established in the law, and making a decision after the procedure has come to an end. She then has to apply the criteria established in law herself to reach a decision regarding the content of the case. To make sure that she follows the right procedure, an appeal to her decision is often possible.

Hage (1997) elaborated on the concept of reasoning in the legal domain. He states that there are two stages in legal reasoning. In the first stage, there is a set of principles. Principles have a more general nature than rules; they are less concrete. Principles are checked for their validity. If the conditions of a principle are satisfied, and the principle is not excluded, it generates reasons for or against the conclusion of an argument. These reasons for and against an argument are, on their turn, weighed against each other, and then lead to the conclusion of an argument. Approximately the same two-step process applies to reasoning with rules. The reasons resulting from the two two-step processes can be used in order to support the conclusion of a legal rule.

Hage's account of the nature of legal rules takes into account the aspect of defeasibility. In the case of legal rules, this means that a rule whose application conditions are satisfied, may still not be applicable. There are scope limitations for a legal rule, for instance that it applies only to facts that have taken place on Dutch territory. There are also exceptions which are formulated in the legal rule itself. And there are proper exceptions to legal rules, for instance the justification grounds in criminal law. Instead of the traditional model of legal reasoning, in which a rule applies whenever all conditions of the rule are satisfied, Hage focusses on the justification of the conclusion of the rule. Legal reasoning is about giving reasons for a conclusion, and legal rules may (as a consequence of defeasibility at several levels) fail to generate their conclusion under certain circumstances.

The definition of justification proper I employ for the legal domain is the same as I gave in subsection 5.2.2. It is based on the idea that there should be either a conclusive or non-conclusive reason for a subject to believe a certain proposition *p*. Additionally, there should not be a defeater for this proposition, nor for the reason for the subject to believe that proposition. Finally, the proposition should not be challenged, and the reason should not be challenged. This definition appeals to either internal justification (*cf.* the presence of a conclusive reason), or procedural justification (the presence of a defeater). However, simply abolishing the problem of giving a justification chain of sufficient length by limiting the justification to one reason cannot be called an ideal solution. The coherence criterion is left out on purpose; it is discussed below as a separate criterion. I assume that coherence constitutes justification in general, together with justification proper, reliability and coherence.

The definition of justification proper above is compatible with Hage's view on legal reasoning, in which defeasibility plays an important role as well. Note, however, that the justification proper of a belief in order to qualify it as knowledge, is something different from an account of good legal reasoning. In the

former case, the justification proper concerns the correctness of the belief relative to its object. In the latter case, good legal reasoning arises from taking into account certain demands during the process of reasoning. The two *may* coincide. Assume that the justification of a legal conclusion is given entirely in terms of the process that led to that belief (the process was followed correctly, arguments were exchanged, reasons were weighed). If we assume that such a legal conclusion is a legal belief that should be qualified as legal knowledge, we adopt a view in which that qualification is attained through procedural justification. However, the account of justification proper given here primarily applies to beliefs *about* legal conclusions. For the justification of such beliefs, we may appeal to more reasons than just to those following from procedure.

6.2.3 Reliability

An adapted form of reliability for the legal domain should allow for the assessment of beliefs concerning legal affairs. But reliability has traditionally been applied to perceptual beliefs. These beliefs constitute only a small part of the beliefs relevant for the legal domain. Reliability is a measure for the integrity of the cognitive system. It is an externalist criterion, *i.e.*, it provides us with the chance that our cognitive system yields correct beliefs, and this measure is determined independently of our internal states.

There are controlled situations in which the average reliability of a cognitive system can be checked, for example with real and fake line-ups in confrontations of witnesses with criminals. Also, we can determine what inferences people make without having sufficient reasons for them. Assume, for example, that John saw a robber leaving a bank. He saw the robber wear a red hat. John also knows a person, Vern, who has obscure antecedents and who always wears a red hat. He concludes that Vern robbed the bank. This, of course, is not a valid (deductive) inference. It may be an acceptable inference in the legal domain, but then we have to make sure that Vern is one of very few people who wear a red hat. The tendency to make inferences like the one above is a factor that decreases the reliability of cognitive systems. Apart from that, if John said that the robber wore a red hat, while he actually wore a green one, this of course is also a measure for the reliability of his cognitive system. The good thing about these kinds of mistakes is that we can test for them in controlled situations, from which we derive a certain measure for reliability in uncontrolled situations, such as in legal practice.

In subsection 5.2.3, I listed Audi's (1993, p. 17) five criteria for determining the reliability of a belief. These are the acuteness of the senses relevant to forming, sustaining, and confirming the belief; the normality of their operation at the

time; the appropriateness of the perceptual circumstances to the content of the belief; the normality of the perceiver's responses to the sense(s); and the absence of a justified belief - or of justification *for* believing - that one or more of the criteria mentioned above fail to hold. These criteria all hold for perceptual and testimonial beliefs in the legal domain as well.

For the other types of belief, the reliability criterion has to be rephrased. Reliability applies to the way a belief has been formed. In the case of a memorial belief that is originally based upon perception, both the reliability of the perceptual apparatus and the reliability of the memory of a person are relevant. In case of a reasoned belief, there should be an acceptable reasoning method. And in case of interpretative beliefs, the way the belief is acquired should be acceptable as well. I define reliability in the legal domain as follows:

A legal belief is acquired in a reliable manner whenever the route by which it is acquired is acceptable by the standards in a given legal and social context.

Reliability is thus based upon the acceptability of the route by which a belief is acquired. In case of perceptual beliefs, reliability is measured in terms of the production of *truth*. In case of reasoned beliefs, the truth criterion may have to be dropped. Instead, the adherence to procedure becomes important for the fulfilment of the reliability criterion. If there is no fixed procedure for the acquisition of a belief, such as with interpretative beliefs, the acceptability of its acquisition can be determined entirely by relating to the content of the interpretative belief. To establish the acceptability of the acquisition route of interpretative beliefs, we refer to the reasons given for it. Reliability is then reduced to the fulfilment of the justification proper criterion for a sufficient amount of interpretative beliefs produced by a certain person.

The difference between the reliability criterion and the justification proper criterion is that the former is located in the 'context of discovery', and the latter in the 'context of justification'. The former is about the production of beliefs, and the adherence to the procedures that perform this task, the latter is about providing good reasons for the the result of the procedure. Distinguishing the two is difficult, because the adherence to a procedure also adds to the justification proper of a belief.

6.2.4 Consistency

Consistency is mainly a logical criterion. It says that a sentence and its negation cannot at the same time be true or false. But the criterion has some bearing on reality, too, if we adhere to a correspondence notion of truth. If reality is consistent, a state-of-affairs cannot at the same time hold and not hold. In that case,

true statements about that state-of-affairs can never be inconsistent either. It is probably reasonable to assume that physical reality is consistent. But does the same hold for 'higher-level' existence of, for example, legal norms? The consistency demand then quickly collapses into an almost empty criterion. Goodman (1978) wrote that two statements about an apple, one saying that it is red, and another saying that it is yellow, can both be true. This does not yield any inconsistencies if the apple is yellow on the one side, and red on the other. Adding more detail to the statements could still yield inconsistencies, but Goodman's point is clear. If even common-sense physical objects like apples yield inconsistent statements, the law will definitely provide us with severe inconsistencies. And indeed, it does. Legal texts often contain mistakes, and some texts contradict with other ones. But this does not necessarily lead to major problems. The employment of consistency as a knowledge criterion is dangerous, as it is very easily violated, especially in a legal setting. The only sensible way of using it is when the criterion is defined carefully regarding contextual parameters such as place and time. It would then have the following form:

If an individual or an object, or a relation among individuals or objects has a certain characteristic, the same characteristic or relation cannot at the same time not hold for those individuals or objects.

Applied to beliefs, this means that the content of one belief may not contradict with the content of a different belief, if they both refer to a characteristic of one object or individual.

6.2.5 Coherence

Coherence in law is defined in very different ways, but with very much the same intentions. MacCormick (1978, p. 152) states about coherence that 'the multitudinous rules of a developed legal system should 'make sense' when taken together'. The criterion usually consists of a demand of consistency plus a demand of the presence of reasonable content-relations among beliefs. Thus, two beliefs cohere with each other when they do not logically exclude each other and we are able to say that they fit in with each other. Take the following three examples:

- p*: It is the case that people below the age of 30 committing theft are sentenced to three years of imprisonment, and
- q*: It is not the case that people below the age of 30 committing theft are sentenced to three years of imprisonment

p: People below the age of 30 committing theft are sentenced to three years of imprisonment, and

q: People above the age of 30 committing theft are not sentenced to imprisonment

p: People committing theft for the first time are sentenced to two years of imprisonment, and

q: People committing theft for the second time are sentenced to three years of imprisonment

In the first case, *p* and *q* are simply inconsistent, thus *p* and *q* do not cohere. In the second case, *p* and *q* are consistent, but they do not cohere, as there seems to be no reason whatsoever to make this distinction between people under and above the age of 30. In the third case, *p* and *q* can be said to cohere, as they are consistent and there is a reason to punish a recidivist more severely than a person who is sentenced for the first time.

Peczenik (1989, p. 178-179) distinguishes between thirteen subcriteria constituting the notion of coherence. I summarise these subcriteria by three measures. The first measure, *support*, relates to the degree to which some statement is backed by reasons, and the degree to which it is interconnected with other (universal) statements, and the degree to which a set of statements contains supported statements, *etc.* The second measure, *preference*, indicates the degree to which principles relate to each other in a preferential order. The third measure, *universality*, denotes the degree to which concepts can be applied generally, resemble each other, are cross-connected, *etc.* According to Peczenik, the list applies to statements, universal statements, concepts, theories, reasons, chains of reasons, and principles. But for the sake of simplicity, I assume that they apply to beliefs as well.

The criteria are used to sustain coherence as an ideal of mutual dependency of beliefs. The main assumption that should justify the choice of coherence as a knowledge criterion is as follows: a highly coherent theory of some part of reality reflects that part of reality, and as a corollary from that assumption, statements of a coherent theory are true statements (*cf.* Peczenik 1989, p. 184-186). There are two ways of attacking such a claim. First, starting from a coherent theory, it is not necessarily about the world that it should be about; the world may be completely different from the coherent picture we give about it. Second, starting from the world, how do we acquire a coherent theory about it? Surely not by just constructing a theory that is as coherent as possible. Instead, we should conform to empirical data about the world, and those data may be less coherent than we would wish.

But there is also an argument in support of employing coherence as a knowledge criterion. The legal domain is a part of reality constructed by human beings. If we try to theorise about that part of reality, it could be argued that coherence is a reasonable criterion to employ. Human beings usually try to apply as much consistency on the things they design as possible. The quality of some work (be it a law or a book) is often judged by coherence-type criteria. Therefore, coherence becomes a more reasonable demand.

Peczenik (*ibid.*, p. 188) lists three limitations of the coherence criterion. First, coherence consists of multiple criteria, and the balancing of those criteria does not always lead to a clear answer if the coherence of a given system exceeds the coherence of a different system. Second, the coherence criterion cannot prevent that unjust beliefs remain present in a system of beliefs; coherence does not regard moral content. Still, Peczenik claims that a higher degree of coherence contributes to justice (*ibid.*). Third, all normative systems suffer from incompleteness; new norms and concepts are introduced or old norms and concepts are adjusted so as to fit in with new cases. Thus, even if there is a measure of coherence, its value varies over time.

A different set of three subcriteria of coherence is given by Alexy (1998, p. 41). He regards the following elements as constitutive parts of coherence: consistency, comprehensiveness, and connection. The subcriterion of consistency says that a coherent set of propositions should not include a contradiction. The subcriterion of comprehensiveness says that a coherent set of propositions should contain 'as many and as different propositions as possible' (*ibid.*, p. 42). Alexy claims that, ideally, a coherent theory covers as much parts of the world as possible. This means that it should contain propositions about all these different parts. The subcriterion of connection means that there should be as many relations as possible among propositions, where one proposition is a reason for another. If we compare these claims to the three subcriteria of Peczenik's, it seems that comprehensiveness is similar to the universality subcriterion, and connection is similar to the support criterion.

Another approach to coherence is Brouwer's (1990). He lists four elements that constitute coherence (*ibid.*, p. 25-29). First, the part-whole relation between sources of law and legal norms features a degree of coherence, which is increased when that relation is less ambiguous. When two sources of law together constitute a certain norm, but they also give rise to a norm different from the first, this may decrease coherence. Second, the presence of logical relations (for instance, deducibility) or absence of logical relations (for instance, inconsistency) increases coherence. Third, if there are elements in a set that presuppose the presence of other ones, and those other elements exist, then coherence is

increased. Brouwer (*ibid.*, p. 27) gives the following example (translated from Dutch): 'If a person does A without permission from B, then he will be punished with C'. This norm presupposes that B has the competence to issue a permission. If he does not, this will decrease overall coherence. Fourth, the mutual relations between legal norms and legal principles are a factor in determining coherence. Brouwer says that the presence of legal principles alone does not provide coherence. Legal principles can provide arguments *pro* or *contra* some norm. They may increase coherence, if different legal principles can help us defend the same norm, but they also may decrease coherence, in case different legal principles provide reasons *pro* and *contra* a norm at the same time. All four criteria can be characterised as support-criteria, *i.e.*, they concern the relations among statements which sometimes belong to different categories. The other categories that I used to classify Peczenik's coherence criteria do not apply to Brouwer's criteria.

Coherence, summarising, concerns the presence and nature of relations among a set of beliefs (or statements): its main ingredient is the support measure mentioned above. Except for the demand of consistency of the beliefs considered, content relation among those beliefs play a central role in the concept of coherence. There is a relation between the criterion of justification proper and the coherence criterion. Justification concerns the contents of individual beliefs and reasons for those beliefs. Coherence is evaluated with respect to larger sets of beliefs, and it concerns the logical nature of the relations among them. Justification proper is evaluated with respect to an individual belief, or a belief-chain, and it regards the content of reasons and beliefs.

6.2.6 The doxastic assumption

Are all beliefs in the legal domain ultimately justified by other beliefs? If this is the case, the doxastic assumption is correct for the legal domain. If not, the doxastic assumption is false. However, the answer to the question when a belief is ultimately justified is partly a matter of choice. In the legal domain this is especially important, as legislators and judges often determine justification criteria on their own. They are able to decide that some set of reasons is sufficient for justifying a belief.

Can the doxastic assumption still apply if we externalise beliefs, *i.e.*, when statements or propositions, instead of beliefs, become the object of knowledge criteria? In one sense there is a very clear answer to this question: no. If we take the doxastic assumption literally, and thus assume that justification must occur completely in terms of *personal* beliefs, externalised beliefs can never be subject to justification. In a different sense, we could assume that an impersonal belief

is justified by other impersonal beliefs that could be personal beliefs as well. Some reason *for me* to believe that there is a fierce tiger before me can be used as a reason for an impersonal belief with the same content.

We should rephrase the doxastic assumption to employ it with impersonal beliefs. It would then amount to the following: the justification of an impersonal belief (proposition or statement) is given ultimately in the form of other impersonal beliefs (propositions or statements). This impersonal approach suffers from the same defect as the original doxastic assumption: the relation between impersonal beliefs and the facts they are about. Nothing guarantees us that impersonal beliefs are about facts, and that they are correct. In any attempt to found that relation on a special class of impersonal beliefs, or on the coherence within the set of impersonal beliefs, we thus encounter the same problems as with the original doxastic assumption. Also, if we employ the doxastic assumption, we cannot apply externalist knowledge criteria, as these are precisely the criteria not admitted in doxastic justification. Apart from these problems, there seems to be no reason whatsoever to exclude any form of justification (doxastic or non-doxastic) once we are tackling impersonal beliefs. After all, we have already crossed the border between the 'knowing subject' and the 'known object' then. The doxastic assumption arises from the supposed impossibility of crossing this border for the purpose of justifying some belief.

If we reject the doxastic assumption, and we want to maintain the assumption that there are such things as impersonal beliefs, are there still alternatives open with respect to justification? In fact, three alternatives listed by Pollock (1986, p. 19-25) are still open, including direct realism (justification through direct access to the world), probabilism (justification through probability of individual beliefs) and reliabilism (justification through the reliability of a cognitive system). After all, all three positions can be applied to an artificial system, for instance a robot (*cf.* the adoption of direct realism in Pollock 1999).

If impersonal beliefs are to be qualified as knowledge under certain conditions, we have to show how impersonal beliefs can be justified. We usually trust our senses when we acquire beliefs like 'there is a fierce tiger in front of me'. Therefore, it is reasonable to expect that there is a fierce tiger in front of me when my travel-mate says so and there are no good reasons not to believe him. Impersonal beliefs are justified in the same way. In this case, the remark of my travel-mate is not meant as a means for me to believe that I should run, only as a justifying reason for the impersonal belief that there is a fierce tiger in front of a person (who happens to be me). As a consequence, reasons can be employed as a means of justification for impersonal as well as personal beliefs.

On the ground of the reasons listed above, I reject the doxastic assumption. Not all legal beliefs are ultimately justified by other beliefs. In the next subsec-

tion, the externalist assumption is dealt with. By rejecting the doxastic assumption, we now have a choice from direct realism (both internalist and non-doxastic) and externalist theories.

6.2.7 The externalist assumption

Should beliefs be evaluated externally? The externalist assumption says so. It claims that we have to appeal to externalist rather than internalist criteria when we attempt to justify a belief. In subsection 5.1.3, I discussed the externalist assumption. My present purpose is to give the assessment relative to the legal domain. I remarked that it is not impossible on principle to combine internalist and externalist epistemological criteria. What should a combination of internalist and externalist criteria look like in the legal domain? Assume that there is a witness telling the judge that she has seen a red car driving by. This witness happens to be a professor, and she has done some excellent research on the reliability of witnesses. This makes the judge believe that the professor's testimony is reliable, and that it justifies her own conclusion that a red car indeed drove by. The only problem is that the witness is colour-blind, and no one knows this.

Here reliability comes in. Are we not able to check the reliability of the professor's colour-vision? And is it not the case that this is an appeal to an externalist epistemological criterion? I would say it is. The adoption of reliability amounts to a form of belief externalism, as an externalist criterion is adopted. When the reliability criterion is fulfilled, it is further assessed whether the statement complies with internalist criteria.

Are there conflicts between the adoption of internalist and externalist criteria at the same time? There are no such conflicts prior to the mixed application of knowledge criteria. However, conflicts may arise from their actual application. We then have the problem in what order of preference to apply different criteria. For now it suffices to say that neither the internalist nor the externalist assumption is rejected. A defence of a certain piece of knowledge in the legal domain can be given on the basis of both internalist and externalist criteria.

6.3 The qualification of belief and practice as knowledge

In the discussion of regular knowledge, I claimed that beliefs should comply with certain criteria to qualify as knowledge. In the current section, it is my purpose to discuss this qualification for the different types of legally relevant and legal knowledge that were distinguished earlier in this report. To do so, I first repeat the different knowledge types employed (subsection 6.3.1), then I

discuss how the different knowledge criteria relate to each other (subsection 6.3.2, and next I state how these knowledge criteria actually apply to beliefs and practices (subsection 6.3.3).

6.3.1 Knowledge types

Since the start of this report, there has been a considerable increase of the number of knowledge types, both arising from distinctions between types of *belief* (where knowledge arising from such beliefs inherits the type of the belief it was based upon), and types of knowledge. Knowledge types arise from 1) the source from which a belief is acquired, 2) the object of the belief (that what the belief is about), and 3) the type of knowledge. Sources of belief are perception, memory, reason, testimony, and interpretation. With respect to the object of belief, there are two relevant distinctions. The object of belief is legally relevant, legal, or neither. And it is concrete or abstract. The type of knowledge is either factual or practical.

Together, these distinctions make up a theoretical total of $5 * 3 * 2 * 2 = 60$ different types of knowledge. Knowledge that is neither legally relevant nor legal is not discussed in this report. Therefore, the number of knowledge types is reduced to 40. In case of practical knowledge, one can hardly indicate what the source of that knowledge (except that it often arises from a learning process). Therefore, the distinction among belief sources is not made for practical knowledge. This reduces the number of relevant composed knowledge types to 24. An example of such a composed knowledge type is testimonial legal concrete factual knowledge. This is knowledge, acquired from a newspaper, about the classification of a certain act of a person as criminal negligence.

The 24 remaining knowledge types arise from a qualification step. For factual knowledge, this qualification step applies to *beliefs*. In case of practical knowledge, the qualification step applies to *practices*. In section 6.2, I discussed five knowledge criteria that can be employed for the qualification of beliefs as knowledge: truth, justification proper, reliability, consistency, and coherence. Before I turn to a discussion of the applicability of these knowledge criteria to legally relevant and legal beliefs and practices, I first summarise the way in which these knowledge criteria interact.

6.3.2 Relations among knowledge criteria

Knowledge criteria relate to different characteristics of a belief. A belief has a source and an object. The source links the belief to its object, either directly or indirectly. In case of perception there is a direct link: a person perceives an object and forms a belief about that object. In case of testimony there is an indi-

rect link: a person perceives hears or sees something, which refers to a different object. So, depending on the type of the belief source, the belief source and the belief object may be closely related or entirely different. Both the belief source and the belief object belong to the so-called ‘context of discovery’. The ‘context of justification’, on the other hand, relates to those criteria that provide the justification of a belief.

The relations between the belief and its source, its object, and its justification are translated to individual knowledge criteria as follows. The reliability criterion applies to the process by which a belief is formed. Therefore, the nature of reliability depends on the type of the belief source. Truth is the criterion that links a belief to its object. If a belief somehow corresponds to a state of affairs in reality, and this state of affairs is the object of the belief, the belief is true. Both reliability and truth belong to the ‘context of discovery’. Coherence and justification proper belong to the ‘context of justification’. They are not about the relation between a belief and its object, but about giving reasons for a belief, and the relation between the belief and other beliefs. Although there is no strict distinction between the ‘context of discovery’ and the ‘context of justification’, using the terms may be helpful in understanding the significance of the different criteria. In figure 6.1, a schematical overview of the relations among knowledge criteria is given.

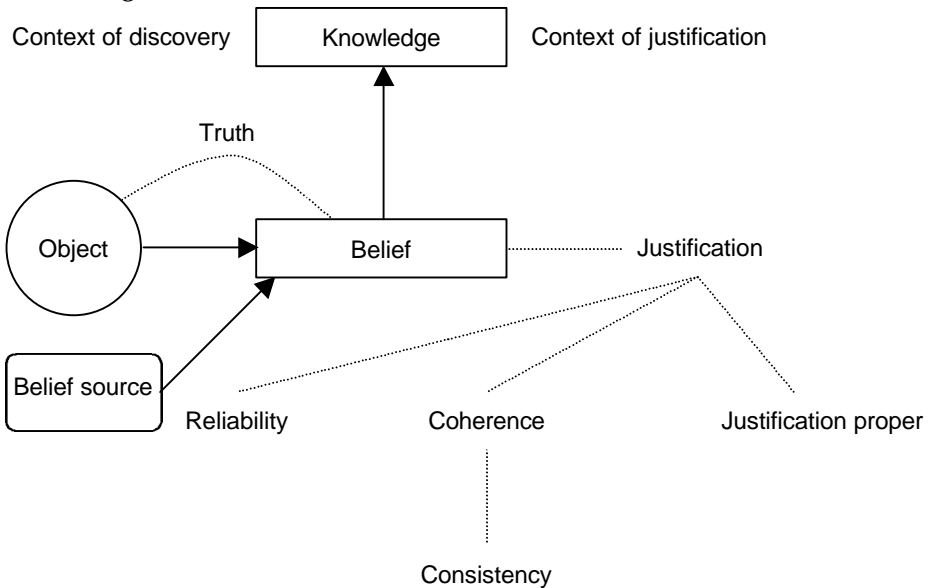


Figure 6.1. Relations among knowledge criteria

6.3.3 Applying the knowledge criteria

I do not discuss the qualification all 24 individual belief types and practice types as knowledge. However, I indicate what the general applicability of these criteria is. The main difference in the applicability of knowledge criteria occurs in the distinction between factual knowledge and practical knowledge. Most knowledge criteria only apply to factual knowledge. This applies to four out of five knowledge criteria discussed in this report. The reliability criterion can, however, be claimed to apply to both beliefs and practices. In case of practices the criterion means that the way in which the practice is performed, is acceptable (which is often 'measured' in terms of the general acceptability of the *outcomes* of that practice).

With respect to factual knowledge, the applicability of the five knowledge criteria is also limited. I first discuss truth. It can easily be argued that interpretative beliefs are not true or false, because there is no object that can support their truth. The applicability of truth to interpretative beliefs depends on one's ontological position with respect to the law.

Within the framework sketched in Peczenik and Hage (1999), '[t]he law is what the most coherent theory of everything says it is'. The best interpretation, part of that coherent theory, belongs to the domain of epistemology. But it becomes an ontological entity through its qualification as the *best* interpretation. In that quality it *is* the law. Beliefs *about* the law then are amenable to the truth criterion. In this view, the law exists, and thus there can be knowledge about the law. However, the law only exists as a construction through epistemology; both interpretations and the criteria determining what the best interpretation of law is, belong to the domain of epistemology. In a natural-law view, the existence of law (*i.e.*, natural law) is not a construction from epistemology. Instead, natural law's existence is 'truly ontological'. Applying the truth criterion to interpretative beliefs thus becomes easier (which does not mean, of course, that we really can determine the truth of actual interpretative beliefs, because we do not know what the content of natural law is).

Justification proper can be applied to all factual belief types. However, its exact definition depends on the actual belief type involved. With respect to concrete legally relevant beliefs for instance, the justification proper criterion largely consists of the demand that there be no defeater for some belief arising from perception. But abstract legal beliefs requires 'better' justification proper, *i.e.*, reasons to believe some interpretation of a formal source of law. A procedural justification criterion is appropriate here, because the correctness of an interpretative belief consists largely of its acceptance by the persons involved.

The same context dependency applies to reliability. Where reliability of concrete legally relevant beliefs are concerned, the criterion is truth-directed: what counts

is the truth of the beliefs produced by a person. But in case of abstract legal knowledge, reliability is defined in terms of the general acceptability of the *outcomes* of the practice with which the belief is formed.

Consistency and coherence have a somewhat less context-dependent nature, *i.e.*, their definition need not depend on the type of belief involved. This is because of the nature of the consistency demand, which is a logical one, and the coherence criterion, which primarily aims at covering as many beliefs as possible, relating to as many parts of reality as possible.

In table 6.2, I give an overview of the potential applicability of the different knowledge criteria to legally relevant and legal belief types. Please note that the definition and the actual applicability of the criteria varies with the ontological stance chosen and the type of belief concerned.

Knowledge qualification		Legally relevant belief	Legal belief
Abstract belief	Factual belief	<ul style="list-style-type: none"> • truth • justification proper • reliability • coherence • consistency 	<ul style="list-style-type: none"> • truth • justification proper • reliability • coherence • consistency
	Practice	<ul style="list-style-type: none"> • reliability 	<ul style="list-style-type: none"> • reliability
Concrete belief	Factual knowledge	<ul style="list-style-type: none"> • truth • justification proper • reliability • coherence • consistency 	<ul style="list-style-type: none"> • truth • justification proper • reliability • coherence • consistency
	Practice	<ul style="list-style-type: none"> • reliability 	<ul style="list-style-type: none"> • reliability

Table 6.2. Potential applicability of knowledge criteria

6.4 Concluding remarks

In this chapter, the following items have been discussed:

Item discussed	Intermediate conclusions
Belief sources in the legal domain	Belief sources for legally relevant belief are perception, memory, consciousness, reason, testimony, and interpretation. For legal belief, the relevant belief sources are reason, testimony and interpretation.

Types of belief in the legal domain	Types of belief in the legal domain arise from the different belief sources, and the distinctions between abstract and concrete beliefs, factual and practical beliefs, and legally relevant and legal beliefs.
Legal knowledge criteria	There is not a single concept of legal knowledge: knowledge criteria employed depend on the type of belief considered. The criteria discussed are the same as for regular knowledge. However, their nature is different for legal knowledge.
The doxastic assumption	This assumption is rejected, because for parts of legal knowledge, justification cannot always be given completely in terms of beliefs.
The externalist assumption	For parts of legal knowledge, it makes sense to combine internalist with externalist criteria to turn belief into knowledge.
Knowledge qualification	The knowledge qualification of legally relevant and legal practices occurs through the criterion of reliability. The knowledge qualification of legally relevant and legal belief occurs through applying the knowledge criteria mentioned above. Not all criteria are applicable for all belief types. The definition of the criteria varies with the belief type involved.

Table 6.3. Concluding remarks

7. Knowledge in legal information systems

In the previous chapters, I have composed an epistemological framework for the evaluation of legally relevant knowledge and legal knowledge. Through a discussion of legal information systems, legal ontology, and epistemology, I have explained what legal knowledge and legally relevant knowledge are. In the current chapter, I apply the epistemological framework on the legal information systems discussed in chapter 2. I start with an individual assessment of legal information systems (section 7.1). Then I discuss the role legal information systems can play in acquiring knowledge (section 0). Finally, I make some concluding remarks (section 7.3).

7.1 Individual assessment

In this section, I examine to what extent the legal information systems discussed influence the fulfilment of knowledge criteria. The fulfilment of each knowledge criterion is discussed with respect to the beliefs in four legal information systems and their users. Subsequently, the belief sources (subsection 7.1.1) and belief types (subsection 7.1.2) employed, and the criteria of truth (subsection 7.1.3), justification proper (subsection 7.1.4), reliability (subsection 7.1.5), consistency (subsection 7.1.6), and coherence (subsection 7.1.7) are discussed.

7.1.1 Belief sources

What belief sources are employed in the interaction between legal information systems and their users? To begin with, the notion of belief used with respect to legal information systems needs some explanation. I regard a belief as an impersonal belief here. Of course I do not assume that systems really *believe* something to be the case. Legal information systems do not contain beliefs. Instead, they contain *represented* beliefs, *i.e.*, they contain the content of beliefs held by persons. If we assume that there are such things as represented beliefs, and that legal information systems contain such represented beliefs, we may also adapt the notion of belief source to ‘source of represented belief’ or ‘source of im-

personal belief'. However, I use the term 'belief source' for such sources of represented beliefs as well.

In subsection 6.1.1, I introduced the belief sources that are employed for acquiring legally relevant beliefs and legal beliefs: perception, memory, reason, testimony, and interpretation. Can legal information systems be classified in terms of belief sources? Beliefs acquired by someone using an information system arise from testimony. After all, the system users read something on a computer screen, and then they tend to believe what they read. This can be compared to the situation in which a person is told p or reads p in a newspaper, and believes p as a consequence.

Which sources can be distinguished for the (represented) beliefs in the systems? These are memory, reason, and testimony. Memory functions as a recall of previously stored information in the system. Making deductive and inductive inferences with beliefs means employing reason as a belief source. Testimony plays an important role in legal information systems: beliefs represented in such systems are derived from testimony as well: represented beliefs entered by system engineers are testimonial beliefs. Perception, consciousness, and interpretation are not employed as belief sources in legal information systems.

7.1.2 Belief types

Types of belief in the legal domain arise from the different belief sources, and the distinctions between abstract and concrete beliefs, factual beliefs and practice, and legally relevant and legal beliefs. Following these distinctions, all information systems discussed contain testimonial beliefs. In addition, they contain reasoned beliefs (they perform fixed procedures on the testimonial beliefs they contain), and memorial beliefs (but these are, due to the reliable nature of computer memory, equal to the testimonial beliefs or the reasoned beliefs they were based on). They do not contain perceptual beliefs because they do not perceive their surroundings themselves. And they do not contain interpretative beliefs because the procedures they employ for drawing conclusions are defined clearly and do not involve interpretation. However, the testimonial beliefs they contain are *about* perceptual beliefs, memorial beliefs, reasoned beliefs, testimonial beliefs and interpretative beliefs.

The second distinction is between abstract and concrete beliefs. All legal information systems contain both types: for instance, abstract beliefs about applicable rules, and concrete beliefs about the case at hand. The third distinction is between factual beliefs and practice. Legal information contain factual beliefs. If we assume that practice is internalised in human beings, and that, if such practice can be made explicit, it becomes factual belief, then legal information systems do not perform practice. The third distinction is between legally relevant

and legal belief. Legal information systems contain both types: they contain beliefs about factual aspects of cases as well as beliefs about, *e.g.*, legal norms. From these general remarks we may conclude that legal information systems contain eight types of legal belief (reason and interpretation times abstract and concrete times legally relevant and legal).

What are the belief types contained in the individual legal information systems? The database of IVS contains testimonial beliefs about sanctions imposed in the past. Beliefs produced by the system itself are derived by case-based reasoning techniques and statistical methods. I categorise these beliefs as reasoned beliefs. Knowledge criteria with respect to IVS thus apply to testimonial and reasoned beliefs.

ESM and TESSEC contain testimonial beliefs with respect to the content of regulations, and they are provided with testimonial beliefs about a case by the user. The conclusions provided by ESM and TESSEC can be classified as reasoned beliefs. It should be noted that representations of regulations have always been subject to some form of interpretation: formal representations are never equal to their natural-language representation objects. These interpretative beliefs are held by the system-engineer, and they become testimonial beliefs in the system itself. Thus, the source of these beliefs is testimony, but their object consists of interpretations.

Part of LEDA falls outside the scope of the evaluation in terms of (represented) beliefs. LEDA contains the text of the Directives, and this representation can be characterised as testimonial belief. However, the hypertext structure imposed on the text of the Directives and the conceptual grammar cannot be classified in terms of beliefs.

Not only the beliefs in the legal information systems themselves are relevant. User beliefs are subject to knowledge criteria as well, and legal information systems can help fulfil these criteria. Users have perceptual beliefs, testimonial beliefs, and interpretative beliefs. They may acquire them either by using the system alone (testimonial beliefs, based on 'what the system says'), or by using the system, combined with their own contribution (interpretative beliefs). In case of ESM and TESSEC, belief acquisition is based on the first route, in case of IVS and LEDA, the second route applies.

7.1.3 Truth

Truth, considered as correspondence, applies to all testimonial and reasoned beliefs, and is thus relevant with respect to beliefs represented in legal information systems. Below, I give a detailed discussion of the applicability of the truth criterion to the beliefs in the four legal information systems.

In IVS, the truth criterion mainly holds with respect to beliefs whose objects consist of sanctions imposed in the past. These sanctions belong to the second level of the ontology of law adopted in section 3.3. IVS is based on models, which define entities and relations among them. They are meant to represent the part of reality relevant to the system and its goals. The models constituting IVS are not amenable to truth; the determination of facts and factors relevant for the sentencing, their values, and the preference relations between them, partly depend on the individual opinions of judges and the builder of the system. Thus, truth with respect to an testimonial belief can be established, but this testimonial belief is probably about a different, interpretative, belief, to which truth does not apply.

Both in ESM and TESSEC, truth is implicitly supposed to be applicable to all factual data (testimonial beliefs). By applying valid inferences on true data, true conclusions are drawn (reasoned beliefs). If the truth criterion were not applicable, the systems could not work in a sensible way; their entire functioning is based on the assumption that we can establish the truth of propositions, and thus make deductive inferences (or, in the case of ESM 'reasonable' inferences). In LEDA, the testimonial beliefs representing the Directives are subject to the truth criterion as well, but these form only a minor part of the system.

Users of legal information systems have to assume the testimonial beliefs they acquire through those systems, are true. They can support this assumption by fulfilling other knowledge criteria for the current belief, thus increasing justification for that belief. In most cases, users will simply presuppose the truth of the beliefs they acquire by using the system. This is especially misleading when these beliefs are ultimately based on interpretative beliefs, as truth may not be applicable to such beliefs.

7.1.4 Justification proper

IVS is chiefly a means of providing justification proper, *i.e.*, giving good reasons for some view. In the case of IVS, these reasons are arguments that have been given before to motivate a decision on a sanction. To improve the equality of sentencing means, in the view of the builders of IVS, to improve the quality of motivation for those sentences. Those motivations help the user of the system to assess why a specific sentence has been imposed in the past, and how that helps her to determine a sentence in the present case. The goal of the system thus demands better justification for its content. The system itself helps to establish better justification by asking the user to give reasons for her decision, when such a decision is added to the case file. Those reasons, however, are partly dependent on the model of the domain. By determining the framework within which the system is built, providing reasons is limited to reasons that fit

in with the framework. An advantage of such an approach is that the reasoning process is structured, which yields uniform argumentation. A disadvantage is that arguments are always based upon the same framework, which limits the creativity (and maybe the quality) of the argumentation.

Justification proper is an important function of ESM as well, but here it amounts to *internal* or *deductive* justification. It is attained by clarifying the rules by which inferences are made, and showing the data used for the inferences, and it only backs the actual inferences made. This clarifying function is called 'how', and it does not explicitly claim to justify the result of an inference. However, it is related to the legitimisation criterion that De Vey Mestdagh (1998, p. 8) formulates. This criterion consists of the demands of legality, rationality, motivation and publicity, and it applies to legal decisions. The demand of legality says that a decision should be based on a valid rule of law. Rationality is understood as the presence of a complete and consistent argumentation. The demand of motivation says that a decision should also indicate the grounds it is based on. The demand of publicity says that a decision should be made known in writing or verbally. The how function serves the second and third demand: it provides an overview of the argumentation process and it gives the grounds for that argumentation. It thus also constitutes, to a limited extent, justification proper and coherence.

In TESSEC, like in ESM, only internal justification is provided: the proof function shows which rules are applied and the why function gives some explanation on the nature of the questions asked.

The main object of justification in LEDA is the regulation that is under construction. This regulation does not exist prior to its drafting by the user; the justification thus concerns a *new* object. LEDA provides the means to increase the quality of a regulation. Justification proper is raised by providing the contents of the Directives in an accessible manner. If the newly drafted regulation meets the criteria provided by LEDA, and if these criteria adequately match the contents of the Directives, the justification of beliefs about the new regulation will consist in the agreement with the contents of the Directives.

Justification, be it justification proper or internal justification, can be transferred from a system to its users. This is obviously what IVS, ESM and TESSEC do: IVS shows data that can be employed as reasons to justify some belief about a sentence, and ESM and TESSEC show how they derive their 'decisions'. Those reasons and derivations can be employed by users to justify their own beliefs as well.

7.1.5 Reliability

Reliability of perceptual beliefs is not influenced by IVS: it does not serve as an intermediary between the perceiver and the object perceived. The reliability of testimonial beliefs, based on perceptual beliefs, depends on the accuracy with which data are entered in the system. It suffices to state that reliability of represented perceptual beliefs is relatively high: the chance that a sanction is represented inadequately can be easily reduced by taking practical precautions. There is, however, the class of beliefs about the reasons for a specific sentence. Those beliefs are not established solely by the judge herself. They are established in accordance with the sentencing model developed for IVS. The reliability of these beliefs can only be assessed by the reliability criterion rephrased for legal beliefs (a legal belief is acquired in a reliable manner whenever the route by which it is acquired is acceptable by the standards in a given legal and social context).

IVS influences the reliability of reasoned beliefs in two ways. Reliability applies to both inference steps. First, it makes inferences itself: the system compares cases with a case-based reasoning approach, and presents the results. The user herself provides most of the premises for the inference made by IVS. The decision whether a case is similar to the given case is made by IVS. The measure for similarity is not that transparent: most users do not know what algorithms are employed. However, they should be aware of the elements that serve to make the comparison, as the comparison probably influences their decisions.

Second, the user makes an inference, *i.e.*, she makes decisions partly on the basis of the results of IVS. She can draw her own conclusions on the basis of the conclusions offered by IVS. The reliability of this inference step is subject to the reliability criterion rephrased for legal beliefs: the acquisition of beliefs by employing IVS is acceptable if IVS is sufficiently well embedded in the decision process.

As in the case of IVS, reliability of perceptual beliefs is not influenced by ESM. The reliability of the testimonial beliefs represented in the system depends on the accuracy with which data are entered in the system, as is the case with IVS. But, contrary to IVS, these beliefs may play a crucial role in the actual decision process. If ESM is used to take over the decision process, decisions are actually based on these beliefs. If they are false, the decision will probably be false.

ESM is primarily meant for producing reasoned beliefs. The premises for the inferences made are partly given by the user herself, by supplying data, and partly by the system, from its databases. The reliability of reasoned beliefs depends on the inference method used, and the agreement of this method with comparable procedures followed when users make decisions themselves. The inference method employed is part of the logic of reasonable inference. Inferences are made from subsets of the data in the system.

The same remarks as for *ESM* apply to *TESSEC*, except that standard proposition logic is used, instead of the logic of reasonable inference. Conclusions are thus true whenever the data are true on which these conclusions are based. The reliability of the system itself is not an interesting subject in as far as we consider the inferences made: the reliability of deductive inferences is 100%. However, we may also consider the *acceptability* of the inferences by the alternative definition of reliability. In that case, we may even argue that deductive inference is not the proper way to infer legal conclusions.

LEDA increases the reliability of beliefs about the contents of the Directives insofar as the system is able to clarify these contents for the user. An external evaluation of the reliability measure could be performed by testing knowledge about the Directives in two groups, one using the system, the other not using it. It is harder to assess the correctness of beliefs about the Directives than to assess the correctness of perceptual beliefs, because the former category of beliefs are to a large extent the result of interpretation. In case there is a uniform interpretation of the contents of the Directives, the reliability criterion can be applied. In that case *LEDA* increases the reliability of beliefs about the Directives' contents.

In all systems, the reliability of reasoned beliefs is high. The acquisition routes, as far as they are limited to the systems themselves, are very reliable. Computers rarely make mistakes when they are properly programmed, so they strictly adhere to the procedures that were defined to yield reasoned beliefs. If we rephrase the reliability criterion to match the acceptability of the acquisition route, the reliability of reasoned beliefs in such systems (especially in decision-making systems) may decrease considerably. Is the inference method employed a proper method, considering the nature of the domain? Legal practice and legal theory should come up with an answer to this question.

The reliability of user beliefs acquired through system beliefs is a function of the reliability of the systems involved in producing those beliefs. If the reliability of the system is 95%, and the reliability of its user is 95% as well, then the reliability of the user belief is 0.95 times 0.95 is 0.9025 (provided the two reliability measures are independent). With the rephrased reliability criterion, such a calculation cannot easily be made. In that case, the acceptability of the acquisition route for the belief is assessed in qualitative terms: is it acceptable in a legal context that a user makes a decision on the basis of beliefs acquired from a legal information system?

7.1.6 Consistency

It is not a goal of *IVS* to maintain consistency in its case file. The system gives the opportunity to improve the equality of sentencing, but this is not the kind of

consistency meant here. Logical consistency of the system is attained by not allowing characteristics at the same time to hold and not to hold for a certain case. The structure of the database often ensures that this cannot be the case. The consistency of sentencing is improved by proper use of the information system.

A premise of the theory behind ESM is that consistency of its data is not taken as a premise. In standard first order predicate logic this would lead to the possibility of deriving any proposition. The introduction of the notion of reasonable inference allows us to make valid inferences from limited sets of assumptions, and prevents undesirable consequences arising from the inconsistency of premises (in standard logic, anything can be derived from inconsistent premises).

As standard proposition logic is used, consistency is taken as a premise for the belief content of TESSEC.

LEDA provides some tools to check the contents of the newly written regulation. These checks can avoid inconsistency of that regulation with the contents of the Directives. Insofar as the Directives are meant to increase consistency in regulations, this is reflected in the regulations produced with the help of LEDA, *i.e.*, if the system is used properly.

Consistency is checked among two or more beliefs. If a system belief is consistent with other beliefs in the system, a user belief based on that system belief need not be consistent with other beliefs held by the user.

7.1.7 Coherence

Coherence amounts to mutual interdependence of statements. IVS enhances coherence through its underlying model: the coherence of sentences increases with the convergence of justification statements. As justification statements are structured through IVS, the system tends to support coherence. On the other hand, the system leaves open the possibility of diverging motivations. Its application probably tends to increase coherence in sentencing, but to verify this assumption, an empirical study is necessary when the system is in actual use.

As with IVS, ESM and TESSEC tend to increase coherence among decisions. The systems yields (exemplar) decisions, and in this respect it differs from IVS, which only shows similar cases. Coherence among decisions is increased by the application of rules to facts. The rules are supplied by the system itself. As these rules remain the same, decisions based on those rules tend to cohere. The facts to which the rules are applied, are supplied by the user. The form in which facts are represented, is largely controlled by the system.

If LEDA is applied successfully, coherence among regulations will increase: legislators will draft regulations that cohere with the Directives, and if they cohere with the Directives, they will cohere with each other.

Coherence applies to a set of beliefs. Coherence among system beliefs need not imply coherence among user beliefs. Only when the body of beliefs held by a system is similar to the body of beliefs held by a user, coherence applies to the user belief as well.

7.1.8 Overview

In the tables below, an overview of the four systems is given.

Overview of IVS	
Goal	To make visible the current sentencing practice in order to help the judge sentence in an individual case and reduce dissimilarities in sanctions.
Functions	Registration, selection, maintenance.
Techniques	Statistical: <i>k</i> -Nearest Neighbour algorithm, case-based reasoning; model according to CommonKADS.
Knowledge criteria	Remarks
Truth	Applies (ideally) to testimonial and reasoned beliefs.
Justification	Reasons are provided for a specific sentence. These can be applied in the case at hand. Objects of justification are primarily user beliefs.
Reliability	Applies to the way inferences are made within the system.
Consistency	Is ensured in most cases by the structure of the database.
Coherence	Tends to be increased as a result of applying the system (consistency of arguments).

Table 7.1. Overview of IVS

Overview of ESM	
Goal	To provide a reconstruction of the decision process underlying the issuing of permits in environmental law.
Functions	Facts, rules, save, explanation, how.
Techniques	Logic of reasonable inference.
Knowledge criteria	Remarks
Truth	Applies (ideally) to testimonial and reasoned beliefs.

Justification	Deductive justification.
Reliability	Applies to the way inferences are made within the system.
Consistency	Not applied (on purpose).
Coherence	Tends to be increased as a result of applying the system.

Table 7.2. Overview of *ESM*

Overview of TESSEC	
Goal	Increasing the percentage of correctness of decisions made about the execution of social security acts.
Functions	Providing explanation, providing proof, providing reasons.
Techniques	Backward-chaining inferences on production rules and facts.
Knowledge criteria	Remarks
Truth	Applies (ideally) to testimonial and reasoned beliefs.
Justification	No additional reasons are provided: the justification is given by the inference procedure followed and the data used for it (deductive justification).
Reliability	Reliability of decisions increases as a consequence of applying the system.
Consistency	Is a premise of the logic adopted.
Coherence	Tends to be increased as a result of applying the system.

Table 7.3. Overview of *TESSEC*

Overview of LEDA	
Goal	Increasing the quality of legislation by providing easy access to the contents of the Directives.
Functions	Structure information by hypertext indexes, content information by pattern recognition.
Techniques	Hypertext, pattern recognition.
Knowledge criteria	Remarks
Truth	Applies (ideally) to testimonial beliefs.
Justification	By increasing the adherence of new regulations to

	the Directives
Reliability	Applies to the method employed for drafting regulations.
Consistency	Influenced indirectly; by avoiding inconsistency between new regulations and the Directives (but these should be consistent themselves).
Coherence	Among new drafted regulations.

Table 7.4. Overview of LEDA

7.2 Legal information systems: a source of knowledge?

The problem definition of this report was twofold: can legal information systems be considered as a source of knowledge for the law? And: what are the implications of the existence of legal information systems for the demands that should be imposed upon legal justification? A provisional answer to the first part of the problem definition is as follows. A legal information system can be regarded as a source of *belief*, i.e., we can acquire beliefs by using the system, and we can also fulfil some of the knowledge criteria applicable to those beliefs. Ideally, the system gives us all the information needed to qualify a belief as knowledge. In that case, the system can be regarded as a source of *knowledge*. If the object of this knowledge is the legal domain, the system is a source of *legally relevant* or *legal* knowledge.

A provisional answer to the second part of the problem definition is: justification demands partly depend on the means of justification available. When there are better means to verify some fact, these means will probably be employed. For instance, information systems could be introduced that enable us to compare more cases to the current one. Such systems may cause us to increase or alter our justification demands.

Both parts of the problem definition are elaborated on below. In subsection 7.2.1, I discuss the question whether legal information systems can be regarded as a formal or material source of law. In subsection 7.2.2, I discuss the relevance of the doxastic and the externalist assumption to knowledge in the legal domain. In subsection 7.2.3, I try to answer the question whether legal information systems contain knowledge. Subsection 7.2.4 is dedicated to the question how knowledge can be transferred from legal information systems to their users. In subsection 7.2.5, finally, the role of legal information systems in legal justification is discussed.

7.2.1 Formal and material sources of law

Can legal information systems be regarded as a *formal* source of law? The answer is simple: no. There is a reasonably clear definition of what formal sources of law we are to distinguish: statute law, treaties, customary law, and legal precedents. Legal information can, of course, provide the user with knowledge *about* statute law, treaties, customary law, and legal precedents. But the category of legal information systems does not belong in the enumeration. They only contain *representations* of the formal sources of law. Can legal information systems be regarded as a *material* source of law? The answer is somewhat less simple, but still: no. Van Duyvendijk (1989, p. 20) lists the following so-called material sources of law: political powers, civil servants, pressuregroups, religious beliefs, moral beliefs, social-economical developments, geographical circumstances, and technological developments. The nature of legal information systems is different from these material sources of law. Material sources of law are factors that play a role in interpreting formal sources of law. Legal information systems may contain (again) *representations* of such sources.

We are still a long way from regarding legal information systems as part of this list, which would result in statements like ‘taking into regard the moral views, political opinions and the output of our legal information systems, we should interpret this law text in such and such way’. However, legal information systems can be regarded as *knowledge sources for the law*. They are a suitable means for acquiring knowledge about the law. In what ways are they? Legal information systems provide beliefs or knowledge to their users mainly via testimony, *i.e.*, the users of a legal information system acquire beliefs or knowledge of law because they are ‘told’ things by the system. They acquire perceptual beliefs about the literal content of those things, and they acquire testimonial beliefs about the bearing these things have on reality. Depending on our definition of knowledge and on the character of the system, they may even acquire knowledge.

7.2.2 The basic assumptions of epistemology

In section 6.2, I discussed, among other things, the application of the doxastic assumption and the externalist assumption to legally relevant knowledge and legal knowledge. Both assumptions are important to answering the question in what way legal information systems can function as a source of knowledge. The doxastic assumption says that justification is ultimately achieved in the form of other beliefs. This assumption was rejected. All current legal information systems (at least those discussed in this report), however, completely function on the basis of propositional information (impersonal beliefs or represented beliefs). The link to nondoxastic *sources* of belief can only be established via hu-

man intervention: the system engineer or the system user adds represented beliefs to the system. Although in the legal domain the larger part of justification consists in providing reasons, and it thus fits in with the doxastic assumption, there is still a connection with non-doxastic belief sources.

The externalist assumption says that justification is attained externally, *i.e.*, independent of internal states of a person. Externalism can be combined with internalism; we may adopt externalist criteria and internalist criteria at the same time. A combination of justification proper and reliability, the first providing justification in terms of internal states, and the second providing justification in terms of externalist factors, may lead to conflicts. These conflicts, however, are no different on principle from justification conflicts within either a completely internalist or a completely externalist justification attempt. The externalist assumption (or its counterpart, the internalist assumption) is relevant to legal information systems as well. If there exists something like 'external justification', in the form of some kind of reliability or probability measure, legal information systems may help to increase the fulfilment of that measure.

A definition of knowledge may thus contain both internalist criteria (justification proper, coherence), and externalist criteria (truth, reliability). For a person to be justified to believe something (say, p), could mean not only having good reasons for that belief, but also to adopt the externalist criterion of reliability. She could adopt the belief that her own cognitive system yields beliefs like the belief p reliably (*i.e.*, in most cases the belief p is produced by her cognitive system, it is true). The former belief would be a reason to believe p .

Given these conclusions about a concept of knowledge, what role can legal information systems play in acquiring knowledge? They can both provide beliefs and fulfil knowledge criteria for those beliefs. By employing the non-doxastic and the externalist assumptions, the justification of a user belief can be provided by a legal information system. A belief I acquire from the system may be justified properly (the system provides good reasons), and it can be acquired reliably (the system guarantees the reliability of the acquisition route of the belief).

7.2.3 Knowledge in legal information systems

The typology of knowledge in the legal domain (*cf.* section 4.5) provides us with the distinctions on the basis of which we can assess the content of legal information systems. In subsection 7.1.2, I indicated which belief types can be found in such systems. If these belief types can be qualified as knowledge, a system contains the corresponding knowledge types. So, if the system contains a concrete factual legal belief, and it complies with all applicable knowledge criteria (*cf.* subsection 6.3.3), it is a piece of knowledge. In practice, the actual qualification

of beliefs as knowledge can hardly be attained by a legal information system alone. None of the four systems discussed succeed in complying with all applicable criteria: justification proper is provided, but only to a limited degree; reliability of perceptual beliefs, needed to determine the reliability of the testimonial beliefs, is not determined; and there is no internal measure for coherence. And because there is no knowledge, it cannot be transferred to the user either.

Although they are not capable of transferring knowledge (as yet), legal information systems can help to fulfil knowledge criteria for beliefs held by their users. This is the subject of the next subsection.

7.2.4 Knowledge transfer

Transfer plays a central role in the question whether legal information systems can play a role as a source of knowledge for the law. A user can acquire beliefs, based on the beliefs represented in the system, by testimony. She can also acquire beliefs about fulfilled or unfulfilled knowledge criteria. In section 7.1, I discussed the fulfilment of knowledge criteria for beliefs represented in the systems. I also examined whether fulfilled knowledge criteria also apply to transferred beliefs, *i.e.*, testimonial beliefs, based on those system beliefs. Below, I discuss how the fulfilment of a certain knowledge criterion that applies to a belief p can be retained when the belief it applies to is transferred to a belief p' by testimony.

Truth is retained in two cases. First, assume that a belief p' is based on a belief p by testimony, and p' and p have the same content. Then, if p is true, p' is true as well (provided that no contextual parameters are present in p , making its truth dependent on, *e.g.*, the person who has the belief). Second, in a reasoning process, truth can be retained, most notably in the case of deduction. If a belief is *about* a different belief (for instance in the case of a perceptual belief about an testimonial belief), the truth of the former has little or nothing to do with the truth of the latter. The information about the truth of a belief has to be transferred, as well as the belief itself. Note that the actual truth of a belief is not a function of other beliefs, but of the relation between the belief and reality.

Justification proper can be retained under certain conditions. Reasons, constituting the justification, can be transferred from one person to another. The distinction between personal and impersonal justification is relevant here. There can be reasons that justify *me* in believing that p , but do not justify someone else in believing that p . For example, if Peter tells me that it is 8 am, then I may be justified in believing so for the reasons that he told me, but it does not justify Henry in believing that it is 8 am, because he lives in Australia. If a reason is made independent of most contextual parameters, it can be employed by differ-

ent persons, and it supports impersonal justification. Personal justification can be transferred if the reasons for one person to believe that p are also reasons for the other person to believe that p . Impersonal justification can always be transferred. Legal information systems can help in the process of transfer by showing reasons for a certain statement.

Reliability is retained only to the extent allowed by the current transmission step. If the reliability of belief acquisition in a legal information system is 0.9, and my own reliability in acquiring beliefs on the basis of testimony is 0.9, the resulting reliability of my testimonial belief is $0.9 * 0.9 = 0.81$ (*cf.* subsection 7.1.5). Legal information systems can provide information about their own reliability, about the reliability of their sources, and even about the general reliability of their users. Currently, this information cannot be calculated by the systems themselves.

Consistency and coherence are both evaluated within sets of beliefs. Therefore, the fulfilment of these criteria is only retained if the whole body of beliefs remains the same. This condition is not fulfilled if a person acquires a belief from a legal information system.

7.2.5 The role of legal information systems in legal justification

The introduction of legal information systems inevitably has an effect on the issue of legal justification. The legal domain has its own standards of justification. We may define legal justification as the justification demands with respect to procedure and proof that can be derived from formal and material sources of law. The demands imposed in legal justification always depend on the means *available* at that time for providing justification. Genetic fingerprints may nowadays be a means of proving someone's guilt or innocence, whereas ten years ago, such fingerprints were not available. The availability of such means may alter the general character of legal justification as well: for instance, there may be a demand for a higher number of independent sources of evidence.

The introduction of legal information systems can have such consequences as well. They may alter the *structure* of justification. Legal information systems provide the means to implement difficult processes. Legal information systems may also alter the *content* of justification. The search facilities in a database may result in the use of a different type of arguments, for instance the use of statistical data. The use of databases may also lead to the frequent employment of arguments based on past events.

Current demands regarding structure and content of legal justification can form the basis for the building of legal information systems. But the introduction of such systems should not be regarded as a neutral event. Explicit or implicit choices regarding the ontology of law and the structure of the domain inevita-

bly have an influence on the actual use of the system in that domain. The structure and the content of legal justification may be subject to change. This is not a bad thing in itself. However, the changes brought about by the introduction of legal information systems should be transparent to all persons and institutions involved in using those systems.

What concrete possibilities in the area of legal justification are offered by the introduction of legal information systems? The following items are examples of the consequences of employing such systems:

- Comparable cases can be found more easily. This impels us to learn about more cases to justify a decision.
- Decision processes can be followed more accurately. Overall reliability thus increases. This might, however, decrease flexibility in the consideration of events deviating from the normal procedure.
- The introduction of decision-making legal information systems requires us to provide accurate and precise formulations of rules and cases. There is a tendency to reduce the acts of interpretation and classification to the elimination of vague terms.. This may increase legal certainty, but it also encourages rigidity.

7.3 Concluding remarks

In this chapter, the following items have been discussed:

Item discussed	Intermediate conclusions
Belief sources	The sources employed by legal information systems are testimony, memory and reason. Users of such systems employ testimony as a source of belief. Or they employ reason and interpretation, if they use the advice of a legal information system only as one of several sources for their own reasoning and interpreting.
Belief types	Legal information systems contain testimonial beliefs and reasoned beliefs, abstract and concrete beliefs, and legally relevant and legal beliefs.

<p>Fulfilling knowledge criteria in legal information systems and their users</p>	<p>Predominantly, legal information systems fulfil elements of the justification criterion. In IVS, justification takes the form of providing reasons for a user decision. In ESM and TESSEC, so-called internal justification for the decision is provided. In LEDA, reasons are provided for drafting a legal regulation in a certain way. The degree to which other criteria (reliability, consistency, coherence) are fulfilled, is raised only as a side effect.</p>
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Table 7.5. Concluding remarks

8. Conclusions

In this chapter, I provide a summary of the report (section 8.1). In addition, I draw conclusions (section 8.2), and I provide suggestions for further research (section 8.3).

8.1 Summary

In this report, I gave an overview of the applicability of epistemic criteria to legal information systems to find out whether legal information systems can be regarded as a source of knowledge.

In chapter 1, I introduced the problem to be discussed and the research questions. The problem amounts to the following: legal information systems contain representations of relevant parts of reality. Sometimes it is claimed they contain representations of knowledge, or even contain knowledge. People use these systems to acquire beliefs on a subject that they do not yet have information on. Or they use these systems to guide them through a decision process. By using the system, their own beliefs tend to be influenced. If we have a belief and certain criteria are fulfilled, we may qualify that belief as knowledge. These criteria are called knowledge criteria. The problem definition was: to what extent and under what conditions can legal information systems be considered as a source of knowledge for the law? And: what are the implications of the existence of legal information systems for the demands that should be imposed upon legal justification?

In chapter 2, I discussed different types of legal information systems, the legal tasks they may be used for, and the knowledge users of legal information systems need. Legal information systems may contribute to performing different legal tasks: application of legal rules to cases, legislative drafting, and systematization. As an example, I discussed the goal, functions, and techniques of four legal information systems: IVS, ESM, TESSEC, and LEDA.

In chapter 3, I dealt with the ontology of law. I listed different theories about the ontological status of the law, and I clarified the distinction between the law and knowledge about the law. In addition, I made a distinction among three ontological levels in the legal domain: the level of non-legal entities, the level of established legal entities (whose existence is constituted by institutional and

conventional rules), and the level of non-established legal entities (whose existence is constituted only by reasons).

In chapter 4, I discussed legal knowledge. After a general introduction to the point of view adopted, I dealt with the relation between sources of law and knowledge of the law, and the relation between interpretations and knowledge of the law. Next, I dealt with the concept of legal knowledge in different theories of law (among which hermeneutic theories). I concluded the chapter with a typology of knowledge in the legal domain. This typology is based on the following distinctions: between legal knowledge: legally relevant versus legal knowledge, abstract versus concrete knowledge, and factual knowledge ('knowing that') versus practice. ('knowing how').

In chapter 5, I discussed regular knowledge. I focused on the following issues. First, the issue where our beliefs come from: what sources of belief and knowledge can we distinguish? The following belief sources were identified: perception, memory, consciousness, reason, and testimony. Second, the issue whether the justification of a belief is given completely in terms of other beliefs. Third, the issue whether justification is given completely in terms of internal states (*i.e.*, beliefs and other events in our brains), or in terms of externalist factors (like the reliability of our cognitive system). Fourth, individual knowledge criteria are discussed extensively. The relations among these knowledge criteria were clarified.

In chapter 6, I compared knowledge in the legal domain with regular knowledge. Knowledge in the legal domain includes legal knowledge and legally relevant knowledge. First, I focused on the question what belief sources and belief types can be distinguished in the legal domain. Then, I examined how the five knowledge criteria discussed in chapter 5 can be adjusted to the legal domain. After this, I answered the question whether the doxastic assumption and the externalist assumption apply to legal knowledge. Finally, I centered on the question under what conditions beliefs and practices in the legal domain can be qualified as knowledge.

Finally, in chapter 7, I applied the ideas developed in the previous chapters to legal information systems. For each of the four systems discussed, I identified (1) the belief sources and belief types employed, and (2) the way in which it helps to fulfil knowledge criteria. Subsequently, I answered the question to what extent and in what way legal information systems can be regarded as a source of knowledge for the law.

8.2 Conclusions

The conclusions in this section are given as answers to the research questions and the problem definition. After these answers, some general conclusions are provided.

Question: What types of knowledge should we distinguish in the legal domain?

Answer: Various distinctions are relevant for a typology of knowledge in the legal domain. With respect to the *object* of knowledge in the legal domain, I distinguish between legally relevant and legal knowledge, and between abstract and concrete knowledge. With respect to the *nature* of knowledge in the legal domain, I distinguish between factual and practical knowledge. With respect to the *source* of knowledge in the legal domain, I distinguish among knowledge based on perception, memory, reason, testimony, and interpretation. These knowledge types result from the qualification of beliefs and practices as knowledge. Different sets of knowledge criteria are needed for this qualification.

Question: In the philosophical discipline of epistemology, what criteria determine whether some belief is knowledge?

Answer: The knowledge criteria discussed in this report are truth, justification, reliability, consistency, and coherence. These are not the only criteria, but probably the most important ones. The answer what criteria are employed is related to the distinctions between doxastic and non-doxastic theories, and internalist and externalist theories. Doxastic theories do not take into account other factors than mere beliefs in bridging the gap between belief and knowledge, and are thus rejected. The division between internalism and externalism is artificial; internalist and externalist criteria can be employed at the same time. Externalist criteria can be reduced to internalist criteria so as to save internalism, but this does not do justice to the nature of externalist criteria.

Question: Are criteria in the legal domain different from the criteria employed in general epistemology?

Answer: Nominally, the same knowledge criteria can be applied for knowledge in the legal domain as for regular knowledge. In a legal setting, however, the nature of these criteria may differ. Also, the applicability of specific knowledge criteria depends on the type of belief under consideration. Truth, for instance, can be applied to some belief types, and not to others. Beliefs whose objects are interpretations, are not amenable to truth. Justification proper of legal beliefs may be subject to legal rules regarding procedure and content of reasons.

Question: What role can legal information systems play in fulfilling these criteria?

Answer: Different types of beliefs ask for different knowledge criteria to be fulfilled to become knowledge. Thus, the role a legal information system can play in fulfilling knowledge criteria depends on the belief type involved. Also, we have to distinguish between beliefs in legal information systems and beliefs held by their users. The fulfilment of knowledge criteria in individual legal information systems is as follows. As truth is a definitional criterion, not a practically applicable one, we can only say that truth is *deemed* applicable to large parts of the belief content of legal information systems. But if a particular belief is based upon some arbitrary modelling choice, truth is probably not applicable. Justification proper is only provided by IVS: this system provides reasons for a certain decision. ESM and TESSEC only provide deductive justification. LEDA does not provide any form of explicit justification. Reliability of inferences made by the legal information systems discussed is high. But if we rephrase reliability into acceptability of the acquisition route for beliefs, the inference engines in legal information systems may not comply with the criterion. Consistency of represented beliefs is not guaranteed by any of the systems, but it is presupposed by TESSEC. IVS, ESM and TESSEC increase coherence for the beliefs represented in the systems. In IVS, this is attained by a detour: sanctions based on the use of IVS are represented in the system, and these can be used again for future decisions. ESM and TESSEC tend to increase coherence of represented beliefs through the application of a fixed set of rules. LEDA tends to increase coherence of regulations produced by employing the system properly.

Question: To what extent and under what conditions can legal information systems be considered as a source of knowledge for the law?

Answer: From the viewpoint of *belief* sources, a legal information system can be seen as providing testimonial beliefs to its user: the information system provides beliefs that were earlier stored in it by other people. The testimonial view of information systems works as long as the system is a black box and it does not provide any 'new' information. If it makes inferences itself, and shows this process to its user, we may say that the belief source is reason. A legal information system may also be seen as a *knowledge* source, but this requires, I claim, that the system also provides fulfilment of the applicable knowledge criteria. Alternatively, the system is a source of beliefs, and the fulfilment of applicable knowledge criteria depends (partly) on sources other than the system.

Question: What are the implications of the existence of legal information systems for the demands that should be imposed upon legal justification?

Answer: The introduction of legal information systems has consequences for the justification demands in the legal domain. If technology *enables* us to raise stan-

dards of justification, those standards pretty quickly *will* be raised. It is our duty (within reasonable limits) to deploy all means available to arrive at carefully deliberated decisions. When we have the means to make decisions more reliably, to review comparable cases, or to structure arguments for a certain case, then we indeed have to do so. The use of legal information systems introduces a 'new' source of belief and knowledge. Standards of justification have to be reconsidered for that source. For this reconsideration we can employ knowledge criteria. We may assess how the relevant beliefs in the system, and the beliefs held by its user, are susceptible to knowledge criteria.

Further conclusions

With respect to the object of legal knowledge: One's view on the nature of legal knowledge depends partly on one's view on the *object* of legal knowledge. Legal knowledge, regarded as knowledge of valid law, depends on the content of positive law and the validity of positive law. Knowledge of the content and validity of positive law can be acquired through formal and material sources of law. The object of legal knowledge in this report is made dependent on conventional rules and institutional rules. It may be claimed that such an ontology of law is both related to a natural-law view (conventional rules may arise from human nature) and to a legal-positivist view (institutional rules arise from recognition by proper authorities).

With respect to the doxastic assumption: The doxastic assumption is rejected on the grounds that justification does not depend on beliefs alone, as is clear from the adoption of the reliability criterion. Justification in legal information systems, however, complies with the doxastic assumption, *if* we may regard the representations in those systems as beliefs. In the evaluated systems, beliefs and the way they are produced are made explicit, so that a justification attempt can be made in terms of beliefs.

With respect to the externalist assumption: Neither the internalist nor the externalist assumption is employed on itself. Internalist and externalist criteria can be combined in a concept of knowledge. Legal information systems mainly have an influence on the internalist criterion of justification proper. However, they could be employed for the fulfilment of the externalist criterion of reliability as well.

With respect to the relevance of epistemic evaluation: Epistemic evaluation of legal information systems can help to clarify the functions of those systems. But it is only one of the perspectives that can be chosen. Systems like LEDA apparently are hard to evaluate from this framework, because we can hardly construe their contents as beliefs. Still, we can evaluate the beliefs represented in the systems,

and beliefs formed by their users, by employing epistemic standards. These epistemic standards may also function as guiding principles for building new information systems.

8.3 Further research

In this report, focus was on a concept of knowledge in the legal domain, and its relations to legal information systems. More research on the nature of knowledge criteria in the legal domain would be worthwhile. First, the criteria discussed invoke some questions. With respect to truth: does truth play a role in the assumptions of the builders of legal information systems? With respect to justification: a lot of work on this criterion is done from a theoretical viewpoint. Could we examine justification from the viewpoint of positive law: how are decisions justified in civil law and in penal law? With respect to reliability: can we give a more extensive account of the reliability criterion for practices?

The employment of a typology of knowledge in the legal domain raises questions about its applicability. Are all relevant distinctions employed? Can this typology of knowledge, along with applicable knowledge criteria, be used to develop an epistemic logic for knowledge representation purposes? And finally, how can such a logic be used to model the actual procedures found in the legal domain?

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