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Problems of Normativity, Rules and Rule-Following

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Preface

The word "rule" is used in numerous disciplines in connection with various social practices. Jurists talk about legal rules, moral philosophers about moral rules, sociologists about various types of social rules, linguists about rules of language, logicians about rules of logic, and so on. For some of those disciplines (and in particular for jurisprudence, linguistics and moral theory) the problem of rules is a central issue. They cannot work without some concept of a rule. But does the word "rule" in all those contexts denote one and the same thing? Do rules have a common nature? Do legal rules, linguistic rules, moral rules and rules of logic have necessary features that make them into that what they are? Or is the concept of a rule a family concept, so that various types or instances of rules bear only family resemblances? Or is the word "rule" simply equivocal and denotes quite different things in each of the contexts listed above? Are rules (or at least rules of a certain type) reducible to mere regularities? Do all rules have the same function and structure? Does the differentiation of various types of rules extend across all social practices involving rules, or is it domain specific? What is the relationship between rules and values? What does it mean that a rule is conventional?

Other, but related puzzles arise in connection with the problem of normativity. Are all rules necessarily normative? What does it mean that a rule is normative? Can normativity be fully explained by recourse to the concept of reason for action? What is the role of rules in delivering reasons for actions? What type of reasons for actions should be distinguished? What is the link between a reason for action and motivation? Is the distinction between motivating reasons and justificatory reasons sound? In what sense should we talk about "objective" reasons? Can normativity of legal rules, moral rules, linguistic rules and so on be explained in the same terms? Or, rather, is the normativity in each of those domains specific? Can there be a general theory of normativity? How can the guiding and justificatory role of rules be explained? What is the role of cognitive science and neurosciences in explaining normativity? What does "authority" mean, and how is it related to rules and normativity? How can public reasons be separated from other reasons?

However, it was Ludwig Wittgenstein who asked probably the most fundamental question concerning rules and rule following. In the famous passage, Wittgenstein writes the following:

The paradox is how one can follow in accord with a role—the applications of which are potentially infinite—when the instances from which one learns the rule and the instances in which one displays that one has learned the rule are only finite? How can one be certain of rule following at all? (Philosophical Investigations, 201)

This was our paradox: no course of action could be determined by a rule, because every course of action can be made out to accord with the rule. The answer was: if everything can be made out to accord with the rule, then it can also be made out to conflict with it. And so there would be neither accord nor conflict. (Philosophical Investigations, 185)

Wittgenstein challenged powerfully the traditional picture, pursuant to which a rule is an abstract entity, transcending all of its particular applications. Knowing the rule involves understanding that abstract entity and thereby knowing which of its applications are correct and which incorrect.

Saul Kripke famously presented, in a broad philosophical context, his version of the Wittgensteinian paradox, which has invoked endless discussions. Hence, the problem of rule following has become one of the main topics in contemporary analytic philosophy.

It is not the ambition of the authors of this volume to propose answers to all questions listed above. Rather, the intention is to discuss those and other related questions from different perspectives and angles. The common feature of all papers contained in this volume is that they tackle the issues of rules, normativity and rule following, but they do it in various ways. Some of the papers discuss general problems, some specific ones. Some of them are written from the purely philosophical point of view, some from the perspective of general jurisprudence, logic or semantics. The editors of this volume believe that such an interdisciplinary approach is helpful because each of those disciplines may benefit from the insights the others provide. There is a certain lack of proportions among representations of particular disciplines in this volume. This was intended by the editors. The discipline that prevails is general jurisprudence (legal philosophy). The editors (as legal philosophers) have no doubts that the problem of rules and normativity is central for legal philosophy. Rules are a fundamental category for description and analysis of any legal system. A fundamental aim of legal philosophy is an explanation of the normative force of law. Any analysis of certain basic legal concepts such as duty, right or authority is probably bound to make recourse to the concept of a rule. The issue of rules is important for legal philosophy also in contexts of certain specific topics, such as legal reasoning and legal interpretation. Legal philosophy cannot ignore the problems of linguistic rules and rules of logic as law texts are written in natural languages and jurists are bound to perform certain logical operations on the sentences taken from those texts. Also, the development of modern legal knowledge systems in the domain of artificial intelligence (AI) and law requires a profound understanding of both contemporary logical calculi and logical features of legal rules.

Due to the reasons briefly sketched above, legal philosophy cannot develop in isolation from general analytic philosophy, linguistics and logic. Such a claim is a platitude for legal philosophers, at least since the date of publication of *The Concept of Law* by H. L. A. Hart. He has demonstrated in this magisterial work how much

legal philosophy may benefit from analytic philosophy. Other thinkers have shown the same with respect to linguistics and logic.

But, as we believe, legal philosophy is not to take only from such cooperation. Legal philosophers are focusing on the problems of rules and normativity as their central issue. In other disciplines, such as analytic philosophy, linguistics and logic, this problem, however important, is just one of a multitude of important and interesting issues. Therefore, as we consider, philosophers, linguists and logicians may benefit from legal philosophy as well. A legal perspective may allow them to see certain problems in a new light.

The volume is divided into four parts. The first part "Philosophical Problems of Normativity and Rule Following" contains chapters relating to more general philosophical matters. It begins with the chapter written by Paul Boghossian. He presents a conceptual framework for talking about norms, rules and principles. The purpose of the author is to distinguish such matters which are purely verbal and matters which are substantive. Special focus in put on the crucial concept of rule-following, specifically in the cases, where there is no explicit intention. The author also asks important questions relating to normativity of rules. Are rules themselves normative? Is following a rule normative? Paul Boghossian argues that Kripke is endorsing an unqualified conception of rule following as normative. He concludes that rules and rule following facts are not normative in themselves. They derive what normativity they may on occasion have from the holding of some underlying moral truth.

Jaap Hage in his chapter questions the often accepted assumption concerning important (if not necessary) connections between rules and normativity. To justify his view that the connection between rules and normativity is much looser than it might seem, the author provides two main arguments. The first argument comprises a critique of a classical dichotomy involving regulative and constitutive rules. The author claims that regulative rules are in fact a subcategory of constitutive rules. Moreover, Hage advocates a concept of deontic facts that have the feature of being able to guide behaviour; in this connection, rules are not necessary as behaviour-guiding entities. The second argument is a novel account of (constitutive) rules as constraints on possible worlds. The constraining function is the most basic function of rules, and, as constraints, they cannot be regarded as behaviour-guiding entities. The chapter is concluded by Hage's views concerning the logic of rule application

William Knorpp discusses the issue of rule communalism, that is, the view according to which rule following is possible for communal individuals but not for solitary individuals. In this connection, the author refers to a famous Kripke-Wittgenstein view on this subject and assesses it as nihilism: according to Knorpp, the Kripke-Wittgenstein theory does not support the possession of rule-following capacity even for communal individuals. The author investigates the possibilities of defending genuine rule communalism in the context of nihilist arguments. The chapter's conclusion is negative: Knorpp states that communalism remains unproven and that it is almost certainly a false theory.

Krzysztof Posłajko deals in his chapter with Philip Goff's solution to the rule-following paradox as formulated from the point of view of certain interpretations of

semantic phenomenology (its proponents suggest than one can literally hear meaning while listening to meaningful utterances—contrary to listening to expressions that one does not understand). For Goff, to perceive an utterance as meaningful is to perceive it as having specific meaning as well. Hence, phenomenal states can be seen as facts that make sentences about meaning true; however, existence of any such facts is denied by Kripkenstein's paradox. In his chapter, Posłajko argues that Goff's attempt is, however, unsuccessful because it goes against some basic intuition concerning the possibility of linguistic error.

The chapter by Leopold Hess analyses normativity of linguistic meaning and discusses the status of norms that determine whether language is used correctly. Rules can be perceived as either constitutive (a classical example is a game of chess where game rules determine not only whether a given move is a correct one but also whether it is a chess move in general) or prescriptive. A common view is that norms of meaning discourse are prescriptive; however, such a position must also face some difficulties (what does it mean that one ought to use a given word in a certain way?). Leopold Hess tries to show that one should understand linguistic norms as globally constitutive, having their normative force grounded in the notion of interpretability, which is connected with a more general linguistic practice rather than linguistic expressions only.

Przemysław Tacik, in his chapter, looks at Kripkenstein's paradox via a Kantian critique of Hume's scepticism. The author suggests a reinterpretation of Kant's arguments against Hume's ideas on causality and time's (dis)continuity. He describes analogies between Hume's and Kripkenstein's scepticisms so that the latter is reformulated in the following manner: How can one know that the rule that guides usage of a certain word at moment t_1 remains the same at moment t_2? Tacik claims that by appealing to the Kantian idea of "transcendental unity of apperception", one may contribute to solving Kripkenstein's paradox. The key for him is that linguistic normativity is based not on the community of language users but rather lies within our readiness to correct ourselves even before the community may perceive our language expressions as correct or incorrect.

Piotr Kozak, referring to the so-called "Pittsburgh school" of philosophy (W. Sellars), analyses the relationship between naturalism and normativism in connection with the rule-following problem. The author investigates a vicious regress threat and difficulties linked to any attempts to reduce rule following to merely regular actions. Then, a Third Way between regularism and intellectualism is proposed, and Sellar's idea of pattern-governed behaviour is critically discussed.

Joanna Klimczyk discusses in her chapter the relation between normativity and rationality. The problem she addresses is whether any normativity might be ascribed to the requirements of rationality. She argues that the so called *Double Binding View*, held by some philosophers who tend to agree on two general requirements of rationality: substantive and non-substantive, might be "far-fetched". Her claim is that at least the requirement of coherence (specific non-substantive requirement) might be already entailed by the substantive normative requirement. She concludes that the only normativity of rationality for which one might have (or should have) support is one connected with a "primitive" (as she calls it) desire of being comprehensible either to oneself or the other people.

Tomasz Pietrzykowski raises the important issue of the relationship between rules and rights. At the beginning, he compares two opposite versions of priority theses: The Priority of Rights and The Priority of Rules. The latter is based on a devastating criticism of the former. Despite this criticism, the idea of inherent natural human rights has been influenced by contemporary public discourse. For that reason, the aim of the author is to redefine the concept of rights. He considers "rights" as mental states, in which something is represented as "due" to someone. Such a mental representation was called "rights–feelings". The redefinition of the concept of "rights" makes it possible to defend a new formulation of The Priority of Rights Thesis, namely the hypothesis that rights–feelings may precede any developed internal point of view and, consequently, any full-fledged social rules. Such a reformulation of The Priority of Rights Thesis constitutes an attempt to present the relationship between rules and rights from the modern, naturalistic and cognitive perspectives.

The second part of the volume "Normativity of Law and Legal Norms" begins with the chapter written by Brian Bix. He discusses certain fundamental problems of legal philosophy—namely, the connections among law, rules and morality in the broad spectrum of contemporary theories of law. Law is a normative system, and any theory about its nature must focus on its normativity. The chapter starts with an overview of the relationship between law and rules, showing the issues that give rise to many of the debates in contemporary legal philosophy. Then, the author presents his interpretation of H. Kelsen's theory, according to which the Basic Norm is presupposed when a citizen chooses to read the actions of legal officials in a normative way. Kelsenian theory should be understood as an investigation into the logic of normative thought. Kelsen claims that all normative systems are structurally and logically similar, but each normative system is independent of every other system; thus, law is conceptually separate from morality. Then the author turns to H. L. A. Hart's theory, and in particular to the question of whether his approach views legal normativity as *sui generis*. This analysis allows the author to challenge the prevailing view in contemporary legal philosophy that law necessarily makes moral claims (L. Green, J. Raz and others). The author demonstrates that a less morally flavoured conception of the nature of law is tenable and may in fact work better than current morally focused understandings of law and its claims.

The chapter written by Stefano Bertea goes in the opposite direction. His topic is the concept of legal obligation. He starts with an analysis of the concept of obligation (such analysis is meant to mark the boundaries within which a theoretical debate on obligation is to take place) and on this basis develops his conception of obligation. This conception is built around the idea of obligation as having two essential aspects: one of these lies in the internal connection of obligation with moral practical reasons and is accordingly rational and moral; the other one instead lies in the conceptual link between obligation and mandatory force. In combination, these two aspects, which interlock to form what Bertea calls the "duality of obligation", frame obligation as a rational and morally justifiable categorical requirement. Thus, Bertea belongs to the camp of legal philosophers who believe that law necessarily makes moral claims.

Fundamental questions of legal theory are discussed in the chapter by Dietmar von der Pfordten. He asks the following question: What is the main form of expression in law? The classical conceptions maintained that such main forms are commands, orders and imperatives. For nonpositivistic theories, however, this question is of secondary importance because, for them, the aim of law is important, while the means of law are contingent. In the 20th century, Kelsen and Hart tried to identify one basic type of expression: norms (Kelsen) or rules (Hart). The author argues that there is no reason to indicate one and only one main form of expression in law, as law uses a multitude of conceptual means. The idea that there is any reason to reduce conceptually the choice of our means to realize the aim of law is false.

Dennis Patterson and Michael S. Pardo in their chapter develop the critique of the neuroscientific approach to fundamental problems of jurisprudence and *inter alia* to rule-following Their point of departure is the critical examination of the claims made by many authors that issues of mind are best explained as neurological events. Such an analysis shows that identifying the mind with the brain leads to a philosophical error. The authors discuss the nature of conceptual and empirical claims and their use in explanations of neuroscience. These considerations lead to the conclusion that psychological categories such as memory, knowledge, intention or belief are conceptual rather than empirical in nature. This allows the authors to deal with various conceptual issues: the distinction between criterial and inductive evidence, unconscious rule following, interpretation and knowledge.

Monika Zalewska reconsiders the classical Hartian problem of how law differs from a gunman situation. She asks the question regarding whether this problem arises as well with respect to Kelsen's theory of law. The principal problem of Kelsen's theory is that its answer to the question of the difference between law and the gunman situation puts this theory at risk of being trapped in *circulum vitiosum.* The solution proposed by the author is based on a combination of so-called relative categories *a priori*—a dynamic structure of law and primary and secondary norms.

Peng-Hsiang Wang and Linton Wang discuss a general problem concerning the relation between rules and normativity. They take Joseph Raz's challenge concerning normativity of rules by claiming that rules are not reasons, but reason-giving facts. The authors propose a theory referred to as a difference-making-based account of the reason-giving force of rules. According to the difference-making-based theory of reasons, reasons are difference-making facts. This theory may be instantiated in many ways because many types of objects may be considered as difference-making facts. The authors devote their attention to the possibility of constructing a theory of rules as reason-giving facts, and they focus on differences that are made in the world by actions conforming to rules or violating them. They define the difference that may be caused in the world by following or breaking legal rules as "the legality-based difference". Hence, the authors claim that the normativity of rules has the same structure of normativity of other types of reason-giving facts, with the qualification that difference-making facts obtained with regard to rules are different from those that are obtained due to the occurrence of other reason-giving facts. Consequently, they propose a theoretically grounded answer to Raz's questions concerning the normativity of rules.

Two chapters are directly related to the problem of autonomy of legal normativity vis-à-vis moral normativity. Aldo Schiavello deals with the "conventionalist turn" in legal positivism in relation to legal normativity. He argues that conventionalist legal positivism offers an explanation of legal normativity and preserves the autonomy of legal obligation, both vis-à-vis moral obligation and coercion. The position of the conventionalists has some defects, however. Two pathways should be distinguished. The first one (H.L.A. Hart in the Postscript) leads to a "weak" version of conventionalism, and, as such, it fails insofar as it does not preserve the autonomy of legal obligations from moral obligations. The second pathway (G. Postema) is able to develop a coherent theory of legal normativity but at the price of distorting reality.

A different conclusion relating to the distinction of legal and moral normativity in Hartian theory is developed in the chapter written by Adam Dyrda. Pursuant to H. L. A. Hart, the fundamental reasons for officials to apply the criteria of validity contained in the rule of recognition are of various provenience (moral, conventional, traditional and other). In order to be genuine, such reasons must be internal in the sense proposed by B. Williams (i.e., they must refer to agents' motivation). Therefore, the internal point of view should be defined in terms of internal reasons. It is argued that if fundamental legal reasons are to be normative (authoritative), they must be internal reasons of a moral nature. The conclusion is that Hart's original theory of internal point of view is too weak. If it is, however, supplemented by the concept of internal reasons, the autonomy of legal obligations cannot be sustained.

The third part of the volume "Rules in Legal Interpretation and Argumentation" deals with various problems of rules applied in interpretation and specifically with their normativity and validity.

The most general question is asked by Tomasz Gizbert-Studnicki: Are rules of interpretation applied in legal practice normative? The author distinguishes between two roles of such rules: they guide interpretation, and they justify interpretative decision by delivering justificatory reasons. In this sense, rules of interpretation are normative. Their normative force cannot be explained by recourse to the concept of convention. Rules of interpretation derive their normative force from values of political morality underlying a given legal system. They deliver justificatory reasons, which, however, are not exclusionary. Certain important differences in this respect between civil and common law legal cultures are described.

In his chapter, Paweł Banaś argues that legal interpretation should be perceived as a rule-guided process and as such cannot be reduced to following co called second order rules (e.g. *clara (non) sunt interpretanda*). There are different levels within a process of interpretation which are represented by different types of rules. The author draws an analogy between interpretation and some ideas present in contemporary philosophy of language concerning pragmatics and meaning. He argues that each level of legal interpretation process may be subject to Kripke's sceptical paradox which questions the very possibility of the existence of rules—a problem more fundamental than the one concerning their function in a legal discourse (either heuristic or justificatory).

Paolo Sandro investigates one of the most important problems in legal philosophy, that is, legal indeterminacy. The point of departure of his analysis is that according to a common view, notorious controversies in the theory of meaning lead to essential disagreement regarding the content of law understood as an interpretive practice. The author questions this view by pointing out that law is in the first place a vehicle of communication of patterns of certain behaviour that are prescribed by the lawmaker. Regarding this purpose, law is directed first and foremost to laymen. Sandro discusses important legal-philosophical views concerning the consequences of this thesis to conclude that a sound meta-theory of legal interpretation has to emphasize the central role of a linguistic criterion.

Ralf Poscher reconsiders Lon L. Fuller's argument that the positivist distinction between the law "as it is" and the law "as it ought to be" fails due to the need for creative interpretation even in easy cases. Poscher argues that Andrei Marmor's defence of positivism, based on Wittgenstein's remarks on rule following and the distinction between understanding and interpretation, is not successful. Positivism can be saved from Fuller's challenge, if we distinguish between two different elements of our practice of adjudication: the communicative interpretation of utterances and the application of a rule thus identified as the content of a communicative intention. We need to distinguish epistemic creativity and the creativity involved in amending the law via legal construction. Only the former is involved in communicative interpretation; only the latter concerns the distinction between the law "as it is" and the law "as it ought to be".

Brian Slocum revisits the matter of ordinary meaning of rules in the context of legal interpretation. The chapter contains a plea against the intentionalist position in the theory of legal interpretation. The question of what makes a certain meaning the ordinary one and the evidential question of how the determinants of ordinary meaning are identified are of crucial importance. Sometimes, the courts go beyond or reject the linguistic meaning, due to normatively based desires. The ordinary meaning principle is necessarily concerned with the linguistic meaning and not normative matters. Claims made by intentionalists are fundamentally inconsistent with how the ordinary meaning doctrine must be conceptualized.

Hanna Filipczyk raises a similar issue but refers to a distinct legal culture. Her topic is the *claritas* doctrine expressed by the maxim *clara non sunt interpretanda* and visible in the *acte clair* and *acte éclairé* doctrines of the Court of Justice of the European Union (ECJ). Referring to Wittgenstein's thoughts on rule following, the author develops a new understanding of this important doctrine.

An important issue directly related to legal interpretation is raised by Marcin Matczak. He criticizes the speech-act approach to rules, which is prevailing in legal philosophy. His main argument is that the speech-act theory provides an inadequate framework for the analysis of written discourse, including legal text. Such an approach is trapped into the fallacy of synchronicity and the fallacy of a discursivity. The former consists in treating legal rules as if they were uttered and received in the same context; the latter consists of treating legal rules as relatively short, isolated sentences. As a consequence, excessive focus is placed on semantic intentions of the lawmaker, and the discursive aspects of communication are neglected. The

author proposes to look at the legal texts as complex text acts (as opposed to speech acts). Such an approach supports the idea of minimal legislative intent, developed by Joseph Raz.

The chapter by Andrzej Grabowski raises the problem of the validity of moral rules and principles. This issue becomes legally relevant frequently in cases when a judge is bound to take into account moral rules, principles or standards. Obviously, only valid moral rules, which the judge must identify, may be utilized by the judge. The author's aim is to clarify three basic questions: What does it mean when we say that a moral rule is valid? How do we identify valid moral rules and principles? How is the validity of moral rules and principles justified in the legal discourse? The author argues for a coherent juristic conception of the validity of moral rules and principles. He recommends the methodological approach based on the adoption of a morally detached and impartial point of view.

A problem relating to interpretation of law is addressed in the chapter authored by Izabela Skoczeń. She raises the problem of significance for legal theory of general-pragmatic theories, such as Grice's theory of conversational maxims and the competing "relevance theory" of Sperber and Wilson. Her main aim is to define the content of conversational maxims within the legal context. The author argues that none of the pragmatic theories delivers a satisfactory account of maxims in legal contexts, due to certain specific features of legal talk. Legislative speech is a collective speech act, while the tools developed by pragmatic theories apply rather to individual speech acts. Neither the content of maxims as defined by Grice, nor by Sperber and Wilson, provides an adequate account of what their content in legal contexts should be.

Michal Dudek in turn raises a very interesting (and rarely discussed) issue of traffic signs as a specific form of communicating legal rules. The author argues that traffic signs are not subsidiary instruments. To the contrary, they are in fact an integral part of rules and not just a way of communicating them. Traffic signs are a means of visual nonlinguistic communication with specific features that cannot be verbalized in an intelligible and concise manner. Due to that fact, in the context of traffic signs, a legal rule cannot be conceived of as a linguistic utterance. The concept of interpretation based on the vision of legal text as an aggregate of linguistic utterances proves to be inadequate. Certain legal norms cannot be adequately expressed in words.

Finally, the fourth part of the volume "Rules in Legal Logic and AI&Law" contains chapters devoted to logical analysis of rules.

Andrej Kristan contributes to the expressive conception of norms that was famously discussed in the 1980s by Carlos Alchourrón and Eugenio Bulygin. Kristan discusses important critical arguments that were raised against this conception in the literature. The author argues that expressivism is able to account for facultative states of affairs without obtaining a contradiction in the normative system. Additionally, he shows how this conception may account for describing the propositional content of rules of preference without semanticizing the force indicator of object-rules. Kristan also obtains a result according to which the expressive conception of norms accounts for the permissive closure and other types of conditional norms

without admitting irreducible character of acts of permitting. This chapter shows the usefulness of the logical tools of hard analytical philosophy employed for the sake of legal-theoretical argument.

In his chapter, Jan Woleński discusses the problem of rule following, as formulated by Ludwig Wittgenstein and creatively interpreted by Saul Kripke, by appealing to some devices of contemporary deontic logic. The author develops a description of the rule-following paradox in logical terms. Finally, he sheds some light on the problem of rules in logic and analyses the specificity of following rules of logic.

The chapter by Giovanni Battista Ratti deals with an important logical problem concerning negation of rules and, more generally, with the role of negation in prescriptive discourse. The author discusses negation of both categorical rules and conditional rules and shows that using negation in the context of the latter leads to unclear and ambiguous consequences. These considerations lead also to problems concerning the proper accounting for contradiction between conditional rules. The chapter offers a systematization of different views concerning the application of negation to normative conditionals. The results brought by this contribution are mainly negative: the concept of negation in prescriptive discourse is unclear and problematic, which leads to serious problems concerning our understanding of the logical structure of rules themselves. Hence, according to Ratti, the development of a satisfying logical theory of negation of rules remains a powerful challenge.

The chapter by Michał Araszkiewicz deals with one of the most fundamental problems concerning logical characteristics of legal rules, namely, their defeasibility. The author distinguishes several different interpretations of this concept as discussed in the literature. Although non-classical defeasible logics are successfully employed in AI-based systems of legal knowledge, there is still an ongoing legal-theoretical debate concerning the adequacy of theories accounting for legal rules as defeasible ones. Araszkiewicz proposes a middle ground theoretical view that encompasses important intuitions present in the works of adherents of defeasibility on the one hand and of its critics on the other hand. He argues a concept of contextually complete legal rules, which encompasses the idea that defeasibility of rules depends on the context to which they are applied. This view is inspired by the very influential theory of epistemic contextualism.

The chapter by Marcello Ceci is a contribution to the understanding of rules in the domain of artificial intelligence and law research. The chapter should be seen as part of a broader ongoing work concerning bridging the gap between the layer of legal documents on the one hand and the layer of rule modelling on the other hand. Ceci rightly emphasizes that legal reasoning cannot be represented adequately in AI-based systems without taking the argumentation process into account. In this connection, Ceci refers to the theory of argumentation schemes advocated by T. Gordon and D. Walton. The author suggests an extension of the LegalRuleML standard in order to encompass the argumentative aspect of legal knowledge in Semantic Web technologies used for representation of legal reasoning.

Vytautas Čyras and Friedrich Lachmayer focus on the problem of visualization of legal rules. The authors offer a systematization of visualization of legal rules and patterns of legal inference using a criterion of the number of dimensions used in a

given visualization. The illustrative materials chosen by Čyras and Lachmayer are diagrams and other pictorial representations that were presented during the JURIX 2012—the 25th International Conference on Legal Knowledge and Information Systems conference that took place in Amsterdam, Netherlands (December 17–19). The authors conclude that the creation of plausible visualizations of legal rules and reasoning is a difficult task due to its multidisciplinary character involving knowledge law, informatics, visual media and semiotics.

The idea for this volume came from the Rules 2013 conference held in Krakow, Poland in September 2013, organized by the Department of Legal Theory, Jagiellonian University. The conference, devoted to rules, rule-following and normativity, gathered a number of philosophers, legal philosophers, logicians, psychologists and specialists in AI & Law. This volume contains selected papers presented at the conference, however, expanded and revised for the purpose of the publication. We would like to thank all the participants, especially those who contributed to this volume, as well as members of the Program Committee.

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Chapter 33
Towards Multidimensional Rule Visualizations

Vytautas Čyras and Friedrich Lachmayer

Abstract This paper reviews visualizations in legal informatics. We focus on the transition from traditional rule-based linear textual representation such as "if *A* then *B*" to two- and three-dimensional ones and films. A methodology of visualization with the thought pattern of *tertium comparationis* can be attributed to Arthur Kaufmann. A *tertium* visualization aims at a mental bridge between different languages. We explore how visualizations are constructed and what types can be found here. Review criteria comprise comprehension, relations, vertical-horizontal arrangement, time-space structure, the focus of attention, education, etc. Pictures for review are selected from JURIX 2012 proceedings. We conclude that making visualizations as avant-garde as JURIX projects themselves is a tough task that requires knowledge of law, computing, media and semiotics.

Keywords Diagrammatic models · Legal education · Legal informatics · Legal visualization · Soft visualization

33.1 Introduction

This paper reviews visualizations in legal informatics by asking the question "How is multidimensionality exploited?" There are multiple criteria to review and in turn different means to achieve multidimensionality in visualizations: colours (including black-white-grey), mixed types of graphical elements, 1D-2D-2½D-3D, quantity-quality, statistics, etc.

The mainstream of the visualization in law, legal science and legal informatics can be determined with reference to JURIX, the Dutch Foundation for Legal

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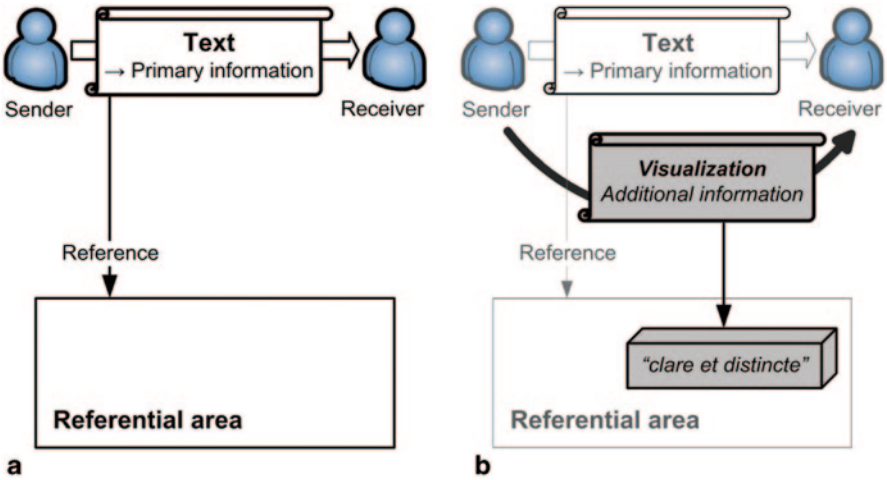

Fig. 33.1 **a** A text is communicated from a sender to a receiver. **b** A visualization refers to clear and distinct knowledge and hence contributes to understanding

Knowledge-Based Systems and its annual conference proceedings.[1] On the one hand there are formal notations, which go beyond the textual ones; on the other hand, there are visual representations that also occur in competition with the text. In the visualizations in turn two different types can be distinguished: first, the visualizations formed according to strict formal rules; second, the more intuitive pictures which can detect situations better. A very good overview of legal visualization can be found in the book of Klaus Röhl and Stefan Ulbrich (2007).

There are also quite different approaches to visualization, for instance, through semiotics (Fig. 33.1). The classical philosophy of law, however, as approximately represented by Arthur Kaufmann (see Lachmayer 2005), has provided a methodological introduction to visualization with the thought pattern of *tertium comparationis*. Especially in the European Union with its many official languages, a visualization, which appears as a *tertium*, can form a mental bridge between different languages.

The annual JURIX conferences are among the most important in legal informatics regarding both the content and the form of scientific presentations. The leading projects in the world are presented here. In many cases visualizations make the text easier to understand, at least in terms of key points. On a meta-reflection level, however, the empirical question is how these visualizations are constructed and what types can be found therein. Such an analysis may also affect the future design of visualizations in legal informatics, especially as corresponding design principles are not yet in the canon.

[1] http://www.jurix.nl/?page_id=8.

33.2 Types of Multidimensionality in Legal Visualizations

First we explain what we mean by multidimensionality in rule representations.

33.2.1 One-dimensional (1D) Visualization

Traditional norms (rules) are represented linearly: in text, both in natural languages and in artificial languages including mathematical notations, formal logic (propositional logic, predicate logic) and programming languages such as Prolog. A traditional notation is "If A then B", $A \rightarrow B$ or $N(A/B)$, read "when a state of affairs A is given, then the legal consequence B applies". There are other notations such as Polish prefix notation that comprises a deontic modality and was used by Ilmar Tammelo (1978). An example of a Prolog-like notation is the logical legal sentence in Hajime Yoshino's Logical Jurisprudence (2011).

33.2.2 Two-dimensional (2D) Visualization

Metaphors and symbols can also be employed to represent norms and hence pictorial two-dimensional representations emerge (Röhl and Ulbrich 2007, pp. 42–62). An ancient example is the frontispiece of the book *Leviathan* by Thomas Hobbes,[2] where the state allegory is encapsulated in the sovereign Leviathan that is represented by a giant crowned figure. Besides pictorial visualizations, logical diagrammatical visualizations including info-graphics are widely used to represent legal content such as argumentation graphs, storytelling, legal workflow, etc. (Kahlig 2008).

33.2.3 Two and Half-dimensional (2½D) Visualization

2D diagrams can include pictures of three-dimensional real world bodies such as cubes, cylinders, people, computers, houses, etc. and their icons, producing so-called 2½ representations. The icons of three-dimensional real bodies are used to contrast 2D diagramming elements and abstract concepts.

33.2.4 Three-dimensional Visualization and Films

An example of three-dimensional visualization is the "Menzi Muck timber case—the Film!",[3] which presents situational visualization. The case concerns the liability

[2] http://en.wikipedia.org/wiki/Leviathan_(book).

[3] http://www.youtube.com/watch?v=KI7zeuayum4. See also the lawyer Arnold Rusch's comment, http://www.arnoldrusch.ch/pdf/130311_menzimuck.pdf.

for damages suffered by a volunteer. This 4-min film takes a familiar case from 2002 (BGE 129 III 181 ff.). The Swiss Federal Court defined demarcation criteria between favour (*Gefälligkeit*), gratuitous contract (*unentgeltlicher Auftrag*), agency without specific authorisation (*negotiorum gestio*, *Geschäftsführung ohne Auftrag*) and the compensation claim of a volunteer (*Schadenersatzanspruch der unentgeltlich helfenden Person*).

33.3 Visualization Criteria

We further examine selected pictures from JURIX 2012[4] papers. This examination is done on the reflexive level of legal informatics. First we discuss systematically different criteria:

- *Citation*. The names of laws and article numbers can be included in diagrams (Winkels and Hoekstra 2012, p. 160).
- *Colours*. In black–white press, dark and light grey tones aid comprehension (Winkels and Hoekstra 2012, pp. 158–166).
- *Dimensions*. Multiple dimensions on the paper can be achieved with 2½D. For instance, a wire-cube representation in Pace and Schapachnik (2012, p. 111) is supplemented with transitions and represents strength diagrams.
- *Domains*. Different problem domains can be referred to (Winkels and Hoekstra 2012, p. 158).
- *Elements with text*. Abbreviations may be difficult for non-experts (Szöke et al. 2012, p. 150). Similar may be with suspension points; see e.g. (Robaldo et al. 2012, p. 137) and (Szöke et al. 2012, pp. 150, 152).
- *Focus*. This is represented by bold face and a dark background. Important elements are coloured in dark grey and less important in light grey or white (Szöke et al. 2012, p. 154). There are also different shapes (angled, rounded).
- *Mindmapping*. Visualizations in the form of mindmapping are creative. An ontology design (Poudyal and Quaresma 2012, p. 118) is shown with no cross-links.
- *Mixed types*. Different types of elements are combined (Szöke et al. 2012, p. 150). This is good for legal education, but may be not very useful for formal semantics.
- *Quantity*. Too many elements confuse the issue. Therefore layers, levels and sub-elements are used (Winkels and Hoekstra 2012, p. 158).
- *Relationships*. Various relationships are depicted with different connectors. Different types of arrows are normally used: arced, curved, down, etc. Relationships can have a predefined or a newly defined meaning and are represented with edges in graph-like diagrams. Examples of relationships can be found in argument diagrams and defeat graphs in argumentation-based inference (Prakken 2012,

[4] The 25th International Conference on Legal Knowledge and Information Systems, http://justinian.leibnizcenter.org/jurix/.

pp. 127–128), dependency relations (Robaldo et al. 2012, pp. 137–139), document generation and versioning (Szöke et al. 2012, pp. 150–154), relationships between concepts in the tax domain (Winkels and Hoekstra 2012, pp. 158–160).

- *Tables*. They contain much textual information but are not always creative (Pace and Schapachnik 2012, p. 113). Transitions can be added (Ramakrishna et al. 2012, p. 132).
- *Traditional formal diagrams*. Examples are argument diagrams (Lynch et al. 2012, p. 84) and statistical data visualization (Poudyal and Quaresma 2012, p. 118; Winkels and Hoekstra 2012, p. 166). They are clear, look good, but are nothing special.
- *Vertical and horizontal axes*. Placing elements top-down can mean different orders: hierarchy, time axis, etc. Horizontal arrangement from left to right can denote ordering in time. Other meanings can also be defined (Robaldo et al. 2012, pp. 137–139), where both the left arrows and right arrows show the rule-triggering sequence.

33.4 Visualizations in JURIX 2012 Proceedings

Selected JURIX 2012 articles are reviewed below in the order of their appearance in the proceedings, where they are ordered alphabetically.

33.4.1 Refined Coherence as Constraint Satisfaction Framework for Representing Judicial Reasoning

A constraint satisfaction framework as a potent tool for representing judicial reasoning is reported by Araszkiewicz and Šavelka (2012). Figure 1 on p. 8 shows a constraint network for conversion claim in the Popov v. Hayashi case. The picture is interesting, primarily from the point of view of relations, and open. A drawback of the picture is the absence of a legend for nontrivial abbreviations (FA—factual assertion, LA—legal assertion, FLR—FA to LA rules, LLR—LA to LA rules, LA_1—'Hayashi *is* liable…,' LA_2— 'Hayashi *is not* liable…,' etc.) and three types of relationships (positive constraints, negative constraints, and the positively constrained chain). The reader has to guess whether the vertical arrangement means hierarchy and the horizontal one means flow.

33.4.2 Computational Data Protection Law: Trusting Each Other Offline and Online

A collaborative project to develop a communication in infrastructure that allows information sharing while observing data protection law "by design" is reported in

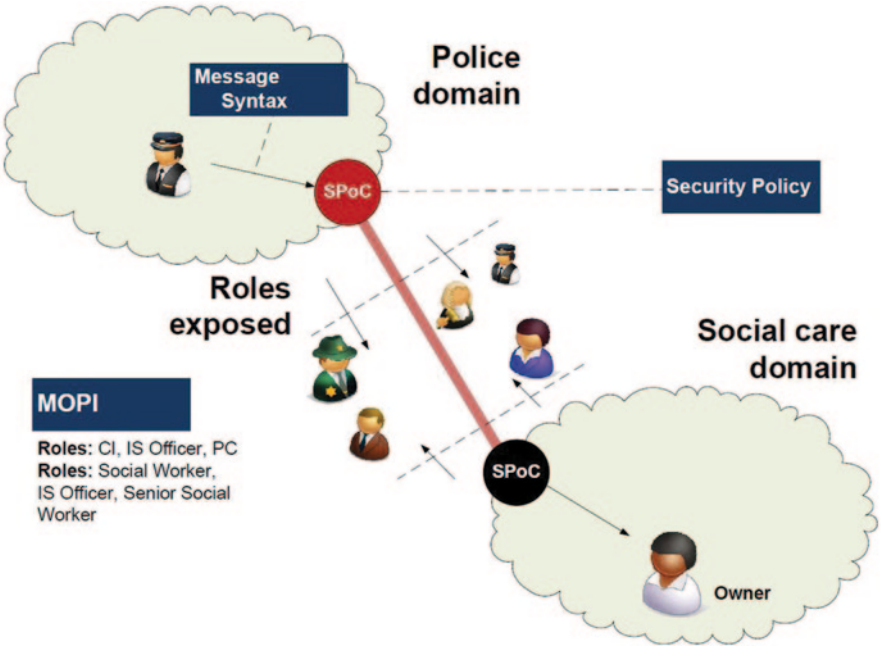

Fig. 33.2 Overview of the architecture (Buchanan et al. 2012, p. 36)

Buchanan et al. (2012). Figure 1 on p. 36 shows an overview of the architecture; see Fig. 33.2. This 2½D space-structured picture is composed of different subsystems. Two cloud-shaped "islands" that are connected with the "bridge" look better than white rectangles. Black and white textual elements interplay. Different icons of humans depict distinguished roles. The picture is comprised of different elements but is successful didactically. The same applies to Fig. 2 on p. 38.

33.4.3 Supporting Transnational Judicial Procedures Between European Member States: The e-Codex Project

The e-Codex project is meant to implement building blocks for a system to support transnational procedures between EU member states so as to increase cross-border relations in a pan-European e-justice area (Francesconi 2012). Figure 1 on p. 43 is composed of mixed elements that suggest clouds or islands and look like a territory map in 2½D. This is interesting; however, much of the text and graphics is too small and barely legible. Figure 2 on p. 47 is composed of mixed elements and a vertical static dichotomy between two models. It is interesting that dynamic flow is shown above with the interchange of grey and white ellipses. Figure 3 on p. 48 is composed of screenshots and arrow flows, but the dynamics is not elaborated.

33.4.4 Argument Analysis System with Factor Annotation Tool

An argumentation support tool which is based on a Toulmin diagram is reported in Kubosawa et al. (2012). Figure 1 on p. 62 shows the architecture of the system. The flow is represented by arrows and rounded white and angled grey rectangles. The reader might be familiar with this type of flow diagram which dates from the 1970s. Figure 2 on p. 63 shows a screenshot that is composed of mixed elements (a table of textual factors and an argument graph) and contains two flows. Figure 3 on p. 65 does not define the meaning of the vertical placing: a hierarchy or a process in time? The meaning of computer symbols can only be guessed ("documents" or something else?). Do the dashed elements exist or not exist? Figure 4 on p. 66 is too abstract because contrasting white and grey circles is not intuitive, although the labels α, β, Λ, z, w, K, etc. are explained in the text of the paper. Figure 5 on p. 68 is also not intuitive. Figure 6 on p. 69 is a bad design pattern: the primary screenshots in the background are too small and illegible and the callout recalls comics.

33.4.5 An Argumentation Model of Evidential Reasoning with Variable Degrees of Justification

A gradual argumentation model of evidential reasoning is reported in Liang and Wei (2012). The research work is interesting and mature. At first glance, however, Fig. 1 on p. 74 seems too abstract. Time and space structure, different arrows and abbreviations are not clear. Likewise, Fig. 2 on p. 79 is elegant but also lacks a legend. This may be justifiable if the reader is familiar with argument graph formalisations, John Pollock's critical link semantics and the *ASPIC*$^+$ framework.

33.4.6 Comparing Argument Diagrams

Lynch et al. (2012) report the results of an empirical study into the diagnostic utility of argument diagrams in a legal writing context, namely, how law students employed the LASAD program. Figure 1 on p. 84 is a type diagram. It is drawn to read from right to left although one might expect time axis from left to right. Some texts are in an excessively small font, which may be the fault of a student.

33.4.7 Types of Rights in Two-Party Systems: A Formal Analysis

A formalisation of Kanger's types of rights in the context of interacting two-party systems, such as contracts, is reported in Pace and Schapachnik (2012). Figure 1 on p. 111 looks elegant although very formal and the reader has to judge if semantics complies with it. This picture recalls the logical square and cube which are known

in modal logic (Philipps 2012, pp. 69–81). The table on p. 113 is not detailed although this may be reasonable for summarising just yes/no in each cell.

33.4.8 An Hybrid Approach for Legal Information Extraction

An approach and prototype software for legal information extraction is reported in Poudyal and Quaresma (2012). They aimed to populate an ontology automatically. The approach combined a statistically-based method (machine learning) and a rule-based method. Figure 1 on p. 116 represents the ontology design. A reader could view it as a mind map and also ask whether the square of four concepts is a logical deontic square. All elements are in grey and therefore barely distinguishable. Figure 2 on p. 118 is not very creative.

33.4.9 Formalising a Legal Opinion on a Legislative Proposal in the ASPIC$^+$ Framework

Prakken (2012) presents a case study in which the opinion of a legal scholar on a legislative proposal is formally reconstructed in the *ASPIC*$^+$ framework. Figure 1 on p. 127 demonstrates well-defined relations. This is achieved with texts in the boxes, dashed lines, labels and white vs. grey. Figures 2 and 3 on p. 128 look elegant thanks to the abbreviations, white/grey tones and arrows. Abbreviations make it hard to comprehend, however. A question arises about the patterns within the figures. The meaning of the horizontal-vertical arrangement—hierarchy or time—can be understood only after a thorough reading.

33.4.10 The FSTP Test: A Novel Approach for an Invention's Non-obviousness Analysis

A mathematical approach called the FSTP Test for determining a non-obviousness indication in patent application during the examination stage is proposed in Ramakrishna et al. (2012). A table in Fig. 2 on p. 132 is a hybrid with process curves. This would benefit from elaboration, probably in a longer paper.

33.4.11 Compiling Regular Expressions to Extract Legal Modifications

Prototype software for automatically identifying and classifying types of modifications in Italian legal texts is reported in Robaldo et al. (2012). The work employs the

Italian standard NormeInRete (NIR), which was the outcome of a previous project. Figures 2–5 on pp. 137–139 attract attention with arced arrows (and a loop in Fig. 5) and two reading directions (from left to right and vice versa).

33.4.12 A Unified Change Management of Regulations and their Formal Representations Based on the FRBR Framework and the Direct Method

A unified change management of legislative documents and their representations is introduced in Szöke et al. (2012). This is based on the Functional Requirements for Bibliographic Records (FRBR) framework and the direct method of legislative change management. Although Figs. 1 and 2 on p. 150 appear side by side, they have opposing reading directions. With regard to contents, Fig. 1 is very interesting because of the intermediate forms and four steps (Item-Manifestation-Expression-Work). Abbreviations (and formulas) make Figs. 2–6 on pp. 150–154 hard to comprehend for non-experts although bold face is used. Figure 6 has an opposing reading direction, ellipsis and rectangle-shaped elements with grey background and one with "dramatic" black. Relations are well-defined but formulas make the framework hard to comprehend.

33.4.13 Automatic Extraction of Legal Concepts and Definitions

Winkels and Hoekstra (2012) present the results of an experiment in automatic concept and definition extraction from the sources of law which are expressed in a simple natural language and standard semantic web technology. The software was tested on six laws from the tax domain. Relations in Fig. 1 on p. 158 are well identified and good for learning purposes. Although composed of four layers, the figure seems too quantitative. White and grey elements are used and a dark grey in the focus, but the whole is confusing and not heuristic. Figures 2 and 3 on p. 160 are good for citations, but three schemes in two figures to save space is undesirable. The processes in Fig. 4 on p. 165 are bottom-up and right-left, and not usual. Therefore the picture is schematic and not intuitive. A line-approaching curve is shown in Fig. 6 on p. 166.

Conclusions

Producing elaborated visualizations is a work that requires the mastery of several problem domains: law, informatics, visual media and semiotics. This is a tough task.

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