## Introduction

This book focuses on the analysis of law from a logical point of view, that is, on a tradition that is distinctively based on the application of logic as an indispensable device to endorse the scientific claims of legal thought. The logical approach to law has been one of the main streams of legal philosophy and legal theory since Ulrich Klug published his *Juristische Logik* in 1951.<sup>1</sup> According to this approach, the obstacles that have prevented the development of law as a science<sup>2</sup> can now be overcome with the use of modern mathematical logic as a formal science of thought. This formal science constitutes an essential tool for analyzing and systematizing the language of which law is made. Using mathematical logic makes it possible to clarify not only the structure of law, but also the structure of legal reasoning. This clarification is the basis for the operability of legal reasoning through computational devices, which constitutes the core of the artificial intelligence (AI) of law.

<sup>1</sup> Ulrich Klug, Juristische Logik (Berlin: Springer Verlag, 1951).

<sup>2</sup> It has certainly been pointed out that "legal science" is an ambiguous expression, to which different meanings can be attributed (see Álvaro Núñez Vaquero, 'Five Models of Legal Science', Revus. Journal for Constitutional Theory and Philosophy of Law, 19, 2013, 1-24; Carlos Santiago Nino, Algunos modelos metodológicos de 'ciencia' jurídica (México: Fontamara, 1999), 11-20; Carlos Santiago Nino, Consideraciones sobre la dogmática jurídica (México: Universidad Nacional Autónoma de México, 1989), 9–16.) Although the traces of the enterprise of European legal science can be followed to the age of the Glossators from Bologna at the dawn of the eleventh century (Hermann Kantorowicz and William W. Buckland, Studies in the Glossators of the Roman Law. Newly Discovered Writings of the Twelfth Century (Cambridge: Cambridge University Press, 1938), 33), the modern development of legal science has been attributed to the German jurists near the beginning of the nineteenth century, who advanced a new trend as a response to the challenge resulting from the "jurisprudential vacuum left after Kant's critical philosophy had destroyed the faith in the premises and methods of natural law that had dominated the previous centuries." (Mathias Reimann, 'Nineteenth Century German Legal Science', Boston college Law Review, 31, 4, 4, 1990, 842–897, at 842–843.) As expressed by Paulson, although "some writers in British and American fin-de-siècle jurisprudence have paid lip service to legal science [...], this exception aside, legal science has not enjoyed much attention in Anglophone circles, certainly not on the merits. The situation is altogether different in the civil law countries." (Stanley L. Paulson, 'Hans Kelsen on Legal Interpretation, Legal Cognition, and Legal Science', Jurisprudence. An International Journal of Legal and Political Thought, 10, 2, 2019, 188–221, at 193.)

The first part of this book aims to compare this model of legal science with one intimately related, yet distinct, tradition of legal thought, that is, one that undertakes a certain model of legal science, which maintains that the legal scientist's main task is to unveil and grasp the universal characteristics of legal phenomena through a method which claims to be independent, not only from any naturalistic model, from any context-dependent feature of a specific legal system, but also from any moral or political value.

To Kelsen, legal norms are conceived not as linguistic sentences of articles of law but as the meaning of those legal sentences of which articles of law are consisted. One of the reasons Kelsen's theory is so highly evaluated and has so much influence on other legal theories is that it endeavored to establish law as the science of legal norms as meaning.<sup>3</sup> In the first paper of this compilation, entitled "Kelsen's Rejection of Logic in General Theory of Norms and its Impact on his Legal Science Project", Monika Zalewska discusses Hans Kelsen's position on the applicability of logic to legal norms and its impact on his project to build up the science of law. Zalewska addresses Kelsen's opinion on the role of logic in law, dividing it into three periods. The first period corresponds to the publication of *Pure Theory of Law* (1939). Based on a Neo-Kantian thesis, Kelsen considered the science of law as a descriptive science of legal norms, which postulates the separation of Is from Ought, and admitted that logic can be directly applied to legal norms. The second period begins with the General Theory of Law and State (1945), in which Kelsen introduced the division between the legal norm and the legal proposition that describes the legal norm. At this point, Kelsen believed that logic can be applied indirectly to legal norms through the application to legal propositions. His last book *General Theory of Norms* (1951) in which Kelsen denied the applicability of logic to legal norms represents the third period on the role of logic in law. This rejection comes from his new definition of legal norms as an expression of a lawmaker's will. Kelsen denied the applicability of the logical rule of inference, according to which an individual legal norm (a judgment) could be derived from a general legal norm (a statute), because the will of a judge cannot be deduced from the will of the legislator. In this period, Kelsen also denied the applicability of the law of contradiction to legal norms. As a result of these arguments, Zalewska concludes that Kelsen's legal science

**<sup>3</sup>** The title of this compilation was inspired by Kelsen's words expressed in the excerpt to the first edition of the Pure Theory of Law in 1934: "More than twenty years ago, I undertook to develop a pure theory of law, that is, a legal theory purified of all political ideology and every element of the natural sciences, a theory conscious, so to speak, of the autonomy of the object of its enquiry and thereby conscious of its own unique character. Jurisprudence had been almost completely reduced – openly or covertly – to deliberations of legal policy, and my aim from the very beginning was to raise it to the level of a genuine science, a human science. The idea was to develop those tendencies of jurisprudence that focus solely on cognition of the law rather than on the shaping of it, and to bring the results of this cognition as close as possible to the highest values of all science: objectivity and exactitude." (Hans Kelsen, *Introduction to the Problems of Legal Theory: A Translation of the First Edition of the Reine Rechtslehre or Pure Theory of Law* (Oxford: Clarendon, 1992), 1.)

project based on Neo-Kantian normativism is unattainable in his last period due to the absence of the vital components of Kelsen's Pure Theory of Law.

As is well known, Hajime Yoshino's Logical Jurisprudence aims at a logic-based analysis and systematization of law. Lachmayer and Čyras' paper singles out certain elements of the Pure Theory of Law and of Logical Jurisprudence, which play a parallel function in both models, in order to suggest an expanding logic model to legal ontology and to maintain the separation thesis between law, and legal science. This thesis holds that while legal validity is determined by law and not by legal science, truth is determined by legal science and not by law. In this way, law and legal science are autonomous systems, which are nevertheless interrelated. The authors not only propose a three-layer model of abstraction, but also develop a structural legal visualization approach. By means of the three-layer model of abstraction, the authors aim to show that legal logic and legal ontology deal with the highest level of abstraction, Pure Theory of Law deals with the middle one, and the concrete decisions and norms belong to the lowest level. The structural legal visualization approach is a diagrammatical view, which facilitates the comprehension of the meaning of legal contents through a scenario-centered graphical narrative rather than an information display.

In his paper, Michał Araszkiewicz discusses the problem of the scientific status of legal doctrine. Against those projects that aim to reduce legal doctrine to policy-based considerations or to substitute it for an empirically oriented form of legal research, Araszkiewicz maintains that preserving the defining features of legal doctrine as scientific discipline – such as its descriptive character, internal perspective, systematic view of the law, and dominant role of the conceptual analysis – requires that the legal doctrine be more open about the knowledge structures, and the argumentation patterns it employs. For this, he proposes to use models provided by theories of knowledge representation found in the field of cognitive science – in particular those rule-based, analogy-based, and conceptual representations models - which should allow a more explicit discussion of the coherence criteria used to justify doctrinal conclusions making its reasoning more explicit and transparent. Understanding legal doctrine as a coherentist endeavor supports the paper's thesis on methodological closure: it is the legal doctrine itself that defines the criteria of sound doctrinal reasoning and the criteria of acceptance or rejection of its conclusions. In this account, legal doctrine would be subject to external critique and better able to defend its social significance by reference to its methodological rigor, transparency and aim for objectivity, making the justice system less vulnerable to political and economic factors.

The second part of the present book deals with the problem of legal science's object from a logical approach. The main task of jurists is to grasp the law as meaning, which is represented by the linguistic expression, and apply it to a given case. How can we treat the law as meaning with scientific recognition based on modern theories of logic and language, and without the methodological dualism of *being* and *ought*, defended by Hans Kelsen? To answer this question, in the paper "The Concept of Law – Focus-

ing on the Existence of Law", Hajime Yoshino intends to clarify the reason why the law as meaning seems to exist as an object, in terms of Logical Jurisprudence. This theory provides an answer to the question starting from the following three primitives: (1) sentence, (2) truth, and (3) inference. Based on the considerations referring to the meaning in terms of the semiotic relationships between legal sentences, their users, and their meaning, the author arrives at the following theses: first, a legal sentence is itself a mere array of symbols; second, the meaning of a legal sentence appears in the consciousness of the user only when he uses it in an inference; third, the law provides legal meta-rule sentences and a legal meta-inference system, according to which, the validity as truth of legal sentences can be proved; fourth, if a sentence is true, it is conceived that the state of affairs designated by this sentence exists; fifth, people implicitly accept this relationship between a sentence and its designation. In consequence, if a legal sentence is proved legally valid - i. e., legally true - people believe that the states of affairs designated by legal sentences exist; sixth, the reason why many people can share the meaning and believe in its existence in the world of law is that people have the same or, at least, similar pragmatic rules of usage of the relevant linguistic expressions. Based on the above clarifications, the author presents his future topics to be challenged in making law a genuine science, one that clarifies the scientific element in the work of jurists to interpret law and develop dogmatic theories of law.

A science of law should contribute not only to interpreting and applying law but also to enacting law, i. e. to legislation. A genuine science of law should have the capability to provide a good system of law, which correctly and effectively applies to a rapidly changing society. In his paper, "Legal Logic as a Major Component of the Three-level Promulgation of Law", Erich Schweighofer discusses the method of promulgation of law in legislation. He maintains that the methods of information retrieval and filtering, document categorization and summarization that have already been developed by legal informatics will become the core of legal methodology. The main goal of legal data science is to intensify, and to complement the existing legal methodology with new computer-based methods, and to bring it into a theoretical framework. Specifically, the promulgation of laws must be adapted to the needs of the knowledge and network society. Accordingly, the author proposes a three-level promulgation model with textual, logic-ontological and visual representation. In his paper, he aims not only to demonstrate the feasibility of this approach, but also to discuss the many open challenges.

As is well known, rooted in Leibniz's contributions a new modal logic that attempts to capture the essential logical features of normative concepts such as obligation, prohibition and permission has been developed since the second decade of the 20<sup>th</sup> century.<sup>4</sup> In this volume, the last contribution aims to analyze and systematize law

<sup>4</sup> Ernst Mally proposed for the first time a formal system of deontic logic in his *Grundgesetze des Sollens*. *Elemente der Logik des Willens* in 1926. The seminal paper published by G. H. von Wright in 1951 is considered a milestone in the development of deontic logic. After these attempts, numerous investigations have con-

from the deontic logic approach. In his paper, "A Formulation of Conditional Norms with a Material Conditional", Adachi examines a formal construction of conditional norms, and argues for a formulation of these norms with a material conditional and wide-scope *ought*. For deploying such a defense, the author points out first that defeasible conditional norms cannot be represented by formulas with material conditional, whereas all-things-considered non-defeasible conditional norms can be represented by the aforementioned formulas. Second, he examines the formulation of conditional norms with a narrow-scope *ought*, and concludes that such a formulation is inappropriate for representing legal conditional norms. Finally, he maintains that legal conditional norms can be faithfully represented by formulas with wide-scope *ought*. This conclusion is linked with one of a broader scope, according to which whilst a system of legal conditional norms is logically independent from a system of moral unconditional norms, there is a practical relationship between them.

This book emerged from the special workshop "Law and Logic – Making Legal Science a Genuine Science" held at the School of Law of the University of Lisbon on July 18, 2017 on the occasion of the 28<sup>th</sup> World Congress of the International Association for the Philosophy of Law and Social Philosophy (IVR). The pages of this book are based on the papers presented at this workshop.<sup>5</sup> A Japanese and Chinese proverb says, "A journey of a thousand miles begins with a single step." With the organization of this workshop and the publication of this volume, we aim to encourage legal scholars, especially legal philosophers, to take their own steps toward establishing law as a science, from the viewpoint of logic and its methods. The editors express their gratitude to the authors of this volume, and to the participants in the workshop for the support received and their patience.

Hajime Yoshino Gonzalo Villa Rosas

tributed to developing this field of study (see Dagfinn Føllesdal and Risto Hilpinen, 'Deontic Logic: An Introduction', in *Deontic Logic: Introductory and Systematic Readings*, ed. Risto Hilpinen (Dodrecht: D. Reidel Publishing Company, 1981 (1971)), 1–35, at 1; G. H. von Wright, G. H., 'Deontic Logic', *Mind*, 60, 1951, 1–15; Ernst Mally, *Grundgesetze des Sollens. Elemente der Logik des Willens* (Graz: Leuschner & Lubensky, 1926)).

<sup>5</sup> All papers except for one were revised after the workshop for their publication in this volume. In order to make this book much richer, the editors invited Michał Araszkiewic to contribute to the volume with his paper "How Scientific Can Legal Science Be?" after the workshop.

Part I Discussing Models: Kelsen, Logical Jurisprudence, and Cognitive Science

# Kelsen's Rejection of Logic in General Theory of Norms and its Impact on his Legal Science Project<sup>1</sup>

Monika Zalewska

**Abstract:** The aim of this paper is to confront Kelsen's legal science project with the shift concerning logic and norms in order to provide the answer, whether legal science is possible in the final phase of Kelsen's Study. The paper will focus on General Theory of Norms and Kelsen's rejection of logic of norms, which refers to two problems. First of all, the question, whether two norms in conflict can coexist. Secondly, if the individual norm can be inferred from the general norm. The consequences stemming from such rejection logic of norms will be examined.

#### Introduction<sup>2</sup>

After a spectacular scientific career, Hans Kelsen retired in 1952. This however, did not discourage him from making further improvements to his theory. In 1960, he published the second edition of his Pure Theory of Law, in which can be seen some indications of the future revolution in his thinking. At the same time, Kelsen was preparing himself to write his final book, "General Theory of Norms", where he tries to develop legal theory in a different, analytical direction. Unfortunately, as he did not manage to finish the book due to his death in 1973, "General Theory of Norms" was later edited and published by his students in 1979. In this book, Kelsen rejects most of the best-known elements he incorporated in pure theory of law, such as the Neokantian paradigm, the basic norm and the application of logic to norms.

<sup>1</sup> This research has been financed by National Science Centre, Poland within the framework of the research project 2015/17/BHS5/00495

**<sup>2</sup>** I would like to thank Prof. Hajime Yoshino for his encouragement, guidance and remarks, which enabled me to write this text.

In this paper, I will focus on the issue of applying logic to norms and set it against the concepts of normativism and legal science. The first part of the study will explain the normativistic concept as it was understood by Kelsen, while the second part will elaborate the distinction between legal norm and legal proposition. Part Three will focus on the rejection of applying logic to norms: firstly, the problem of the inference of an individual norm from a general one and secondly, conflict between norms. These analyses will allow me to confront the concept of normativism and legal science with the results from the second part of this paper and conclude that rejection of the logic of norms caused the collapse of Kelsen's legal science project. With such assumptions Kelsen could only construct different type of scientific theory, for instance in the field of behavioral cognitive science.

It is important to note that there are several interpretations of Kelsen's theory, many of which are very valuable and grant Kelsen's study coherence. The most prominent example is Eugenio Bulygin's "Norms and Logic. Hans Kelsen and Ota Weinberger on the Ontology of Norms." My attempt to analyze the problem of the rejection of logic to norm is based on as straightforward an interpretation of the General Theory of Norms as possible. Therefore, I will abstain from introducing terminology not used by Kelsen in the final phase and theories based on such new distinctions. I will try to interpret Kelsen's theory from General Theory of Norms as it is, thus leaving room for discussion about possible reformulations.

## Part One Kelsen's normativism and logic of norms

The conception of normativism is strictly bound with Kelsen's wider project to design a legal science. The starting point for Kelsen is the claim that legal science needs to be pure. It means that legal science should have its own methodological tools, which are not "borrowed" form another areas of science, especially those areas that deal with explaining empirical reality. For Kelsen, legal science concerns norms, and so has a normative character; however, this does not mean that its task is to indicate how it ought to be. The normative character of legal science stems from the Neokantian thesis that the method of cognition constitutes the object of cognition. Hence, although legal science examines norms and therefore has a descriptive character, its method is normative and as such determines the character of legal science as normative. As Stanley Paulson indicates, the aforementioned method is based on two theses which assure the purity of Kelsen's Theory<sup>3</sup>. The first, characteristic of legal positivism, is the separation thesis, which postulates the separation of law and morality. The second, the normative

**<sup>3</sup>** Stanley L. Paulson, 'The Neo-Kantian Dimension of Kelsen's Pure Theory of Law', Oxford Journal of Legal Studies, 12, no. 3 (September 21, 1992), 313.

thesis, is characteristic of Kelsen's normativism and postulates the separation of Is and Ought; this thesis distinguishes Kelsen's theory from classical legal positivism, which perceived law as a social phenomenon. In the General Theory of Norms, Kelsen still places stress on the separation of Is and Ought. However, this separation is even more difficult to sustain, since Kelsen binds the definition of a norm with the act of will. In this context Kazimierz Opałek points out that the division of the act of thought and act of will embodied by the legal norm and legal proposition has greater practical importance for Kelsen's final phase than the normative thesis, defined as Is – Ought dualism<sup>4</sup>.

In addition, due to Kelsen's attempts to build a theory universal for all norms and not only for legal ones, the separation of law and morality has become blurred. As I will demonstrate in the following paragraphs, these difficulties further exacerbate the rejection of the logic of norms.

Pure Theory of Law (1934), the project intended to build a legal science, was supported by the Neokantian paradigm. To this end, Kelsen conceived a theory which explained how legal norms are cognized. Inspired by Kant and Neokantians, Kelsen perceived law as alogical material, which is categorized by reason, thus allowing legal norms to be cognized. Kelsen mentions three categories, which are Ought, imputation and the basic norm. In this Neokantian period, logic is applied directly to legal norms, which supports the legal science project by granting it soundness through the application of true-false values. However, this solution earned mixed opinions in the doctrine. As Michael Green points out,

In response to empiricist trends in the philosophy of law that had made *legal* meanings look scientifically disreputable, Kelsen sought to save the logical analysis of legal systems by adopting a Kantian epistemology of legal meaning.<sup>5</sup>

Although such a vision is coherent, there are doubts whether the problem of applying logic to norms was thought over by Kelsen. In the positivistic tradition, not much attention has been awarded to the question of whether, and on which grounds, logic can be applied to legal norms<sup>6</sup>. Michael Schmidt suggests that Kelsen followed this tradition to a certain extent, and later he started to question such an unreflective approach<sup>7</sup>. This stands in the opposition to Michael Green's view, who<sup>8</sup> claims that:

**<sup>4</sup>** Kazimierz Opałek, 'Überlegungen zu Hans Kelsens "Allgemeine Theorie Der Normen", Schriftenreihe Des Hans Kelsen Instituts, 4, 1980, 29

<sup>5</sup> Michael Green, 'Hans Kelsen and the Logic of Legal Systems', *Alabama Law Review*, 54, no. 2 (2003), 368.

<sup>6</sup> Michael Schmidt, 'Kelsens Lehre und die Normenlogik', *Schriftenreihe des Hans Kelsen-Instituts*, no. 18 (1992), 87.

<sup>7</sup> Ibid.

<sup>8</sup> It must be noted that Green ascribes a broader meaning to "logic" than Kelsen in his claim, interpreting Pure Theory of Law as an attempt to build the logic of law, even if this is not unequivocally articulated by

Kelsen' s Kantianism is a response to empiricist objections that legal meanings are not proper objects of knowledge, Once these objections are answered, the logic of legal systems can develop without recapitulating its philosophical groundings, just as modem symbolic logic has developed without recapitulating Frege's neo-Kantian foundations for the discipline.<sup>9</sup>

### Part Two Legal norms and legal propositions

Nevertheless, this classic Neokantian view was weakened in the 1940's, especially by the "General Theory of Law and State" (1945), in which Kelsen first introduces the division between the legal norm and the legal proposition. From this point on, Kelsen believes that the application of logic to norms is possible but only indirectly". Kelsen repeats this notion in 1960, i. e. that besides legal norms, legal propositions also exist. While the legal norms have a normative character, legal material is cognized in the form of legal propositions (*Rechtsatz*), which have a descriptive character. At this point, Kelsen believed that logic can be applied only to legal propositions; however, as Hajime Yoshiro points out, this move impairs the application of logic to legal norms described in Kelsen's thesis". Nevertheless, Kelsen's theory is still influenced by a Neokantian dimension with regard to the cognition of norms, and so his response regarding this cognition is valid.

In General Theory of Norms, Kelsen describes not only legal norms, but also other kinds of norms. In doing so, Kelsen changes his terminology from "legal proposition" to the descriptive term "Aussage", distinguishing "Aussage über die Geltung einer. Norm über tatsächliches Verhalten, das der Norm entsprich oder wiederspricht<sup>22</sup>. Consequently, Kelsen makes a distinction between a proposition about the validity of norms and the accordance of behavior with the norm. In addition, he puts aside the problem of cognition in the context of legal propositions and focuses on the differences between the legal norm and the legal proposition. Such a defined legal proposition is contrasted with the norm, understood as the meaning of the act of will<sup>13</sup>, and as it will be present-

Kelsen. In my opinion, such an approach strengthens Kelsen's thesis about applicability of logic to norms as a part of greater well-considered program where logic in a broader sense plays a central role.

<sup>9</sup> Green, 'Hans Kelsen and the Logic of Legal Systems' (n. 5), 369.

<sup>10</sup> Schmidt, 'Kelsens Lehre und die Normenlogik' (n. 6), 87–88.

<sup>11</sup> Hajime Yoshino, 'Zu Awendbarkeit Der Regeln Der Logic Auf Rechtsnormen', Die Reine Rechtslehre in wissenschaftlicher Diskussion, 7 (1982), 146.

<sup>12</sup> Hans Kelsen, Allgemeine Theorie Der Normen (Wien: Mansche Verlags- und Universitatsbuchhandlug, 1979), 147.

<sup>13</sup> During the discussion at the Law and Logic special workshop, Stanley L. Pauslon inquired about the difference between Kelsen's position regarding the application of logic to norms in the context of legal

articulates main differences between legal norms and legal propositions.

Table 1

Legal Norm	Legal Proposition
Validity/Efficiency	Truth
Existence	Property
Determined by time	Undermined by time
Act of will	Act of assertion
Value judgment	Truth judgment
Unverifiable as true	Verifiable as true
Non-cognitive	Cognitive
Decision	Statement

ed below, this definition is crucial for the revolution in Kelsen's thinking. Next, Kelsen

It is important to stress that in General Theory of Norms, Kelsen did not perceive the two sets of qualities presented in Table 1 as being analogical. His task was to account for the substantial differences between norms and propositions. For instance, he observed that while validity is the mode of existence, truth is a property. The norm, which is invalid does not exist, while the false statement remains<sup>14</sup>.

Ota Weinberger criticizes Kelsen's division into legal norm and legal proposition<sup>15</sup>, pointing out that it demands the rejection of the thesis about the objective character of the act of will<sup>16</sup>. The main point of this critique lies in the claim that the meaningfulness of the judgment about law depends on understanding and acknowledging normative propositions as being valid. In introducing this division, Kelsen ignores the importance of the dynamic process of understanding, substituting it with the static

propositions in 1960 and in the final phase. The problem is of great significance, as the thesis sounds similar: logic can apply to legal propositions but not to legal norms. In my opinion, however, Kelsen's intention in each case is different. In 1960, Kelsen claimed that logic can apply to norms indirectly, while in General Theory of Norms, he claims that due to the differences between the legal norm and the legal proposition, it is impossible to apply logic to norms.

<sup>14</sup> Hans Kelsen, 'Recht Und Logik', Forum, XII, no. 142 (1965), 1472.

<sup>15</sup> Eugenio Bulygin disagrees with Weinberger's critique of Kelsen and presents an interesting interpretation of General Theory of Norms which, according to him, makes this theory coherent. His argument is based on the distinction between the hyletic and expressive concepts of norms (Bulygin, 'Norms and Logic. Hans Kelsen and Ota Weinberger on the Ontology of Norms', in Essays in Legal Philosophy, ed. Carlos Bernal, Carla Huerta, Tecla Mazzarese, Pablo E. Navarro, and Stanley L Paulson (Oxford: Oxford University Press, 2015), 207–19.) Unfortunately, the suitability of this approach is too complex to be described in one paragraph of this article, and so a more literal interpretation of the concept of the norm as an act of will, based on the understanding of the legal norm presented by Weinberger, was accepted as a starting point herein.

<sup>16</sup> Ota Weinberger, 'Normtheorie Als Grundlage Der Jurisprudenz Und Ethik', Zeitschrift fur öffentliches *Recht*, no. 55 (2000), 39.