universität wien

EXPOSÉ ZUM DISSERTATIONSVORHABEN
DOCTORAL THESIS PROPOSAL

Titel des Exposés / Title of the Proposal

“A hybrid approach to automated legal reasoning and it’s legal implications”

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Doktor der Rechtswissenschaften (Dr. iur.)

Wien, 2020 / Vienna, 2020

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	A 783101
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Doctoral programme in Law
Betreut von / Supervisor:	ao. Univ.-Prof. Mag. Dr. Christian M. Piska
Mitbetreut von / Co-Supervisor:	Dr. Sabrina Kirrane

1 Introduction

In his story, "Das Justizklavier" (The Justice Piano), published in 1932, the Austrian satirist Alexander Roda Roda describes an unspecified country in Central Europe whose justice system is infamous for its disparate treatment of the rich and poor, the aristocrats and workers. An inventor travels to this country and requests an audience with the Minister of Justice, to whom he wants to sell a solution to this problem. The solution is a piano that will decide legal cases depending on which keys (black ones for possible crimes and white ones for extenuating causes) are pressed.[1] Although the piano is fictitious, the social problem the author addressed is certainly not.

Loevinger,[2] one of the pioneers of automated legal reasoning, went a step further and described the law as a *"recondite mystery that is incomprehensible to the public and scarcely intelligible to its own votaries"*. Although *Loevinger's* negative view of the state of law seems exaggerated, the problem at its core is undoubtedly real, as the ever growing amount of new legislation and jurisdiction further increases the complexity of law and therefore adds to the problem. Due to this ever increasing complexity, it is progressively difficult for a layperson as well as a legal professional to consider all details when determining legal consequences, which in turn also increases the costs of legal counsel and representation and the length of legal trials.[3] Since the effort involved in asserting rights often outweighs their benefits, people often have a *rational disinterest* in pursuing their rights.[4] In the United States of America for example, this resulted in only one in four civil defendants being represented by a lawyer, according to a study by the *National Center of State Courts*[5] from 2015. On a global scale, according to a study by the World Justice Project from 2019, 1.4 billion people have unmet civil or administrative justice needs, which are caused by poor legal capability and knowledge, insufficient help or assistance, or resolution processes that are slow, expensive, or biased.[6] Although in many developed countries, people have the possibility to apply for legal aid, these legal aid programs oftentimes do not cover all expenses and do not affect the length of trials or lacking legal knowledge of these people, which has been identified as a hurdle for their access to justice. This becomes a systemic problem as soon as companies profit from the prohibitive costs of access to justice.[7] To tackle these problems, *Loevinger*[8] suggested to make use of the recent achievements in computer science, which created machines that *"imitated thought processes"* which in turn enabled them to solve differential equations and other *"logical operations"* of equal or greater complexity, an idea that still captivates us today.

Following this idea, many enterpreneurs have sought to promote equal access to justice by developing tools, firstly, which allow people to easily check if they might have a claim that can be pressed and, secondly, which offer inexpensive services to press these claims with little to no risk for the claimant. In the field of administrative law, the app "DoNotPay" for example was able to help people with appealing 160.000 parking tickets in New York and the United Kingdom, in the first 21 months since it was launched.[9] In civil law, according to their own statement, the

[1] *Roda Roda*, Roda Roda Und Die Vierzig Schurken (1932) 78 ff.
[2] *Loevinger*, Jurimetrics - The Next Step Forward, Minnesota Law Review 1949, 455 (455).
[3] *Loevinger*, Minnesota Law Review 1949, 455 (471).
[4] *Geroldinger*, Leistbarer Zugang zum Recht, Österreichisches Anwaltsblatt 2019, 475 (477).
[5] *National Center of State Courts*, The Landscape of Civil Litigation in State Courts (2015) 35.
[6] *Long/Ponce*, Measuring the Justice Gap: A People-Centered Assessment of Unmet Justice Needs Around the World (2019) 13; *Pleasence/Balmer*, Measuring the Accessibility and Equality of Civil Justice, Hague Journal on the Rule of Law 2018, 255.
[7] *Geroldinger*, Österreichisches Anwaltsblatt 2019, 475 (477).
[8] *Loevinger*, Minnesota Law Review 1949, 455 (471).
[9] *Gibbs*, Chatbot Lawyer Overturns 160,000 Parking Tickets in London and New York, the Guardian, Technology 2016.

legal tech company flightright, which helps people to get a refund on cancelled flights, helped it's customers to recover over € 300.000.000 since 2005.[10] To be able to offer these services, these companies rely heavily on automated processes, from the first evaluation of the potential claim until the enforcement of a judgement.

2 The search for meaning

The ambiguity of language is regularly cited as the biggest hurdle of these automated applications. To overcome this obstacle, it is worthwhile to draw on the insights of the philosophy of language. One of the most influntial works, which was dedicated to the question of the connection between language and meaning is *Wittgenstein's* Philosophical Investigations, which was published after his death and heavily and lastingly influenced the philosophical and linguistic discourse from its publication in 1953 until today.[11]

In this work *Wittgenstein*[12] argues that one might like to think of the function of a word in *this* sentence as if the sentence were a mechanism in which the word had a particular function. On the contrary, a word has no fixed function in a sentence, but is always dependent on its use in said sentence. The most frequently quoted sentence in this context is that *"the meaning of a word is its use in the language."*[13] Put differently, to understand a sentence means to understand a language and to understand a language means to master a technique.[14]

According to this theory, words do not have an objective meaning that can easily be attributed to them or as *Wittgenstein*[15] puts it, *"we have to break with the idea that language always functions in one way and always serves the same purpose, to convey thoughts." Wittgenstein* is clearly opposed to the idea of an absolute truth in language. Language does not depict reality and the meaning of concepts in a language is not dependent on what they refer to, but on the way in which they are used.[16]

To *Wittgenstein*,[17] the meaning of words is determined by their use in a so-called language game.[18] He states that *"the term language game is meant to bring into prominence the fact that the speaking of language is part of an activity, or a form of life."*[19] Several different language games can and do exist simultaneously, like giving orders and obeying them, describing the appearance of an object, or giving its measurements, constructing an object from a description, reporting an event, forming and testing a hypothesis, making up a story, singing catches, guessing riddles, making a joke, solving a problem in practical arithmetic, asking, thanking, cursing, greeting or praying.[20] These language games form a network of similarities that overlap and

[10] Flightright, https://www.flightright.at/ (visited on 28/05/2020).
[11] *Buchanan*, Linguistic Turn, in *Buchanan* (Ed), A Dictionary of Critical Theory[2] (2018).
[12] *Wittgenstein*, Philosophical Investigations : Philosophische Untersuchungen[2] (1998) § 559.
[13] *Wittgenstein*, Philosophical Investigations[2] § 34.
[14] *Wittgenstein*, Philosophical Investigations[2] § 199.
[15] *Wittgenstein*, Philosophical Investigations[2] § 304.
[16] *Widdershoven*, Hermeneutics and Relativism: Wittgenstein, Gadamer, Habermas. Theoretical & Philosophical Psychology 1992, 1 (2).
[17] *Wittgenstein*, Philosophical Investigations[2] § 43.
[18] *Von Savigny*, Sprachspiele und Lebensformen: Woher kommt die Bedeutung? in *von Savigny* (Ed), Karl Wittgenstein: Philosophische Untersuchungen[2] (2011) 7 (8); See also *Alexy*, Theorie der juristischen Argumentation: die Theorie des rationalen Diskurses als Theorie der juristischen Begründung; Nachwort (1991): Antwort auf einige Kritiker[8] (2015) 71 ff.
[19] *Wittgenstein*, Philosophical Investigations[2] § 23.
[20] *Wittgenstein*, Philosophical Investigations[2] § 23.

intersect, which *Wittgenstein*[21] calls family resemblances, because they resemble each other like members of a family. We learn rules to these language games during our childhood or at a later stage in life, the same way as we would learn the rules of a game, by being shown and observing.[22] Language is therefore learned associatively by making connections between syntactics and semantics based on our experiences.[23]

Without going further into detail, it can be summed up that language does not follow a rigid logic, but only a consensus of a community on whether someone follows the rules of a language. Language cannot therefore be represented in any rigid system, since meaning is use and therefore not a static object. As with use, meaning can therefore change constantly. Whether the use of a word follows the usual meaning of a word, i.e. follows the rules of a respective language game, can only be determined *ex post*.

3 The nature of legal norms

After exploring the philosophical and lingustic theories on how meaning is created, we now have to take a look at legal norms themselves and how we can apply the presented theories to them. In this context, legal norm has to be understood as the substance of a regulation. It is the rule which either allows, disallows or obligates people and is represented by the text of a norm. It is therefore necessary to analyze the nature of the concept of legal norms itself, before we can take a look at the methods of interpreting legal norms.[24] As *Werni*[25] pointed out, it is therefore necessary to ask two questions. What is a legal norm and what is its relation to the text which it is represented by?

3.1 The Pure Theory of Law

In his influential work Pure Theory of Law, *Kelsen* already considered these questions and by doing so shaped the following discussion. While clearly distinguishing legal norms from the text by which they are represented,[26] he describes a legal norm as following:

> *"[T]he meaning of an act by which a certain behavior is commanded, permitted, or authorised. The norm, as the specific meaning of an act directed toward the behavior of someone else, is to be carefully differentiated from the act of will whose meaning the norm is: the norm is an ought, but the act of will is an is."*[27]

To *Kelsen*,[28] a legal norm is therefore the meaning of an act of will ("Sinn des Willensaktes") and then only an act of will by a legislator. This view that the legal norm is identical to the will

[21] *Wittgenstein*, Philosophical Investigations[2] §§ 66, 67.
[22] *Van Orman Quine*, The Roots of Reference (1990) 35.
[23] For examples, especially in the legal field, see *Adrian*, Der Richterautomat ist möglich - Semantik ist nur eine Illusion, Rechtstheorie 2017, 77 (88).
[24] *Merkl*, Zum Interpretationsproblem, in *Klecatsky/Maric/Schambeck* (Ed), Die Wiener Rechtstheoretische Schule: Schriften II (2010) 1059 (1060).
[25] *Werni*, Die Rechtsnorm als Wille und sprachlicher Ausdruck - Überlegungen zum Forschungsgegenstand der Rechtsdogmatik, in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht (2019) 44.
[26] *Kelsen*, General Theory of Norms (1991) 163.
[27] *Kelsen*, Pure Theory of Law (1967) 5.
[28] *Kelsen*, Pure Theory of Law 5.

of an individual is especially apparant in one of *Kelsen's*[29] later works, in which he argues that *"[f]rom the point of view of ethical and legal positivism, the only norms considered to be objective of cognition are positive norms, that is, norms posited by acts of will, and indeed, by human acts of will."*[30] This *objective* meaning of an act ("ought") by which a human allows, disallows or permits the actions of others constitutes a legal norm and has to be seen in contrast to *subjective* meaning ("is"). This separation of being and ought, of values and facts, of statements and norms is one of the core concepts of the Pure Theory of Law.[31] While the order of a thug to hand over one's belongings has a subjective meaning, just like the order of a tax official to pay a tax, it is argued that only the second one has an objective meaning, because it is part of a normative system.[32] This objective meaning of an act of will is therefore considered to be independent from the act of will itself.[33]

3.2 Text-centered positivism

In response to criticism on the Pure Theory of Law, authors like *Rill*, *Potacs* and *Griller* developed diverging approaches on what constitutes a legal norm, which, due to their similarity, we will discuss under the collective term of text-centred positivism.[34] They acknowledge that the text of a legal norm and its meaning, the normative order which is the subject of interpretation, have to be viewed separately.[35] They follow *Kelsen's* theory insofar, as they argue that this meaning is the legal norm that constitute positive law. However, contrary to *Kelsen*, they do not locate this meaning in the "real", psychological act of will.

They argue that, as a rule, the legislative bodies make use of general communications practices when enacting positive law, since they (usually) express legal norms in text.[36] Paradoxically, both *Griller*[37] and *Potacs*[38] base their theories on the late Wittgenstein, whose theories we have already discussed in this thesis, according to which the meaning of words is equivalent to their use.[39] To them, as a consequence, legal norms do not represent real acts of will, but acts of will in the sense of a meaning which can be reproduced from a normative expression.

[29] *Kelsen*, General Theory of Norms 4.

[30] *Potacs*, Rechtstheorie (2019) 42 f; *Rill*, Hermeneutik Des Kommunikationstheoretischen Ansatzes, in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik (1990) 53 (55); *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 55.

[31] *Jabloner*, Der Rechtsbegriff bei Hans Kelsen, in *Griller/Rill* (Ed), Rechtstheorie: Rechtsbegriff - Dynamik - Auslegung (2011) 21 (22).

[32] *Kelsen*, Pure Theory of Law 8.

[33] *Jabloner* in *Griller/Rill* (Ed), Rechtstheorie: Rechtsbegriff - Dynamik - Auslegung 21 (33 f); *Potacs*, Rechtstheorie 40; *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 51 ff.

[34] The discussion, however, whether the legal norm is based on the "real" will of the legislator or the formal expression of this will i.e. the norm's text, can be traced back to the second half of the 19th century, see *Larenz/Canaris*, Methodenlehre der Rechtswissenschaft^3 (1995) 137.

[35] *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (61).

[36] *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (60); *Griller*, Gibt Es Eine Intersubjektiv Überprüfbare Bedeutung von Normtexten? in *Griller/Korinek/Potacs/Rill* (Ed), Grundfragen Und Aktuelle Probleme Des Öffentlichen Rechts: Festschrift Für Heinz Peter Rill Zum 60. Geburtstag (1995) 543 (563).

[37] *Griller/Potacs*, Zur Unterscheidung von Pragmatik Und Semantik, in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik (1990) 66 (67); *Griller*, Kommunikation in der Rechtswissenschaft und die Sprache des Rechts: Sprachspiele oder Machtspiele? in *Neck/Schmidinger/Weigelin-Schwiedrzik* (Ed), Kommunikation - Objekt und Agens von Wissenschaft (2015) 87 (93).

[38] *Potacs*, Rechtstheorie 141.

[39] Paradoxically, similar to *Potacs* and *Griller*, also *Alexy* bases the development of his Theory of Legal Argumentation among others on Wittgenstein's late work, but nonetheless does not abandon the idea of positive law. *Alexy*, Theorie der juristischen Argumentation^8 70.

They argue that a legal norm is everything that is attributable ("zusinnbar") to the legislator, according to the text of a regulation.[40] According to these approaches, it can therefore be said that the will of a legislator does not exist outside of the text of a regulation. Therefore, the will of an individual can not be seen as the subject of legal theory, but rather the usual meaning of normative expressions. Contrary to the conception of a real-world will by *Kelsen*, they perceive it as a "legal will" detached from any individual's thoughts and therefore limited to a regulation's text. A legal norm is therefore not the meaning of a "real", psychological, act of will, but the usual linguistic meaning of a legal text.[41]

They further acknowledge that the meaning of a legal norm cannot be determined by mere literal interpretation and grammar. Similar to day-to-day communications, the meaning of an expression can only be interpreted by taking into account its context.[42] The legal methods of interpretation are therefore understood as being modeled after the methods of interpretation of day-to-day communications, amended for the use with legal texts.[43] These methods of interpretation are used to reproduce the most plausible meaning of a text of a regulation, according to linguistic conventions. Following this view, a legal norm is therefore defined by the linguistic meaning which can be reproduced from the text of a regulation by means of legal interpretation.[44] This theory is therefore based on the assumption that, according to the rules of general communication practice, there is an objective and, as such, in principle recognisable and describable meaning of legal provisions.[45]

While this view eliminates the problems, which *Kelsen's* definition of legal norms faces, namely the inaccessibility of the meaning of a "real", psychological, act of will to others, the difficulties of forming a collective will and the uncountable situations a legislator would have to think of, it poses problems of its own. Since this approach understands a legal norm as the meaning of an expression and at the same time wants to preserve the positivity of the legal norm in the sense of a positively given objectivity, for the sake of this theory, it has to be assumed that the meaning of an expression is determined by a finite context that is predictable and controllable by the speaker and that this meaning remains stable in different contexts by different recipients.[46]

As we have already argued extensivley however, the meaning of an expression is never objective.[47] Rather, multiple interpreters may interpret an expression at different times and in different contexts and thus come to different conclusions. Even though the scholars advocating for this approach acknowledge that context and the interpreter's experience certainly play a constitutive role for interpretation, they nevertheless argue that a positive meaning of a legal provision which

[40] *Potacs*, Rechtstheorie 48 ff; *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (55 ff); *Griller* in *Griller/Korinek/Potacs/Rill* (Ed), Grundfragen Und Aktuelle Probleme Des Öffentlichen Rechts: Festschrift Für Heinz Peter Rill Zum 60. Geburtstag 543 (561).

[41] *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 57 ff.

[42] *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (55 f).

[43] *Potacs*, Rechtstheorie 51 f, 134 ff.

[44] *Potacs*, Rechtstheorie 92; *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 59.

[45] *Potacs*, Rechtstheorie 98.

[46] *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 59 f.

[47] *Müller/Christensen*, Juristische Methodik: Europarecht II^3 (2012) Rz 415e ff; *Somek/Forgó*, Nachpositivistisches Rechtsdenken: Inhalt Und Form Des Positiven Rechts (1996) 50 ff; *Öhlinger*, Kann Die Rechtslehre Das Recht Verändern? Zu Robert Walter, Zur Frage Des Rechtsbegriffes, Österreichische Juristen Zeitung 1991, 721 (721 ff); *Funk*, Abbildungs- und Steuerungsleistungen der Rechtswissenschaft, in *Funk/Adamovich* (Ed), Der Rechtsstaat vor neuen Herausforderungen: Festschrift für Ludwig Adamovich zum 70. Geburtstag (2002) 111 (113).

is subject to interpretation exists as a predefined entity.[48] As *Müller* and *Christensen*[49] pointed out, this approach, with its technicist instrumentalism shares the premises of the "machine model" of language, which *Wittgenstein* already criticised as aporetic. Language cannot be viewed as a mere tool with which meaning can be encoded by one person and decoded by the other.

3.3 Post-positivistic approaches

Authors, who reject the assumption that a legal norm is a static object which can simply be discovered, are usually summarised under the term "post-positivistic".[50]

While this approach was met with strong restitance in the legal community,[51] some, like *Wiederin*[52] admitted that those who participate in a project are always reluctant to admit the futility of it. In the following, we will show the main features of the theories summarised under this heading, without going too much into the individual theories and will comment on the most common criticisms.

3.3.1 Objectivity of meaning

It was the declared goal of legal positivism to liberate jurisprudence from metaphysical irrationalism.[53] As we have shown, this has not been fully achieved. Although, in times of legal positivism, jurisprudence no longer tries to base itself on a god-given or natural law, the connection to a static element that exists outside of our perception remains. Post-positivistic legal thinking therefore takes on legal positivism with the aim of liberation from metaphysical irrationalism itself.[54]

The legal positivistic view of legal norms, according to which the legal norm is already apparent through its legal text as a complete and independent order, is rejected by post-positivistic sholars, as this positivistic view still seems to confuse norm and norm text.[55] The naive view that the courts are *bouche de la loi*, a mere mouth of the law, which only repeat the clearly identifiable law as it is written, is rightly criticised.[56] Since the meaning of a text, be it legal or ordinary, is not a static object, it is not the meaning of the legal text i.e. the legal norm that is predefined, but only the written word and the facts submitted for decision, on the basis of

[48] *Potacs*, Rechtstheorie 132, 159, 170 f; *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (62 ff); *Griller/Potacs* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 66 (68); *Griller* in *Griller/Korinek/Potacs/Rill* (Ed), Grundfragen Und Aktuelle Probleme Des Öffentlichen Rechts: Festschrift Für Heinz Peter Rill Zum 60. Geburtstag 543 (563); *Werni* in *Burger/Palmstorfer/Prickartz* et al. (Ed), Recht und Sprache - Tagung der Österreichischen Assistentinnen und Assistenten Öffentliches Recht 61.

[49] *Müller/Christensen*, Juristische Methodik: Grundlegung für die Arbeitsmethoden der Rechtspraxis I[11] (2013) Rz 208.

[50] Although *Funk's* theory is also summarised under this term, he refers to it as consent-positivistic.

[51] See for example the dispute between *Walter* and *Öhlinger*: *Walter*, Zur Frage Des Rechtsbegriffes: Anmerkungen Zu Funk, Zur Rationalität Der Rechtswissenschaftlichen Argumentation, Österreichische Juristen Zeitung 1991, 336; *Öhlinger*, Österreichische Juristen Zeitung 1991, 721; *Walter*, Das Recht Als Objektive Gegebenheit Oder Als Bewußtseinsinhalt: Zu Theo Öhlinger, Kann Die Rechtslehre Das Recht Verändern? Österreichische Juristen Zeitung 1992, 281.

[52] *Wiederin*, Verfassungsinterpretation in Österreich, in *Lienbacher/Schäffer* (Ed), Verfassungsinterpretation in Europa (2011) 81 (108).

[53] *Forgó/Somek*, Nachpositivistisches Rechtsdenken, in *Buckel/Christensen/Fischer-Lescano* (Ed), Neue Theorien des Rechts[3] (2020) 39 (122 f).

[54] *Forgó/Somek* in *Buckel/Christensen/Fischer-Lescano* (Ed), Neue Theorien des Rechts[3] 39 (123).

[55] *Müller/Christensen*, Juristische Methodik II[3] Rz 267.

[56] *Müller/Christensen*, Juristische Methodik II[3] Rz 715.

which a legal practitioner interprets the law.[57] What is real are therefore not norms, but people's ideas and expectations about their own and others' proper or improper behaviour.[58] According to *Müller* and *Christensen*,[59] it is therefore not the task of post-positivistic teaching to merely correct the surface phenomena of legal positivism, but to overcome this basic axiom. Where *Kelsen* thought he had to stop, the work for a post-positivistic legal doctrine is just beginning. *Öhlinger*[60] summarised this view by saying that outside of people's consciousness there is nothing but printed paper and legal norms only form in people's minds when they read said paper.

Based on more recent developments in the philosophy of language, the advocates of this approach therefore understand jurisprudence as a practice of interpretation shaped by pre-understanding, which builds on the interconnectedness and continuous change of a web of underlying knowledge, formed by the use of words in a certain social system.[61] *Funk*[62] argues that legal positivism, which sees itself as a mere description of law, overlooks or obscures the fact of its participation in that reality which it claims to describe objectively.[63] The meaning of a legal norm is therefore not a predetermined static property, but a process of interpretation.[64]

3.3.2 The normativity of language

In literature on positivism it is often argued that the interpretation of norms has to be performed according to the rules of communication.[65] Therefore, it is argued that the meaning of a legal norm may only be assumed to be what the authentic text bears as possible meaning according to the relevant rules of communication.[66] In this respect, no difference between positivism and post-positivism is evident. However, both theories have different conceptions of what rules of linguistic communication imply. In positivism it is assumed that a decision about the conformity of an expression with the rules of communication can be derived from the language itself.[67] *Potacs*[68] points out, however, that proof for the existence of the relevant rules of communication and above all their form and relevance in a language is not always unproblematic. Empirical studies could be considered for this purpose, but apart from a practicable look in grammarbooks and dictionaries, such studies would involve a considerable effort for the authorities and a significant time investment and financial burden for the parties. For this reason, according to *Potacs*, it cannot be assumed that the legislator's provisions are supposed to be interpreted this way.

Potacs[69] goes on to say that it can therefore be assumed that it is deemed sufficient to rely on the interpreter's own language competence, since this method of determining meaning is accepted in general communication practice. In this respect, we certainly have to agree with *Potacs*. However, relying on the judgement of the speakers of a language is not a pragmatic solution, as *Potacs* seems to understand it, but the dogmatically correct one, since language has

[57] *Somek/Forgó*, Nachpositivistisches Rechtsdenken 28 ff.
[58] *Funk* in *Funk/Adamovich* (Ed), Der Rechtsstaat vor neuen Herausforderungen: Festschrift für Ludwig Adamovich zum 70. Geburtstag 111 (113).
[59] *Müller/Christensen*, Juristische Methodik II^3 Rz 257.
[60] *Öhlinger*, Österreichische Juristen Zeitung 1991, 721 (721 ff).
[61] *Somek*, § 33 Wissenschaft Vom Verfassungsrecht: Österreich, in *Bogdandy/Huber* (Ed), Handbuch Ius Publicum Europaeum II (2007) 637 (656).
[62] *Funk*, Rechtspositivismus und Wirklichkeit des Rechts, Juridicum 2003, 4 (4).
[63] Similarly *Müller/Christensen*, Juristische Methodik II^3 Rz 265.
[64] *Müller/Christensen*, Juristische Methodik II^3 Rz 266; *Somek/Forgó*, Nachpositivistisches Rechtsdenken 255.
[65] *Müller/Christensen*, Juristische Methodik II^3 Rz 632.
[66] *Potacs*, Auslegung im öffentlichen Recht: eine vergleichende Untersuchung der Auslegungspraxis des Europäischen Gerichtshofs und der österreichischen Gerichtshöfe des öffentlichen Rechts^1 (1994) 32 ff.
[67] *Müller/Christensen*, Juristische Methodik II^3 Rz 637.
[68] *Potacs*, Auslegung im öffentlichen Recht^1 39.
[69] *Potacs*, Auslegung im öffentlichen Recht^1 40.

no normative power by which we would be able to determine whether a word has been used correctly in the first place.

Particularly according to *Kripke's*[70] interpretation of *Wittgenstein's* work, the rules of communication are a consensus which is subject to constant change. This consensus does not refer to the content of a rule, but, as *Wittgenstein*[71] emphasises, only to the judgement on compliance with it. Not the rules, but the speakers' judgement about following these rules determines whether one uses a language correctly. Language itself therefore has no such normative power. Whether the usage of words follows their usual meaning, i.e. follows the rules of a respective language game, can thus only be determined *ex post* through a consensus by the other participants of this respective language game. There is more than one way to use a language correctly. Every incomprehensible statement can therefore also be constitutive since it can contribute to similar statements being treated as following the rules of communication in the future.[72]

3.3.3 Second-tier legislators

The second type of criticism concerns the legitimation of legal norms thus generated. It is argued that in a democratic country with legislation and law enforcement bodies which are bound by the law, it is not the lawyers or other participants in social discourse who have to determine the law, but the democratically legitimised legislative bodies.[73]

This criticism poses a bigger hurdle, as the inclusion of persons not legally entitled to legislation seems to run counter to the principle of seperation of powers according to which only the legislator is entiteld to legislate. However, it must be agreed with *Öhlinger*[74] when he argues in this respect that it is not possible to resolve problems by denying or suppressing them through definitions. A theory that denies the effect of jurisprudence on legal practice because "what cannot be cannot be" is therefore not suitable to resolve this problem.

Particularly in the more recent jurisprudential literature, a norm's text is already understood as the bearer of a legal norm.[75] The legal norm is no longer seen as the thought that the legislator had in mind, since this cannot be determined with certainty, but the meaning of the published text.[76] Thus, our only point of reference is the norm' s text as a primary source and secondary sources such as explanatory notes.

Furthermore, the legislator deliberately uses language to communicate legal norms. Thereby, the legislator is undoubtedly aware of the ambiguity of language and the way language functions. Since the legislator uses language to communicate laws, it can also be assumed that he wants the chosen words to be understood according to their use in that language.[77] To claim that the legislator uses language as a means of communicating laws, but does not intend to follow the rules of communication, would be to suggest that the legislator is deliberately concealing the meaning of the laws communicated by using language contrary to its usual use.

[70] *Kripke*, Wittgenstein on Rules and Private Language: An Elementary Exposition (2000) 92.
[71] *Wittgenstein*, Philosophical Investigations[2] § 242.
[72] *Müller/Christensen*, Juristische Methodik II[3] Rz 639.
[73] *Potacs*, Rechtstheorie 88; *Rill*, Juristische Methodenlehre und Rechtsbegriff: Gedanken zum gleichnamigen Buch von Franz Bydlinski, Zeitschrift für Verwaltung 1985, 461 (466 f).
[74] *Öhlinger*, Österreichische Juristen Zeitung 1991, 721 (721 ff).
[75] *Larenz/Canaris*, Methodenlehre der Rechtswissenschaft[3] 134.
[76] *Potacs*, Rechtstheorie 50.
[77] Also *Rill* in *Vetter/Potacs*, Beiträge Zur Juristischen Hermeneutik 53 (64).

Building on this, however, it must be accepted that a law, as soon as it is applied, develops a life of its own that goes beyond what the legislator intended.[78] Through a norm's text the legislator can therefore only give a direction in which the norm is to be interpreted (and therefore created). Based on this direction, the norm is then created by the legally binding interpretation of a judge. Since it has to be assumed that the legislator is aware of the ambiguity of language, due to which it is impossible to unambiguously communicate norms, and that the legislator cannot interpret a norm in every individual case itself, the consequence that a legal norm can only be created by an interpreter has to be accepted as well. The direction in which the individual case interpretation is to go, which the legislator expresses by the norm's text, can be modified by authentic interpretations. The use of natural language with its inaccuracies can therefore be seen as an authorisation of the interpreters to create the norm to be applied in the individual case, since the legislator limits himself to providing a direction for interpretation and to possible corrective interventions.[79] This discretion granted to the judge has long been recognised by jurisprudence in similar areas like the balancing of interests. As *Müller* and *Christensen*[80] emphasise, a judge therefore has to be seen as a second-tier legislator. A judge must therefore determine what the laws, expressed in natural language, mean according to the common usage of language for the individual case and thereby creates law that seeks to conform to the written text.

4 Legal reasoning

Legal reasoning of course is more than "just" identifying the meaning of legal norms. Legal reasoning is the process of identifying the facts of a case as well as the applicable legal norms and subsuming their legal consequences. In contrast to interpretation, however, subsumption, i.e. the process of deducing a legal consequence from a general norm, is given little attention in legal textbooks.

By subordinating terms of a narrower scope ("minor premise") to those of a broader scope ("mayor premise"), a subsumption's conclusion is reached.[81] By this subordination of concrete elements of the facts to generally formulated legal rules, a concrete legal consequence can then be determined.[82] This process is usually presented in the form of a logical conclusion, also called syllogism, which are logical inferences based on the teachings of *Aristotle*. Traditionally this system is illustrated with the conclusion that *Socrates* is mortal, which *Kelsen*[83] presented as shown in table 1.

Major premise:	If a being is human, then it is mortal.
Minor premise:	Socrates is a human.
Conclusion:	Socrates is mortal.

Table 1: Modus barbara

[78] *Larenz/Canaris*, Methodenlehre der Rechtswissenschaft[3] 138.

[79] Concerning a *language-reflexive understanding of the rule of law* ("sprachrefelxives Rechtsstaatsverständnis"), see *Müller/Christensen*, Juristische Methodik II[3] Rz 625.

[80] *Müller/Christensen*, Juristische Methodik II[3] Rz 82.

[81] *Larenz/Canaris*, Methodenlehre der Rechtswissenschaft[3] 94.

[82] *Funk/Raabe/Wacker*, Juristische Methodik, in *Raabe/Wacker/Oberle/Baumann/Funk* (Ed), Recht ex machina: Formalisierung des Rechts im Internet der Dienste (2012) 101 (59 f).

[83] *Kelsen*, General Theory of Norms 228.

Based on this form of traditional logic, legal subsumption is a variation of the so-called *modus barbara*.[84] In the legal context, *Joerden*[85] provides the example shown in table 2.

Major premise:	All murderers shall be punished with a life sentence.
Minor premise:	The defendant A has committed a murder.
Conclusion:	The defendant A shall be punished with a life sentence.

Table 2: Legal syllogism

In this example, the major and minor premise are reduced to a necessary minimum. Although this syllogism, by its very nature as an example, does not do justice to the complexity of a common situation, it suffices to illustrate the underlying logic. As *Stelmach* and *Brożek*[86] have demonstrated, syllogisms are nevertheless capable of illustrating even more complex legal subsumptions.

As we have argued before, the meaning of norms is their usage and a legal professional has to determine this meaning by means of a hermeneutic process. Since a legal text, as well as all other texts in general, has no objective meaning, legal norms cannot exist as static objects, as it is argued in older theories. The meaning of a norm therefore always depends on the interpreter and is created through an interpretation.

In order to determine the meaning of, e.g. the word "murder" in a specific language game, we therefore have to use the sum of our experiences in this language game. On the basis of these experiences we can get an idea of what this word is used for in a language game. Our assessment of the meaning can be wrong or right, but no matter how extensive our pool of experience is, we can never assume that this pool of experience will produce the right result in all situations. There is therefore always a certain degree of uncertainty.

However, as *Schafer* and *Aitken*[87] argue, to know that, e.g. murder is always forbidden[88], we do not have to reflect accordingly. Especially in civil law systems, we draw conclusions about a specific case from a general statement and thus determine its legal consequence. We therefore do not need to determine whether murdering someone is always prohibited based on our previous experience with murder cases. Based on one data point, namely the abstract norm, we can conclude that murder is always forbidden. There can be no doubt about that. The only uncertainties are whether the behaviour at hand was a murder in the sense of this norm and are therefore of interpretive nature.

This allows us to realise a significant difference. As *Schafer* and *Aitken*[89] point out, the beforementioned uncertainty is the heart of *Hume's* "problem of induction".[90] Induction, i.e. the conclusion from a series of data points to a general principle, will always only be able to produce results that are correct with respect to the observations on which it is based, but whose results can never be assumed with certainty as a universal truth. A single data point that was not contained in the original observations can already refute an inductive result. Especially in language we can never have access to all data points, because an infinite number of possible contexts produces

[84] *Klug*, Juristische Logik[4] (2014) 48; *Engisch*, Logische Studien Zur Gesetzesanwendung (1943) 7, pointed out that this idea can be traced back to *Schopenhauer* and *Überweg*.

[85] *Joerden*, Logik im Recht (2018) 295.

[86] *Stelmach/Brożek*, Methods of Legal Reasoning (2006) 27 ff.

[87] *Schafer/Aitken*, Inductive, Abductive and Probabilistic Reasoning, in *Bongiovanni/Postema/Rotolo* et al. (Ed), Handbook of Legal Reasoning and Argumentation (2018) 275 (277).

[88] For the sake of simplicity, we ignore possible exculpatory circumstances such as self-defence.

[89] *Schafer/Aitken* in *Bongiovanni/Postema/Rotolo* et al. (Ed), Handbook of Legal Reasoning and Argumentation 275 (277).

[90] *Howson*, Hume's Problem: Induction and the Justification of Belief (2003).

an infinite number of possible uses. Interpretation, which, as we have extensively argued, is necessarily inductive, can therefore never produce statements that claim general validity.

In contrast, it is characteristic of legal subsumption that the truth of the premises guarantees the truth of the conclusion. As already mentioned, our claim that it is always forbidden to murder someone is not based on our experience with a series of murder cases, but on a single data point, the abstract norm.[91] It is therefore a deductive conclusion where, in contrast to induction, the result necessarily follows from the premises.

5 Further work

The realisation that the process of legal reasoning is an interplay of inductive and deductive conclusions shall form the basis for our further work. In the proposed thesis we will therefore go more into detail on this interplay and examine the technical possibilities with which we can realise these inductive and deductive conclusions electronically and will evaluate whether legal conclusions of various kinds can be represented with them. We will then explain the requirements for such a hybrid system, i.e. a system based on inductive and deductive conclusions, and compare their results with those of other automated legal reasoning (ALR) applications. This will also enable us to show the weaknesses in the concepts of non-hybrid ALR applications.

6 Hypothesis and research questions

The aim of this thesis is to explore the possibilities of automated legal reasoning, both technical and legal. We therefore hypothesise that by distinguishing deductive and inductive elements of legal reasoning and by implementing them electronically, problems of ambiguity in human language can be overcome and better results can be achieved for the automation of legal research.

To prove this hypothesis, we'll answer the following questions:

- Which elements of legal reasoning can be determined as clearly deductive or clearly inductive?
- Is the inclusion of inductive elements compatible with our understanding of positive law or does this theory need to be reconsidered?
- Does the use of inductive elements reduce the traceability of reasoning and, if so, how can this be counteracted?
- Which technical possibilities, in particular formal logic and machine learning, are suitable for implementing these elements?

7 Structure

[91] *Schafer/Aitken* in *Bongiovanni/Postema/Rotolo* et al. (Ed), Handbook of Legal Reasoning and Argumentation 275 (283).

1 Introduction

- 1.1 Motivation
- 1.2 Hypothesis
- 1.3 Research Questions
- 1.4 Structure of this thesis
- 1.5 Previous Work

2 The search for meaning

- 2.1 Semiotics
- 2.2 Wittgenstein and language games
- 2.3 Hermeneutics
- 2.4 Semantic Holismdd
- 2.5 The nature of legal norms
- 2.6 Interpretation of legal norms
- 2.7 Furhter development of the law
- 2.8 Conclusion

3 Legal reasoning

- 3.1 Structure and types of norms
- 3.2 Axiomatisation of law
- 3.3 Mayor and minor premise
- 3.4 Syllogistic
- 3.5 Conclusion

4 Inductive Approach

- 4.1 Machine Learning in the legal field
- 4.2 The way machines "learn"
- 4.3 Perfect fit
- 4.4 Available data
- 4.5 Preparing Data
- 4.6 No free lunch
- 4.7 Black Boxes
- 4.8 Conclusion

5 Deductive approach

- 5.1 Formal Logic
- 5.2 Defeasible Logic
- 5.3 Description Logic
- 5.4 Knowledge representation
- 5.5 Fuzzy Logic
- 5.6 Conclusion

6 A hybrid approach

- 6.1 The rigidity of rules
- 6.2 The traceability of correlation
- 6.3 Conclusion

7 Conclusion

8 Timeline

WiSe 2020/2021: signing of doctoral thesis agreement; writing chapter 2, 3 and 4

SoSe 2021: writing chapter 5 und 6

WiSe 2021/2022: writing chapter 1 and 7; final revision; Defensio

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