Automating the science and art of judging

by

Émile Chamberland

Faculty of Law McGill University, Montréal April 2024

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Master of Laws (LL.M)

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ABSTRACT

This thesis is about the essence of judicial automation. It is an important matter because asking ourselves what we are doing when we automate judging should precede deliberations on how to do it. Key to my argument is the idea that judicial automation is both a historical event and a "theorizing" of judging. Theorizing because preliminary to the automation of something is a theoretical articulation of what this something is or of what it should be. The task to be automated - in our case, judging - must be formalized so that a machine can perform it. With this in mind, I proceed with a review of influential Western legal theories and approaches to judicial interpretation to investigate what judging has historically been theorized to be. I ground this review in a dual classification framework where "science" is distinct from "art". These two are, I claim, archetypal frameworks for knowledge, which spectres we perceive in influential legal theories of judging. Each archetype reflects a viewpoint on mind and reality relative to one another (i.e. a metaphysical approach) that makes a scientific or artistic outlook on law and judging possible. "Judging as science" and "judging as art" is how I refer to the two outlooks. We discover each outlook highlights a dimension of judging corresponding to a correlative dimension of human "knowing". These two dimensions of knowing, we can simplify as "cognition" and "emotion", are in fact not so distinct according to contemporary psychology. Yet, my conclusion following a discussion about artificial intelligence and technology is that judicial automation strengthens judging as science while undermining judging as art. Judicial automation enables a rationalist and formalist approach to law, underplaying the role of "emotion" in judging. Max Weber allows us to conceive of judicial automation as relating to a larger historical transformation of law: the "rationalization of law". What does it mean for law, its "rationality", and its grounding in history and society that judicial automation is a rationalization? In asking this question, we get closer to the essence of judicial automation. We find that judicial automation "reveals" law as formalizable knowledge, and judging as a formalizable task. The product of this revealing is what I call "technological justice". Informing this part of my argument is the ancient Greek notion of technê, that helps us understand why science, art and technology belong in the same conversation. At this stage, we also engage with early critical works about technology. The thesis concludes with the sketching of two "scenarios", or ways technological justice could alter our relationship to law, which help us picture how law, society and we may change because of judicial automation. We try to assess whether there is any hope of avoiding these scenarios.

RÉSUMÉ

Ce mémoire porte sur l'essence de l'automatisation judiciaire. Le sujet de notre étude est important, car la question de savoir ce que nous faisons lorsque nous automatisons le jugement devrait précéder les débats sur la façon de le faire. Essentielle à mon argumentaire est l'idée que l'automatisation judiciaire est à la fois un événement historique et une « théorisation » du jugement. Une théorisation puisque préalable à l'automatisation de quelque chose est une articulation théorique de ce qu'est cette chose ou de ce qu'elle devrait être. La tâche à automatiser, dans notre cas, le jugement, doit être formalisée pour qu'une machine puisse la réaliser. Dans cette optique, je procède à un examen d'influentes théories du droit et d'interprétation judiciaire occidentales afin d'évaluer de quelle façon le jugement a été théorisé historiquement. Je fonde cet examen sur un cadre de classification double dans lequel « la science » se distingue de « l'art ». Ces deux archétypes sont, à mon avis, des structures de connaissance dont nous percevons la trace dans d'influentes théories du droit portant sur le jugement. Chaque archétype reflète un point de vue sur l'esprit et la réalité l'un relatif l'autre (c'est-à-dire une approche métaphysique) qui rend possible une perspective scientifique ou artistique du droit et du jugement, respectivement. Je réfère à ces deux perspectives comme : « La science de juger » et « L'art de juger ». Nous découvrons que chaque perspective illustre une dimension du jugement correspondant à une dimension de la pensée humaine. Ces deux dimensions de la pensée, « la cognition » et « l'émotion », ne sont en fait pas si distinctes si on se fie à la psychologie contemporaine. Ma conclusion suivant une discussion sur l'intelligence artificielle et la technique est que l'automatisation judiciaire renforce la science de juger au détriment de l'art de juger. L'automatisation judiciaire habilite l'approche formaliste et rationaliste au droit, minimisant le rôle de « l'émotion » dans le jugement. Max Weber nous permet de concevoir l'automatisation judiciaire comme étant liée à une transformation historique du droit plus large : la « rationalisation du droit ». Que signifie pour le droit, sa « logique » et son ancrage dans l'histoire et la société que l'automatisation judiciaire est une rationalisation? Nous constatons que l'automatisation judiciaire « révèle » le jugement et le droit comme étant « formalisables ». Le produit de cette révélation est ce que j'appelle la « justice technologique ». Cette partie de mon argumentaire s'appuie sur des conceptions anciennes de la technê, qui dévoilent les liens entre la science, l'art et la technologie. Nous nous intéressons également à des travaux critiques de la technologie. Le mémoire se conclut par l'esquisse de deux « scénarios », ou manières dont la justice technologique pourrait changer notre relation au droit. Nous évaluons s'il y a espoir d'éviter ces scénarios.

ACKNOWLEDGMENTS

There were several moments throughout the writing of this thesis when I thought I would never see the moment of making acknowledgments. I am glad that the project did come to an end, and grateful to all who made it possible. Starting with my supervisor, Evan Fox-Decent, who provided me with the best support I could ask for, before I knew it was the support I needed. His candidness, openness, availability and contagious philosophy that reading and writing are not all there is about academic research made my journey the most significant learning experience of my life so far. I was given the freedom to learn, write, and grow as a person in the most inspiring of places. On campus, one of these places was Building 21, so I must thank its people, namely Ollivier Dyens, Anita Parmar and all the others for teaching me to always embrace the most unlikely ideas. I am also grateful to the *Fonds de recherche du Québec – Société et culture* and the *Aide financière aux études* for providing me with generous financial support. A word for Véronique Fraser too, without who I would have never known university research was for me. I set foot in my first seminar at McGill, a course taught by Mark Antaki, unsure of myself. I finished the course unsure still, but now confident that there is nothing wrong with that.

Ces remerciements ne pourraient pas se conclure sans une mention privilégiée à mes parents, Marie et Richard, mon frère Francis et le reste de ma famille à qui je dois ma curiosité et mon désir d'aller au bout de mes projets. Votre appui est inestimable. Enfin, merci à Anne, ma meilleure amie qui, bien qu'elle n'en pouvait sans doute plus d'entendre parler de technologie, d'art et de science, m'a offert son soutien jusqu'à la toute fin. Notre fabuleux voyage ponctué par la conclusion de mon mémoire restera à jamais gravé dans ma tête, et mon cœur.

CONTRIBUTION OF AUTHOR

I am the only author of all chapters of this thesis.

INTRODUCTION

This thesis is about judicial automation. To be more precise, this study questions what it *means* to automate judging. What does it mean for courts to "operate automatically" or for case law to be created by machines instead of people?¹ Inquiring into the essence of judicial automation is an important task because much thought is given to the matter of the best way to proceed with judicial automation, for example in artificial intelligence (AI) ethics, with little consideration for the fundamental question of what judicial automation *is*. Asking ourselves *what* we are doing when we automate judging should precede deliberations on *how* to do it. Only then, I argue, can we draw scenarios of what law may look like in the future, i.e. the consequences of judicial automation.

One of my premises is that there is more to automation than artificial intelligence or even digital technology. Assuming from the start that judicial automation is, begins, or ends with modern technologies blocks us from the essence of judicial automation. We must open our mind to the possibility that judicial automation is not just a contemporary event, but a phenomenon with a rich theoretical history. I argue we find the essence of judicial automation in metaphysics and legal theory. Because judges interpret the law, legal theory is the natural place to look, however, "legal theory" is too large of a realm. We need an angle. The angle we take stems from an intuition that science and art should play a role in uncovering the essence of judicial automation.

This intuition arose while I was reading legal theory. I noticed scholars often allude to the fact that judging or law are a science or an art, or both at the same time. Lévy-Bruhl claims that if asked, a jurist would be likely to respond that law is both a science and an art.² Pollock writes that judging involves many choices, and that making these choices "is an art as well as a science."³ There are plenty of examples of such references in legal literature.⁴ What is it about science and art that makes them points of reference in the description of judging? Why do some scholars suggest that science and art are opposites, almost? Is judging really one or the other?

¹ Oxford Advanced American Dictionary, (Oxford: Oxford University Press, 2024) sub verbo "automation"; *Merriam-Webster*, (Springfield: Merriam-Webster, 2024) sub verbo "automation".

² Henri Lévy-Bruhl, "La Science du Droit ou 'Juristique'" (1950) 8 Cahiers Internationaux de Sociologie 123 at 123.

³ Stewart G Pollock, "The Art of Judging" (1996) 71:3 NYU L Rev 591 at 594.

⁴ See for example Shale D Stiller, Andre M Davis & William L Reynolds, "In Memoriam: Frank A. Kaufman" (1998) 57 Md L Rev 615 at 622; Louis LeBel, *L'art de juger* (PUL: Les Presses de l'Université Laval, 2019) at 3; Guy Thuillier, "Probabilisme et art de juger" (2001) 34:2 Droits 39 at 39; Jean-Louis Baudouin, "L'art de juger en droit civil : réflexion sur le cas du Québec" (2016) 57:2 Les Cahiers de droit 32.

Is it easier to automate a science or an art? These questions may not seem like they open us to the essence of judicial automation, but they certainly teach us something about what judging is *thought to be*. And we shall discover that the theorizing of judging is at least part of the essence of judicial automation.

So how to frame my argument? I am not arguing that judging is or is not a science, or an art. This is beyond the scope of my project. I shall focus on reviewing what judging is and has been *theorized* to be in legal literature and philosophy. Given that AI technologies play a leading role in current automation initiatives, it is only natural for our argument to have an additional layer: psychology. Psychology is useful because we cannot hope to reach the essence of judicial automation without consideration of the theorizing of knowing or thinking.⁵ I argue that, like legal theory (the theorizing of law), the theorizing of knowing, including AI and psychology, is metaphysical. The thesis examines how legal theory, psychology, and metaphysics overlap; we assess what such overlap tells us about the essence of judicial automation. Logic, reason and rationality will be recurring themes throughout this thesis. It is important to stress that by "rationality", I do not only mean logic or formal logic. Formal, in this context, meaning organized according to precise symbols and rules of inference. By choosing science and art as points of reference, as archetypes to be more precise, we begin with the premise that there is more than one way to structure knowledge and thought, that there exists more than one *correct* way to know, more than one rationality. Our study examines the extent to which theories of judging bring forth the archetypes of science and art, and, if so, what the kinship between said theories and the archetypes tells us about judging as we collectively theorize it. My central point is that we can understand judicial automation through the ideas of science and art.

The argument unfolds as follows. In Chapter I, I delineate *judging as science*. Judging as science is the scientific outlook on judging. The way I use the word science is unconventional, so the chapter begins with an outline of what I call the features of the scientific outlook, in other words, science as an archetypal framework for knowledge. There are five features. I must already stress that the best way to understand this conception of science is to distinguish formal science and inductive science. Science in the archetypal sense refers to the formal side of science. With the features of science displayed, I move on to review legal theories that show us what it means to look at law and judging scientifically. These theories include the

⁵ "Reasoning and deciding are so interwoven that they are often used interchangeably." Antonio R Damasio, *Descartes' Error: Emotion, Reason, and the Human Brain* (New York: Penguin Publishing Group, 2015) at 270.

Aristotelian account of justice, the geometric paradigm of law, legal formalism, and legal positivism. The review concludes with a discussion of judicial interpretation. It clarifies that judging as science is not just found in the books; we find it in the fundamental principles that make up the rationality of legal systems, principles like stare decisis and the rule of law. We here acknowledge that different legal traditions rationalize law differently; they operate according to a different rationality. On the topic of judicial interpretation, we highlight the role judges play in the "practical theorizing" of judging, that is the translation of theories of judging into judicial practices. The last section of Chapter I at last tackles judicial automation. At this stage, we consider Max Weber's idea of "the rationalization of law". Judicial automation, I contend, is a "super-rationalization" because it operates on the basis that legal reality ("the part of reality that actual legal thought and talk is distinctively about")⁶ is formalizable. We see how this is the case through a short introduction of artificial intelligence and how it is a formal scientific field. We find that like judicial automation, AI is both a theoretical undertaking and a historical event.

Chapter II introduces another outlook on law and judging: *judging as art*. As with science, I outline five features of art. I find that the archetype of art mirrors the archetype of science. Once again we proceed with a review of legal theories, building up a proposal of what it is to think of judging as an art, but we also consider how legal concepts such as equity or approaches to judicial interpretation like judicial pragmatism are evidence of the artistic outlook on law. We realize, interestingly, that science and art are not so antagonistic after all, rather they reflect complementary rationalities which appear to make up human knowing. Judging as science and judging as art evoke two complementary dimensions of judging that correlate with two complementary processes constitutive of knowing. Perhaps this is why we find in legal literature the idea that judging is both a science and an art.⁷ Yet in the last section of Chapter II, we consider the fact that machines struggle with creativity and emotion, crucial components of the artistic outlook. Our conclusion in Chapter II is that judicial automation undermines judging as art.

Chapter III builds upon the work done in Chapters I and II. A discussion of the ancient Greek notion of *technê* and then of the notion of technology as it is understood in modern social scientific literature brings together our findings about science and art. Chapter III is where we get the closest to the essence of judicial automation. Judicial automation appears to us as a

⁶ See David Plunkett & Daniel Wodak, "The Disunity of Legal Reality" (2022) 28:3 Legal Theory 235 at 236.

⁷ See notes 2-4.

technological revealing of law and judging. I explain what this finding implies for law as knowledge that develops according to a particular rationality. We recall our findings about the rationality of common law and civilian legal systems to picture what automated law may look like. We refer to this picture as *technological justice*, and we try to imagine its social implications through two scenarios resting on the premise that legal reality and social reality (the part of reality made up of social norms) influence each other.⁸ One scenario is one of *alienation*, the other of *transcendence*. These scenarios help us understand technological justice. We will at last ask ourselves if it is possible to see beyond it.

Judicial automation is a phenomenon that speaks to several perennial themes of philosophy: logic, mind, knowledge, and more. The above outline is a mere sketch of what we will find in this study. Our study opens several doors without closing them, and so it is impossible for me to establish a theoretical framework here or early in the first chapter. I shall instead provide context and explanations as we progress into the argument to avoid cluttering the first chapter. So without further ado, let us dive into the core of this study, beginning with an exploration of judging as science.

⁸ See the concept Cobbe calls the "reflexivity of law". Jennifer Cobbe, "Legal Singularity and the Reflexivity of Law" in *Is Law Computable?: Critical Perspectives on Law and Artificial Intelligence* (Oxford: Hart Publishing, 2020) 107 at 111.

I. JUDGING AS SCIENCE

The scientific outlook

Before we get to this section's argument, I wish to take time to once again clarify the purpose of this chapter and explain how it fits into my chief argument. First, I want to be clear: my claim is not that judging *is* science or a science. The thesis inquires about judicial automation and the use of artificial intelligence to that end, and so I choose to examine judging as it is understood in Western legal literature. I do not claim that judging is or is not something, rather I review what judging is or has been theorized to be. I divide Western legal theories of judging into two main viewpoints. Each viewpoint finds an echo in a tradition of metaphysics. I argue these metaphysical viewpoints inform the conceptions of science and art that are at the core of my study. We will later see what this dual approach has to do with automation, but for now, let us be clear: I use science and art to illustrate the dualities underlying influential Western conceptions of knowing and judging.

Why science and art? For two reasons. (1) Because these words are, in contemporary everyday language (the words come up in scholarship as well), "archetypal" words that evoke the cognitive and affective dimensions of knowing. Science is generally used to refer to our rational and cognitive capacities, while art is more evocative of our sensibility and affective capacities. (2) Science and art are useful illustrations of dual-process theories of knowing and decision-making we find in psychology. Epstein's cognitive-experiential self-theory (CEST) in particular offers a model of "knowing" based on the idea that "people apprehend reality by two fundamentally different cognitive systems."⁹ In that framework, "reality" refers to *what we know*, and so this is what we will mean by reality onward. The first system in CEST is the "rational system", an "abstract system that operates primarily in the medium of language".¹⁰ The second system is the "experiential system" and it can be "a source of intuitive wisdom and creativity."¹¹ In this chapter and the next, we suggest science is in tune with the rational system, while art is more consonant with the experiential system.

This chapter unfolds as follows. First, I outline five features of what I call the "scientific outlook", which I consider an archetypal framework of knowledge. My review then moves on

⁹ Seymour Epstein, "Cognitive-Experiential Self-Theory" in David F Barone, Michel Hersen & Vincent B Van Hasselt, eds, *Advanced Personality* The Plenum Series in Social/Clinical Psychology (Boston: Springer US, 1998) 211 at 214.

¹⁰ *Ibid* at 218.

¹¹ *Ibid.* Epstein's theory is of course more complex, but our study is about the intersections of psychology, metaphysics, legal theory and the science-art framework so I focus on ideas common to all of them.

to legal theories and approaches to judicial interpretation that correspond, I claim, to *judging as science*. Later in the chapter, I introduce my interpretation of judicial automation and assess how the phenomenon of automation draws from judging as science. I introduce Max Weber's idea of the "rationalization of law", that, for me, demonstrates how the scientific outlook is not only manifest in written works but also in historical events conditioned by said outlook.¹² It becomes clear after reading Weber that judicial automation as a historical phenomenon materializes judging as science.

Our analysis starts with the features of science, namely concepts we generally think are important aspects of science. My choice to outline of the features of science (and later, of art) rather than laying out what could be a concise definition comes from the fact that in everyday conversation, the word "science" refers to an archetype more often than not; "science" in the everyday sense is not the "science" of philosophy of science. A rigid definition of an idea that has grown to cover the study of so many objects is of little value to our study, which covers several eras of literature. More useful is a set of features hinting at what we mean when we say in everyday conversation that something is a "science" or is "scientific", features that, we will see, correlate with a metaphysical viewpoint that precedes our contemporary conception of science and is surprisingly found across distant historical periods.¹³ The following section does not pretend to be a comprehensive account of science. Its purpose is to initiate an analysis of judging by considering various of its components. Science and art are helpful concepts for sorting them out, and so I will dedicate one chapter to each framework. Now on to the features of science.

Even though I describe science as an "archetypal" concept and framework, my goal is to construe science in a way that resonates with the way it shows up in the legal theories I discuss later. To account for the fact that conceptions of science today differ from those of the early twentieth century, it is necessary to set boundaries (and limits) to the five features ahead. This implies that I build a skeleton of a definition for the purpose of clarifying what conception of science the features do *not* encompass. We operate in a dual framework in which science is

¹² Another standout example of the historical manifestation of a theory would be the Russian Revolution in that it was a translation of Marxism into practice.

¹³ Some of the features evoke the notion of "supra empirical virtues", i.e. the criteria science uses to choose between theories. See Thomas S Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 2012) for a seminal analysis of how science reasses itself over time. See also Smith who identifies "coherence" as one of the criteria we should use to assess contract theories, because "revealing an intelligible order in the law" is "the basis goal of interpretation". Stephen A Smith, *Contract Theory*, Clarendon Law Series (Oxford: Oxford University Press, 2004) at 11.

distinct from and complementary to art. So what do I mean by science in a restrictive sense? I take little risk stating science is knowledge. Scientific knowledge derives from what is intended to be a systematic process, verifiable "through a communal effort".¹⁴ This is science as an archetype of everyday conversation, not necessarily what philosophers think scientists are doing or what scientists themselves think they are doing.

For simplicity, I will refer to the archetype as "science", though "formal science" (or deductive science) might be more accurate if we want to get technical. Indeed, one reductionist way we can divide sciences into two groups is on the basis of their method. On the one hand, there are the inductive sciences that include natural sciences like physics. On the other, formal, or deductive sciences that include logic, mathematics, and artificial intelligence. Inductive science is a bottoms up, empirical approach to knowledge relying on the experimental method of hypothesis and testing. Formal science begins with first principles. From them we derive rules about the specific. My idea of the scientific outlook mostly refers to formal science.¹⁵ We already see multiple things come to mind when we speak of "science", but then again my study is not one of philosophy of science so we shall not go further into the technicalities.¹⁶ Within this section and those ahead, I examine science according to a science-art duality, so what matters to us is what science is relative to art. To this end, the formal model of science is more appropriate since science in the archetypal sense is a formal knowledge abstracted from everyday life. The scientific outlook has no concern for the application of knowledge to everyday situations.

Given our goal is examining science relative to art to uncover why the two are opposed in legal literature, we can ask ourselves the following question: how is science different from other frameworks for knowledge, such as religion, ethics, or history? What does scientific knowledge prides itself for? In answering this question, we will expose the five features of science. We can only understand the archetype of science and its features as a whole, and so I will present the five features in a single line of thought. First, we can assert that science prides itself for its *objectivity*. Science relies on measurements, observations, formal logic as means to overcome human bias, emotion, and beliefs, all to make scientific knowledge as objective

¹⁴ See Engineering National Academies of Sciences et al, "Scientific Methods and Knowledge" in *Reproducibility and Replicability in Science* (Washington, DC: National Academies Press, 2019) 27 at 27.

¹⁵ In Chapters II and III we will let go of this rigid duality between formal and empirical science and delve into its origins and contradictions.

¹⁶ See for example Quine who deconstructs the "two dogmas of empiricism", questioning the boundary between scientific knowledge and other forms of knowledge like metaphysics. See W V Quine, "Main Trends in Recent Philosophy: Two Dogmas of Empiricism" (1951) 60:1 The Philosophical Review 20.

as possible. To achieve this goal, all scientists follow the same principles: "the use of ideas, theories, and hypotheses; reliance on evidence; the use of logic and reasoning; and the communication of results [...]".¹⁷ Essential to science's claim of objectivity is its reliance on an epistemological ground assumed in rationalist philosophy to be common to all human beings: reason. Rationalism is the metaphysical understanding of reality as something accessible to human reason.¹⁸ If we can all reason, we should be able to use this faculty as a window into a shared reality. *Conformity to reason* is thus the second important feature of science.¹⁹

Together, objectivity and conformity to reason provide science a claim to *coherence* regarding its findings.²⁰ Scientific endeavors ideally build upon each other, and for this, the scientific outlook needs to produce replicable results. Within the community of scientific research, there is a trust (and scientists give themselves means to maintain this trust, i.e. peer review) that their peers follow a method consistent with theirs. Because science is an objective, coherent and epistemological outlook, it allows for *predictability*. Faced with the same facts and conditions, different scientists should reach the same results, meaning that the "world" looked through the lens of science becomes less and less random and unknown. More phenomena are understood, and everyday reality becomes less surprising, more predictable.²¹

Predictability confers a sense of *control* to those who know through science.²² From the mechanics of economic relationships to the anatomy of birds, ecosystems and the mapping of deep space, science offers an understanding of the world we can conceive of, in other words of everyday reality. This vast understanding translates into possibilities for transformation of the world when technology allows scientific theories to interact with it, giving humankind a sense

¹⁷ National Academies of Sciences et al, *supra* note 14 at 28–29.

¹⁸ Notable rationalists include Descartes, Spinoza, Kant, and Hobbes. Hobbes presents the human mind as a computational machine that reasons through additions and subtractions. Thomas Hobbes, *Leviathan: With Selected Variants from the Latin Edition of 1668* (Indianapolis: Hackett Publishing, 1994) at 22.

¹⁹ For Pound, "conformity to reason" is among "the marks of a scientific law". Roscoe Pound, "Mechanical Jurisprudence" (1908) 8:8 Columbia Law Review 605 at 605.

²⁰ "Uniformity" is also a mark of scientific law in Pound. *Ibid*; See also Weinrib, who writes that "the law's inner rationality reflects the possibility of its coherence." Ernest J Weinrib, "Legal Formalism: On the Immanent Rationality of Law" (1987) 97:6 Yale LJ 949 at 952.

²¹ One could argue that "certainty" is a more accurate feature of the scientific outlook given that the public may see science as a linear construction of an objective knowledge of reality that is certain about its content. Pound, for example, includes "certainty" in his marks of a scientific law. Pound, *supra* note 19 at 605. We nevertheless feel like "predictability" is a less radical choice of word and more fit for our framework, which, while focused on the archetype of science, must not stray too far from academic understandings of science. These would likely never claim certainty.

²² Science leverages "the drive to understand and control the world". National Academies of Sciences et al, *supra* note 14 at 29.

of control over everyday reality. And because the scientific method has a strong authority among forms of knowledge creation, we often think scientific knowledge covers "the real." Once again, I do not argue most scientists think of their work that way; they may make more humble claims, for example, that science purports to offer explanations about the world or a better understanding of reality. However, because science often distinguishes itself from other epistemological frameworks on the basis that scientific knowledge is "objective", everyday language in Western societies may have grown accustomed to the idea that reality is what science *knows*. The scientific outlook may be restrictive of our capacity to imagine something that does not conform to reason, for instance.

A science of law

The previous section identifies five features of the scientific outlook: objectivity, conformity to reason, coherence, predictability, and control. Features that help us picture science as an archetypal dimension of the mind; the formally "rational" and "logical" mind. Put otherwise, the scientific outlook is a metaphysical perspective stressing the intelligibility of the world to us rational beings. It posits that we can know and share reality through reason. Scientific knowledge, in the archetypal sense, is what is accessible to human reason, translated into systematic methods of inquiry. Now what does this have to do with judging and automation? Our purpose is getting to the essence of judicial automation. Before achieving this, though, we must first examine judging and review what influential Western theories tell us judging is. Only then will we be able to evaluate how legal theory intersects with theoretical approaches to judicial automation. The following review covers centuries of metaphysics and legal theory, so it takes shortcuts, of course. My overarching argument is that theories about judging conceal metaphysical assumptions, in other words, conjectures about the essence of reality, so the idea of "reality" will come up often in my argument. Fortunately, I am not venturing into virgin land; scholars such as Markou, Deakin and Hoeflich already census "scientific" rationalist approaches to law.²³

The goal is not to go through all influential conceptions of judging, rather is it to highlight those that embody judging as science the best. We remember judging as science is the scientific outlook on judging. After this review of "judging as science" theories, I will introduce Max Weber's idea of the "rationalization of law", which is not judging as science, but an account of

²³ Simon Deakin & Christopher Markou, "From Rule of Law to Legal Singularity" in *Is Law Computable? Critical Perspectives on Law and Artificial Intelligence* (Oxford: Hart Publishing, 2020) 1; M H Hoeflich, "Law & Geometry: Legal Science from Leibniz to Langdell" (1986) 30:2 The American Journal of Legal History 95.

modernity's role in spreading the scientific outlook on law. Weber helps us see judging as science as something more than a theoretical viewpoint. He teaches us it is observable sociologically. Weber kick starts my argument of how judicial automation is a theorizing of law, a conclusion crucial to our goal of reaching the essence of judicial automation. But let us not get ahead of ourselves. Time is for us to move on with our review of legal theories and contemporary approaches to judicial interpretation that, together, state a desire to separate law from personal considerations and to organize it as a predictable, coherent framework. Such an aspiration, I contend, is judging as science.²⁴

Deriving justice?

One key aspect of judging as science is that it assumes justice can be known through reason. Aristotle is a good place to start our review for two main reasons. One, he authors one of Western history's most influential theories of justice, and two, Aristotle provides the opportunity to better understand what I mean by science as an "archetype", namely as a pattern connecting ideas across history. In ancient Greece, the concept of science as we know it did not exist. Hence, it might be inaccurate to say that Aristotle thought of judging as a scientific activity.²⁵ This is why we work with an archetypal idea of science. My claim is that Aristotle's account of justice shows us judging can be thought as an activity based on formal logic. While his theory focuses on justice, the philosopher highlights the relationship of judging and justice when he writes that: "[t]o appeal to a judge is to appeal to what is just, because a judge is meant to be, as it were, justice personified."²⁶

So how does Aristotle portray judging as a science? A standout feature of his account is a consistent use of mathematical and geometrical terminology, for instance the words "division", "arithmetical proportion", "subtracted", or "mean".²⁷ Mathematics and geometry, we know, are formal sciences. For Aristotle, courts of law are not the only place where we find justice. Justice is first "found in distributions of honour or money or the other things that have to be shared among members of the political community" (distributive justice).²⁸ Distributive justice is

²⁴ It is reasonable to attribute the impersonal aspect of law to another cause, such as a commitment to the equality of legal subjects, but as we will see in our discussion of Weber, we can relate the commitment to impartiality to a formal rationality of law. And we know conformity to reason is a key feature of science.

²⁵ We could make the parallel between science as an archetypal knowledge and the ancient Greek word *epistêmê*, which refers to abstract knowledge and is often translated as "science".

²⁶ Aristotle, *Nicomachean Ethics* translated by Roger Crisp (Cambridge, UK: Cambridge University Press, 2014) at 1132a.

²⁷ *Ibid* at 1132a.

²⁸ *Ibid* at 1130b.

arguably what Rawls is speaking of in his seminal *Theory of Justice*. Central to Rawls' theory of justice is indeed the conditions that make it possible to agree upon a just organisation of society. Rawls calls this hypothetical state of deliberation the "original position". In this state, moral subjects are "abstracted, in their deliberations, from the contextuality and contingencies of actual human life."²⁹ In Rawls, like in Aristotle, we see justice as the fruit of reason: Rawls reiterates across his theory that it is "a part, perhaps the most significant part, of the theory of rational choice".³⁰ Rational choice posits that we, human beings, decide according to "instrumental rationality" or "taking the most effective means to given ends".³¹ Rawls' idea of the "original position" reflects a concern for objectivity in thinking about justice, which is to me a key dimension of judging as science.³² Rawls' account of justice, along with Aristotle's, are examples of influential theories where justice is thought to be accessible through abstract and formal reasoning. Formal rationality, a feature of science, is very present in Rawls and implicit in Aristotle's account of justice. Concern for objectivity is the premise of Rawls' theory. Neither is a legal theory, however our focus is judging as a *knowing* of legal and social reality: justice surely plays a role in this because it is assumed that judges must decide "justly". And Aristotle sees a correlation between "the just" (dikaios) and "the things laid down by legislative science".³³

Distributive justice (in the Aristotelian sense) should ensure than the distribution of money and other things is made according to a "proportion", but of course circumstances will sometimes violate the proportion. This is when parties go to a judge who should "equalize" the injustice and make the distribution proportionate again.³⁴ Judging is about rectifying the distribution, and so judges intervene for a second kind of justice, which is "rectificatory" (corrective justice).³⁵ We could almost claim that Aristotle sees the judge as a mathematician, given the philosopher describes the judge as "a divider in two".³⁶ If judging is like math, or geometry, judging is science. Arriving to a just decision in the Aristotle framework requires the judge to follow a process seemingly formalizable and impersonal: "It is as if there were a line

²⁹ Susan Moller Okin, "Reason and Feeling in Thinking about Justice" (1989) 99:2 Ethics 229 at 230.

³⁰ John Rawls, *A Theory of Justice: Original Edition* (Cambrige, MA: Harvard University Press, 2009) at 16; Okin, *supra* note 29 at 240. See also Aristotle, for who the "[t]he first principle of action – its moving cause, not its goal – is rational choice; and that of rational choice is desire, and goal-directed reason." Aristotle, *supra* note 26 at 1139a.

³¹ Rawls, *supra* note 30 at 14; Okin, *supra* note 29 at 241.

³² We can interpret other aspects of Rawls to be judging as art. We will come back to him in Chapter II.

³³ Aristotle, *supra* note 26 at 1129b.

³⁴ *Ibid* at 1132a.

³⁵ *Ibid* at 1131b.

³⁶ *Ibid* at 1132a.

divided into unequal parts, and he [the judge] takes away that by which the greater segment exceeds the half, and adds it to the smaller segment."³⁷ Since the products of "legislative science" are just, perhaps *knowing* the law is also possible through formal operations.³⁸ Not only Aristotle mentions the existence of a legislative "science" (in the sense of an abstract knowledge, or epistêmê), he implies its products are just. Aristotle allows us to imagine law as a formalizable body of knowledge accessible to judges through formal reasoning. Such a vision is judging as science.

A geometric paradigm of law

So the Western conversation about the scientific outlook to judging is nothing recent. We see judging as science being hinted at as far back as ancient Greece, but this view is laid out in more express terms in the seventeenth century onwards. This period saw the rise of theories that apply the rationalist ideal of making a formal science out of all theoretical fields to law, i.e. of "legal science" theories. The theories we review ahead are more about law than judging, so you may worry that we are drifting away from our goal of uncovering the essence of judicial automation. To make sense of our approach, it is worth recalling the emphasis we put on science being a framework for knowledge. We assume, and I think it is fair to do so, that judging is to deal with law. We keep mentioning metaphysics because crucial to our whole argument about science and art is the question whether law is a reality that can be abstracted from everyday life, from social reality. For judging to be a science, law must be such abstract knowledge. Of course, legal reasoning is not exclusive to judges, however, they are the ones who have the final word when legal problems arise. And this process of knowing what is legal or not is our focus here.

Hopefully this becomes clearer as we review scientific conceptions of law. One of them is the "legal-scientific model" of law based on geometry and mathematics, disciplines often thought to be the purest of the pure sciences.³⁹ Hoeflich summarizes this model as such:

It is the idea that law can be reduced to a set of first principles, on the order of mathematical axioms, and that by the use of deductive method, these principles can

³⁷ *Ibid*.

³⁸ *Ibid* at 1129b.

³⁹ Hoeflich, *supra* note 23 at 96.

yield all necessary consequences. In short, it is the notion that legal reasoning is syllogistic; that law is, like geometry, a deductive science.⁴⁰

Rationalist thinker Leibniz is credited with the explanation of the geometric paradigm in law. In his Nova Methodus Discendae Docendaeque Jurisprudentiae, Leibniz outlines a new method for the learning and teaching of law that is made possible by a scientific conception of law.⁴¹ His ambition was that "Jurisprudence" be exact and dependent only on the determination of principles from where an infinity of special questions will derive by themselves.⁴² For Leibniz, a method cannot be exact if the definitions of the terms are not.⁴³ We can interpret from these claims that exactitude should be a concern in the study of law, and that such exactitude is possible. Leibniz's Jurisprudence can be divided in subfields: the didactic (the written positive and certain law), the polemical (deciding uncertain cases according to reason and analogy), the historical (the origins of laws, their mutations over time), and the exegetical (the interpretation of authentic books).⁴⁴ Leibniz claimed that Jurisprudence proper, or the theory of law, comprises the first two, while the historical and exegetical components are the practice of law.⁴⁵ Deciding particulars, no doubt an important part of judging, is thus included by Leibniz in the "theory of law" and we can make an educated guess as to whether he would think judging can be a science akin to geometry. Leibniz, it is said, often compared the work of Roman jurists, mathematicians and geometers.⁴⁶

What is certain is that Roman law, a system praised for its great logical order, was a great inspiration for Leibniz's model. The German polymath thought Roman history was essential to the "intelligence" of civilian Jurisprudence.⁴⁷ Many in the seventeenth century shared Leibniz's fascination with ancient Roman legal thought; it was a rationalist ideal. Roman law was an inspiring alternative to the chaos of local and regional customs, feudalism, and common law.⁴⁸ The rediscovery of Roman law made it possible to understand law as "the application of logic

⁴⁰ *Ibid*. Leibniz, though, writes that it was mistakenly that some have compared mathematics to the science of jurisprudence. Gottfried W Leibniz, *Nouvelle méthode pour apprendre et enseigner la jurisprudence* translated by G.L. Maurin (Paris, Nismes: Alex. Mesnier & Pouchon, 1830) at 3-4.

⁴¹ My reading of Leibniz relies on a 19th century French translation for lack of an English version being accessible, although I note such translation has been published in 2017.

⁴² Leibniz, *supra* note 40 at 18.

⁴³ *Ibid* at 19.

⁴⁴ *Ibid* at 1-2.

⁴⁵ *Ibid* at 2.

⁴⁶ Hoeflich, *supra* note 23 at 100; It is interesting to note that Lévy-Bruhl distinguishes science from technique and thinks of Roman jurists as "incomparable technicians" rather than scientists of the law. Lévy-Bruhl, *supra* note 2 at 127.

⁴⁷ Leibniz, *supra* note 40 at 47.

⁴⁸ Hoeflich, *supra* note 23 at 102.

and reason to first principles" rather than "a set of irrational, positive rules to be learned by rote and applied by whim".⁴⁹ Law could now aspire to rationality, coherence, and predictability, an ambition we see in Leibniz, although it is noteworthy that his conception makes parallels between divine knowledge and legal studies. Leibniz considers Jurisprudence a science and puts forward ideas we could associate with positivist thought, however the German scholar sees a marvelous similarity between the science of law and theology.⁵⁰ Legal and religious study alike, for Leibniz, have grounds in reason and natural law.⁵¹ It is in this reconciliation of law and theology, I think, that judging as science (in the archetypal sense) is most visible, since Leibniz allows us to conceive "legal truth" as an abstract knowledge that is eternally true and transcendent, yet accessible to human reason.

Leibniz, we remember, lived during a period of great social change we could describe as the dawn of the Enlightenment. The Enlightenment, of which Leibniz was a major figure, can be conceived as the beginning of modern scientific rationalism and its application to law. With the Enlightenment, we understand one of this study's most important claim: that judicial automation is a theorizing of judging and law. Why? Because from the seventeenth century on, it is possible to observe that the scientific outlook to law was not only theorized by intellectuals, but correlative with profound transformations of the law as it was administrated in Western states.⁵² The Enlightenment was an era of important theoretical debates, but also of profound social transformations that arguably mirror the philosophical insights of the times. It is no coincidence some call this period the "Age of Reason" (perhaps the "Age of Science" would also be accurate).

I will not go as far as claiming that there is evidence of a rationalization or "scientification" of law attributable to rationalist philosophy; I will leave that to sociologists or historians. My analysis is limited to written works and the language that they use. And I find that Leibniz accentuates the importance of reason and knowledge being "scientific". Leibniz was one of the first in a modern line of Western thinkers who outlined an explicit scientific approach to legal reasoning. We will not be specific about the authors who walked in Leibniz's footsteps; there are many of them.⁵³

⁴⁹ Ibid.

⁵⁰ Leibniz, *supra* note 40 at 3.

⁵¹ *Ibid*.

⁵² See Max Weber, *Max Weber on Law in Economy and Society* edited and translated by Max Rheinstein & Edward Shils (Cambridge, MA: Harvard University Press, 1966).

⁵³ See Hoeflich, *supra* note 23.

Law, form, and positivism

The geometric paradigm of law is a striking incarnation of judging as science because it commits in clear terms to mathematics and geometry. We hardly ever encounter this position in more contemporary legal literature. This does not mean the "judging as science" argument died with the geometric paradigm. If science is an archetype, we must look for more subtle manifestations of judging as science. I argue we find them in formalism and legal positivism. Unger would probably agree with us, since he describes formalism as a "methodological instrument" for the legal scientific vision of law in that it infers "lower-order propositions from higher-order ones".⁵⁴ This vision he is referring to is the one we have been sketching so far: one where legal conclusions come from a deductive, geometrical-like process. For Posner, formalism "conceives of judicial decision making on the model of mathematical computation."⁵⁵

But the above claims come from authors who are critical of formalism. Our account of formalism better be informed by works that point us to the virtues of this approach, rather than to its shortcomings. Landgell and Weinrib are who we will turn to. Langdell, who is perhaps the most iconic figure of traditional legal formalism, is of the following view:

Law, considered as a science, consists of certain principles or doctrines. To have such a mastery of these as to be able to apply them with constant facility and certainty to the ever-tangled skein of human affairs, is what constitutes a true lawyer.⁵⁶

Langdell's principal contributions are in legal education, but his famous "case method" derives from what could be called a theory of law as a logical system made of fundamental principles that we can discover by reading judicial opinions. In that regard, Langdell's formalism is not unlike Leibniz's geometric paradigm. Science (especially formal science) commits to objectivity and reason, and in doing so, science aspires to independent of any consideration for the application or consequences of scientific knowledge. We often call disciplines like geometry or mathematics pure sciences because they do not care about their application.

Langdell clarifies that being a lawyer is not so simple as having a geometric like knowledge of the law. Being a true lawyer, and a judge we could presume, is also applying the

⁵⁴ Roberto Mangabeira Unger, *What Should Legal Analysis Become?* (London, New York: Verso, 1996) at 41.

⁵⁵ Richard A Posner, "Legal Pragmatism" (2004) 35:1–2 Metaphilosophy 147 at 148–49.

⁵⁶ Christopher Columbus Langdell, *A Selection of Cases on the Law of Contracts: With References and Citations* (Boston: Little, Brown, and Company, 1871) Preface.

findings of legal science to the "ever-tangled" social reality. Leibniz would probably agree. Such a view does not mean that legal science is impossible, or is not desirable. Strict legal science would be to think of judging as a pure science that never worries about the *whys* and *what fors* of the law, only the *what*. But judges need to decide, and to do so they must apply legal knowledge, as scientific as it is, to situations of facts. How can judging be science, then? We find a lead in Langdell, who thinks a "true lawyer" is one who can apply legal principles with "constant certainty". He implies that once the law is known theoretically, it can be applied mechanically or deductively to facts. Judging is no longer science at this stage, yet it is not artistic either. It is technological. We shall come back to this point later when we discuss judicial automation, but for now, let us focus on formalism as a legal theory.

Weinrib, a contemporary, offers a sustained account of formalism and its tenets. For Weinrib, legal formalism "postulates that law is intelligible as an internally coherent phenomenon."⁵⁷ Formalism conceives of law as having a rationality that makes it coherent and predictable.⁵⁸ Like in Aristotle and Leibniz, we find references to geometry in Weinrib. He writes: "[j]ust as one can understand geometry by working through a geometrical perplexity from the inside, so one can understand law by an effort of mind that penetrates to, and participates in, the structure of thought that law embodies."⁵⁹ We would think Weinrib would, like Leibniz did with his geometric model, make the parallel between science and his conception of formalism, but Weinrib rejects the comparison of legal understanding with scientific explanation because, unlike "natural phenomena", "legal phenomena" are "immanently understandable".⁶⁰

What should we take away from this? I think we must accentuate the distinction of formal and inductive science to make sense of Weinrib's argument, that, despite the language he uses, makes us see how formalism pertains to the archetype of science. Because law is a formal science with "an internal dimension" allowing it to be understandable from within, its rationality is superior to that of scientific explanation which object, "nature", is not understandable in this way.⁶¹ What is curious about Weinrib's account is that while he defends the purity of law as an immanent rationality comparable to geometry, Weinrib claims that unlike the "forms of geometry", the "forms of justice" (the corrective and distributive justice of

⁵⁷ Weinrib, *supra* note 20 at 951.

⁵⁸ *Ibid* at 964.

⁵⁹ *Ibid* at 962.

⁶⁰ *Ibid* at 964.

⁶¹ *Ibid* at 963–64.

Aristotle) have a grounding in society and history because the forms of justice inform relationships that are "necessarily social and historical ones."⁶² Yet, Weinrib presents legal forms as "philosophical constructs that are not themselves variable",⁶³ making it difficult to imagine the forms of justice as something other than legal axioms that exist outside any social or historical context. Such a view would be consistent with Weinrib's conception of judging: he supports the idea that adjudication "involves holding the particular transaction or distribution to its coherence as a transaction or a distribution."⁶⁴ "[T]he judge's role is to apply, in the context of a particular episode of adjudication, the form of justice appropriate to it."⁶⁵ But then again, what determines the appropriate form? Can this part of judging aspire to be formalistic? We cannot ignore these questions if we are to get to the essence of judicial automation, yet it is only natural that they arise since we have not introduced judging as art yet. It is worth keeping our attention on judging as science for a little longer, even though the artificial boundary we have set for ourselves is becoming difficult to maintain.

In his account of legal science, legal sociologist Lévy-Bruhl questions whether law can ever claim to be a (pure) science. Doing so, he introduces helpful notions that explain why the formalist argument might have made us perplex. Lévy-Bruhl distinguishes science from technique, which he calls *science appliquée* (applied science), and doubts that law can ever claim to be a pure science.⁶⁶ The sociologist does not deny that law and science share method and rigor, but claims true science does not care about its practical consequences, that it is *"science pour la science"*.⁶⁷ Lévy-Bruhl claims most jurists are technicians because they are working to solve practical difficulties that emerge from social life, working with legal structures that are abstract and theoretical, yes, but perhaps not developed in the exclusive service of truth, which is a defining character of scientific work for Lévy-Bruhl.⁶⁸

The notion of "science for science", or "law for law" in our case, is crucial in understanding science relative to art and our later discussion about judicial automation. So far, judging as science shows up in the idea that law can be a knowledge as precise and abstract as geometry. From this view, the application of this law should be possible through deduction alone. It should not subordinate to non-legal considerations. A science of law studies legal principles in

⁶² Ibid at 1002–1003.

⁶³ *Ibid* at 1008.

⁶⁴ *Ibid* at 987.

⁶⁵ Ibid.

⁶⁶ Lévy-Bruhl, *supra* note 2 at 124.

⁶⁷ *Ibid*.

⁶⁸ Ibid.

themselves. Formalism is such study. Another branch of legal theory, I think, can enlighten us on judging as science and conclude our review. This branch is legal positivism.⁶⁹

Legal positivism is an interesting case because it challenges our "judging as science" archetype like no other theory. Our approach based on archetypes has been useful because it seems that no matter the context in which it is used, the concept of "science" refers less to a specific scientific method (empirical, formal, deductive, inductive, etc.) than to the idea of certainty or predictability in knowledge; a certainty which comes from knowledge being validated through a logical system. Positivism (not legal positivism) posits that such validation is the criteria for assessing all knowledge. Positivism takes the physical sciences as a model for other knowledges and trusts that to achieve certainty we should validate our thoughts "by experience of facts."⁷⁰ What we should trust is direct observation of facts mediated through formal logic. The scientific outlook should inform all activities, meaning that we should not concern ourselves with the "what if" and "ought" of meta analyses or any assimilation of truth to contingency.⁷¹

Initially, legal positivism seems to have little to do with positivism in general. Hart defines legal positivism as "the simple contention that it is in no sense a necessary truth that laws reproduce or satisfy certain demands of morality, though in fact they have often done so."⁷² But underlying this claim are positivist tenets key to judging as science. If we focus on Hart's definition, a positivist approach to law is to consider that "the law" can be the object of a self-contained, or pure science that does not need to appeal to meta analyses of what the law *ought* or *should* be. Like Langdell or Weinrib, Hart imagines law as a system that can be studied on its own. But legal positivism reflects judging as science on another ground, namely the place it gives to deduction as a way of validating knowledge. We find this in Hart and Kelsen: the former subordinates the validity of law to the "rule of recognition",⁷³ the latter bases the validity of law on its conformity to a *Grundnorm* (the basic norm).⁷⁴ These "basic rules" are first principles from which all laws can be traced to, and the basis for their validation. Kelsen's work

⁶⁹ Our focus shall be on H.L.A. Hart and Hans Kelsen, heavyweights of legal positivism in continental Europe and the Anglo sphere, respectively.

⁷⁰ Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society* (London, UK: Routledge, 2013) at 176.

⁷¹ See also logical positivism, a school of philosophy which ambition was to provide a basis for a scientific, empirical and logical validation of meaning. The Editors of Encyclopaedia, "Logical positivism", in *Encyclopedia Britannica* (2024), online: https://www.britannica.com/topic/logical-positivism.

⁷² H.L.A. Hart, *The Concept of Law* (Oxford: Oxford University Press, 2012) at 185-86.

⁷³ *Ibid* at 100.

⁷⁴ Hans Kelsen, *Pure Theory of Law* (Berkeley: University of California Press, 2020) at 8.

in particular speaks to what we said about formalism and its commitment to law's coherence, although we may conclude that Kelsen goes even further since there is only the basic norm at the bottom of the chain of legal deduction and this norm is what makes the legal order a "unity".⁷⁵ Judicial decision-making, then, is an application of the valid legal order.⁷⁶ How do these claims correlate with those of judging as science? For me, the concern for "certainty" is what binds legal positivism to the scientific archetypal approach to knowledge. Manderson says it well when he diagnoses the Hart-Fuller debate (an academic dispute about Hart's commitment to the separation of law and morals):

Law's besetting sin (and I mean that a desire to be resisted) for Hart is uncertainty, and its salvation lies in clarity. Law's besetting sin for Fuller is arrogance, and its salvation lies in humility.⁷⁷

One way to understand legal positivism is to think of it as an effort to preserve law's status as a knowledge, a status only possible if its validity is not dependent on external considerations like morals. Hart does not deny there is a "penumbra" beyond the "core of settled meaning" of the law, however he argues that "preoccupation with the penumbra is [...] a source of confusion" and so it should be minimal.⁷⁸ Judges do face penumbral cases, but for Hart it problematic to consequently "assert mysteriously that there is some fused identity between law as it is and as it ought to be", or "that there is no central element of actual law to be seen in the core of central meaning which rules have".⁷⁹ Accepting such a conclusion would deprive law of its necessary certainty. The rationality of law is also important for Hart, and it shows in its assumption that "legal decisions of penumbral questions" must find some rational ground, even if it this ground is not logic.⁸⁰ He seems to repudiate in full a conception of judging in which rationality does not play the leading role. We have seen how this worry about reason and certainty (we used the more tempered term of "predictability") is at the heart of the scientific outlook. So it is not that Hart or Kelsen ignore the "penumbra" or think judicial decisionmaking is a predetermined exercise; what they care about is law not being indeterminate.⁸¹ The penumbra is a distraction from this goal.

⁷⁵ David Dyzenhaus, *The Long Arc of Legality: Hobbes, Kelsen, Hart* (Cambridge, UK: Cambridge University Press, 2022) at 161.

⁷⁶ Kelsen, *supra* note 74 at 242–43.

⁷⁷ Desmond Manderson, "HLA Hart, Lon Fuller and the Ghosts of Legal Interpretation" (2010) 28:1 Windsor YB Access Just 81 at 86.

⁷⁸ H.L.A. Hart, "Positivism and the Separation of Law and Morals" (1958) 71:4 Harv L Rev 593 at 607, 615.

⁷⁹ *Ibid* at 615.

⁸⁰ *Ibid* at 608.

⁸¹ This would be consistent with the view that there is a "dynamic" component to the positivist understanding of law that denies a conception of the basic norm as a static rule. Dyzenhaus, *supra* note 75 at 166.

Judges, "practical theorizing" and judging as science

Our review of judging as science in legal theory enlightens us on the following points. Judging as science has its origins in ancient ideas, such as Aristotle's conception of rectificatory justice, but is found in more recent traditions of legal theory, for example, the geometric paradigm, legal formalism and legal positivism. Judging as science relies on the rationalist assumptions that law (like reality) is rational and this rationality makes it coherent and intelligible to us rational beings. One theme of legal theory is making sense of these statements or disputing them. The term "science" is not always present in judging as science. Weinrib, we know, distinguishes legal explanation from scientific explanation. The core of our framework is not shaken by this finding, rather it supports our choice to proceed with archetypes. If anything, going through these influential theories made obvious that "science" in judging as science means anything outside of legal theory. Is there something such as a "practical theorizing" of judging as science?

Foundations of judicial interpretation

Reviewing influential Western legal theories is useful because it gives us a sense of the presence of science in legal thought, but we can go further in our assessment. Our primary goal is to uncover the essence of judicial automation, and to achieve this, I make the argument that judicial automation is a peculiar theorizing of judging. The first step in making that argument is presenting how judging is and has been theorized in Western legal literature. Science and art are the two "archetypes" to which I tie legal theories. The last section was about legal theories because a theorizing of judging implies a theorizing of law. Our analysis cannot end at the "theory" we find in books; law is a discipline where theory and practice interestingly intertwine.⁸² One example of this is how judges, especially in common law jurisdictions, often are the theorists of their own work. Judges often publish about the nature of judging, their approach to interpretation and even legal theory. Influential approaches to judicial interpretation, laid out both in judicial reasons and academic literature, will be our focus ahead. This liminal realm between theory and practice is where we will make our way to our preliminary conclusion that automation is a theorizing of judging. First, we unravel the ideas that (1) judging is a theorizing of judging and law and (2) different legal traditions presuppose

⁸² The fact that legal education is equally about law as it is, and law as it could or should be is a testament to this.

different theorizings of judging and law. We ask the following question: do contemporary judicial practices reflect the tenets of legal formalism and other theories of judging as science?

Before moving on to approaches to judicial interpretation per se, I deem important to discuss two principles important to judicial adjudication in Western countries: stare decisis and the rule of law.⁸³ These principles, I argue, reflect a face of judging as science that will be new to us. New because we rarely think these principles are part of "theories". More often than not, we think of them as unremovable foundations of legal systems, yet they reveal that different legal systems "reason" legal cases differently. The science-art duality is useful to understand judging as a mental process and a systemic process alike. Take the doctrine of *stare decisis*, a crucial rule of common law. Stare decisis binds judges to precedents or earlier decisions of higher courts in similar cases. If a set of facts has been debated before the courts, the same facts should entail the same decision when they emerge again. Stare decisis ensures the predictability of the law because the public can reasonably predict the legal rules applicable to situations of everyday life based on the case law having dealt with similar situations. Stare decisis also prevents judges from rendering contradicting decisions on the same topic. The case law is more coherent as a result.

Predictability and coherence are features of scientific approaches to law (notably of legal formalism) and so I contend stare decisis is consistent with judging as science.⁸⁴ Judging as science is the presumption that law is a coherent body of knowledge; stare decisis ensures that individual court cases are consistent with one another, that case is law is a coherent body of knowledge. The part of the common law's "rationality" made manifest in the principle of stare decisis echoes the archetype of science, even though I will later argue the common law tradition is on the whole more reflective of art, which goes to show that the science-art archetypal approach is above all a tool to understand legal theories and legal traditions in the light of metaphysics. My framework cannot expose a legal tradition as something specific, only clarify its relationship to concepts like "logic", "rationality" and "truth". Stare decisis is part of the epistemological frame that determines the direction of common law (as a body of knowledge) through time, common law's rationality as it were. The binding power of precedent is one

⁸³ Of course we cannot generalize all legal systems so I will make the necessary nuances about the legal traditions of civil law and common law. These nuances will play an important role in our distinction between judging as science and judging as art.

⁸⁴ For Posner, the emphasis on stare decisis is a trace of legal formalism in American legal thinking. Posner, *supra* note 55 at 149.

boundary to what a common law judge can decide: the rationality of common law is based on the authority of the past.⁸⁵

Outside of common law systems, coherence manifests differently.⁸⁶ In civilian legal thought, coherence relies on the stability of legal rules through time rather than on the rule of precedent: indeed, past decisions do not hold the same binding power on civil law courts. Another way to think of coherence and case law comes from Hobbes, who rejects stare decisis because we should not want "one's error" to become "law to her or to other judges." Instead, Hobbes thinks the guiding point of reference should be the "laws of nature" or "natural equity".⁸⁷ From a legal positivist standpoint, it is legitimate authority that is the most important basis of a judicial decision's validity.⁸⁸ Only if that system of validation based on authority is maintained can legal subjects distinguish binding legal decisions from non-binding opinions. For law to be predictable, case law must be a consistent body of rules and not just random, contradicting decision.⁸⁹

Trust in the *rule of law* is another statement of legal coherence. For Raz, the basic idea of the rule of law is a formal conception: the law "must be capable of guiding the behaviour of its subjects."⁹⁰ From this basic idea, we can "derive" other requirements without which law is not law. Raz's conception of the rule of law is not foreign to the positivist viewpoint according to which law is law when it is consistent with a fundamental norm, such as Kelsen's *Grundnorm* or Hart's rule of recognition. The rule of law in that sense, i.e. a conception that does not attribute to it requirements of content for law, is consistent with judging as science. Assessing the constitutionality of a law, or its validity as law, is a judicial exercise comparable to a geometrical operation. The legal principles that follow the basic idea of the rule of law "must be constantly interpreted in the light of the basic idea."⁹¹ Therefore when judges presuppose the rule of law, they are "practically theorizing" the law as something which should be stable

⁹¹ Raz, *supra* note 90 at 218.

⁸⁵ Clarence Thomas rightly points out that this is less true of judging at the level of a legal system's highest court (in his case, the SCOTUS). Clarence Thomas, "Judging" (1996) 45:1 U Kan L Rev 1 at 6.

⁸⁶ I focus on common law and civil law in this thesis since they are the two traditions I am familiar with, but we could surely make interesting observations about other legal systems.

⁸⁷ Dennis Klimchuk, "Hobbes on equity" in David Dyzenhaus & Thomas Poole, eds, *Hobbes and the Law* (Cambridge: Cambridge University Press, 2012) 165 at 172; Hobbes, *supra* note 18 at 181.

⁸⁸ According to Hart, the norm that ensures this authority is the rule of recognition. Hart, *supra* note 72 at 100.

⁸⁹ This is the view of formalists like Langdell or Weinrib.

⁹⁰ Joseph Raz, "The Rule of Law and its Virtue" in Joseph Raz, ed, *The authority of law: Essays on law and morality* (Oxford University Press, 1979) 210 at 214. See also Justice Scalia, who maintains that "[t]he rule of law is *about* form" and that formalism "is what makes a government a government of laws and not of men." Antonin Scalia, *A Matter of Interpretation: Federal Courts and the Law - New Edition* (Princeton: Princeton University Press, 2018) at 25.

and traceable to a first principle, consistent with judging as science. The source of the rule of law in a legal system is often thought to be the constitution, but then it is not clear what gives the constitution "its normative force."⁹² Is it the rule of law? Judging as science helps us get out of this circular reasoning by helping us see that what grounds the rule of law or the belief in the constitution might be the metaphysical position that legal reality should be coherent, and consistent with a first principle.

Another domain of "practical theorizing" (the first being the structural principles of a legal system) is judicial interpretation. Judicial interpretation relies on theoretical approaches to judging and law that the different rules of interpretation translate into a practical process that judges can follow when they decide cases. American courts are a place we can look to identify how the practical theorizing of judging unfolds. We shall focus on the idea of the "formalist judge" and the approaches he may favour. What does it mean to be a formalist judge? For Posner, the formalist judge gets her values from a legal career that understood the judge's (feasible) quest as one of "right answers" in the application of law to facts.⁹³ Avowed formalist Clarence Thomas "unabashedly" assumes that position.⁹⁴

Formalist judges are said to assume judging is a technical, almost "algorithmic" task.⁹⁵ It is interesting, if not confusing, to observe that even though we have linked formalism and judging as science, critics of formalism, for instance Pound, separate "scientific law" from "mechanical jurisprudence".⁹⁶ Pound's "scientific law", though, is not a pure science because for him the "scientific character of law is a means" to something other than the advancement of legal science, namely "the administration of justice."⁹⁷ A formalist judge, on the other hand, is one who approaches judging as an algorithmic task, as a pure science. We find formalist thinking in textualism, an American approach to interpretation that "asserts that a statute should be interpreted according to its plain meaning and not according to the intent of the legislature, the statutory purpose, or the legislative history."⁹⁸ Textualists "advocate for relatively formulaic and systematic interpretative rules."⁹⁹ Scalia, who was a leading textualist, believed courts

⁹² Jill Frank, "Aristotle on Constitutionalism and the Rule of Law" (2006) 8:1 Theoretical Inquiries in Law 37 at
39.

⁹³ Richard A Posner, *Reflections on Judging* (Cambridge, United States: Harvard University Press, 2013) at 110.

⁹⁴ Thomas, *supra* note 85 at 5.

⁹⁵ Posner, *supra* note 93 at 109.

⁹⁶ Pound, *supra* note 19 at 605.

⁹⁷ Ibid.

⁹⁸ Legal Information Institute, "textualism" (last updated in March of 2022), online: ">https://www.law.cornell.edu/wex/textualism>.

⁹⁹ Betsy Cooper, "Judges in Jeopardy!: Could IBM's Watson Beat Courts at Their Own Game?" (2011) 121 Yale LJ F 87 at 88.

should interpret the Constitution according to its original meaning.¹⁰⁰ The goal of textualism is to avoid mixing the interpretation of legislation with politics. Textualism and other formalist approaches to interpretation evoke judging as a science, since, in principle at least, the goal of these approaches is to strip judging from political and moral bias and commit to a somewhat internal rationality of law. By consequence, law should be a more consistent and clear body of rules for both lawyers and the public. This is what judging as science is about.

From rationalization to automation

All the while we were concerned with science, legal theories, legal principles and approaches to judicial interpretation, we left judicial automation aside. Judicial automation is our principal topic of interest, so it is time to address it. From now on, we must get comfortable with the idea that judicial automation is at the same time a historical socio-legal phenomenon *and* a theoretical articulation. When our attention was on Leibniz and the Enlightenment, we got a glimpse of the relationship between history and legal theorizing; indeed we saw how this historical period was one of both great intellectual "discoveries" and social change. The relationship between the two is of interest to the field of sociology, so let us now turn briefly to it in making the argument that judicial automation is a particular theorizing of judging. This theorizing, we shall see, draws from judging as science.

One phenomenon which has been the object of sociological scrutiny shows us how judging as science can manifest materially in society. I am here talking of Weber's "rationalization of law". We can understand the rationalization of law as an assessment of how rational legal systems are and how come they are rational in this way, making it is an idea of great value to our attempt of bridging a social phenomenon (judicial automation) and theoretical fields like legal theory, metaphysics and psychology. The rationalization of law helps us see judicial automation as something more than a recent development attributable to technologies like artificial intelligence.

The rationalization of law

Sociology is an interesting discipline because its rise mark an important period in the history of science. In everyday language, "science" still refers more often than not to the study of "natural" phenomena, but what was happening with the birth of sociology is that it became acceptable in intellectual circles that the scientific approach could also apply to the study of

¹⁰⁰ Scalia, *supra* note 90 at 38. Textualism is thought to be a conservative approach to judging and along with originalism is the favorite of SCOTUS justices who align with the Republican party.

social reality. For Weber, sociology is "that science which aims at the interpretative understanding of social conduct and thus at the explanation of its causes, its course, and its effects."¹⁰¹ The "rationalization of law" is a modern social phenomenon Weber purports to explain from the sociological standpoint, by referring to various legal systems, their history, features, and so on. We shall focus on the rationalization of "the specifically modern occidental type of administration of justice".¹⁰²

Weber's point cannot be understood without considering his view that while "lawmaking and lawfinding may be either rational or irrational", they can also be rational or irrational on the "substantive" or "formal" level.¹⁰³ Formalism can be of two kinds, one of which is tied to "logical rationality": a formalism where "fixed legal concepts in the form of highly abstract rules are formulated and applied."¹⁰⁴ This framework for "legal rationality" is alluded to throughout Weber's sociology of law to describe how different legal systems compare, but also evolve through time. Logical legal formalism, an outlook reminiscent of judging as science, appears to be the legal rationality Weber observes in bureaucratic states, i.e. in Western modern societies.¹⁰⁵

Weber traces this formal rationalization of Western legal systems back to legal thought: one of the "forces" of the rationalization of law, he claims, is "the purely logical legal doctrines" according to which "abstract norms, which, at least in principle, are formed and distinguished from one another by a rigorously formal and rational logical interpretation of meaning."¹⁰⁶ These doctrines, Weber writes, "can considerably reduce the role played by considerations of practical needs in the formation of the law."¹⁰⁷ The formal rationalization of law, therefore, happens both in legal thought and in the law applied by the courts. It is a phenomenon at the frontier of theory and practice and for this reason, it is a concept of great interest to us.

Weber's theory is a salient tool for understanding the rationality of legal systems comparatively, which is what we attempted to do in the previous section. Weber observes differences between the continental legal systems and the English system of common law, highlighting its "degree of legal rationality is essentially lower than, and of a type different

¹⁰⁵ *Ibid* at 351.

¹⁰¹ Weber, *supra* note 52 at 1.

¹⁰² *Ibid* at 301.

¹⁰³ *Ibid* at 63.

¹⁰⁴ *Ibid*.

¹⁰⁶ *Ibid* at 204-05.

¹⁰⁷ *Ibid* at 205.

from, that of continental Europe."¹⁰⁸ "English legal thought", Weber claims, "is essentially an empirical art."¹⁰⁹ Given Weber's claim that rationalization is observable in capitalist societies, the "case" of England has always been difficult to reconcile with his theory.¹¹⁰ Some solve the "England problem" by emphasizing that while logically formal rationality is not characteristic of common law, English law remains calculable because of the rule of precedent, among other things.¹¹¹ This argument is consistent with my claim that stare decisis reflects judging as science. The "England problem" is not a problem in our framework because we contend that some aspects of common law are logically formal, while others are not. All systems (legal systems, the human mind, an AI system), we will argue, are driven by both science and art. Weber teaches us the there are multiple shapes of legal rationality and that this spectrum is observable in legal systems. Judging as science and judging as art, if anything, illustrate Weber's claims.

Judicial automation, science and technology

Weber's observations on the "rationalization of law" bring our attention to the rational foundations of legal systems. We read from him that the "rationality" of law is multidimensional, first, and second, legal systems can move across these dimensions over time. I argue Weber makes possible a new interpretation of judicial automation because he makes us see it as a social and legal phenomenon that influences the rationality of legal systems. We will now examine the relationship of "automation" with "rationalization". Are they distinct phenomena? Is automation the product of rationalization? If there is a connection between the two, what does this connection tell us about the essence of judicial automation and possible "legal futures"? We will try to clarify these questions. To get here, we first focused on science alone and then on science and legal theory. The science-art duality we have been building was necessary to understand Weber's claim that the formal rationalization of law stems from a formalist tradition of legal thought. There are numerous parallels between "judging as science" and what Weber identifies as the theoretical origins of the formal rationalization with judging as science. It will be one step, but surely not the last, in the process of uncovering the essence

¹⁰⁸ *Ibid* at 316.

¹⁰⁹ *Ibid*.

¹¹⁰ Weber writes that "the systematic rationalization of the law in England, for example, was retarded because no bureaucratization occurred there." *Ibid* at 222.

¹¹¹ Trubek, David M, "Max Weber on Law and the Rise of Capitalism" in *The Sociology of Law* (London, UK: Routledge, 2008) 220 at 230.

of judicial automation. The archetypes of science and art, we remember, are means to our principal end.

My position in the light of Weber is that judicial automation is, like the rationalization of law, a "practical theorizing" of law as something that is formalizable. Judicial automation is a practical, or material theorizing of law because it happens in the administration of justice more than in the books. Judging as science justifies the use of machines in the courts, and so automation technologies *are* a practical theorizing of judging. Through his account of the rationalization, Weber highlights how systematic the administration of justice is in bureaucratic states, how formal these systems are. The administration of justice in modernity reflects the archetype of science in its pure archetypal sense, in its concern for formalism. It is easy to disregard judging as science as a relic of the past if we forget the archetype of science is not "science" in the everyday sense of the word.

The archetypal scientific outlook might in fact be more dominant than ever before, given we follow Weber when he directs us to bureaucracy and the systematic administration of justice as a place of formal rationality. My reading of him is that the modern state has given judging as science the means to shape positive law and the way it is being administered. Judging as science no longer is an ideal of formalist scholars or judges since bureaucratic organization has made positive law formally rational, coherent, predictable, and so on. In Weber's time, bureaucracy might have been the main vehicle for "rationalization", but today it seems that automation technologies are becoming that vehicle. We will keep most of our discussion of artificial intelligence to Chapter II, and of technology to Chapter III, however it is important that we at least examine the relationship between automation, rationalization and judging as science before we move to judging as art.

Our first conclusion shall be that automation is a step further into rationalization. Judging as science, or science in general, has been instrumental to the formal rationalization of modern legal systems Weber is writing about. But systematic legal systems are not the end of judging as science, which, we know, is before all else the product of a metaphysical standpoint on legal reality concerned with objectivity, conformity to reason, coherence, predictability, and control in the law. These features can be actualized even further if judging is an automatic process. Judicial automation, like bureaucracy, allows judging as science to shape law as a formal body of knowledge. The fact is we cannot say judging as science only is the cause of judicial automation or vice versa. The metaphysical standpoint of judging as science possible.

What is the role of artificial intelligence in all this? First we must stress that artificial intelligence is a computational field, a formal science. The abstract goal of AI may be to create intelligent machines, however, this goal is achieved by creating machines that solve specific tasks, and for this to be possible, a certain formalization of the knowledge necessary for solving this task must happen. AI is becoming successful at formalizing an increasing number of tasks, of an increasing complexity, including legal tasks. Some affirm AI algorithms are "supercarriers of formal rationality."¹¹² More than other algorithms, AI-based algorithms carry formal rationality in the sense that they learn to improve their formal procedures according to a formal criterion of "optimization".¹¹³ Artificial intelligence is not atheoretical; AI begins with a theoretical enterprise that is unmistakably metaphysical and I argue, and there is abundant literature making similar claims, that the metaphysical standpoint of artificial intelligence (and automation) is the scientific outlook.¹¹⁴ This remains true even for connectionist approaches like machine learning, because the basic architecture behind machine learning comprises rules that are programmed.¹¹⁵ AI is metaphysical in that it supposes reality and intelligence are formalizable domains, but like rationalization, AI produces very material results as machines that display formal intelligence. AI is a historical event in the making.

If AI and computation are vectors of formal rationality, then judicial automation with AI and other digital technologies is a rationalization of law. We can call judicial automation a "super-rationalization" of legal reality. Judicial automation goes a step further than the rationalization of Weber. Judicial automation leaves no place for human sensibility and reduces law to mechanical operations. Judicial automation initiatives are steps or rather strides in the rationalization of law because the ideal AI judge is "all knowing, without bias or emotion, able

¹¹² Dirk Lindebaum, Mikko Vesa & Frank den Hond, "Insights From 'The Machine Stops' to Better Understand Rational Assumptions in Algorithmic Decision Making and Its Implications for Organizations" (2020) 45:1 AMR 247–263 at 248; Rohit Nishant, Dirk Schneckenberg & MN Ravishankar, "The formal rationality of artificial intelligence-based algorithms and the problem of bias" (2023) Journal of Information Technology, online: <https://doi.org/10.1177/02683962231176842> at 3.

¹¹³ Lindebaum, Vesa & den Hond, *supra* note 112 at 248.

¹¹⁴ In their account of the approaches to AI research, renowned computer scientists Russell and Norvig assert that the "acting rationally" approach, which focuses on "rational agents" that act "so as to achieve the best outcome or, when there is uncertainty, the best expected outcome", has the advantage of being "more amenable to scientific development" than other approaches. Stuart Russell & Peter Norvig, *Artificial Intelligence: A Modern Approach* (Pearson, 2010) at 4–5.

¹¹⁵ Machine learning is an AI method giving machines the means to learn in ways similar to the way human beings learn. See Hubert Dreyfus and his brother Stuart, who describe the influence of the scientific outlook on artificial intelligence. Hubert L Dreyfus, Stuart E Dreyfus, "Making a Mind Versus Modeling the Brain: Artificial Intelligence Back at a Branchpoint" (1988) 117:1 *Daedalus* 15.

to decide cases on rules rather than human fallibilities."¹¹⁶ The ideal of judicial automation is a perfection of what Weber observed on a systemic scale in bureaucratic legal systems.

To summarize, judicial automation is a shape of the rationalization of law. Just as Weber observes rationalization in the apparatus of bureaucratic legal systems, judicial automation is observable in the technologies implemented to support this bureaucracy. The connection between judicial automation and rationalization becomes clear when we consider the concept of "efficiency". Efficiency is not a feature of the scientific outlook, yet the archetype of science and efficient action (*technique*) are closely related.¹¹⁷ Machines such as AI systems work according to rules. They are formal machines. Their capacity for superhuman formal reasoning, calculation and prediction is why we create them. Flesh and bones judges already exist. Why would we want to automate judging other than because we find human reasoning to be deficient? Human cognition is too inefficient to keep up with the efficiency and abstraction that is expected in modern legal systems. Formal systems, whether they are AI systems or bureaucratic system, win at the game of formalism, and as a result, of efficiency. And the game of efficiency is the only game left when law becomes technological.

For Weber, bureaucracy has a "technical superiority" over other forms of organization; it offers "[p]recision, speed, consistency", etc.¹¹⁸ All elements we associate with efficiency. Such a system "provides the administration of justice with a foundation for the realization of a conceptually systematized rational body of law on the basis of 'laws".¹¹⁹ Put another way, the efficiency typical of bureaucracy and technology allows judging as science to thrive, and in turn, judging as science favors more efficiency. The problem is judging as science is not an end. In fact, the scientific outlook is abstraction from any irrational consideration, including what we could describe as moral values, or transcendent goals (with law, non-legal considerations). Efficiency is not an end either. Using technology to pursue judging as science amounts to making law even more scientific, in the formal sense. This trap of pure theory is what Pound is likely referring to when he warns of "mechanical jurisprudence", and law being "scientific for the sake of science."¹²⁰ "Scientific jurisprudence" can become "mechanical

¹¹⁶ Ray Worthy Campbell, "Artificial Intelligence in the Courtroom: The Delivery of Justice in the Age of Machine Learning Articles & Essays" (2020) 18:2 Colo Tech LJ 323 at 323.

¹¹⁷ For Ellul, technique is efficiency in all spheres of life. Jacques Ellul, *La technique ou l'enjeu du siècle* (Paris: Economica, 2008) at 29.

¹¹⁸ Weber, *supra* note 52 at 349.

¹¹⁹ *Ibid* at 351.

¹²⁰ Pound, *supra* note 19 at 605.
jurisprudence."¹²¹ To avoid this turn, Pound believes we should not forget the end of law, namely "the administration of justice."¹²² The problem is that an efficient legal system *is* administrating justice. In a bureaucratic state, justice is being administered, only, the focus is on the "administration" part, not on justice. An automated justice system is efficient. But what does it administer exactly, other than efficiency? Is it a *justice* system, or only a system?

These questions arise when one notices "efficiency" is a recurring keyword in reports about AI and the administration of justice. A white paper of the World Economic Forum stresses that "[n]ew approaches are needed that merge algorithmic efficiency with the fundamental elements of fair process",¹²³ while we read in a report from the Canadian department of justice that: "[d]ue to the efficiency and improved ways of practising law, lawyers will be able to focus on analysis and improving customer service for their clients."¹²⁴ We also find efficiency across law and technology scholarship.¹²⁵ Tegmark writes that "[s]ince the legal process can be abstractly viewed as computation, inputting information about evidence and laws and outputting a decision, some scholars dream of fully automating it with robojudges […]".¹²⁶ Callister highlights that legal information resources sell themselves as "essential tools that make the practice of law more efficient."¹²⁷ Australian judge Melissa Perry sees the potential efficiencies of scale that the automation of administrative decision-making provides, while warning it is AI's "Achilles heel."¹²⁸ Re and Solow-Niederman see efficiency and uniformity as the main strengths of AI adjudication, envisioning a court system where one device driven by machine learning oversees the entire caseload, "limited only by computing power and

¹²¹ *Ibid* at 607.

¹²² *Ibid* at 605.

¹²³ World Economic Forum Global Future Council on Data Policy, AI for Humanity and Media, Entertainment and Sport, *Pathways to Digital Justice* (World Economic Forum, 2021), online: https://www.weforum.org/whitepapers/pathways-to-digital-justice/ at 15.

¹²⁴ Dennis D. Draeger, *Justice Trends 2: Automated Justice Get the Gist of the future for technology in justice* (Ottawa: Department of Justice Canada, 2016), online: https://www.justice.gc.ca/eng/rp-pr/jr/jt2-tmj2/index.html at 11. For another report about the potential of algorithmic tools for law's efficiency, see Law Commission of Ontario *The Rise and Fall of Algorithms in the American Justice System: Lessons for Canada* (Toronto: Law Commission of Ontario, 2020).

¹²⁵ Kieran Tranter, "Nomology, Ontology, and Phenomenology of Law and Technology" (2007) 8:2 Minn JL Sci & Tech 449 at 460.

¹²⁶ Max Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence* (Bristol: Allen Lane, 2017) at 105.

¹²⁷ Paul D Callister, "Law and Heidegger's Question concerning Technology: Prolegomenon to Future Law Librarianship" (2007) 99:2 Law Libr J 285 at 297; Richard Delgado & Jean Stefancic, "Why Do We Ask the Same Questions - The Triple Helix Dilemma Revisited" (2007) 99:2 Law Libr J 307 at 323. The authors claim that computer searching teaches formalism by concealing "the lesson of contingency".

¹²⁸ Justice Melissa Perry, *iDecide: Digital pathways to decision* (Canberra: Law Council of Australia 2019 CPD Immigration Law Conference, 2019), online: https://www.fedcourt.gov.au/digital-law-library/judges-speeches/justice-perry/perry-j-20190321>.

energy resources."¹²⁹ Such a machine would make judicial decisions uniform, allowing for the mitigation of arbitrariness and human bias, a "promise" of codified justice.¹³⁰ Re and Solow-Niederman argue AI adjudication fosters the latter at the expense of equitable justice, and thus strengthens "forces that already push toward greater measurability, objectivity, and empiricism in the legal system."¹³¹ Simmons sees what he calls "machine judges" as harbingers of efficiency and accuracy in criminal justice,¹³² as well as a remedy for the "irrationality and bias that plague the [legal] system."¹³³ He highlights that algorithms that predict the behavior of defendants for pretrial detention determination need to consider fewer risk factors that were thought to be relevant before.¹³⁴

The question of whether law (and here I mean law, not only its administration) can be made more efficient is one we should ask ourselves when thinking of judicial automation. Volokh's approach to judicial automation provides a good example of how judging as science engages with the question of law's efficiency. Although Volokh does not refer to science, his perspective embodies the features of judging as science. Whether there is a "right" legal answer to each case, that judging as a rational activity can extract, is a non-question. What matters from the standpoint of judging as science is the output of automated judicial processes compared with the results humans reach. Volokh suggests we make this comparison according to the criterion of persuasion.¹³⁵ If artificial legal reasoning can persuade us, we should accept its author as a reliable alternative to a human judge.

Cost-effectiveness is an important factor for Volokh; he goes as far as stating that an "intelligent" machine is just an "effective" one.¹³⁶ If judging is only what Volokh describes, there is little judicial automation is possible because if a machine can work with language, it can write arbitrary rules at the very least. This study does not contest artificial intelligence systems *can* write legal decisions, or whether such decisions would be legitimate. Our goal is not to determine if judicial automation is possible. Instead, we ask: what would be the features of a case law made by automated courts? How does this law differ from law as we know it, or

¹²⁹ Richard M Re & Alicia Solow-Niederman, "Developing Artificially Intelligent Justice" (2019) 22:2 Stan Tech L Rev 242 at 255.

¹³⁰ *Ibid* at 255–56.

¹³¹ *Ibid* at 261.

¹³² Ric Simmons, "Big Data, Machine Judges, and the Legitimacy of the Criminal Justice System" (2018) 52:2 UC Davis L Rev 1067 at 1070.

¹³³ *Ibid* at 1108.

¹³⁴ *Ibid* at 1074.

¹³⁵ Eugene Volokh, "Chief Justice Robots" (2018) 68:6 Duke LJ 1135 at 1141; Simmons shares this approach based on the performance of machines. Simmons, *supra* note 132 at 1072.

¹³⁶ Volokh, *supra* note 135 at 1146.

as it has been known across history and legal systems? In other words, what does judicial automation do to law, what is the essence of this phenomenon? Judging as science alone cannot answer these questions. We must open ourselves to another dimension of judging. This approach is judging as art, which the next chapter will elaborate.

II. JUDGING AS ART

The artistic outlook

In the previous chapter, I set out to unravel the dualities that underlie judging as a mental process. An exercise that is one step forward in our search for the essence of judicial automation. To help us I appeal to two frameworks of knowledge that are (1) often used in everyday language and in the literature as archetypal words, or metaphors for the analytic and creative dimensions of knowing and judging, and (2) useful illustrations of contemporary understandings of decision-making in psychology, more precisely of dual-process theories of knowing. These frameworks are science and art. I identified five features of science, namely objectivity, conformity to reason, coherence, predictability, and control. I did not constrain myself with a rigid definition of science, because my purpose is not to argue that judging is indeed a science of law, but that legal theories naturally split into two main viewpoints; that each conceals philosophical a priori about how we *know* reality (including legal reality, the part of reality legal thought is about)¹³⁷ are, and how the two interact. These underlying metaphysical understandings have a rich history and inform the archetypes of science and art.

I began with science and a review of theories that attest to the archetype's trace in legal theory. Then, I discussed Weber's theory of "the rationalization of law" to illustrate how rationalist and formalist assumptions translate into a concrete organization of society and of legal systems. Weber's observations are for me evidence of how legal theory and its abstract a priori influence judging and law as sociological phenomena grounded in history. Automation came up late in the argument. My claim in that regard is that we can and should understand judicial automation and artificial intelligence in the context of the rationalization of law. Considering this observation, judicial automation is the product of, as well as the catalyst of judging as science.

We must now turn to the framework of art and its features, uncovering a dimension of judging we left aside in the first chapter. This chapter will unveil this other dimension of judging by examining its relationship with the artistic outlook and process. First, what general observations can we make about art? Art, like science, refers to a knowledge, although artistic knowledge takes the plural forms of artistic expression rather than being confined to formal language. In many regards, art mirrors science. Both are human activities, approaches, lenses, and they are for a lot of people the most outstanding products of our intelligence. But as much

¹³⁷ See Plunkett & Wodak, *supra* note 6 at 236.

as science values objectivity, the artist's personal experience of reality through her sensibility, i.e. the artist's subjectivity, is key to art and so we cannot speak of "the" artistic method as something all artists must follow to create proper art. The importance of individual human beings and their *subjective experience* is a feature of art, especially if we consider modern aesthetics and how they shape our expectations towards art today.

In this chapter, I speak of the artistic outlook as encompassing both the viewpoint of the artist and the viewpoint of an artwork's viewer. Artworks do not conceal a universal meaning, as such, the viewer's subjective outlook is an important part of artistic knowledge. The subjective experience is an important feature of both. This feature finds echo in cognitive-experiential self-theory (and other dual process psychological theories), according to which one of the two systems making up the mind is an "experiential system."¹³⁸ The experiential mind focuses on emotion and encodes reality "using concrete images, metaphors and narratives."¹³⁹ In contrast with science and its grounding in reason, art values *sensitivity* above all. The artistic process welcomes the emotions, compulsions, beliefs, intuitions, automatisms and other affective responses of the artist as subjective yet undeniable doorways to truth. In modern aesthetics, affects and intuition play an essential role of guidance for the artist, who should let go of the frontiers drawn by formal logic and reason to give creative expression full breadth.

Because art prizes personal experience and sensitivity so much, no identifiable formal logic holds it together as a coherent body of knowledge. Artists challenge and reject conventions all the time. Cubist painters, for example, "rejected the inherited concept that art should copy nature, or that artists should adopt the traditional techniques of perspective, modeling, and foreshortening."¹⁴⁰ The artistic process is constantly reinventing itself, contesting models, highlighting contradictions, and embracing them. This constant collapse of rules and boundaries is attributable to *creativity*, another key feature of art. Reality seen through the artistic outlook is in flux; it cannot be fully grasped but only interpreted. This matters little for art's status as a framework for knowledge, since art reflects the experience of her maker

¹³⁸ Epstein, *supra* note 9 at 218.

¹³⁹ *Ibid.* We saw how the other system in CEST is the rational mind, theorized to focus on reason and logical connections.

¹⁴⁰ Sabine Rewald, "Cubism" in *The Met's Heilbrunn Timeline of Art History* (New York: The Metropolitan Museum of Art, 2004), online: https://www.metmuseum.org/toah/hd/cube/hd cube.htm>.

and her viewer with no ambition to arrive at an objective or stable truth. Art presupposes a plurality of truths, a contingent, changing, and dialectical truth.¹⁴¹

To appreciate the unstable and changing nature of reality art conveys, the maker and the viewer of art must embrace mystery, ambiguity, contradictions, indeterminacy. For experimental psychologist Berlyne, "novelty, surprisingness, complexity, ambiguity and puzzlingness are the most significant properties in stimulus relevance to studying aesthetic phenomena", i.e. in how we react to artworks.¹⁴² Surrealist painter Magritte wrote that art "evokes the mystery without which the world would not exist."¹⁴³ The mysterious quality of art allows it to convey a truth that is not accessible in full. Faced with this incomplete access to truth, the artist is humble, because she knows her knowledge of reality will always remain incomplete. In a world we cannot understand, grasp and master, our subjective experience of it is a sufficient truth we can then express through art. Art is a statement of *humility*. We have before us five features of the archetypal idea of art: subjective experience, sensitivity, creativity, indeterminacy, and humility. My goal is now to proceed as I did with science, that is reviewing legal theories to assess the extent to which judging has been understood as an art. Some of these theories compare judging with art in express language, while others refer to the features of art. Let us now uncover the artistic outlook on law, beginning with the mysterious aspects of law. My first claim regarding judging as art is indeed that the artistic outlook on law is necessary to handle the law's inescapable mystery.

An artistic outlook on law

Law's mystery

To understand what I mean by law's mystery, consider the life cycle of a typical legal problem. When an everyday situation of disagreement reaches an impasse, the parties are free to make the disagreement "legal". This is usually when the litigants require the intervention of a third party who can interpret the law, which is not self-explanatory to the layperson. A simple understanding of judging is that it is the qualification of situations of fact, that is social situations which escalated to a dispute, under the light of law in such a manner that the dispute

¹⁴¹ While formal logic centers on the application of first principles, dialectical logic is about reaching insights through the opposition of contradicting ideas in an attempt to progress towards a truth that is more intuitive.

¹⁴² D E Berlyne, *Aesthetics and psychobiology*, Aesthetics and psychobiology (East Norwalk, CT, US: Appleton-Century-Crofts, 1971) at 336; Marian Mazzone & Ahmed Elgammal, "Art, Creativity, and the Potential of Artificial Intelligence" (2019) 8:1 Arts 26 at 2.

¹⁴³ A 12th of March, 1937, letter of Magritte to Paul Colinet. Caroline Joan ("Kay) S Picart, "Memory, pictoriality, and mystery: (Re)viewing Husserl via Magritte and Escher" (1997) 41 Philosophy Today 118 at 125.

can be overcome based on a legal remedy. This is where judges step in, with the help of lawyers and scholars. Whether the case requires the judge to interpret a piece of legislation, a court decision or a contract, multiple meanings emerge either from adversarial representations or from the judge reasoning on her own. Before a ruling is made, these sometimes conflicting interpretations coexist. When the judicial process ends and the judge decides, one interpretation becomes binding law over the other, a statement of law that remains nonetheless unstable. Indeed, when a ruling is made on a legal issue, the decision becomes binding law for the parties or beyond depending on if the rulings are erga omnes or inter partes, yet often the parties can appeal the decision. Until the statutory appeal period expires, the ruling is most of the time binding. Yet it is fragile. And in some jurisdictions, judgments of lower courts are subject to judicial review even if no appeal mechanism is available. If an appealable ruling climbs to the highest court of the legal system, years can go by before a final decision. And common law supreme courts are in theory not bound by stare decisis, at least not vertically, meaning that they have the discretion to overturn their past rulings. Civilian courts have even more discretion to overturn rulings. Over a long period, all of this means that legal systems will reassess legal norms in the light of new fact patterns or social changes.

Considering these dynamics, it is difficult to speak of law or of legal reality as stable, determinate, or certain. On a given legal issue at a given time, it is hard to tell *what the law is*.¹⁴⁴ This feature of law is what I call law's mystery. Law's mystery is hardly compatible with the idea of law as a formally rational coherent and stable body of knowledge because law's mystery implies that legal reality is full of incoherence, even though the opposite may seem true when one narrows down on a specific series of legal decisions. The coherence of law is one of the principal assumptions of the most radical conceptions of judging as science reviewed above and of the judicial philosophies and methodologies that stem from them. According to less orthodox scientific outlooks on law, the law has its share of ambiguities, but we can solve "hard cases" by following a rationality accessible to all judges through reason. This is also the a priori of judicial automation. Judging as science, like science, is aware that legal reality is sometimes unstable, however, it is confident in our ability to order it as a coherent body of knowledge that follows a rationality accessible to reason. My chief claim in this chapter is that an artistic outlook on law, like judging as science, acknowledges law's mystery but deals with it differently. An artistic outlook on law, judging as art, is largely about accepting law's mystery

¹⁴⁴ Hutcheson considers change to be part of "the very nature of law itself". Joseph C Jr Hutcheson, "The Judgment Intuitive: The Function of the Hunch in Judicial Decision" (1929) 14:3 Cornell L Q 274 at 276.

without the ambition to order laws into a formally logical structure. Judging as art is the acceptance that "[1]aw must be stable and yet it cannot stand still."¹⁴⁵ Assessing the mystery, indeterminacy, uncertainty and instability of law and what these features imply for judging as a mental process, for instance how it undermines its claim to objectivity, will be at the core of this chapter.

Once again we proceed with a review of legal theories, except that now we discuss theories that illustrate the features of art. To start, it is worth expanding on the discussion we had in Chapter I about common law, civil law and their respective rationality, because implicit to my study is the idea that metaphysics and philosophy of mind help us understand legal decisionmaking processes at the individual and systemic scales alike. Baudouin explains that while civil law judging is characterized by its formal rationality, a systematic and deductive method and the search for coherence, common law judging is at its core an inductive rationality.¹⁴⁶ This is because in the common law tradition, more emphasis is put on the fact that law is a social practice rather than a logical ensemble, and as such, common law is about finding the best practical solution based on experience.¹⁴⁷ Common law and civil law also entertain a different relationship with objectivity, a staple of science. Common law embraces the subjective nature of judging by giving great importance to the individuation of legal decisions. The "common law judge" is an important figure in this tradition. Judges like Edward Coke, Richard Wilberforce, William Blackstone, Alfred Thompson Denning marked English common law with their distinct personality. In France, the cradle of contemporary civil law, judges are anonymous; it is "le tribunal" or "la cour" that speaks.¹⁴⁸ Judicial discourse is "impersonnel, formel et lapidaire",¹⁴⁹ meaning that the judge's character is given no room to transpire in her reasons.

Side by side, the two legal traditions provide a useful metaphor of the duality of mind inherent to judging as a mental process considered through the frameworks of science and art. Each legal tradition (and the theoretical conception that comes with it) embodies peculiar assumptions about what law is and how it should be and should evolve, civil law embracing a top-down approach, common law a bottom-up approach. Civil law judges "are more formalistic" than common law judges.¹⁵⁰ But like the rational and experiential systems in

¹⁴⁵ Roscoe Pound, Interpretations of Legal History (Cambridge, US: Harvard University Press, 1946) at 1.

¹⁴⁶ Baudouin, *supra* note 4 at 331.

¹⁴⁷ *Ibid* at 332.

¹⁴⁸ *Ibid* at 330.

¹⁴⁹ *Ibid*.

¹⁵⁰ Posner, *supra* note 55 at 157.

cognitive-experiential self-theory, or science and art, the two legal traditions interact with each other.¹⁵¹ We have seen how common law legal systems attends to the rational need for coherence through the principle of stare decisis, which ensures that decisions adhere to the preceding body of case law.¹⁵² In both civil law and common law, though, the courts, especially supreme courts, must "speak" the law with future cases and the general stability of the law in mind, not only the specific facts at hand.¹⁵³ To put it another way, each legal tradition deals with the same underlying ideas, such as predictability, coherence, objectivity or rationality, although in different ways. This is also the case with the judging as science and judging as art dichotomy, a divide that is becoming hard to justify as something more than an artificial construct. Yet, like I did with judging as science in the previous chapter, I shall now review legal theories that engage with the features of judging as art. This review begins with a discussion about law and indeterminacy. In many regards, this section elaborates on law's mystery.

Judging and the indeterminacy of legal and social reality

Judging cannot avoid indeterminacy. A judge, in principle, only handles things that are doubtful, uncertain, indeterminate.¹⁵⁴ Several legal theories engage with the indeterminacy of law, but for the purpose of understanding the "indeterminacy" feature of judging as art, we will discuss three: legal pluralism, legal realism and legal pragmatism. I review them together in this section because they all address the intersection of law and society more broadly. Because this study explores judging as a *knowing* or *revealing* of law, it is helpful to think of law and society as two "realities" we can know: legal reality and social reality. If judging is the interpretation of social situations in light of the law, we can conclude that judges work at the intersection of two realities: legal reality, made of legal norms and principles, and social reality which is in this context the broader set of norms upheld by a given community. How relevant it is to study these two realities alongside one another, how they interact with each other, or if they are distinguishable at all, are important implicit issues of legal theory.¹⁵⁵ The same questions can inform a discussion about science and art. We should therefore keep these issues

¹⁵¹ This is true especially in Canada, a country with a mixed legal system. See Baudouin, *supra* note 4 at 331.

¹⁵² See *Ibid* at 333.

¹⁵³ *Ibid* at 332.

¹⁵⁴ Thuillier, *supra* note 4 at 39.

¹⁵⁵ Legal theory concerns itself mostly with legal reality and its interaction with the broader social context, since social reality is more the domain of sociology proper (although legal theory began drawing from social studies at the turn of the twentieth century).

in mind when examining the following theories because they have been lurking in the shadow of my argument so far and will emerge more and more at the forefront throughout this chapter.

The first theory is legal pluralism. One of its tenets, common to most theories of judging as art, is the idea that legal reality and social reality reflect one another.¹⁵⁶ Central to the theory of legal pluralism is the notion that more than one law can exist in a single territory. For Griffiths:

A situation of legal pluralism - the omnipresent, normal situation in human society - is one in which law and legal institutions are not all subsumable within one 'system' but have their sources in the self-regulatory activities of all the multifarious social fields present, activities which may support, complement, ignore or frustrate one another, so that the 'law' which is actually effective on the 'ground floor' of society is the result of enormously complex and usually in practice unpredictable patterns of competition, interaction, negotiation, isolationism, and the like.¹⁵⁷

That the law originates from a plurality of sources is the antithesis to an ideology Griffiths calls "legal centralism", according to which "law is an exclusive, systematic and unified hierarchical ordering of normative propositions".¹⁵⁸ The legal centralist conception is reminiscent of legal formalism or the geometric paradigm in law, in that all three think of legal reality as an immanent system of norms, although each position presupposes a different "glue" that ties the legal system together: respectively the rule of recognition or Grundnorm, logic, reason, mathematics. Legal centralism relates to modern theories of legal positivism and, as such, both care less about the moral foundations of law than about the legitimacy of legal authority, legitimacy which must be recognized by the community. The peculiarity of centralist conceptions is that they assume one source of authority can exist in a given legal system.

Legal pluralism challenges this view. For Griffiths, legal centralism as an ideology has been an obstacle to an accurate account of legal reality.¹⁵⁹ He pictures legal centralism as a deformed lens through which lawyers and social scientists have seen law, preventing them from accessing what legal reality really is: "an unsystematic collage of inconsistent and overlapping parts, lending itself to no easy legal interpretation, morally and aesthetically offensive to the eye of the liberal idealist, and almost incomprehensible in its complexity to the would-be empirical student."¹⁶⁰ A mysterious reality like that seen in the eyes of the artist. Griffiths goes

¹⁵⁶ Cobbe calls it the "reflexivity of law". Cobbe, *supra* note 8 at 111.

¹⁵⁷ John Griffiths, "What is Legal Pluralism?" (1986) 18:24 The Journal of Legal Pluralism and Unofficial Law 1 at 39.

¹⁵⁸ *Ibid* at 3.

¹⁵⁹ *Ibid* at 4.

¹⁶⁰ *Ibid*.

further and, committing to the certainty of uncertainty, asserts that "[l]egal pluralism is the fact."¹⁶¹ "The fact" of all societies, at least according to what Merry calls "new legal pluralism", which studies the phenomenon in colonized and non-colonized societies alike.¹⁶² Regarding our argument on what judging is as a mental process is theorized to be, legal pluralism implies that while judges may be capable of approaching the dominant normative order as scientists (and we have seen how difficult this proves to be), the artistic outlook is necessary to grasp the other "fields" that make up legal reality and influence it.

Legal pluralism shows that law cannot exist outside of social realities, which are complex and plentiful. On the surface, judges examine the facts, identify the applicable norm, and apply it to the facts.¹⁶³ This operation, the legal syllogism, is easier to conceptualize if we assume the tenet of legal centralism (and legal positivism, to some extent) according to which the validity of legal norms depends on their conformity to only one source of legitimate authority. With legal pluralism in mind, the simple equation appears much more puzzling because the "facts" and "law" variables both hide a pluralistic reality. With the emergence of pluralism as a concept, "rationality" itself cannot pretend to the universal since we come to acknowledge that there are multiple rationalities instead of one.¹⁶⁴ A long time ago, Gény already asserted that the abuse of "ratiocination" and logical methods in law was to endow "ideal conceptions, provisional and purely subjective in their nature", "with a permanent objective reality."¹⁶⁵ We can think of judging to be art because in the face of a complex social reality, judges must offer a humble interpretation of "their" legal and social reality based on a subjective experience that cannot possibly account for all points of view. This becomes even more true as Western culture is becoming more accepting of the width of personal identities.¹⁶⁶

Legal pluralism is an important foundation for judging as art, but also constitutive of an artistic "practical theorizing" of judging. In Chapter I, we saw how legal formalism and textualism are approaches to interpretation that reflect the judging as science as I define it in this study. These approaches share premises with the theories of Langdell and Leibniz before

¹⁶¹ *Ibid*.

¹⁶² Sally Engle Merry, "Legal Pluralism" in *The Globalization of International Law* (London, UK: Routledge, 2005) 29 at 32.

¹⁶³ Pollock, *supra* note 3 at 594.

¹⁶⁴ Andrew Feenberg, "Critical theory of technology and STS" (2017) 138:1 Thesis Eleven 3 at 5.

¹⁶⁵ François Gény, *Méthode d'Interprétation et Sources en droit privé positif*, vol I (1919) at 127, sec. 61; transl. Modern Legal Philosopby Series.

¹⁶⁶ Each Indigenous language, for example, provides for concepts unknown to English speakers that may allow for new legal institutions that were only possible in that specific culture. Gender and race identities similarly withhold subjective experiences of reality judging should consider.

him, and the rationalist tradition of metaphysics. Under the idea of legal pluralism, liberal judicial interpretation practices of today recognize that the text of statutes is one of several variables judges should consider, among which is a pulse of social realities. But to understand judging as art, we must consider the theories that arose as counterarguments of the Langdellian approach to law which prevailed in the late eighteenth and early nineteenth century. At the forefront of this theoretical skirmish were the legal realists. Famous jurists associated with legal realism include Oliver Wendell Holmes Jr., Roscoe Pound, Benjamin Cardozo, Karl Lewellyn, and Jerome Frank. Beyond academia, realist legal philosophy was popular among federal judges sitting in the 1920s and 1930s. We can broadly define legal realism as an approach in legal theory, however "scholars disagree over whether realism was a school of thought, a movement, a full-blown jurisprudential theory, or just a 'cynical state of mind."¹⁶⁷

The standard account of realism is that legal realists disagree with the idea of law as an immanent system and that they reject the formalist view of law as "objective, unchanging, extrinsic to the social climate" and judging as "impersonal or mechanistic."¹⁶⁸ For Singer, "the legal realists wanted to replace formalism with a pragmatic attitude toward law generally."¹⁶⁹ One important idea of realism is that "law always has been, is now, and will ever continue to be, largely vague and variable."¹⁷⁰ The previous statement implies judges are not working with a common set of first principles that would allow the conceptualization of judging as a deductive science. Holmes, a well-known realist, wrote that the law: "cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics."¹⁷¹ In the realist conception, we must turn to other sources than strictly legal material to "know" what law is, sources like "history and existing theories of legislation."¹⁷² Legal reality cannot be interpreted without regard for social reality:

The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellow-men, have had a good deal more to do than the syllogism in determining the rules by which men should be governed.¹⁷³

¹⁶⁷ Brian Z Tamanaha, "Understanding Legal Realism" (2008) 87:4 Tex L Rev 731 at 737.

¹⁶⁸ *Ibid* at 731; William M Wiecek, *Liberty Under Law: The Supreme Court in American Life* (Johns Hopkins University Press, 1988) at 187.

¹⁶⁹ Joseph William Singer, "Legal Realism Now" (1988) 76:2 Calif L Rev 465 at 474.

¹⁷⁰ Jerome Frank, *Law and the Modern Mind* (New York: Routledge, 2009) at 6.

¹⁷¹ Oliver Wendell Holmes Jr, *The Common Law* (Cambridge, US: Harvard University Press, 2009) at 3.

¹⁷² *Ibid*.

¹⁷³ *Ibid*.

Tamanaha interjects that the standard account of legal realism is misleading, since it makes assumptions about the historical context in which realism as we know it arose.¹⁷⁴ In fact, for him, "judges, lawyers, and legal academics had [then] long been aware of the openness of law and the problematic complexities of judging."¹⁷⁵ This historical controversy reinforces the idea that the tension between judging as science and judging as art is nothing contemporary and that judging has been difficult to theorize for a long time. Legal realism is the best case study of the duality of mind which underlies judging because realism was a self-proclaimed scientific enterprise.¹⁷⁶ Realism reveals the divide between art and science as a thin frontier, if it is exists at all. Late Realist Smith, for instance, was an advocate of "juristic science", which goal is to organize law in "systematic form."¹⁷⁷ Realism nevertheless distances itself with "cloistered" science to embrace a social-scientific approach that is in close contact with daily life. Smith said "[i]t would perhaps be more accurate to call this the art rather than the science of law."¹⁷⁸ For him, the "masters of this art" are those who apply the law,¹⁷⁹ suggesting that the application of law needs to remain an important theme of our analysis as we make progress in our clarification of what "judging as science" is relative to "judging as art". A consequence of approaching law through a social-scientific framework, like legal realism does, is that legal reasoning or judging can no longer aspire to certainty, only probability.¹⁸⁰ A mechanical application of legal norms by technician judges is out of the question.¹⁸¹

Pragmatism also is the acknowledgment that legal reality is indeterminate. And we know legal reality is the part of reality legal thought is about. For Posner, pragmatism has long stood as a branch of thought that turns away from the traditional project of philosophy that purports to use abstract reasoning and logical operations as a way "to establish the possibility and nature of truth" among other things.¹⁸² The pragmatic response (which includes realism according to some) is a "radical empirism" based on the consequences of propositions.¹⁸³ In law, pragmatism is at its core a "heightened judicial awareness of and concern for consequences, and thus a disposition to ground policy judgments in facts and consequences rather than in conceptualisms

¹⁷⁴ Tamanaha, *supra* note 167 at 733.

¹⁷⁵ *Ibid*.

¹⁷⁶ *Ibid* at 737.

¹⁷⁷ Munroe Smith, "State Statute and Common Law" (1887) 2:1 Political Science Quarterly 105 at 126; Tamanaha, *supra* note 167 at 743.

¹⁷⁸ Smith, *supra* note 177 at 126.

¹⁷⁹ *Ibid* at 126-27.

¹⁸⁰ Thuillier, *supra* note 4.

¹⁸¹ *Ibid* at 40.

¹⁸² Posner, *supra* note 55 at 147–48.

¹⁸³ *Ibid* at 148.

and generalities."¹⁸⁴ Judicial pragmatism is popular among "progressive" or "liberal" judges, who see legislation (often constitutional texts) as "organisms" that should adapt to the social circumstances it grows in. Jurists such as Posner have been advocates of this approach on the theoretical end, but like realism, pragmatism is a recurring theme in the discourses of practicing judges (Posner had a prolific academic career while serving as a federal appellate judge). Pragmatic judges interpret laws more liberally, going beyond the literal language of the legislator if necessary to serve the purpose of the law being interpreted.

Doctrines that derive from pragmatism include living constitutionalism in the United States and the living tree doctrine in Canada. Living constitutionalism is the idea that constitutional law should develop in parallel with society and its values, which are not stable. It entails that instruments such as a charter of rights are fluid; their content (as interpreted by the courts) evolves as the years go by, and we trust the courts to find the meaning appropriate for the current era through social analysis whenever written constitutional law and the circumstances are at odds. Pragmatism works with the idea that not only are the social realities that ground the law complex, but so is legal reality itself, because it purports to reflect the broader social context.

But although proponents of legal pragmatism emphasize the indeterminacy of law, this "fact" is part of the reality of all judges. A judge who faces ambiguity in the application of law to a set of facts does not examine legislation, precedent, or custom in isolation from their context: the teleological reading of statutes, for instance, considers the goals (social, economic, or else) the lawmaker had in mind when adopting the legislation, while originalist readings focus on the historical context at the time of adoption.¹⁸⁵ All methods of judicial interpretation struggle with the depth of social reality, its contradictions, forces, actors.¹⁸⁶ One takeaway of my review of legal theories is that judging as science and judging. A similar interaction is theorized in psychology about human perception. If we recall Epstein's cognitive-experiential self-theory of personality (CEST), the rational mind and the experiential mind, the two "systems of knowing", "operate in seamless harmony with each other".¹⁸⁷ They are

¹⁸⁴ *Ibid* at 150.

¹⁸⁵ Legal Information Institute, "originalism" (last updated in May of 2022), online: https://www.law.cornell.edu/wex/originalism>.

¹⁸⁶ Posner claims that in a diverse country like the United States, the judiciary must be heterogenous if it is to retain its legitimacy. Posner, *supra* note 55 at 155.

¹⁸⁷ Epstein, *supra* note 9 at 215.

interactive.¹⁸⁸ In the same way, science and art overlap. The realist perspective on science illustrates this by deconstructing legal science as it was understood in a formalistic sense in the early 20th century. At this stage, we come to realize that the science-art distinction is close to being a false dichotomy.

I mentioned that my conception of science is reductive and that "formal science" or "deductive science" would be a more precise label. "Science" is not a monolithic body of knowledge or a single method; the idea of "social sciences" attests to this. Scientists benefit from the rational and the experiential minds, and so do artists. Yet, legal theory uses the archetypal concepts of science and art to describe two dimensions of judging that display the features I have outlined, leading us to believe that some theories just do not speak to each other. This dual understanding of mind and its role in shaping legal theory and artificial intelligence will come at the forefront of our analysis from now on. At this stage, we can reconcile judging as science and judging as art by hypothesizing that judging begins as a science and ends as an art, in other words that the artistic, experiential outlook on law fills the gaps of the scientific, rational outlook. We shall now explore this interaction in more depth and validate this preliminary conclusion, through a brief discussion about concepts such as justice, equity, natural law and how they relate to judging as art. Underlying this part of the analysis is the question of whether there is an affective dimension to judging.

The affective dimension of judging

A key claim of judging as art theories is that variables other than legal rules and concepts matter in the judging of a legal case. Because these variables considered in judicial reasoning cannot possibly be contained in law as a stable and logical body of rules (some claiming that such a system is impossible), mental processes other than formal and logical reasoning must intervene. For Holmes, "[t]he life of the law has not been logic: it has been experience."¹⁸⁹ Legal realism and pragmatism indeed evoke reasoning that is more practical (pragmatic) and grounded in everyday life. A pragmatic approach to law is in theory one that is scientific in its commitment to empirical observation; pragmatists still commit to reason ("reasonableness" should orient legal decision making) and refuse to rely on abstract moral theory.¹⁹⁰ The pragmatic argument is convincing, but it seems to imply that reason, although in a less rigid

¹⁸⁸ *Ibid* at 228.

¹⁸⁹ Holmes Jr, *supra* note 171 at 3.

¹⁹⁰ Posner, *supra* note 55 at 152.

form, is what guides decision making, both legal and practical. I now wish to examine theories in which affects are given credit as factors are important to judging.

For this I will discuss the concepts of "justice" and "equity", concepts that can be qualified as *supra* legal in the sense that they have a legal connotation but have a much greater reach as moral principles. My aim is to review a few influential conceptions of justice and equity to show how they relate to judging as art, and, more precisely, how they fit into a conception of judging as a process that has an affective dimension. We will see that the question of affects and law drifts us outside legal theory and into other fields of study like philosophy, psychology and cognitive science. What may seem to be irrelevant to our main study in fact demonstrates one of my main claims: that we cannot discuss judicial automation without addressing the way we understand the mind and its grounding in the world. Judging is for me the prime example of a mental activity we understand to be "sensible reasoning", i.e. a rational process that should remain grounded in the everyday social experience.

In the last section I reviewed legal theories that emphasize the indeterminacy of legal reality. We saw how legal realism, for instance, rejects conceptualism or the idea that we can reduce law to a set of abstract concepts. Many legal realists explicitly commit to a scientific approach to law (an inductive rather than a deductive legal science), yet in large part reject a conception of judging as a logical activity.¹⁹¹ Pragmatism requires us to reconcile science and art, and for me, this starts with the acknowledgment that affective responses play a role in judging. Science and art come together in pragmatism because by putting the emphasis on consequences, pragmatism recognizes no science can operate only in the abstract; it is always grounded in application and experience. Former judge Pollock helps us understand where the affective dimension of judging might lie. He highlights that judging requires choices at every step of the process.¹⁹² And for him, "[m]aking these choices is an art as well as a science."¹⁹³ As I showed before, one reason case law has a share of "mystery" is because different judges applying the same law to the same facts lead to different judicial outcomes. "If law were purely scientific", Pollock points out, "judges analyzing the same facts and applying the same rules of law would reach the same result for the same reasons."¹⁹⁴

¹⁹¹ See *Ibid* at 148.

¹⁹² Pollock, *supra* note 3 at 594.

¹⁹³ *Ibid*.

¹⁹⁴ *Ibid*.

Judging is a science up to a point where judges cannot rely on statutory terms, history or rules of interpretation, but must engage in "controlled creation."¹⁹⁵ Legal realism, for instance, works with the assumption that law is not found, but made.¹⁹⁶ One may think of a case where the appellate judge favors a constitutional right over another and interprets this right in the spirit of living constitutionalism over originalism. Those choices are essentially value judgments (Pollock uses the term "subjective judgments").¹⁹⁷ I argue these choices are where the concepts of equity and justice (at least some conceptions of it) may fit in judging as both science and art.

If we first look at equity, we realize it seems to operate in a realm of creation beyond the scope of formal law. In its essence, equity transforms interpretation into a creative exercise when law cannot provide the fair resolution to a case.¹⁹⁸ In Western philosophy, its origins go back at least to the work of Aristotle. I already mentioned his theory of distributive and corrective justice, which draws from arithmetic and therefore relates to judging as science. Later in his Nicomachean Ethics, Aristotle engages with the concept of equity (epieikeia in ancient Greek). For the philosopher, "the very nature of what is equitable" is "a correction of law, where it is deficient on account of its universality."¹⁹⁹ Aristotle suggests the indeterminacy of social reality ("some things it is impossible to legislate") and how this "unformalizable" realm translates into the indeterminacy of law.²⁰⁰ "[A]ll law" (from a formalistic scientific point of view) indeed "is universal" even though "there are some things about which one cannot speak correctly in universal terms."²⁰¹ Equity requires the judge to assess the gap in the law from an assessment of what would have been the legislator's point of view, "saying what the lawgiver would himself have said had he been present, and would have included within the law had he known."202 When Aristotle describes the equitable person as "the kind of person who chooses rationally and who does equitable things",²⁰³ it is hard not to wonder about the role of the subjective experience of this person in her deliberation about how the law should be rectified. The answer to the question of what would the legislator have said in specific

¹⁹⁵ *Ibid* at 597.

¹⁹⁶ Singer, *supra* note 169 at 474.

¹⁹⁷ Pollock, *supra* note 3 at 614.

¹⁹⁸ See *Ibid* at 598.

¹⁹⁹ Aristotle, *supra* note 26 at 1137b; J-Michel Doyon, "Droit, Loi et Équité" (1995) 26:2 Revue générale de droit 325 at 328.

²⁰⁰ Aristotle, *supra* note 26 at 1137b.

²⁰¹ *Ibid*.

²⁰² *Ibid*.

²⁰³ *Ibid* at 1137b-1138a.

circumstances might appear as available to abstract, rational reasoning, but I would argue that it is inevitably informed by what oneself would decide in said case or at least in an empathetic response. I cannot imagine two people, even if they are both "equitable", would arrive at the exact same conclusion about a case given that their life experience is unique to them.

Aristotle's conception of equity has shaped the way we think of it today. Equity is still a suppletive principle in French civil law.²⁰⁴ In common law systems, equity is now a formal independent set of remedies parallel to those of common law that were historically the jurisdiction of a separate body of courts called the English Court of Chancery. Equity remedies "typically involve monetary damages" while "equitable relief typically refers to injunctions, specific performance, or vacatur."²⁰⁵ How does equity relate to judging as art, then? First we see that equity is a legal space that is open to creativity, and we know that creation is foreign to a conception of judging as a formal science.²⁰⁶ I wish to go further and explore equity as a realm that invites affective responses into the judicial process. Considered as a moral principle, equity is thought by some to stem from faculties inherent to our human nature. Genevan philosopher Rousseau thinks that these include a natural sentiment of "pity" (pitié) that stands as law in the state of nature in stead of a virtue that would be "acquired by reason".²⁰⁷ French lawyer Portalis writes that equity sometimes refers to a virtue, "la volonté constante d'être juste", or "le coup d'œil d'une raison exercée par l'observation, et dirigée par l'expérience", but that these conceptions relate only to moral equity.²⁰⁸ Judicial equity, on the other hand, is for Portalis "un retour à la loi naturelle, dans le silence, l'obscurité ou l'insuffisance des lois positives."209

We see it is difficult to pinpoint the essence of equity without going around in circles. If equity is a moral virtue, on what basis does a virtuous person decide? What about if equity is a return to natural law? Those eternal open-ended questions of legal theory and philosophy will not be solved here. However, I contend we should turn to equity and natural in trying to understand Pollock's claim that judging involves inevitable subjective judgments when guidelines like positive law, precedent and rules of interpretation are silent.²¹⁰ Choices that

²⁰⁴ Doyon, *supra* note 199 at 331–32.

²⁰⁵ Legal Information Institute, "equity" (last updated in December of 2022), online: .

²⁰⁶ See Hutcheson, *supra* note 144 at 281.

²⁰⁷ Jean-Jacques Rousseau & Ligaran, *Discours Sur l'origine et les Fondements de l'inégalité Parmi les Hommes* (Cork, Belgium: Ligaran Éditions, 2015) at 40.

²⁰⁸ Doyon, *supra* note 199 at 331.

²⁰⁹ *Ibid*.

²¹⁰ The word "conscience" is another we may think of in this context.

appear to be largely a product of sensibility and, according to Portalis, reliant on experience. To make the micro or macro choices that supplement the rational parts of judging, the judge must *feel* what is fair, equitable and just in the circumstances of the case before her. The judicial process is bound to invoke the experiential mind of the judge, her artistic mind.

What about justice? Classical and modern theories of justice also conceal beliefs regarding the relationship between justice and affective responses. In Chapter I we saw how Rawls's theory of justice, which has inspired "much of contemporary moral and political theory", relies on "tendencies to separate reason from feelings and to require that moral subjects be abstracted, in their deliberations, from the contextuality and contingencies of actual human life."²¹¹ Interestingly, Rawls later recognized that claiming that his theory is part of the theory of rational choice was a "very misleading" error and that he did not intend to make justice derive only from reason.²¹² In harmony with the revision of the original theory by Rawls himself, feminist author Okin favors an interpretation of the theory of justice "as a device of empathy and benevolence", mutual disinterest being only an assumption that makes the original position work.²¹³

How do any of the above observations relate to judging as art? For one, Rawls's initial theory and the fact that later he repudiated the idea that justice stems only from the rational illustrate the tension that exists between judging as science and judging as art. *Knowing* what is just or fair in circumstances is an activity that involves the duality of the mind. Okin is right to conclude that for a person in the original position to imagine herself as something she is not, for example for a nonreligious person to adopt the standpoint of a fundamentalist believer, "strong empathy and a preparedness to listen carefully to the very different points of view of others" are necessary.²¹⁴ The same ability to put oneself in someone else's shoes is characteristic of equity in Aristotle, which is about applying universal rules to the particulars as if the "lawgiver" had made a law about this particular.²¹⁵ Both equity and justice, therefore, seem to depend on a mental process that involves the scientific and artistic outlooks on law. For Cremer and Bos, justice is first an intuition or feeling that we then make our mind about in

²¹¹ Okin, *supra* note 29 at 230.

²¹² John Rawls, "Justice as Fairness: Political not Metaphysical" (1985) 14:3 Philosophy & Public Affairs 223 at 237; Okin, *supra* note 29 at 240.

²¹³ Okin, *supra* note 29 at 246.

²¹⁴ *Ibid* at 245.

²¹⁵ Aristotle, *supra* note 26 at 1137b.

the form of a judgment.²¹⁶ Chebat and Slusarczyk note that "individuals do not calculate justice. They rather experience a justice-related emotion and rather react to their emotion."²¹⁷ For Solomon, "justice is a set of passions to be cultivated, not an abstract set of principles to be formulated, mastered, and imposed upon society."²¹⁸ Antipathetic passions like envy or jealousy are as important pieces of this set as sympathetic passions like pity and compassion.²¹⁹

Equity and justice are wonderful counterexamples of the boundary between cognition and emotion that lingers in our vocabulary and beliefs, even though it is questioned by contemporary scientists of the mind. Our mind and its operations are still often split into two dimensions, like in cognitive-experiential self-theory, perhaps because dualism has become an integral part of Western thought. However, "reason", like every mental activity, is now thought by researchers in psychology to conceal an emotional dimension.²²⁰ For Schenk, emotion is an essential part of sense-making. It is what makes a rational choice relevant for oneself, what gives "[u]ne coherence fondamentale a la rationnalité d'un choix."²²¹ Put otherwise, human beings seek to make sense of new information and integrate them into an internal coherent structure of truth. Feelings contribute to the process of "consolidation" through emotional "valence".²²² I would argue that the law evolves similarly. Revealed as a science, law needs coherence and should be a set of rules ordered by an internal, meaningful logic (perhaps bound by morals). Yet, through the justice system new situations ask to integrate this structure. The deductive science dimension of judging is in that sense to derive new norms from the existing norms or underlying principles. Positivist conceptions of the law, although they reject the idea that law is subordinated to morality, come at a point in their system where a "legal first principle" must be presupposed: perhaps this first principle is the rule of recognition in Hart and the Grundnorm in Kelsen. We could argue that these fundamental norms are validated by the belief that the rule of law is a fact.²²³ While positivists do not spend too much effort on justifying this belief, the artistic outlook on law is willing to accept that the justification for a

²¹⁶ David De Cremer & Kees van den Bos, "Justice and Feelings: Toward a New Era in Justice Research" (2007)20:1 Soc Just Res 1 at 4.

²¹⁷ Jean-Charles Chebat & Witold Slusarczyk, "How emotions mediate the effects of perceived justice on loyalty in service recovery situations: an empirical study" (2005) 58:5 Journal of Business Research (Special Section on the 2002 SMA Retail Symposium) 664 at 665.

²¹⁸ Robert C Solomon, "The emotions of justice" (1989) 3:4 Soc Just Res 345 at 359.

²¹⁹ *Ibid* at 360.

²²⁰ See for example Françoise Schenk, "Les émotions de la raison" (2009) XLVII–144 Revue européenne des sciences sociales European Journal of Social Sciences 151; Epstein, *supra* note 9.

²²¹ Schenk, *supra* note 220 at 152.

²²² *Ibid* at 155.

²²³ See Frank, *supra* note 92 at 39.

legal first principle comes from a collective value judgement that may be irrational. On an individual level, judges reason new fact patterns into the existing system of rules, but it is their emotional mind that gives their decision a feeling of justice, equity, fairness, rightness.

These thoughts find support in Damasio's "somatic-marker hypothesis", which states that somatic markers, "a special instance of feelings generated from secondary emotions" connect to "predicted future outcomes of certain scenarios" in learning and therefore guide and "bias" rational deliberation.²²⁴ Somatic markers come from the experience of an external world made up of entities, events, social conventions, and ethical rules.²²⁵ Damasio's hypothesis understands their role to be beacons of incentive or disincentive of certain courses of action available in decision-making situations. With them, the decision process gains efficiency because we end up with fewer options to choose from during the reasoning process that follows for more complex instances.²²⁶ According to that conception and contrary to our hypothesis of earlier, judging begins as art and ends as science. Using only rationality, we would have to make endless calculations about the many possible options, their consequences, how they match our goals, and so on. Regarding decision processes that involve a lot of steps, like judging, somatic markers help us frame the problem so that we focus on the issues that matter.²²⁷ Damasio highlights that while processes like judging a constitutional issue would generally be assumed to align with our reason since they are not decisions of the personal domain, they could in fact rely on the somatic markers, like simpler decisions.²²⁸

Could equity and justice as I present them in this chapter, that is as affective responses, be the "somatic markers" of judging, meaning that they help judges assess interpretations on the basis of the feelings or bodily sensations they trigger? Such a conclusion would sure be consistent with Aristotle's conception of justice (and equity to some extent) as "complete virtue".²²⁹ For him, "virtue of character (*êthos*) is a result of habituation (*ethos*)".²³⁰ Be that as it may, affects and emotion are a neglected topic in legal theories of judging despite modern science hypothesizing that they play an important role in decision making. This understandable gap (psychology is a modern field of study) led me to include in this review classical theories

²²⁴ Damasio, *supra* note 5 at 282.

²²⁵ *Ibid* at 288.

²²⁶ *Ibid* at 281.

²²⁷ Damasio gives the example of a patient with ventromedial prefontal damage pondered for almost half an hour over two alternatives dates for his next visit to the laboratory, enumerating a long list of reasons for and against each date. *Ibid* at 308.

²²⁸ *Ibid* at 274–75.

²²⁹ Aristotle, *supra* note 26 at 1129b-1130a.

²³⁰ *Ibid* at 1103a.

that evoke the features of judging as art because philosophers have long been aware that judging is not just the methodical application of preexisting rules and principles. We shall now discuss what judicial automation means for judging as art. Theoretical approaches in artificial intelligence research will be of great relevance throughout this analysis, as well as old problems of mind sciences which solutions are key to creating machine judges.

Judicial automation and judging as art

Before we develop the core arguments of this section, it is worth saying a few words about the general argument of this study. See this as an opportunity to digest before we go further. I began this study with a desire to offer a provide a better theoretical understanding of judicial automation and an intuition that there was something to discover in the relationship of law with the frameworks of science and art. My intuition most probably arose from an observation that expressions like "the art of judging" or "legal science" were common in the language of legal theory. Science and art are also often thought to be some of the greatest products of human intelligence and, as a result, of great interest to AI researchers. From this thought arose the plan for a study that would begin with science on one side, and art on the other, as "archetypal" concepts to which judging can relate to. I used dual-process theories of mind, more precisely cognitive-experiential self-theory as an anchor of the science-art duality in psychology and as an "hypothesis" of why theory may perceive judging to be a process with two main dimensions. At no point my goal was to provide a new definition or description of what judging is; rather, I wanted to examine a wide body of legal theory to assess if the science-art duality finds some grounds in the canon of legal theories that engage with the topic of judging.

I wished to see what judging is thought to be by legal theorists and how these theories relate to broader ideas in philosophy of mind. Judicial practices are also not consistent, therefore perhaps judging is a little of all those things legal theory reveals it to be. You can see my review of judging as science and judging as art as an attempt to bridge legal theory with the theoretical foundations of artificial intelligence since the two fields are reliant on philosophical conceptions of the mind and its grounding in the physical, social, everyday world. In other words, they relate to metaphysics. We saw in this chapter and the first how many contemporary legal theorists were judges themselves, or at least lawyers. Legal realism and pragmatism were (and remain) for many a practical judicial philosophy. So are formalist approaches like textualism. For me, this is crucial because automating judging, or any artificial intelligence enterprise for that matter, is not merely copying the workings of the human mind onto machines. Behind the hard science of artificial intelligence research are theories of the

mind. And behind judicial automation initiatives, descriptive and normative theories of judging. With AI technologies, we reproduce the *way we think* intelligence works or should work. In other judicial automation is our best attempt at imitating in code *what we think* the complex dynamics that underlie this complex mental process are. It is important to ask whether judicial automation is even possible, but even more important is what beliefs or assumptions about judging are involved when we decide we can or should automate it. Such ideas also shape the technological process of automation itself.

The argument closing off Chapter I was that judicial automation brings forth judging as science as a more efficient and formalistic administration of justice. My analysis clarified that there are less ideological boundaries between AI research and science than between AI and art. Several approaches to AI coexist, of course. What is certain, though, is that AI research is not the same as the study of human cognition. This discipline would be psychology, cognitive science, or neuroscience. Artificial intelligence is the creation of intelligent machines, preceded by an act of interpretation of what intelligence is. AI research may begin with a sound theory of what intelligence, however, there are competing theories of intelligence and always will be because defining "intelligence" is a matter of philosophy of mind. Most AI researchers are computer scientists or engineers who, before they begin their practical work, I suppose unconsciously most of the time, settle on a theory of what intelligence is to ground the techniques they will use. The machines they create tackle specific problems and therefore fare against a definition of success. Considered in that sense, we might think intelligence is the solving of mathematical-like or language-based problems.²³¹ This form of intelligence might fit a range of human activities, but the issue is we are now moving on to automate what some call "moral" tasks. Judging appears to be one of them.

My literature review shows that, at least according to a centuries-old history of legal theory, judging is an activity that is thought to have both a formally rational (scientific) and an experiential (artistic) dimension. Considering this, I am at this stage of my argument doubtful that artificial intelligence can account for the broad spectrum of understandings and practices associated with a mental and social process as complex as judging. AI is limited by the fact that it relies on programming that must be formal to some degree. Legal and social reality are realms of complexity, indeterminacy, mystery, ambiguity and change, therefore judging benefits from

²³¹ Even then, Chomsky and peers claim natural language models like ChatGPT "differ profoundly from how humans reason and use language". Noam Chomsky, Ian Roberts & Jeffrey Watumull, "Noam Chomsky: The False Promise of ChatGPT", *The New York Times* (8 March 2023), online: https://www.nytimes.com/2023/03/08/opinion/noam-chomsky-chatgpt-ai.html.

the artistic outlook. The rationalization of law has put the artistic outlook on law under stress because decisions are increasingly the product of systems rather than individual decisionmakers, nonetheless "the judge" remains an important figure today. Judicial will can stem from consensus in collegial courts, or from a single person, but the full breadth of human mental capacities like emotions are still free to transpire in decisions. And we have seen how legal theory, especially pragmatic theories, recognizes the importance of creativity in judging. These observations make it necessary to examine the limits of artificial intelligence regarding its capacity to reproduce the artistic outlook.

If the last section of Chapter I was about what mental capacities AI excels at, this one will now review the operations of the mind AI struggles with. These have strong ties with the experiential system of information processing and are creativity, subjective experience, and emotion. My goal is not to assess whether artificial intelligence can indeed create, have subjective experiences (qualia) or go through emotions, as these are ongoing and arguably eternal debates, but to highlight the challenges that lay ahead of AI research given what science knows about human decision making.

Creative machines

First, creativity. Whether AI can be creative enough to be subversive is a raging debate in AI research. For cognitive scientist Boden, creativity "is a feature of human intelligence in general" and has a cognitive as well as a motivation and emotion dimension.²³² One important challenge of modelling creativity in computers is the self-evaluation of new ideas. New ideas within a predefined space is one part of art, but what about ideas that transform the spaces themselves? The AI system may be taught the artistic values that should serve as criteria for the evaluation of creative ideas, however, it is difficult to translate exactly what we like about artworks of a great artistic value without consideration for "motivational and emotional aspects that are in large measure foreign to AI.²³³ And this is true for supervised and unsupervised machine learning. Even if machine learning is unsupervised, human intervention is necessary to validate the outputs variables, therefore bias or subjectivity can always creep into artificial intelligence. However, teaching the forces that drive art, such as creativity or emotion, is a challenge. Scientific criteria are also difficult to define, but they are less variable than artistic values. Those develop in "unpredictable and irrational ways" across time and cultures, making

²³² Margaret A Boden, "Creativity and artificial intelligence" (1998) 103:1 Artificial Intelligence (Artificial Intelligence 40 years later) 347 at 347. ²³³ *Ibid* at 354.

it hard for scientists to value the results of AI systems designed to create art.²³⁴ Human made artworks are simply not filtered in this way, while scientific findings arguably are, in processes like peer review. Artistic values are more variable than scientific criteria such as coherence or experimental verification.²³⁵ This reinforces the idea that scientific processing is more accessible to machines than artistic processing.

Considering the variability of artistic values, for AI to be deemed artistically creative, it would have to produce "novel ideas which initially perplexed or even repelled us, but which was able to persuade us that they were indeed valuable."²³⁶ I cannot imagine how evaluation would work in this scenario, because breakthroughs in art (in science, too) can be misunderstood in first contact.²³⁷ Artworks made by machines may encounter a similar resistance on the basis that it does not qualify as art, perhaps before it is even shown to the public because the work did not make it through evaluation. To be a creator "in its own right", artificial intelligence should be able to change its own standards: it should have "creative autonomy."238 Such a freedom to chart an independent course seems crucial for machines to succeed in judging as art, because judges need to know when to ignore precedent and have the foresight of suggesting new norms, all according to their own style.²³⁹ But in art per se, the reaction of the artistic community and of the general population to new artworks determines what qualifies as art or not. Unlike judicial decisions which legitimacy comes in part from their formal characters, new "art" has to justify its artistic quality. Legal decisions made by AI before they acquire the status of legitimate judicial decision makers, though, would need to justify themselves like art in the designing and training process of machine judges. So, judicial automation encounters the same issues as the automation of art.

And we know that controversies about the "art" qualification are nothing new. For instance, novel media like photography were initially denied the status of legitimate art form.²⁴⁰ We can use different criteria to assess if a work is artistic, such as the merits of the work itself

²³⁴ Ibid .

²³⁵ Ibid.

²³⁶ *Ibid* at 355.

²³⁷ One can only think of now-praised artists who were unsuccessful in their lifetime, like Vincent Van Gogh and Claude Monet.

²³⁸ Kyle E Jennings, "Developing Creativity: Artificial Barriers in Artificial Intelligence" (2010) 20:4 Minds & Machines 489 at 490.

²³⁹ Researchers approached this tension between artistic standards and creativity by training a machine between two opposing forces that on one end minimizes deviation from art distribution and on the other maximizes style ambiguity. A similar method could perhaps helps a machine judges find its distinctive style. Mazzone & Elgammal, *supra* note 142 at 3.

²⁴⁰ Aaron Hertzmann, "Can Computers Create Art?" (2018) 7:2 Arts 18 at 4.

in the eyes of an observer, the "intent" behind the piece, but in both cases, and with enough imagination, artworks made by AI could fit the bill.²⁴¹ We know language model ChatGPT "hallucinates" information that appears as plausible even though it is incorrect by putting unrelated ideas together. Is this a proof that AI can be creative? Perhaps, but according to Hertzmann there is more to art than creative ideas. First, he suggests one needs to experience social reality to create art. For Hertzmann, the fact that "art is primarily a social behavior" makes it an only human realm at the moment.²⁴² If judging is indeed by definition a reasoning grounded everyday experience as the literature review seems to show, a machine might have to be a "social agent" to judge. Hertzmann proposes a criterion to distinguish who or what is capable of participating in social behavior. This benchmark is the "social agent" qualification. What defines a social agent for him is "someone worthy of empathy and ethical consideration".²⁴³ Someone bound to others by (often reciprocal) emotional attachments.²⁴⁴ This means that to be considered social agents capable of creating art, machines would need to experience emotions.

Other researchers see it otherwise and claim that since AI systems can engage in creative partnerships, they are already capable of social interaction.²⁴⁵ One could also point that today's AI can evoke emotions through the artworks it creates, some of them having won art competitions over manmade pieces.²⁴⁶ Some of them can even communicate with natural language, and it undeniable that artificial intelligence is now part of social life, although indirectly.²⁴⁷ However, even the most advanced AI systems are considered tools at best and do not engage in social relationships the way humans do, mostly because they cannot act beyond the framework of the precise tasks they were designed for. ChatGPT, for example, is available for conversation, yet it cannot decide to engage with an interlocutor on its own. One may interject that other chatbots can reach out to their users through notifications, which is true, but can we consider a series of interactions with one user a social life? I must agree with Hertzmann that this is probably not enough for machines to be understood as "social agents" yet. Legal

²⁴¹ See *Ibid* at 18.

²⁴² *Ibid* at 16–17. He does not exclude, though, that we could someday consider AI systems as artists if we view them as social agents. See also Mazzone & Elgammal, *supra* note 142 at 8.

²⁴³ Hertzmann, *supra* note 240 at 17.

²⁴⁴ Ibid.

²⁴⁵ Mazzone & Elgammal, *supra* note 142 at 8.

²⁴⁶ See Kevin Roose, "An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy.", *The New York Times* (2 September 2022), online: https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html>.

²⁴⁷ I here refer to the machine learning algorithms that process the information we are present on social media platforms on a daily basis and the many other ways technology mediates social life.

theory going back to the ancients claims that the complex work of the judge requires her to be a part of the society the law orders, to be an active participant in the relationships of her community. We shall now explore how the divide that remains between "the machine experience" and "the human experience" may lie in Hertzmann's claim that a "social agent" is one who has emotional investments. Doing so, we will open, and close as fast as possible, the Pandora's box of machines' emotional capacity.

Emotion and qualia in machines

If we agree emotional attachments are necessary to social interactions and, as a result, to the artistic outlook, the matter becomes quite complex philosophically speaking. Before all else there is a distinction to be made between machines being perceived to have emotions and machines having the subjective experience (qualia) of these emotions. Neuroscience, cognitive sciences, psychology and philosophy do not offer a definite answer of why or how intelligent organisms have qualia, so there is no concrete way of knowing if machines have them as well.²⁴⁸ We often assume that they do not, and this is for some a sign that "machine intelligence will forever fall short of human intelligence."249 Why? Because cognition (the byproducts of the rational mind) appears to depend on emotion (automatic responses of the experiential mind).²⁵⁰ Emotions help us navigate real-world situations by recalling the knowledge or axioms that we need in an efficient manner.²⁵¹ This is a genuine concern with legal problems since we have seen that a, according to judging as art, a variety of "knowledges" (legal and extralegal) informs judicial decision-making. Feelings, or "hunches" are sometimes what decides a case.²⁵² On whether these interactions between cognition and emotion require emotional qualia, Megill is doubtful.²⁵³ For him, "the relevant cognitive abilities" can in most likelihood be performed no matter if machines lack emotional qualia.²⁵⁴ Others hold the view that some cognitive abilities require a subjective experience of emotion or at least are performed with more efficiency with them.²⁵⁵ What matters in our study is whether judging is one of these abilities

²⁵² Hutcheson, *supra* note 144 at 278.

²⁴⁸ This puzzle is known as the "hard problem of consciousness."

²⁴⁹ Jason Megill, "Emotion, Cognition and Artificial Intelligence" (2014) 24:2 Minds & Machines 189 at 189–190.

²⁵⁰ *Ibid* at 190.

²⁵¹ This is the "frame problem" of AI research. *Ibid* at 191; J McCarthy & P J Hayes, "Some Philosophical Problems from the Standpoint of Artificial Intelligence" in Bonnie Lynn Webber & Nils J Nilsson, eds, *Readings in Artificial Intelligence* (Morgan Kaufmann, 1981) 431.

²⁵³ Megill, *supra* note 249 at 198.

²⁵⁴ *Ibid*.

²⁵⁵ *Ibid* at 196.

that requires the subjective experience of emotional states. The present chapter highlights judging as both science and art, as a cognitive and experiential process, so there has to be a doubt that machines can judge like humans do if they do not have emotions.

Central to the artistic dimension of judging, I claim, is the concept of *justice* because I favor more contemporary readings of this principle that relate it to affective responses to situations we feel as either *just* or *unjust*. Justice is, however, not a product of affect in classical theories and modern influential theories of justice. Aristotle sees justice as a virtue that results from "habituation" or *ethos*,²⁵⁶ while for Rawls, justice is an idealized principle that exists beyond the world as we experience it.²⁵⁷ A corollary of this rationalist conception is that we can arrive at an abstract theory of justice (like Rawls') free of everyday context like attitudes or emotions, meaning that machines would not need emotions to be just.

It turns out that "atomistic, rationalist tradition" in philosophy was the cornerstone of early research in artificial intelligence.²⁵⁸ Taking the approach of deductive science, researchers among whom was Minsky saw any domain of the mind to be formalizable, meaning that AI should be about finding "the context-free elements and principles and to base a formal, symbolic representation" of whatever activity to be automated.²⁵⁹ The atomistic reduction in AI is not an argument, it is just assumed to work in AI like it does in philosophy or natural science.²⁶⁰ Intelligence is, or at least was in the early days of AI, revealed through the archetypal framework of science as I define it. That is in its formal sense. Of course, proponents of the symbolic representation approach soon had to face its failure to account for the everyday world, opening the way for competing cognitive modeling approaches that now flourish today. The holistic neuroscience approach is seeking to design a device by modeling the brain.²⁶¹ We can here think of techniques like neural networks, machine learning, or deep learning. These methods try to reproduce the way human brains work from the bottom-up, i.e. through learning. One can, in response, argue that the brain modelling approach still relies on Cartesian a priori because the premise of artificial intelligence is that computing machines operating in the abstract with no bodily involvement in the everyday world can intelligently behave in this world.

²⁵⁶ Aristotle, *supra* note 26 at 1103a, 1129b-1130a. See also Solomon, *supra* note 218 at 348.

²⁵⁷ Solomon, *supra* note 218 at 353–54.

²⁵⁸ Hubert L. Dreyfus, Stuart E. Dreyfus, *supra* note 115 at 16-17.

²⁵⁹ *Ibid* at 25.

²⁶⁰ *Ibid*.

²⁶¹ *Ibid* at 15-16.

At the turn of the twenty-first century, some were skeptical that neural nets could ever overcome the "commonsense knowledge" problem, which is about the generalization of prior knowledge in the face of never encountered, everyday situations.²⁶² The bottleneck to that problem might be that machines lack their own experiences of the world, which would require a humanlike body that allows them to feel emotions and other affects like we do.²⁶³ The "completion" of the AI project might lie there, although I allow myself to wonder whether giving machines the same architecture we are bound by would undermine their capacity to be of any use for us, including legal uses. Among the expected benefits of judicial automation, for instance, are increases in efficiency, speed and a neutralization of human bias. Machines "think" faster, but if humanlike cognition depends on a parallel experiential system of information processing which in turn depends on the architecture of our body and the everyday experience of the world it allows, would not this humanlike body be a bottleneck to artificial intelligence, limiting its scope to the mere reproduction of the intelligence we already possess? Recalling the "somatic-marker hypothesis", AI systems may benefit from more processing power for the cost-benefit analysis part of decision-making, however for complex decision processes like judging, it might be feelings as somatic markers that reduce the quasi-infinite options to a digestible number. Efficiency is perhaps on the biological side, after all.²⁶⁴

Current applications of artificial intelligence prove technology is of great help for what we think of as simple, repetitive tasks that require standardization. But what we observe is that even these tasks require minuscule albeit determinant value judgments that can produce noticeable patterns on a large scale. Censorship on YouTube is, for instance, a monstrous operation that relies on machine learning systems. On first thought, removing hate speech and misinformation may appear straightforward, but it requires the algorithms to know what ideas are prejudicial and false, a learning process reliant on initial human input. These inescapably personal guidelines about prejudice and falsehood take root in the programmers' everyday experience of collective beliefs about what is acceptable or true to express. Judging is an activity with many more dimensions to it than the repetitive tasks we now entrust to machines, plus judging relies on "commonsense" knowledge of law and judging very difficult to reduce to a set of rules. Different legal theories reveal judging in different ways. Considering this, it

²⁶² *Ibid* at 37.

²⁶³ *Ibid* at 38-39.

²⁶⁴ Chomsky is of the view that large language models behind software like ChatGPT are inefficient in comparison with the human mind. Chomsky, Roberts & Watumull, *supra* note 231. See also Epstein, for whom the experiential system is much more efficient than the rational system to address "everyday events". Epstein, *supra* note 9 at 218.

becomes clear that judicial automation is only possible on the basis of a priori answers about what judging is. Leading computer scientists emphasize that emotion is still a weakness of AI, yet some forms of judicial automation are already here. One cannot expect philosophy to figure out intelligence before what is essentially a field about creating intelligent machines (philosophy is hardly ever done with problems), which is why I did not spend too much time pondering over the capabilities of AI. Those saw several breakthroughs in the year and a half during which this thesis was written. Instead, I put my energy reviewing conceptions of judging and their underlying debates, arguing that they reflect two modes of knowing, symbolized by the science-art duality and grounded in the sciences through cognitive-experiential self-theory.

So far, my study shows that theories of judging can be thought as lenses through which judging (and the nature of the mind) are revealed, lenses which inform artificial intelligence research. This set of beliefs about judging, law, the mind, intelligence, reality more broadly, shape judicial automation and make it possible. In the third and last chapter of this study, I will explore the following questions. How does judicial automation, a theoretical lens that favors judging as science, *reveal* law? If judicial automation grows as a social and historical phenomenon, what could be the consequences for legal and social reality given that they influence one another?

III. SEEING THROUGH TECHNOLOGICAL JUSTICE

Our inquiry began with a desire to understand what it means to automate judging. This pointed question led us to first approach the larger question of what judging is thought to be, since I started my argument with the premise that automation is a theorizing of the activity that is its object. Artificial intelligence is thus a theorizing of intelligence and judicial automation, the theorizing of judging. We discovered so far that judging has been, before artificial intelligence, and today still, a topic of interest for scholars. This vast body of literature was our starting point in trying to conceive how judicial automation may affect understandings of judging and law, since no sound conclusions in that regard can precede a historical account of the major theories that make up these understandings. I dedicated Chapters I and II to this review, which followed a peculiar framework: a dual framework. On one end, the archetypal concept of "science", on the other, "art." Why a dual approach? Because dual-process approaches or dualist conceptions more broadly are influential in philosophy of mind and metaphysics. Rationalism still shapes our conception of "knowing", which is at the foundation of artificial intelligence research.²⁶⁵ By examining judging as science and art, we could see how legal theories of judging correlate with theories of intelligence, theories which ground the artificial intelligence project. These theories in large measure intertwine with perennial metaphysical debates, for example, whether reality is intelligible to human reason.

Now, what do these findings of correlation tell us about the essence of judicial automation? Most of all, they clarify that judicial automation aligns with judging as science more than with judging as art. This observation allows us to conclude that judicial automation is not foreign to the rationalization of law. Sociological inquiries about modernity like Weber's bring us closer to the essence of judicial automation by deconstructing the illusion that judicial automation or artificial intelligence are value-neutral developments. We, however, have not a full picture of the implications of automation for judging and law yet.

We will get there, but before, it is worth closing the topic of science and art by examining a third concept which will shed clarity on the ideas I develop in the study so far. This concept is technê. We can think of technê as a parent word for our two archetypal concepts of science and art. Another Greek term, epistêmê, can also be thought as an ancestor of our conception of scientific or artistic knowledge. We shall go into more detail on what these terms meant in ancient philosophy and how they relate to each other (the extent to which they can be

²⁶⁵ See Damasio, *supra* note 5 at 270–71; Hubert L. Dreyfus, Stuart E. Dreyfus, *supra* note 115.

distinguished at all is a big part of why they interest us), but for now we can take a few shortcuts and distinguish epistêmê as "knowledge" and technê as "craft". We can also pose that our short historical account will end with the concept of "technology". The relevance of this exercise for our inquiry will hopefully become evident as we examine ancient philosophy. What I can say as of now is that the discussion will clarify why my premise is that automation is a theorizing.

From technê to technology

Epistêmê and technê

To seize the contrast between epistêmê and technê, we shall focus on the writings of three ancient philosophers: Xenophon, Plato, and Aristotle.²⁶⁶ In Xenophon's *Memorabilia*, the line between theoretical knowledge and craft or skill is thin; for instance Xenophon compares the learning and understanding of "the just" to the skill of writing.²⁶⁷ Necessary to the production of an understanding (an epistêmê), are "acts of attention exercised with endurance".²⁶⁸ In Xenophon emerges the idea that the ability of being "just" needs to be maintained through "the work of the soul."²⁶⁹ One of these functions is being just. The above seems to imply that for Xenophon, justice and perhaps judging as well are virtues that are learned practically rather than theoretically.

Plato also develops a complex treatment of epistêmê and technê. The two are often interchangeable in Plato's dialogues,²⁷⁰ like in those of Xenophon, although Plato's account treats technê, or art, as a "business" that takes "care" of its object.²⁷¹ Justice (*dikaiosunê*) or "the judge's art" (*dikastikê*) are, for Plato, part of the art of "politics".²⁷² A technê such as judging is not the same as "experience".²⁷³ Rather, it should be informed by what is "best", something that can be known through a "reasoned account" "of what sort of things they [the things the technê administers] are in their nature".²⁷⁴ For Plato, then, epistêmê seems to be the

²⁶⁶ Parry's entry in the *Stanford Encyclopedia of Philosophy* is a valuable reference for the discussion ahead. It led me to the works I cite in this section. Richard Parry, "Episteme and Techne" in Edward N Zalta, ed, *The Stanford Encyclopedia of Philosophy*, winter 2021 ed (Stanford: Metaphysics Research Lab, Stanford University, 2021).

²⁶⁷ Xenophon, *Memorabilia* (Ithaca: Cornell University Press, 2015) at IV.ii.20.

²⁶⁸ *Ibid* at II.i.20.

²⁶⁹ *Ibid* at I.ii.19.

²⁷⁰ Eric Schatzberg, *Technology: Critical History of a Concept* (Chicago: University of Chicago Press, 2018) at 20.

²⁷¹ Plato, *Gorgias* (Cornell University Press, 1998) at 464b-c.

²⁷² *Ibid*.

²⁷³ *Ibid* at 465a.

²⁷⁴ Ibid.

theoretical component of a technê. The goal of the technê (what is best for its object) defines the technê. Judging and legislating, for example, "take care" of the soul.²⁷⁵ In the Republic, Plato describes knowledge (epistêmê) differently. He says "knowledge is concerned with what exists and absence of knowledge necessarily with what does not",²⁷⁶ referring to the "forms", which are "the real as it is".²⁷⁷ "The just" (*dikaios*) is one of these forms.²⁷⁸ For Plato, geometry and other disciplines that rely on hypothesized first principles and deductive reasoning (*dianoia*) give us access to a part of the "intelligible", but not to the forms themselves "which reason itself grasps by the power of dialectic" using first principles that are "unhypothetical" (*nous*).²⁷⁹ We can think of the knowledge of the forms as an end in itself, the purest theory possible. This conception of epistêmê comes close to our definition of science, meaning that judging as science is comparable to Plato's proposal that the form of justice can be known through reason, although for the philosopher this knowledge does not come from geometricallike operations or calculations but through dialectic. It is as if geometry or other formal sciences were not pure enough to allow for the knowledge of something as "true" as justice.

Aristotle takes a different approach. In the *Nicomachean Ethics*, a work that has been part of our discussion of Aristotle's conception of justice and equity, Aristotle offers an account of epistêmê and technê that clearly distinguishes one from the other. They correspond to two parts of the rational soul, the former being the "scientific part" (*to epistêmonikon*) which allows us to "contemplate those things whose first principles cannot be otherwise" while the latter is the "calculative part" (*to logistikon*) which allows us to "contemplate" "those things whose first principles can be otherwise."²⁸⁰ We cannot conclude Aristotle thinks of judging as a technê, although he seems to imply lawmaking and judgment deal with what "can be otherwise."²⁸¹ What surely surfaces from Aristotle's writings is a duality reminiscent of the science-art, reason-emotion, knowledge-experience and theory-practice dualities we know are omnipresent in legal theory, metaphysics, and debates about artificial intelligence.²⁸²

What should we take away from the above discussion? The first important point is that ancient Greek philosophers had differents approaches to the distinction (if any) between

²⁷⁵ *Ibid* at 464b-c.

²⁷⁶ Plato, *Republic* (Cambridge (MA): Harvard University Press, 2013) at 477b.

²⁷⁷ Parry, *supra* note 266.

²⁷⁸ Plato, *supra* note 276 at 484d.

²⁷⁹ *Ibid* at 511a-b.

²⁸⁰ Aristotle, *supra* note 26 at 1139a.

²⁸¹ *Ibid* at 1141b, 1143a.

²⁸² Aristotle's framework, however, is not as clear-cut as ours because he claims the apparels dealing with epistêmê and technê are both part of the "rational soul".

theoretical and practical knowledge. Xenophon implies theoretical knowledge and skill go hand in hand. Plato presents epistêmê as a theoretical component to technê and, in some dialogues, as a purely theoretical knowledge of fundamental reality (the forms). Aristotle goes further and divides the knowledge of what is necessary (epistêmê) from the knowledge of what is contingent (technê). Through this conversation we discover why the science-art duality is so present in Western thought. We also sense it is a fragile duality. Conceptions of epistêmê and technê in philosophy, akin to the use of "science" and "art" in the language of legal theory, conceal beliefs about the way our mind can *know* reality (metaphysics). Plato, for example, was eager to demonstrate that there is a "higher reality" made up of the form of justice, among others, that we can know through dialectic.

My point at this stage is that the debate about theoretical and practical knowledge that began in the Western tradition with ancient Greek philosophy is crucial to establishing how legal and social reality may change because of automation because these conceptions of intelligence and reality are at the heart of what we could consider to be the mother project of artificial intelligence: technology. Only by considering the essence of technology, I argue, can we hope to reach the essence of judicial automation. And for this we must enter a conversation with critical theories of technology, a body of literature concerned with technology as a phenomenon and its implications for modern society. We can picture our introduction to the concepts of epistêmê and technê as a necessary preamble to what follows.²⁸³

My argument so far has been that by paying attention to the presence of "science" and "art" (as archetypal frameworks for knowledge) in legal scholarship, we see how conceptions of judging relate to broader metaphysical ideas that are the foundations of artificial intelligence. Which is why I spoke of judicial automation as a particular revealing of its object, as a theoretical lens onto judging and law. In the previous chapters, we worked out some curves of this lens, i.e. that it highlights judging as science while relegating judging as art to the shadows. We even began the conversation of why judicial automation is a technological phenomenon. Examining "technology" as a concept that speaks to both science and art will get us closer to the essence of judicial automation. Schartzberg's "critical history" of technology grounds much of this part of our analysis.

²⁸³ According to Heidegger, technology stems from the Greek word *Technikon* (τεχνικός), which means "that which belongs to techne." Martin Heidegger, "The Question Concerning Technology" in *The Question Concerning Technology and Other Essays* (New York & London: Garland Publishing, 1977) 3 at 12.

A modern notion of technology

Schatzberg first points us to etymology. Etymology shows there is a connection between the three concepts of science, art and technology. According to its etymological makeup indeed, technology should be "a system of formal knowledge" "of the useful arts".²⁸⁴ Languages like French or German distinguish technology from technique/Technik (the latter has its roots in the concept of technê as practical arts) and with these two terms, we can understand technology as "the science of *technique*".²⁸⁵ But in English there is a mismatch with the everyday use of the word. Since the turn of the twentieth century, the word technology became synonymous with the Continental concept of technique, that is as instrumental rationality.²⁸⁶ Schatzberg holds that the discourse on technology has become pervaded by a confusion between three meanings of technology: "technology as industrial arts, as applied science, and as technique."²⁸⁷ The Oxford English Dictionary, for instance, defines technology as a knowledge, the application of this knowledge and the product of this knowledge.²⁸⁸ In language therefore, we perceive that the complexities of Greek philosophy of epistêmê and technê and later discourses about science and art (see early twentieth century legal theory) have been put aside to the benefit of a unifying concept of "science" that is both end and means. For simplicity and consistency with the language associated with automation and AI in everyday language, we opt for the word "technology" and the adjective "technological", although we might use, and we already have used, the word "technical" with the same idea in mind.

It is useful to appraise Schatzberg's proposal that there are two main contemporary approaches to technology as it relates to us: the cultural approach to technology and the instrumental approach to technology.²⁸⁹ The first sees "technology as a creative expression of human culture", "imbued with human values and strivings in all their contradictory complexity."²⁹⁰ The second asserts "that technology is a mere instrument that serves ends defined by others."²⁹¹ This second vision portrays technology as "narrow technical rationality,

²⁸⁴ Schatzberg, *supra* note 270 at 8.

²⁸⁵ Ibid.

²⁸⁶ *Ibid* at 12.

²⁸⁷ *Ibid* at 13.

²⁸⁸Oxford English Dictionary (Oxford: Oxford University Press, 2023) sub verbo technology; Schatzberg, supra note 270 at 13.

²⁸⁹ Schatzberg, *supra* note 270 at 3.

²⁹⁰ Ibid.

²⁹¹ *Ibid*; Martin Heidegger calls this conception of technology as a means and a human activity the "instrumental and anthropological definition of technology". Heidegger, *supra* note 283 at 5. A more precise translation of the concept Heidegger is referring to would be the word "technique" (*Technik* in German), which does not add the idea of "logos" to the root "technê".

uncreative and devoid of values."²⁹² We can think of the instrumental approach as seeing in technology the triumph of pure science and reason as if those were supra cultural. Aristotle's philosophy is thought to have had a significant influence on the instrumental approach since he made clear "scientific" knowledge of what cannot be otherwise is distinct from practical knowledge (and moral knowledge), which deal with the contingent. But while Aristotle inspired the understanding technology as instrumental rationality, we must not forget he opposes technê with epistêmê, that we could translate as theoretical scientific knowledge. This nuance is lost if we consider that technology is "applied science".²⁹³ Science needs ends to which it can be applied. Ancient Greek philosophy helps us find out the ends of technology in the realm of what is eternal and necessary, "unhypothetical" first principles (*nous*) without which intelligibility is not possible.²⁹⁴ The problem, we have already alluded to in Chapter I and shall explore in more depth through Heidegger, is when those ends become substituted with efficient action as an end in itself, when the technê becomes its own first principle.

This relationship between means and ends is key to answering the question I pose in this study, that is: what is the essence of judicial automation? Most of our analysis so far was about theories of law and the metaphysical a priori that underlie them. These a priori have for objects the human mind, science, art, reason, truth. We now see that automation, as a technological process, also happens in a theoretical context that deals with the nature of our mind, truth and how the former can access the latter. And we now see that in modernity, technology became synonymous with instrumental rationality. This adds another layer to the observations we made about the theoretical foundations of artificial intelligence because we can infer that if we grant that instrumental rationality is technology's essence and purpose, then automation must "reveal" its object according to these ideas. Our goal for the rest of the study is to reconcile all these ideas together in order to see more clearly through a technological revealing of judging and law. Seeing through, in the sense that we should be able to foresee the "practical" or "real world" consequences of what I have drawn as a theoretical and linguistic phenomenon. But if we are to learn anything from the discussion above, we should think of these "practical" consequences as nothing more than the theoretical implications themselves. The transformation of law by judicial automation should reflect in everyday life the same way law shapes reality as we perceive it. I will still present the implications of judicial automation as scenarios that

²⁹² Schatzberg, *supra* note 270 at 3.

²⁹³ *Ibid* at 23.

²⁹⁴ See Plato, *supra* note 276 at 511a-b.
will strike the imaginary in that they are at odds with the ways we encounter the law today. Together, these scenarios are glimpses of technological justice, which is a possible horizon towards which law is heading, a "legal future", if judicial automation is indeed what we describe it to be, that is a vector of rationalization. But before we sketch scenarios, it is worth pursuing our inquiry into the essence of judicial automation as a revealing of judging and of law.

Judicial automation as a technological revealing

What do I mean when I use the word *revealing*? It is the process by which things become intelligible to us. It presupposes the grasping of phenomena, ideas or other "external" objects by our senses and cognition (working in unison, if we decide to distinguish them at all). Intervening in this process happening at all times is what we call theories. A theory is here a mental structure representing the "external" object, and it is most of the time not put forth in language, but sometimes it is and those spoken or written theories are what we associate to the concept of "theory" in everyday language. Through language, theories "reveal" their objects (judging, law, intelligence, etc.) as something we can *know* collectively because through language, we can share theories using words which meaning we more or less can agree on. Theories, though, do not keep to the realm of the abstract as our "practical" behavior in everyday life depends on our understanding of these things we theorize about. And these things are not only external to us, in fact one of the main findings of our study so far is that legal theories rely on a theorizing of our own inner workings, on theories of our intelligence.

Our long and at times tedious review of legal theories and ancient philosophies set us up to understand this idea of revealing, because we dedicated significant effort relating influential theories to either the scientific or the artistic outlook, highlighting how conceptions of judging rely on different (generally a duality of) a priori of how the mind works, what reality is made up of and whether the former can access or know the latter fully. We saw how theories of judging often blend with judicial practice since the legal field is one where "practitioners" commonly theorize about their work; many judges, for example, have been influential legal theorists of judging. Because the border between judging theory and judging in practice is so thin, it is not unreasonable to conclude that the revealing of judging in theory shapes what judging *is*. Judges, some of them prolific writers, acknowledge that they judge by a personal philosophy of what judging should be, a philosophy made up of a priori about the extent to which law amounts to a formal knowledge, a priori which rely on a set of beliefs about the intelligibility of (social) reality.

In Chapters I and II, I did my best to bridge this dimension of legal theory with the archetypal science-art duality that, in my view, stems from the philosophical debate we examine in this section. It is this debate that makes up the backdrop of the artificial intelligence project. For the Dreyfus brothers, the formalist and rationalist assumptions of AI research, as well as its limitations to human programming, are at the roots of its struggles to create human-like intelligence.²⁹⁵ AI no longer relies on formal theories of the activity to be automated, yet the output of neural nets is limited to "what, from the designer's point of view, is the appropriate output."²⁹⁶ My reading of Dreyfus is that automation is a revealing in the sense I outline above. Artificial intelligence research begins with theories of intelligence and reality, which then shape the theorizing of the activity the AI system purposes to automate, even if that theorizing happens in more subtle ways like the design of a neural net's architecture.

Judicial automation also reveals or makes its object, judging, intelligible as something that could be otherwise. Judging, although a "practical" activity, also involves a theorizing, a theorizing of law and social reality, which is why I argue that judicial automation also reveals law and social reality. That judicial automation reveals law as something might go without saying, however, from the discussion above, we can conclude that law has no fixed essence. Law and its truth can turn out as one thing or another, depending on how they are revealed to us.²⁹⁷ Same with our own intelligence: it is what we conceive it to be.²⁹⁸ *Theorizings*, or *revealings*, make their objects what they are to us in daily life.

I argue that in both artificial intelligence and judicial automation, a *technological* revealing is at play. Now is the time to unravel what this might be. The later work of Heidegger is of particular relevance to this task because his concern with modern technology is its capacity to transform what truth (*Wahrheit* in the original German) is revealed to be.²⁹⁹ I here speak about his account of technology as a "way of revealing".³⁰⁰ Modern technology is for Heidegger "nothing technological", rather it operates as a mode of thinking through which we encounter the world and its truth. To use Heideggerian terminology, by a mechanism named "Enframing" (*Ge-stell*), technology is a "challenging-forth" of humankind "to reveal the real, in the mode of

²⁹⁵ See Hubert L. Dreyfus, Stuart E. Dreyfus, *supra* note 115.

²⁹⁶ *Ibid* at 38.

²⁹⁷ See Heidegger, *supra* note 283 at 13.

²⁹⁸ Intelligence quotient (IQ) is a great example of such a "theory" of intelligence which shapes how we think of intelligence in everyday life.

²⁹⁹ Heidegger, *supra* note 283 at 33.

³⁰⁰ *Ibid* at 12.

ordering, as standing-reserve."³⁰¹ Heidegger's account of technology presupposes a concealed truth which is more or less accessible to us, an access to modern technology "blocks".³⁰²

If we are to stick to the object of our study, namely the essence of judicial automation, we must address the possibility that Heidegger's questioning of technology may not belong in our conversation, that transposing Heidegger's insights to our analysis of judicial automation may be anachronistic. Heidegger's study could not have been written with what we know as artificial intelligence in mind: Heidegger's account of the technological phenomenon predates artificial intelligence by a few years at best. For me, this is clear if we look at the examples Heidegger provides. We could qualify these as rather materialistic in comparison with the things I claim judicial automation is "revealing" (intelligence, justice, law). For Heidegger "Enframing" happens regarding "the energy concealed in nature": air a way to yield nitrogen, uranium to yield atomic energy, the sun's warmth for heat, the current of the Rhine for electricity, and so on.³⁰³ Heidegger suggests that human beings also "belong [...] within the standing-reserve", alluding to the notion of human resources or patients as a supply for a clinic", but then again it is not clear what we can consider being part of the "nature" which energy is being enframed.³⁰⁴

Can we infer that more intangible, less material "things" like intelligence, justice, or law could also be revealed technologically? Callister seems to assume that it is possible to think of law through Heidegger's framing of technology. Callister claims the modern conception of law reveals law as "standing-reserve".³⁰⁵ Standing-reserve (*Bestand*) is a Heideggerian term referring to a characteristic of a thing when it is ordered "to stand there just so that it may be on call for a further ordering."³⁰⁶ More precisely, Callister attempts to show that legal information, one form of law, is understood to be a resource that serves particular ends. Callister's theory offers a better understanding of the calculative approach to law I call judging as science, although its insights are limited if we are to understand judicial automation as a revealing.

The digital legal information Callister writes about is the content of legal databases, made of copies of statutes, case law, scholarship, and doctrinal work, but judges work with more than

³⁰¹ Ibid at 24. In the original German, Heidegger refers to "the real" as das Wirkliche.

³⁰² *Ibid* at 28.

³⁰³ *Ibid* at 15–16.

³⁰⁴ *Ibid* at 18.

³⁰⁵ Callister, *supra* note 127 at 295.

³⁰⁶ Heidegger, *supra* note 283 at 17.

legal information in the computer science sense. As our discussion of legal pluralism shows, contemporary judging is thought to be a balancing of plural, sometimes contradictory or inconsistent norms and social concerns. This myriad of parameters and sources of law is not all digitizable in legal databases. Some concerns which pragmatic judges now consider, such as Indigenous traditions or social developments, are not tangible like positive law. Relevant "information" that shape the judge's opinion also include the human dynamics that form between the parties throughout the judicial process (even corporate litigation involves some level of emotional investment by the representatives), oral testimonies which are transcribed but still hold their weights as *moments* in the judge's memory, and so on. Could the Enframing or *Ge-stell* of these intangible dynamics (some of which are constitutive of case law) be what Heidegger was foreseeing when he wrote that there will come a point when we ourselves "will have to be taken as standing-reserve"?³⁰⁷

Hints at an answer may lie in how the philosopher describes our way of ordering nature in modern physics, which for him "entraps nature as a calculable coherence of forces."³⁰⁸ Artificial intelligence is thought by some, including Dreyfus, to frame intelligence in such a computable way. Considering Heidegger's idea of technique then, judicial automation would be derivative of a series of technological revealings: first of "nature" (science's a priori), second of human beings (as described by Heidegger), third of human cognition (the project of artificial intelligence), and at last of the whole of legal reality (judicial automation).³⁰⁹ Legal reality, we remember, is the part of reality made up of legal norms and principles. For judicial automation to be possible, all the variables that go into the judging of a case must be formalized, in others words, they must be "revealed" as a finite set of data points. Legal subjects and the complex social dynamics that lead them before a judge become mere legal information, which for Callister has become "standing reserve" in the contemporary legal environment. What Callister's work shows us is that the "Enframing" of law begun before judicial automation; legal databases and other legal technologies work towards an increased efficiency as the administration, teaching, practice, and research of law. Judicial automation is for me another product of "Enframing", this time of the judicial process and experience thereof into formalistic machine language we can leverage into what we think is more "efficient" justice. This is one way to understand judicial automation through Heidegger's account of technology, and to

³⁰⁷ *Ibid* at 27.

³⁰⁸ *Ibid* at 21.

³⁰⁹ We will see later how the technological revealing of legal reality interacts with a technological revealing of social reality.

answer the question of what might be the object of "Enframing" in the context of judicial automation.

Another uncertainty arising from my interpretation of Heidegger's theory is his idea of *Wahrheit* (truth), of *das Wirkliche* (the real), and of their accessibility to us. Heidegger speaks of a "more primal truth" that remains concealed when we see the world through technological thinking, leaving us to wonder what may correspond to "truth" in the context of judging (and of its automation).³¹⁰ Judging as science thinks of judging as a formal "reason-ing" of cases, while judging as art understands it as a more holistic process that seeks to attain acceptable outcomes. Each outlook may hold different criteria for determining the "quality", "reasonableness" or "acceptability" of decisions (similar terms as legal concepts are often the criteria themselves, i.e. in administrative law), however one concept has been at the heart of legal theory since pre-Socratic times. I am speaking of *justice*. For Plato, "the just" (*dikaios*) belongs to the realm of the forms and is therefore an eternal truth which image should serve as a model for judges, who are the "technicians" and "knowers" of justice. As a form, justice is the end of judging yet unachievable in the realm we inhabit; It is only possible to conceive of it.

In a similar way, judging as art paints justice or injustice as something we can sense or feel, an object which proximity can trigger an affective response (and a subsequent thought) in the like of: "*This is not fair*!", "*I got what I deserved*...", "*Justice was made*.", or "*Someone should be responsible for this*!" These thoughts are charged with frustration, satisfaction and other affects depending on the context. We know justice or injustice through sentiment. We cannot necessarily "reason" why something is just or unjust, yet justice and injustice trigger an undeniable affective response in us.

Considering Heidegger's terminology, the *Wahrheit*, or "truth" of the judicial process might be a sense of justice for all those with an investment in the case's outcome. Justice more broadly may be thought as the "legal truth".³¹¹ Now Heidegger implies at least degrees of truth. The second being more authentic than the former. A *truer* truth, as it were. First is the "truth" we access through modern technique and "Enframing". For lack of a Heideggerian term, I shall call it *technological truth*. The second is one Heidegger regards as a "more primal" truth, and it is the one at risk of being veiled forever by technology. I shall call it *primal truth*. With regard

³¹⁰ Heidegger, *supra* note 283 at 28.

³¹¹ Weinrib defines justice as the "intelligibility of this ordering" (of "external relations between persons" by law). Weinrib, "Legal Formalism", *supra* note 20 at 1012.

to judicial automation, what may correspond to the two degrees of truth we just identified? The affective conception of justice highlighted in "judging as art" legal theories is for me compatible with the idea of a "primal" legal truth, because it is accessible to us but not framed as something that is calculable. What may be the "technological" legal truth, then? I argue this truth arises out of judicial automation. Like "primal" legal truth, "technological" legal truth it is not an abstract concept but something we can experience (or not). I shall call it *technological justice*.

Technological justice

A formal legal rationality

The previous section shed light on how judicial automation is a revealing, but we have not gotten to the bottom of *what* judicial automation reveals judging and law to be. At this stage, it is worth going back to critical approaches to artificial intelligence and their commitment to the idea that the AI project began with inadequate a priori.³¹² Since our principal question is determining what it means to automate judging, it is worth asking what Dreyfus' critiques imply for a field-specific application of AI like judicial automation. Because if we are to examine technological justice, the technological legal truth, we must consider what judicial automation tries to achieve. This raises the complex question of what qualifies as a successful machine judge. Little is made public about the exact workings of current judicial automation initiatives, yet, it seems judicial automation is already achievable to a degree.³¹³ What do these "successes" tell us about the accuracy of Dreyfus' insights since most of his observations engage with the failure of AI to simulate human intelligence? Do they prove wrong those who claim AI's formal rationality "falls short in complex and value-laden contexts"?³¹⁴

Aristotle's distinction of epistêmê and technê helps us untangle the specificity of judicial automation, a nuance which makes it a particularly pervasive phenomenon. Aristotle indeed thinks epistêmê deals with the necessary, while technê deals with the contingent. Technê, for Heidegger, "reveals whatever does not bring itself forth and does not yet lie here before us, whatever can look and turn out now one way and now another".³¹⁵ Technê "belongs to bringing-

³¹² For the Dreyfus brothers, the rationalist atomist definition of AI would be: "the attempt to find the primitive elements and logical relations in the subject (man or computer) that mirror the primitive objects and their relations that make up the world." Hubert L. Dreyfus, Stuart E. Dreyfus, *supra* note 115 at 194.

³¹³ See for example Changqing Shi, Tania Sourdin & Bin Li, "The Smart Court - A New Pathway to Justice in China?" (2021) 12 IJCA 1.

³¹⁴ Nishant, Schneckenberg & Ravishankar, *supra* note 112 at 14.

³¹⁵ Heidegger, *supra* note 283 at 13.

forth, to *poiēsis*.³¹⁶ Heidegger thinks technology is different: it does not reveal but challenges.³¹⁷ If we agree with Heidegger's reading of technology through Aristotle, and consider for a moment that judging is a technê (acknowledging the diversity of legal orders), what would be the basis to assess the "failure" of judicial automation?³¹⁸ I contend that, and the diversity of legal traditions and theories attest to this, judging can be understood and practiced as a more or less formalistic knowledge or craft, and therefore there is a wide range of acceptable outcomes for judicial reasoning. Machines can "judge" cases according to a strict, scientific method, but do we want judging to be only science? Automation presupposes that yes. By highlighting the "flaws" of AI, Dreyfus makes the reasonable claim that human intelligence is something specific that needs the human experience to be what it is. However judging is a process, a rationalized one in Weber's account, so it is possible to imagine that the "rationalist" presuppositions of AI (some of which have been overcome by the connectionist approach) do not bind judicial automation to failure? Can we conceive that judicial automation is itself the success?

This self-serving scenario of judicial automation as a successful *optimization* of the judicial process is the one I will explore ahead. One reason for this is that our analysis in Chapter I shows that "efficiency" is at the heart of the enthusiasm for judicial automation, connecting this scenario to critical theory of technology. The search for efficiency is indeed a common critical definition of technology. Jacques Ellul defines technique as "la préoccupation de l'immense majorité des hommes de notre temps, de rechercher en toutes choses la méthode absolument la plus efficace."³¹⁹ The French thinker provides an in-depth sociological account of technology (*technique*)³²⁰ and makes us realize how much of society abides by efficiency's rule. Ellul's work has much to say about how the technical phenomenon affects law. He notably addresses whether a "technique juridique" is possible. Can we optimize law, he asks? Ellul says technology separates the "élément judiciaire" from the "élément juridique" of law, the first being concerned with the application of the laws and, therefore, possible to mechanize.³²¹ Justice, however, makes a legal technique "much less assured than the others" because "il est impossible de transformer la notion de justice en éléments techniques. Malgré tous les

³¹⁶ *Ibid* at 13.

³¹⁷ *Ibid* at 14.

³¹⁸ See Lévy-Bruhl who claims that more often than not, law is a technique. Lévy-Bruhl, *supra* note 2 at 124.

³¹⁹ Ellul, *supra* note 117 at 29.

³²⁰ We already discussed the confusion around the terms "technology" and "technique". For the sake of uniformity, and because Ellul's own translation of his work uses the word "technology", I will use it as well.

³²¹ Ellul, *supra* note 117 at 300.

philosophes, la justice est un facteur insaisissable, infixable."³²² Ellul explains that because of this, the "élément judiciaire" tends to become distinct from the human search for justice, evoking a kind of alienation to which we shall come back to later.³²³ We can conclude that for Ellul, some dimensions of law, including the judicial process, can be automated, although this implies that law is made notwithstanding justice, through an "automatisme" rather than a search for a "justice authentique".³²⁴

This automatism alludes to what I have been referring to throughout as judicial automation. Technological justice is the product of a technical judicial process which, for Ellul, écarte "le droit du concret".³²⁵ But this part of our study is not a sociological portrait of the law as it is technological today.³²⁶ Technological justice is the horizon of judicial automation; it is a projection into the future. Pondering technological justice is determining how the judicial process may probably transform because of its automation. In doing this, we come back to the conclusions of Chapters I and II regarding the relationship between judicial automation, judging as science and judging as art. These conclusions are that artificial intelligence is more compatible with judging as science and therefore strengthens the rationalization of law. We now have the tools to better understand these phenomena. At several stages of our study, we encountered contradictory accounts of science and of its distinction with art, a confusion our discussion of the concept of technology hopefully explained. Also puzzling was whether judging may or may not be a logical process (at both the cognitive and systemic levels). On my mind is Holmes' famous saying that "[t]he life of the law has not been logic: it has been experience."³²⁷ Can our findings on the essence of judicial automation clarify this question and help us see through technological justice?

I believe so. If judicial automation is a revealing of judging through the lens of instrumental rationality, and judging is a revealing of law through one "rationality" or another, then we can conclude that automation transforms the way legal conclusions emerge. The features I used at the beginning to describe science and art will prove helpful here. We remember: the archetype of science values formal reasoning as a way to achieve knowledge that is coherent and objective, while the archetype of art embraces creativity and the subjective experience of

³²² *Ibid* at 298.

³²³ *Ibid* at 300.

³²⁴ *Ibid* at 298.

³²⁵ *Ibid* at 300.

³²⁶ Ellul was from a civilian jurisdiction, so we can presume he describes a legal system more technical and impersonal than those of common law jurisdictions. My analysis, we know, is not specific to any system. ³²⁷ Holmes Jr., *supra* note 171 at 3.

individual human beings as windows onto a knowledge that is indeterminate yet humble. For simplicity, I put forward that science is thought to be more "rational" than art, yet we must acknowledge that both science and art work according to an internal rationality, otherwise they could not be reducible to frameworks at all. A way to resolve this apparent contradiction is to contend that the rationality of science is more formal and logical, while the rationality of art is more dialectical. We saw how the civil law and common law traditions, that I respectively associate with judging as science and judging as art, develop according to different "rationalities"; civil law being bound to a more formal, top-down logical rationality, while common law follows a bottoms-up rationality we could compare to a dialectic logic. Civil law judges have relatively little leeway in their decision making since their conclusions must abide by an extensive web of written legislation, as well as the legal principles organized in the doctrine. Civil law judges must reconcile patterns with this rigid body of knowledge using deductive operations. Civil law judges are active investigators of the case. Adversarial argumentation plays a minor role before them.

Common law adjudication is different. It does not begin with immutable first principles, rather it relies on opposing arguments arising from the parties themselves, meaning that legal truth is expected to rise from contestation. The common law judge is an impartial "referee" of this dialectical process. We can think of "the common law" as a non-static body of rules evolving on the basis of a series of negations and the synthesis of past cases. This is what I mean by dialectical logic. By overcoming the simplistic debate on whether science, art, civil and common law are "rational" or not, instead recognizing the role formal logic and dialectical logic play in each of them, we better see how judicial automation may affect the way law is understood and presented by judges and legal systems. I argue that by strengthening judging as science, judicial automation denies contestation and, as a result, possibilities of social (and legal) dialectical movement.³²⁸ Judicial automation reveals law functionally, as something which can be made complete, which fundamental axioms can be found for good in the now, dismissing the possibility that legal truth may only exist in time. The adversarial component of the legal process no longer has a meaning.³²⁹ Law is still the result of a process, but this process is not one of social interactions or argument. The idea of an "efficiency" of law becomes

³²⁸ Alarie suggests that "[t]he legal singularity contemplates the elimination of legal uncertainty and the emergence of a seamless legal order" in which "disputes over the legal significance of agreed facts will be rare." Benjamin Alarie, "The Path of the Law: Towards Legal Singularity Focus Feature: Artificial Intelligence, Big Data, and the Future of Law" (2016) 66:4 U Toronto LJ 443 at 446.

³²⁹ See *Ibid*; Deakin & Markou, *supra* note 23 at 6.

concrete, and this efficiency, rather than "higher" ends like Ellul's "authentic" justice, becomes law's purpose. The means becomes the end.³³⁰

Another way to conceptualize this technological "denial" of legal change is through the work of Herbert Marcuse, who in One-Dimensional Man offers a dire diagnosis of modern society and its subjection to instrumental rationality (Marcuse calls it "technological rationality"). One of Marcuse's prognoses is "the triumph of the one-dimensional reality over all contradiction."331 This triumph is apparent in the domination of positivist thinking over "negative thinking", a conflict which "finds striking expression in the contrast between Plato's dialectical logic and the formal logic of the Aristotelian Organon."³³² Negative thinking is the opposite of positivism because it is skeptical about what "is" and holds that the "truth" that appears as given to us is "false and negative."³³³ We know positivism sees as true or real what we can observe. Considering this information, we cannot claim that any legal system, even traditional English common law, operates strictly based on a negative dialectical logic. It is worth maintaining, however, that bottoms-up legal systems like common law display several negative characters, notably because they are so historical. Change and creativity are among their defining features. Law is not reducible to positive law. These features are in jeopardy if judicial automation premises that legal truth is "out there" and graspable instead of the product of historical contingency.

And at several points in our study, most notably in our discussion of machines and art, we highlighted the struggles of artificial intelligence with creativity, accountable to the fact that even connectionist AI is bound to a cosmovision set in the data chosen by its designers. A painting AI machine, for example, is fed what the scientists deem to be art, or what is considered art according to today's conventions. The equivalent in judicial automation would be to feed AI all the case law ever written in a jurisdiction. This might appear sufficient to teach a machine to be a good judge if we only consider judging as science. Judging as art highlights we should account for factors other than "datafiable" precedents as well, bringing us back to Holmes' point that law is experience.

In thinking about judicial automation, it is reasonable and tempting to assume that the need for change in the law is an objective fact. But Marcuse's point is precisely that technological

³³⁰ "In the formalist conception," "[I]aw is not so much an instrument in the service of foreign ideals as an ending, as it were, its own ideal." Weinrib, "Legal Formalism", *supra* note 20 at 956.

³³¹ Marcuse, *supra* note 70 at 128.

³³² *Ibid*.

³³³ *Ibid* at 137–38.

rationality itself might be incompatible with subversion, meaning that our thinking loses its capacity to be "negative", its ability to imagine "alternatives" to the *status quo*. Our historical review of legal theories shows that judging has been understood as art in legal theory, yet none of it means that judging *is* or *should be* art. My argument throughout has been that judging, like intelligence and reality, is thought to be several things (I saw fit to represent them along a dual framework). Because of such "revealing", judging can take different forms in "practice". One can think of the civil law and common law tradition that each incarnate as a different idea of what law is. Judging does not *need* to be art and law does not *need* to change. Assumptions to the contrary come from the fact that we take for granted that social reality is and always will be in flux.³³⁴ Those assumptions, which presuppose a certain degree of human freedom from technology, are what thinkers like Heidegger, Ellul or Marcuse try to dismantle in their grim accounts of society. The scenarios I would like you to consider derive from these views, from the prospect that judicial automation could make legal subversion and contestation impossible.³³⁵

Social implications

I would now like to go further into this idea of "technological justice" and contemplate for a moment that not only would judicial automation have consequences on legal reality, it would transform social reality too. The two scenarios I shall examine presuppose what Jennifer Cobbe calls the "reflexivity of law". By this she means that "law is not just a product of its society [...] but also something that affects, alters, and itself produces that society."³³⁶ We saw how legal pluralism, among other concepts of judging as art, acknowledges the relationship of legal and social reality, so it is clear that the conception that law has consequences on society and vice versa takes more than one form. What the reflexivity of law implies for us at this stage is that the ideas, beliefs, values, a priori that ground the phenomenon of judicial automation impact not only law as technological justice; they also "feed" into social reality.³³⁷ Because of reflexivity, "a circular relationship between cause and effect,"³³⁸ it is of course a matter of the

³³⁴ Delacroix for instance highlights the "struggle" of algorithms "to retain adequacy as a society's fabric of sociocultural expectations evolves." She also describes it as an "adaptation challenge". Sylvie Delacroix, "Automated Systems and the Need for Change" in *Is Law Computable? Critical Perspectives on Law and Artificial Intelligence* (Oxford: Hart Publishing, 2020) 161 at 162.

³³⁵ Alarie calls a similar scenario the "legal singularity". Alarie, *supra* note 328 at 445.

³³⁶ Cobbe, *supra* note 8 at 111.

³³⁷ *Ibid*.

³³⁸ Ibid.

chicken or the egg to determine the primordial source of the set of technological influences that we describe to permeate legal and social reality.

What is clear to me, though, is that judicial automation is a catalyst of the technological phenomenon of unparalleled precedent since it allows judging as science to materialize into very "real" machines. We can guess that because of this, the fundamental ideas of the scientific outlook will further spread into social reality. And for Heidegger, in the realization of this phenomenon builds up a distance between humankind and its essence.³³⁹ For me, Heidegger's argument regarding the way technology closes us off from our essence suggests that the reflexivity of law has limits. It is totally possible to imagine that in the future, the law may not reflect who we are in our essence. In fact, this might be already the case if one deems law to be only a tool of social control rather than a bottoms-up reflection of social norms. If Heidegger is right that modern technology is not a benign social development, and rather a "*danger* in the highest sense" in that available to us but blocked by technology are "more original" modes of revealing (in the like of judging as art),³⁴⁰ could judicial automation be not only a means to make "law functionally complete",³⁴¹ but the *end* of law as a reflexive and meaningful institution? We could speak here of total legal alienation.

We came to an important conclusion in the course of our study: that the archetypal concepts of science and art refer to two indivisible, equally important dimensions of the human mind. Essential to the artistic outlook is the bodily sensations at the basis of our affective responses. This would indicate that judicial automation operates on a model of mind that is alien to our present experience of legal reality. As a result, the judicial "process" would become only the cognitive process of a machine, while we know that judging as art underlines the grounding of judging in the experience of social reality. Earlier I claimed that technological justice only *is* relative to our experience of the judicial process. Now we understand that automation, in its strictest sense, excludes us from the process fully, since judging becomes abstract and not concrete. We can therefore conclude that judicial automation can be alienation.³⁴²

For Hertogh, "legal alienation can be defined as a cognitive state of psychological disconnection from official state law and the justice system."³⁴³ Legal alienation is the third

³⁴³ *Ibid* at 14.

³³⁹ Heidegger, *supra* note 283 at 27.

³⁴⁰ *Ibid* at 28.

³⁴¹ Alarie, *supra* note 328 at 446.

³⁴² In *Nobody's Law*, Hertogh offers a contemporary account of what legal alienation may using Dutch society as a case study. Marc Hertogh, *Nobody's Law: Legal Consciousness and Legal Alienation in Everyday Life* (London: Palgrave Macmillan UK, 2018).

dimension of our first technological justice scenario and perhaps the most transformative because it corresponds to another alienation: the alienation of law from society. To help us understand legal alienation in the context of judicial automation, is it useful to consider the second way Hertogh describes the object of his book, that is as "the perceived distance between 'internal' and 'external' understandings of law".³⁴⁴ This definition evokes the idea of *being part of*, of *belonging* to the law as a phenomenon. For me, this belonging depends on the correlation of the sense we have of ourselves (of the essence of our mind and of the world) with that of how our society's legal system operates. When this correlation becomes weak, we feel alienated. The first scenario is the following: technological justice, a product of judicial automation, becomes so distant from how we understand ourselves as beings that legal alienation and either we abandon the judicial automation enterprise or law becomes conceivable only as a non-reflexive tool of domination. This first scenario is the *alienation scenario* and it is consistent with Alarie's idea of the "legal singularity" as "beyond the complete understanding of any unaugmented person."³⁴⁵

The second scenario I would like to consider is even more pernicious than the last. I call it the *transcendence scenario*. Unlike the first, this scenario does not purport that judicial automation will undermine the "reflexivity of law". Instead, it poses the hypothesis that automation will change us as beings, as technology already shapes us, and constrain what social reality *is* and *can be*.³⁴⁶ This hypothesis foresees that because judicial automation projects artificial intelligence's viewpoint on reality (which defines it as a set of quantifiable data points labeled as useful or not) onto legal reasoning, the way we human beings view reality in everyday life may change as well. Of course we could not attribute this scenario only to judicial automation, however the role it could play in this transformation may be major considering the importance of law in the shaping of our worldview. We posited that judicial automation changes what social reality *is* for the purpose of deciding cases; could it also change what we perceive to be social reality more generally? Cobbe seems to imply that this is possible when she holds the "assumptions" and "understandings" in the law "feed" into society.³⁴⁷ How this feeding happens is unclear, but we can imagine that as a source of normativity, a law that stems from a

³⁴⁴ *Ibid*.

³⁴⁵ Alarie, *supra* note 328 at 455.

³⁴⁶ Damasio uses the expression "sick culture" to describe cultures where a dysfunction of our "presumably normal machinery of reason" prevails, where feelings play no role in reasoning. Damasio, *supra* note 5 at 288. ³⁴⁷ Cobbe, *supra* note 8 at 111.

simplification of social reality could, over time, legitimize fewer values and viewpoints (for instance by punishing certain behaviors or ideas), up to a point when society has become "one-dimensional". What the law recognizes as acceptable practices, crimes, legitimate relationships between people, institutions, professions and so on impact what we consider to exist or be "real".

So technological justice would change our perspectives on reality. But this is true of any legal order. It is nothing technological. I would contend that the specificity of a machine's perspective on reality is that the machine exists for a definite purpose. An (efficient) AI system has no life outside of its task, which, in our case, is to judge. Because of this, the machine cannot contemplate social reality for anything else than its legal-ity. It cannot contemplate at all. I would argue that judicial automation could have the indirect consequence of stripping reality of its non-instrumental dimension, which, we know, is a part of the human experience and the source of much wonder and joy. For us who experience these pleasant emotions, this second scenario can be terrifying. Strangely enough, if judicial automation changes who we are, technological justice may feel natural to us. Our second social scenario is one of transcendence, because it implies a redefinition of the legal experience according to new limits.

These scenarios, I must admit, are dire. They tell the story of a future where legal reality and truth are put in bounds. With them we see our social reality through a prism of technological justice. Can we see *beyond* it? Because if we are to take seriously the findings of this study, as speculative as they are, and we accept we are already on a technological course, is it possible to imagine legal futures other than technological justice? Our first instinct might be to ask those who warn us about technology's restrictive power over human freedom. We find that, perhaps surprisingly, Ellul, Marcuse and Heidegger all hint at a way out of what they portray as seemingly inescapable. Ellul's shy optimism is not palpable in his writing, yet he claims that his description of the technology but key to his theology is the idea of "hope".³⁴⁹ A hope which gains its "weight" from humankind facing true "tech despair".³⁵⁰ We also find hope in Marcuse. The critical theorist ends *One-dimensional Man* with a statement of critical theory's loyalty "to those who, without hope, have given and give their life to the Great Refusal" and the following quote of Benjamin: "It is only for the sake of those without hope that hope is

³⁴⁸ Samuel Matlack, "How Tech Despair Can Set You Free", online: *The New Atlantis* https://www.thenewatlantis.com/publications/how-tech-despair-can-set-you-free.

³⁴⁹ *Ibid*. ³⁵⁰ *Ibid*.

⁵⁵⁰ Ibid.

given to us.³⁵¹ Marcuse implies that a struggle against the forces of technology is necessary and that critical thinking can play a role in it, but he does not offer a clear way out of a course towards "one-dimensionality".

Heidegger offers the more explicit (to the extent his prose allows it) helpful way out of technology. Maybe Heidegger can also guide us away from technological justice. The possibility Heidegger envisions lies in the very essence of technology, that is as a "revealing". He purports to claim that on the one hand "Enframing" threatens our relationship with truth, while on the other it may make us aware (through what Heidegger calls a "granting") that we are responsible "for the safekeeping of the coming to presence of truth."³⁵² Essential to what Heidegger calls the "saving power" is another form of revealing. This revealing is technê. For Heidegger, this realm of revealing belongs to art, and it is where "essential reflection upon technology and decisive confrontation with it must happen".³⁵³

How can these thoughts inform our thinking of legal futures? It is worth highlighting that Heidegger's conclusion draws us back to the core of our study: the science and art of judging. We spent significant time describing the scientific and artistic outlooks as "theorizings" or "revealings" of what judging, law, the mind, and reality are. Heidegger invites us to cultivate art as an alternative window into truth. Yet Heidegger warns that modern technology "drives out every other possibility of revealing."³⁵⁴ I read from his warning that we should not take the artistic outlook on law for granted, since it is possible that such an outlook is threatened by judicial automation. Delacroix compares "our ability to question and call for better ways of doing things", which I would relate to judging as art and "negative" thinking, to a moral or normative "muscle" which can atrophy.³⁵⁵ Such atrophy could grow, Delacroix suggests, if by delegating the "normative work" of asking how we should live to machines, we stop working out the "habits of thought" underlying our "ethical sensibility".³⁵⁶ If we recall Heidegger's point that salvation from total subjection to technology may lie in the revealing power of art, judging as art becomes an important viewpoint to preserve and cultivate if we do not want to lose access to "primal" legal truth.

³⁵¹ Marcuse, *supra* note 70 at 261.

³⁵² Heidegger, *supra* note 283 at 33.

³⁵³ *Ibid* at 35.

³⁵⁴ *Ibid* at 27.

³⁵⁵ Delacroix, *supra* note 334 at 169–70.

³⁵⁶ *Ibid* at 170.

Now is time to come back to the features of art. Although imperfect and not necessarily fitting for Heidegger's conception of art, the features help us imagine what an artistic revealing of law looks like and how we can keep it alive in our daily thinking about the law. This realm of thinking is where we must "confront" judicial automation. If law is really "reflexive", then it is not just up to lawyers, regulators and judges to either undermine or preserve judging as art; everybody who engages with the law can cultivate an artistic outlook on it. This outlook first values the *subjective experience* of legal reality by human beings as a doorway to truth. In other words, judging as art values every legal subject's everyday experience of law through the affective responses associated with justice or injustice. Our emotions, other affective responses and, above all, our *sensitivity* to them should be integral parts of our thinking about the law. Feelings about the law, legal systems or justice should not be frowned upon as they are too a form of legal truth. Perhaps feelings make up a more primal truth than legal "facts".

We should also understand *creativity* to be an important part of thinking about the law, as it is what allows legal reality to change and transcend its frontiers. Fostering our capacity for creativity allows us to reconcile what appear to be contradictory ideas and accept multiple rationalities within the law.³⁵⁷ Another dimension of an artistic outlook on law is the acceptation of its *indeterminacy*. We must recognize law's mystery in all its depth and accept the contingency of law as decided by judges. This is where the feature of *humility* comes in. We must nurture humility towards law, as it is a human construct that imperfectly reflects socially accepted norms. Law is not always a coherent knowledge, and it may never be "functionally complete".

So far, we implicitly assume that a technological revealing of judging and law is undesirable, that we should seek a way out of our current course if indeed we are heading towards technological justice. I cannot help but wonder what is the place of determinism in our discussion. After all technological determinism is a widespread idea.³⁵⁸ Examining Ellul's account of technique, Matlack raises the fascinating question of whether "dehumanizing social systems are the inevitable outcome of rationalist thinking, or even of history".³⁵⁹ If this is the case, is it worthwhile to preserve the "negative" form of thinking alluded to by Marcuse? Is critical analysis a meaningful struggle? Should we swim against the current of what (technology) is building up as an overwhelming force, omnipresent in everyday life? Are

³⁵⁷ See Feenberg, *supra* note 164 at 5.

³⁵⁸ See Richard Barbrook & Andy Cameron, "The Californian ideology" (1996) 6:1 Science as Culture 44 at 50.

³⁵⁹ Matlack, *supra* note 348.

subversion and contestation desirable or would we be better off with a law and society that do not question themselves? Daoism teaches us to should live in harmony with the Dao, or "way of the earth".³⁶⁰ We should yearn for "convergence with nature".³⁶¹ In Daoism, and in Heidegger too, the question of what is "natural" in contrast with what is "artificial" arises.³⁶² What actions are consistent with the Dao, which ones are not? What makes up our essence as human beings (the essence Heidegger appears to fear for)? It is easy to jump to the conclusion that judicial automation is unnatural, yet we have seen that we can think of machines as reflections of one dimension of our "natural" intelligence, even though we call intelligent machines "artificial intelligence". Is our species historically-bound to create artificial intelligence and automate society's most fundamental institutions? Is Alarie right when he predicts the "legal singularity" will make the law "functionally complete"? Do we have any other horizon than technological justice?

We might think that alienation will make society dehumanizing and intolerable, but once again, one may argue that alienation is already rampant, yet society is tolerable enough for it to be relatively stable. What is clear is that legal alienation is a clear indicator that law is already losing its status as being anything more than a tool of forceful ordering. If our transcendence scenario is accurate, we may not have to worry about legal alienation because social reality will change in to mirror legal reality. Both will become revealed technologically. For those who commit to the scientific outlook, this state of transcendence, or "legal singularity", cannot come soon enough. For my part, I think it is a possibility that one day law will be "functionally complete" as a result of a "legal singularity", as Alarie puts it. Judicial automation may purge law of contestation, but is law's function to be a structure of knowledge free of all uncertainty? For that to happen, I believe society would have to become static as well and we have a long way before we purge society of contestation.

That writing about technological thinking and the contingency of artificial intelligence is still possible decades after the somber prophecies of early critical theory of technology means that hope and contestation are very much alive. The technologies of today, including AI, differ from those of the mid-twentieth century, although they may operate according to the same principles. Social reality is also different today, and it is for sure not "one-dimensional". "[N]ow we are confronted with multiple rationalities instead of a single technocratic

³⁶⁰ David E Cooper, "Daoism, Nature and Humanity" (2014) 74 Royal Institute of Philosophy Supplements 95 at 98.

³⁶¹ *Ibid*.

³⁶² Heidegger was "an admirer of Daoism". *Ibid* at 101.

rationality", so perhaps scenarios of one technological legal logic taking over are overdramatic.³⁶³ Language is not one-dimensional. Let us make use of its wonderful capacity for twisting, subliming, turning, contrasting, negating, pervading, and keep pondering on the *why*'s and *what for*'s of the law. Meaning belongs to us still.

³⁶³ Feenberg, *supra* note 164 at 5.

CONCLUSION

There was a lot to unpack in the previous chapter. We built upon the findings of Chapters I and II, to then expand on the idea of judicial automation as a technological revealing of law. This last finding is the closest we got to the essence of judicial automation, and it was enough to get a glimpse of technological justice as a possible legal future if judicial automation progresses without constraints. We predicted the consequences technological justice may have on social reality through two scenarios: one of alienation and one of transcendence. How did we get to these conclusions? This thesis began, we remember, with two things. First, a will to go beyond debates about *how* judicial automation should be done, and instead ponder *what* is judicial automation, in other words, question what it *means* for law, judging and justice to result from automated processes. Second, an intuition that at least part of the answer to the above question lies in the science-art duality. Because this intuition came from me reading legal theories of judging, I knew we had to focus on legal theory, but also on the very idea of "theorizing". If I was going to be serious about a framework opposing science and art, most important was to begin with a clear idea of what I meant by science and art as archetypes.

Therefore, the first chapter started with an outline of what I consider to be the five features of science: objectivity, conformity to reason, coherence, predictability, and control. Then, through an analysis serving a dual purpose, first a review of legal theories and second an outline of judging as science, we determined the features of science manifest in influential conceptions of judging and law. Legal formalism is one of these conceptions. Judging as science became more definite as we made progress in Chapter I. We closed the chapter with an observation that judicial automation strengthens judging as science. It does because judicial automation is a "practical theorizing" of judging and law through the lens of formal rationality, we know is a key feature of the scientific outlook. Judicial automation, we discovered, is a "super-rationalization" of law.

Our next task was to proceed like we did with science, but with art. The features I suggested are: subjective experience, sensitivity, creativity, indeterminacy, and humility. Outlining judging as art clarified that the science-art distinction is fragile. Legal realism, for instance, commits to a scientific approach to law, yet reflects the features of art. What this taught us is that concepts such as "rationality" or "reason" are indeterminate; both formal rationality and experiential rationality can be the basis of what the literature calls science. Continuing with our framework, we concluded that judicial automation undermines judging as art in the sense that machines, computers, artificial intelligence all struggle with experiential knowledge, creativity

and emotion. We began to conceive that perhaps a technological theorizing of intelligence, which seems to be the essence of artificial intelligence, is at odds with human knowing as it is understood by some psychologists today. That is, as a dual process combining cognition and emotion. It was reasonable at this stage to conclude that a technological theorizing of judging ignores the artistic dimension of judging.

Next on our plate was the essence of judicial automation. We described judicial automation as a technological theorizing, or technological revealing, of judging. Judicial automation, it appeared, reveals law as formalizable. Technological justice is a legal future and legal truth premising that legal answers are only attainable through formal logic. This is at the expense of the dialectical dimension of legal rationality, meaning that judicial automation transforms what justice is relative to time. Judicial automation separates law from history and makes impossible any theorizing of law that is not what it has always been. We explored the social implications of technological justice by putting two scenarios on the table: an alienation scenario and a transcendence scenario. According to the first scenario of alienation, law will no longer reflect socially accepted norms, leading to the "end" of law as a construct reflective of ourselves. The second scenario considers the possibility that, instead, judicial automation would make social reality technological too.

Because we sought the essence of judicial automation within a framework of science relative to art, our findings do not tell the full picture. There is for sure more to the essence of automation than what we find when focusing on judicial automation as a technological phenomenon. Because our attention was on the "rationality" of law and its theorizing, we were drawn to law's relationship with history, to its temporality. Plenty of questions are left on the table. We began with a will to go beyond the question of *how* we should proceed with judicial automation, but this question of AI ethics remains of utmost importance, especially if automation is determined to happen. We also left the topics of legitimacy and standing aside even though they belong in a conversation about the essence of judicial automation.

Despite the above, we should appreciate this study's findings. Understanding judging as a science and an art opens us to a new face of judicial automation. It makes technologies like artificial intelligence less alien; we can see more of ourselves in them. It provides us with a sense of agency, even though critical theory paints the darkest of futures for law and society. If technology is a mirror of ourselves, we should seize the opportunity of judicial automation happening in our lifetime to better understand who we are and what we want law, intelligence, truth or reality to be. While we should not fall into the trap of technophobia, I think we should

at least consider the possibility that automation and technologies like artificial intelligence will fulfill the prophecies of early critical theory of technology. We can hope that questioning our relationship to science and art is one step in avoiding this dark future. This thesis highlights the incompleteness of science and art as frameworks for knowledge, at least when we look at them individually. Brought together, science and art illuminate the relations between law, judging, and technology. Judicial automation challenges us to face the very possibility that the fine line between ourselves and machines is what we make it to be.

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