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The Rule of Law, Science Fiction and Fears of Artificial Intelligence

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Abstract

In this article, I consider how fears of the future operation and use of artificial intelligence (AI) in the exercise of constitutional power and how the depiction of AI in science fiction may play a role in determining future conceptions of the Rule of Law. Through its role in limiting the exercise of arbitrary power, the Rule of Law plays a crucial role in society. Where popular Rule of Law conceptions were frequently shaped by their authors' fears, the Rule of Law is a product of fear. The operation of AI in society is also tainted by fear. This fear is exacerbated by science fiction accounts that frequently portray AI as complicit in a dystopian future. This portrayal of AI's role is capable of generating a state of fear in society that assists in priming society to accept a different form of the Rule of Law in the future. In other words, where contemporary ideas of the Rule of Law are shaped by fear, and where fear exists in relation to AI's exercise of constitutional power (and where this is influenced by depictions of AI in science fiction), fears associated with AI's exercise of power may shape future conceptions of the Rule of Law.

***Keywords**:* Rule of Law; science fiction; artificial intelligence; fear; concept; conception.

Introduction

Whether artificial intelligence (AI) has impact through the advent of driverless cars or more mundane applications like Siri or Alexa, it has the potential to assist decision-making, automate and simplify tasks, and improve accuracy. Benefits of this kind are likely to be attractive to those that exercise power under a state's constitution: constitutional power. But significant fears are associated with the use of technology in this way. By drawing a parallel between the Rule of Law's origins in fear-ridden societies and popular fears relating to the use of AI (that, in turn, are stoked by science fiction's sensationalised dystopian views of the technology), I illustrate one way in which the use of AI in exercising constitutional power may shape future conceptions of the Rule of Law.

Accounts that bring together the Rule of Law and AI are increasingly popular.[1] AI is the fundamental driver behind the fourth industrial revolution.[2] AI is already used to assist in making decisions in a way that is more efficient and takes account of a greater volume of data than could be achieved by a human alone.[3] These efficiencies are attractive in any data-driven decision-making process. Efficiencies of this kind are likely to be of particular interest in the exercise of public power. For this reason, where the use of AI to assist decisions made in the exercise of power by states is likely to increase, the increased discussion of AI and the Rule of Law is of little surprise.

I adopt both traditional and non-traditional views of the Rule of Law. I adopt the traditional practice of describing the conceptual boundary of the Rule of Law through highlighting the conceptions that are most frequently used to illustrate the meaning of the

[1] For some recent examples, see Kennedy, "The Rule of Law and Algorithmic Governance"; Zalnieriute, "From Rule of Law to Statute Drafting."
[2] Velarde, "Artificial Intelligence and Its Impact on the Fourth Industrial Revolution."
[3] Lepri, "Fair, Transparent, and Accountable Algorithmic Decision-Making Processes." See also de Laat, "Algorithmic Decision-Making Based on Machine Learning from Big Data."

concept. The non-traditional approach that I adopt is to consider the historical origins of those conceptions as being rooted in, and resultant from, states of fear that existed when they were authored. I couple this with the potential fears associated with AI's use and implementation. By adopting this approach, I am able to point to ways that the Rule of Law may be deficient in a future that increasingly sees AI being involved in the exercise of power.

Of the various Rule of Law conceptions that are frequently relied on to determine the meaning and content of the concept, several were authored during what can readily be identified as societal revolutions. Locke, Dicey and Hayek's conceptions were authored as solutions to problems in society that can be seen as extant fears relating to the exercise of power. Each were writing in relation to periods of significant societal change. These could, respectively, be described as the fear of the exercise of arbitrary royal or papal power, the fear of the expansion of the administrative state and the fear of totalitarian central control—and these shaped the content of their Rule of Law conceptions. On this basis, it is accurate to say that contemporary views of the Rule of Law are shaped by fear. Where those fears have guided historical conceptions of the Rule of Law, societal fears associated with the use of AI—which have been enhanced through the way that AI has been portrayed in science fiction—may play a crucial role in determining how the concept may need to evolve in the future.

My argument takes this form: if the concept of the Rule of Law is shaped by fear, and if fear exists in relation to AI's exercise of constitutional power (which is impacted by portrayals of AI in popular science fiction), the nature of the fear associated with AIs exercising power may impact the Rule of Law in the future. I adopt the following structure for this paper. Immediately below, I demonstrate that the Rule of Law is shaped by fear by pointing to the origins of several of the most frequently invoked conceptions. Then, I explore the nature of the fears that exist in our contemporary society and in the use of AI in exercising constitutional power. In doing this, I set out the way that the fear of AI in society—and hence the societal level of fear more generally—may be heightened in consequence of science fiction depictions of AI. In the final part, I conclude that fears associated with AI's exercise of power may shape future revolutionary conceptions of the Rule of Law. I also, very briefly, reflect on the way that the Rule of Law may need to evolve to meet some of the problems that may arise.

The Rule of Law: A Concept Influenced by Societal Fears

The Rule of Law is frequently accepted as being a good thing.[4] It is also a highly contested concept that has no definitive definition.[5] (These two things could, of course, be connected.) The Rule of Law, in its most broadly stated and acceptable terms, is a concept that is opposed to the arbitrary application of power by a state.

It is normal in attempting to define what the Rule of Law *is* to have recourse to the 'usual suspects' of the Rule of Law:[6] Aristotle, Locke, Dicey, Hayek, Fuller and Raz. These authors have been described as a '"Who's Who?" of Western political thought'.[7] Notwithstanding their philosophical diversity, and notwithstanding the relative *differences* between the Rule of Law accounts that they provide, they are often invoked together to illustrate what the Rule of Law *is*.[8] I broadly accept these accounts as being the ideas that are determinative of what we take the Rule of Law to be. And, after considering the genesis of those accounts in a little more detail, I use this idea later in the article to suggest that this may give some guidance as to future ideas of the concept.

I argue that contemporary ideas of the Rule of Law are shaped by fear. To do this, I point to the conceptions of three of the (six) usual suspects that are most frequently used to illustrate the meaning of the concept: Locke, Dicey and Hayek. In what follows, I explain why I only consider three usual suspects in this article and briefly note the forms of fear that existed at the times the conceptions were authored in terms of each of these three authors. In doing so, I illustrate that their conceptions responded to the relative fears that they perceived existed in their societies.

[4] Krygier, "Four Puzzles About the Rule of Law," 64.
[5] There is a detailed literature that explores the contested, or essentially contested, nature of the Rule of Law as a concept. For a summary, see Waldron, "Is the Rule of Law an Essentially Contested Concept (in Florida)?"; Burgess, "The Rule of Law: Beyond Contestedness."
[6] Burgess, "You Say It Best When You Say Nothing At All."
[7] Møller, The Rule of Law, 2.
[8] Examples of this approach include Reid, Rule of Law, 5–8; Sampford, Retrospectivity and the Rule of Law, 14; Waldron, "Stare Decisis and the Rule of Law," 4; Waldron, "The Rule of Law."

The Rule of Law and its Usual Suspects

The usual suspects of the Rule of Law are the thinkers most frequently deployed when attempts are made to define the concept. Their accounts are frequently referenced at the start of works that seek to define or explain the meaning or content of the Rule of Law.[9] For these reasons, we can take their conceptions to represent a contemporary idea of the idea's conceptual boundaries. The selection of the list of usual suspects—Aristotle, Locke, Dicey, Hayek, Fuller and Raz—is a subjective one; however, it is derivative of a list that has been explored in more depth elsewhere.[10] Similar lists have been proposed by others.[11] In attempts to define ideas of what the Rule of Law *is*, recourse to several or all of these usual suspects can be seen across the Rule of Law literature.[12] This is not to suggest that there is not a range of thinkers that are not on this list that have *also* provided popular accounts—for example, Bingham, Montesquieu, Hobbes, Kant and Rawls. While these accounts are interesting and impactful, they do not appear—in the various Rule of Law–centric accounts cited here—as frequently as the usual suspects.

Three of the six usual suspects' Rule of Law ideas represent ideas authored in response to societal fears. While it could be stated that the Rule of Law in the most abstract sense relates to a fear of arbitrary rule and, therefore, all of the usual suspects accounts have their genesis in fear, the point I wish to make is more specific than this. Particular and specific fears existed for three of the usual suspects: Locke, Dicey and Hayek. Where my claim is merely that fear is influential in our contemporary Rule of Law idea, and where the usual suspects' accounts remain influential (which is why they are characterised as 'usual suspects'), the specific genesis in fear for half of the usual suspects' Rule of Law conceptions is sufficient to support this claim. (I do not make the stronger claim that fear is the only or even—the more empirically based—'most' important influence on our contemporary Rule of Law idea.) To illustrate what I mean by the three authors' specific fears, I provide brief context to each conception.

Locke

Locke's *Two Treatises* was likely authored between 1679 and 1683.[13] His society was steeped in various fears in and around this time. England had been ravaged by a civil war that had seen Charles I executed, and a period of rule by Oliver Cromwell as Lord Protector, before the monarchy was restored through Charles II. Fears of papist rule and absolutist royal powers abounded in society.[14] There were substantial fears that a catholic ruler would act in an arbitrary way and lay claim to individuals' property (as lives, liberties and property).[15] In response to these and other fears, the parliamentarians—which included Locke—proposed a form of rule in which the parliament would exercise the powers formerly held by the king.

Locke's Rule of Law responds to this context. In proposing a solution that avoids the imposition of arbitrary powers, Locke refers to 'absolute arbitrary power', 'established and promulgated laws', 'declared and received laws', 'stated rules' and 'settled standing laws'.[16] He also suggests, 'the legislative, or supream authority, cannot assume to its self a power to rule by extemporary arbitrary decree, but is bound to dispense *justice*, and decide the rights of the subject by *promulgated standing laws, and known authoris'd* judges'.[17] Locke's solution was to control the exercise of power by the government through the delegation of power for limited purposes.[18]

Locke sees predictability and the delegation of limited powers as a fundamental control on the exercise of arbitrary power. These ideas, conceived in response to the fears Locke's society held, are immediately recognisable in terms of the contemporary form of the Rule of Law.

[9] Burgess, "Rule of Lore."
[10] Burgess, "Rule of Lore," 342; Burgess, "Deriving the International Rule of Law," 69.
[11] Møller, The Rule of Law, 2; Waldron, "The Rule of Law."
[12] Some examples include Arndt, "The Origins of Dicey's Concept of the 'Rule of Law'"; Reid, Rule of Law, 5–8; Sampford, Retrospectivity and the Rule of Law, 14; Krygier, "Four Puzzles About the Rule of Law," 65; Waldron, "Stare Decisis and the Rule of Law," 4; Waldron, The Rule of Law and the Measure of Property, 3–4.
[13] The precise date is debated. For Laslett's dating, see, for example, Locke, Two Treatises of Government, 35, 51, 59. For Ashcraft's dating, see, for example, Ashcraft, Locke's Two Treatises of Government, 291; Ashcraft, "Revolutionary Politics and Locke's Two Treatises of Government," 441–442.
[14] See, for example, the late-1648 work Filmer, "The Necessity of the Absolute Power of All Kings."
[15] Ashcraft, Revolutionary Politics & Locke's Two Treatises of Government, 17–38; Locke, Two Treatises of Government, 16–24.
[16] Locke, Two Treatises of Government, sec. II, 137.
[17] Locke, para. II, 136 (Emphasis in the original).
[18] Locke, para. II, 87–89, 123–124.

Dicey

Dicey popularised the phrase *the Rule of Law*.[19] His Rule of Law conception was authored in England in the late 19th century. He considered the Rule of Law to have existed in England for over 800 years[20] but also saw it as under threat. In his view, the increase of non-court-based forms of decision-making eroded the Rule of Law.[21] He feared these other forms of decision-making—including the expansion of the social welfare state—were decisions being made outside of their appropriate (Rule of Law–supporting) venue: the courts.[22]

Dicey was responding to the fears he had regarding this change in decision-making. He sets out his idea as an inclusive list with three components. The first contrasts the Rule of Law with 'every system of government based on the exercise by persons in authority of wide, arbitrary, or discretionary powers of constraint'.[23] The second promotes legal equality where 'every man, whatever be his rank or condition, is subject to the ordinary law of the realm and amenable to the jurisdiction of the ordinary tribunals'.[24] Dicey describes his third aspect in terms that 'the general principles of the constitution… are with us the result of judicial determinations'.[25] (This third aspect is often omitted in discussions of Dicey's conception.[26]) The third aspect reflects the fear of administrative rule-making and decision-making having been removed from the courts. When considered in context, it is clear that Dicey's conception of the Rule of Law was prompted by his fears of an expanding administrative state.

Arndt cautions that the Rule of Law meant 'very different things to Bracton, Coke, Locke and Dicey'.[27] This is clearly correct. However, there is clearly some common ground—in relation to the general opposition to the exercise of arbitrary power—that is sufficient to categorise both Locke and Dicey's ideas on governance as being 'Rule of Law' conceptions. This much is frequently recognised. However, what is less frequently recognised is that the common ground also extends to the states of fear to which both authors directed their Rule of Law ideas.

Hayek

Hayek's most popular Rule of Law conception was a mid-20th-century response to events associated with World War II.[28] In providing his Rule of Law account, Hayek responded to fears of totalitarian control and the state's nationalisation of assets.[29] Preventing the government from acting coercively is essential for the Rule of Law in Hayek's view.[30] Hayek's Rule of Law solution to the rise of the Nazis and the nationalisation and state control of resources in the United Kingdom was to make the rules in society more predictable. Doing so enabled individuals to plan around the government's actions, and, as a result, individuals could avoid being coerced.[31]

Hayek sees Dicey as adopting a narrow technical meaning of the Rule of Law.[32] In both form and content, there are similarities and differences with Locke and Dicey's conceptions (and other Rule of Law conceptions).[33] As with Rule of Law conceptions in general, each seeks to avoid the application of arbitrary power and institute some form of predictability.[34] This is not a novel observation. The more novel observation is the three conceptions' connection as ideas that have their genesis in times of fear. Fear—of arbitrary royal or papal power, the expanding administrative state and totalitarian central control—framed each of the three conceptions.

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[19] Terms like 'the empire of laws and not of men' had been invoked in the mid-seventeenth century and, arguably, before. Harrington paraphrases an Aristotelean sentiment in Harrington, Harrington, 8–9.
[20] Dicey, Introduction to the Study of the Law of the Constitution, 183–184.
[21] For a useful, (healthily) sceptical summary of Dicey's position, see Shklar, "Political Theory and the Rule of Law," 6–7.
[22] Tamanaha, On the Rule of Law, 63–65.
[23] Dicey, Introduction to the Study of the Law of the Constitution, 188.
[24] Dicey, Introduction to the Study of the Law of the Constitution, 188, 193.
[25] Dicey, Introduction to the Study of the Law of the Constitution, 195.
[26] For the issues that arise if origins and conceptions' meanings are neglected, see Burgess, "Neglecting the History."
[27] Arndt, "The Origins of Dicey's Concept of the 'Rule of Law,'" 121.
[28] Joseph Raz—as one of the other 'usual suspects' of the Rule of Law—suggested Hayek provides one of the clearest and most powerful formulations of the Rule of Law. Raz, The Authority of Law, 210. Hayek's views later changed. See Hayek, Law, Legislation and Liberty, Volume 1, 115–118.
[29] Hayek, The Road to Serfdom, 11.
[30] The broad theme of the avoidance of coercion is evident across the three works in which Hayek addresses Rule of Law-relevant ideas: Hayek, The Road to Serfdom, 112; Hayek, The Constitution of Liberty, 232; Hayek, Law, Legislation and Liberty, Volume 3, 115–118.
[31] Hayek, The Road to Serfdom, 112.
[32] Hayek, The Road to Serfdom, 112.
[33] For a comparison of Dicey and Hayek's Rule of Law ideas, see Burgess, "Deriving the International Rule of Law."
[34] Predictability can be seen as an element of the Rule of Law that is identifiable across the usual suspects' accounts. Burgess, "The Rule of Law: Beyond Contestedness."

As usual suspects, Locke, Dicey and Hayek provide conceptions that influence our contemporary understanding and meaning of the Rule of Law. In the circumstances where each of their conceptions were framed by and generated by fear, our contemporary idea of the Rule of Law is shaped by fear.

Fears of AI's Exercise of Power

In this part, I move beyond historical conceptions of the Rule of Law and consider the contemporary fears of AI. I will illustrate that a fear exists in society relating to AI's exercise of power and that this is heightened by popular science fiction's portrayal of AI. In the final part of the article, I will bring these points together with my consideration of the Rule of Law from the previous part to suggest fears associated with AI's exercise of constitutional power may shape future Rule of Law conceptions. In the next section, I briefly outline some of the forms of constitutional power that may be exercised by an AI in the near future. After that, I illustrate the ways that AI is most frequently portrayed in science fiction. In doing so, I illustrate how the popular views of AI—while being divorced from the technical realities of AI—are capable of generating or increasing the potential fears of AI's exercise of power. With this in mind, I then point to the general state of fear relating to AI and, in some more detail, explain how this relates to the exercise of constitutional power. In the final section, I point to three brief hypotheticals to illustrate how fears of AI may be further increased.

Before addressing some of these issues, it is important to provide a broad caveat regarding the focus on the *fear* of AI. This focus stems from the impact that fear has in the three usual suspects' accounts detailed above; the accounts did not stem from a utopian society, nor were they expressed in a way that was particularly hopeful. The focus below should not, however, be taken to suggest that science fiction accounts that reflect a hopeful vision cannot be important or impactful. It is also not to suggest that there are not hopeful views of the potential for AI in reality. There is benefit in contrasting the dystopian view that stems from fear or terror with a utopian or cornucopian view that reflects hope within the realm of fictional applications of technology.[35] Hope and positivity can be persuasive elements of change.[36] On this basis, the arguments that follow and the focus on fear should not be taken to suggest fear is the *only* way in which change may be motivated. The focus stems only from a reflection of the fear-based origins of the usual suspects' accounts.

AI in the Exercise of Constitutional Power

It would not be unusual to recognise AI's role in applications like driverless cars or personal assistants like Siri or Alexa. These represent very obvious instances of AI where its function can be drawn more broadly. When considered in broader terms, we can say that AI can assist decision-making, automate and simplify tasks, and improve accuracy in a variety of different applications.

'AI' has no single definition. I consider AI to include any machine that acts intelligently—as one that can make correct decisions in a given circumstance. This broadly drawn idea of AI encompasses narrow/weak processes—like chess-playing AIs or other AIs that may outperform humans in some limited tasks—and strong AI/artificial general intelligence—as a form of AI that does not yet exist but that could think (or simulate thinking) in ways that are indistinguishable from human intelligence.[37]

The potential to include technologies that do not yet exist within the meaning of AI adopted here is relevant to the use of the hypotheticals explored later in this part. In considering hypothetical applications of AI, the fears that we have and express in the present can also be projected forward to the fears that may relate to what AI may be or do in the future. In taking this approach, it is possible to consider the way that the Rule of Law will need to develop in the future.

As already hinted at, I take 'constitutional power' to be a broad term encompassing powers exercised subject to a state's constitution (codified or otherwise). This can include a variety of forms of the exercise of power that would extend to making primary or secondary legislation or administrative decisions.

The use of AI in the exercise of constitutional power can be considered. The breadth of the definition of 'AI' here allows a vast number of applications to be considered. AI facilitates automated decision-making and can make a range of different fields data

[35] Tranter, "Terror in the Texts."
[36] For a compelling view of the potential for changes to the way law operates from a position of hope, see Beebe, "Law's Empire and the Final Frontier."
[37] I bring AI, big data and machine learning together under my single umbrella term. Big data and AI have been brought together in the past. See, for example, Elish, "Situating Methods in the Magic of Big Data and AI."

driven.[38] This ranges from the familiar, such as in social media or games, to the less familiar, such as in determining who may be released from prison or in lip reading.[39] Notwithstanding this breadth, it is the applications related to the exercise of constitutional power that are relevant here. In relation to administrative decision-making and the public sector, a range of AI applications can be seen.[40]

Given the present state of technology, there are potential problems with introducing AI into making decisions of this kind. This includes the potential for AI to exacerbate bias. The relative benefits of AI in terms of the application of constitutional power relate to the potential of speeding up decision-making processes, increasing accuracy and processing vast amounts of data far faster than a human.[41]

Before I show how fear relates to the use of AI both generally and, more particularly, in the exercise of constitutional power, I consider one way in which the fear of AI has been increased in society.

AI in Science Fiction

Popular representations of AI in science fiction frequently evoke dystopian visions of robots and intelligences that are a threat to humankind. Some of the most notable and memorable of these (explored in this section) illustrate how society's popular view of AI has been tainted by fear.[42] This state of affairs and the recent mass consumption of science fiction (particularly in movies),[43] coupled with the ability of fiction to influence future consequences,[44] plays (as will be seen in the final part of the article) an important role in priming society for future conceptions of the Rule of Law.

Given the wide definition of AI adopted in this article, a wealth of different representations of AI could be used to illustrate the way in which AIs have been seen to operate and integrate into fictional universes. These can include droids/androids and robots (as entities with a physical form in the world) and algorithms that exist and operate only within the digital realm. In what follows, without intending to suggest they are the same (or bring out any apparent differences that may follow), I consider several of these different forms as broad instantiations of forms of AI that fall within the broad adopted definition.

Relevant to note at the outset is that not *all* portrayals of AI in science fiction are fear-generative. One series of examples would be many of the droids—like R2-D2 and C-3PO—in *Star* Wars, the service robots in *Silent Running*, or David in Steven Spielberg's *A.I. Artificial Intelligence*.

The television show *Star Trek* also provides several examples of non-fear-generative AIs. Brent Spinner's portrayal of Data in *Star Trek: The Next Generation* (TNG) is the most obvious example in that show. Data plays a fundamentally 'good' role throughout the series. The grounding of the character in this way meant that when the dystopian fears that are often associated with an AI were sought to be explored in the show, it was necessary to do so through the introduction of a 'twin' to Data called Lore.[45] In addition to Data, TNG also included an AI in the form of the ship's computer that facilitated the story in a non-fear-based way. While there were occasions where the ship's computer formed a less-than-ideal instance of 'good' AI—the episode *Emergence* (one of the final few episodes of the final season) is the key instance of this—the broadly facilitative role of the computer across the TNG seasons was not frequently the core element of any narrative and generally depicted an AI acting in a non-fear-generative way.

[38] In relation to the use of AI to guide (human) decision-making generally, see Newell, "Strategic Opportunities (and Challenges) of Algorithmic Decision-Making."
[39] Dressel, "The Accuracy, Fairness, and Limits of Predicting Recidivism"; Shillingford, "Large-Scale Visual Speech Recognition."
[40] In relation to administrative decision-making, see Hogan-Doran, "Computer Says 'No.'" In relation to public sector decisions, see Zalnieriute, "The Rule of Law and Automation of Government Decision-Making."
[41] A data-driven government may be more effective and responsive. Goldsmith, The Responsive City.
[42] In considering US box office receipts, the vast majority of the top 100 grossing movies in the list is taken up by superhero, Star Wars, or Jurassic Park movies. Of the movies where AI plays a central role, the AI is frequently an antagonist that effects dystopian ends—for example, in Matrix Reloaded (ranked 54) or Terminator 2 (ranked 86). In the other movies, the fundamental story revolves around the dystopian aims of an antagonist AI (even if another AI is the protagonist)—for example, across the Transformers franchise (ranked 25, 32, 43 and 64) or in Wall-E (ranked 77). IMDb, "Sci-Fi (Sorted by US Box Office Descending)."
[43] The IMDb list of the highest grossing movies of all time includes 13 titles in the top 20 that are science fiction (and 23 in the top 50). IMDb, "The 50 Highest-Grossing Movies of All Time."
[44] Bergman, "Truth Claims and Explanatory Claims"; Bina, "The Future Imagined"; Birtchnell, "3D, SF and the Future." (I am grateful to the anonymous reviewer for highlighting the necessity of positively stating this point.)
[45] "Datalore."

Perhaps because of the increased sensationalism or excitement that can come from the consideration of states of affairs that are cataclysmic, AI is frequently portrayed as being dangerous. When AI represents a core element of science fiction, the most frequent trope is that of the dystopian future. Examples abound and include stories like *Terminator*, *The Matrix*, *Avengers: Age of Ultron*, *Blade Runner*, *I, Robot* or *2001: A Space Odyssey*.[46] In each of these—and in many others—intelligent machines seek to destroy humans or humanity. (This remains the case even where the destruction of humans or humanity may be only incidental to their primary goals.)

An important fictional representation of AI that underpins many other fictional accounts is the 'singularity'. This refers to a point at which the growth of technology would become unstoppable, resulting in an irreversible change to civilisation. The idea was popularised by Vernor Vinge, a professor and popular science fiction author. In 1993, Vinge stated that by 2023, 'we will have the technological means to create superhuman intelligence. Shortly after, the human era will be ended'.[47]

The idea of the singularity, while a popular underpinning for science fiction, is not currently reflective of AI research. Toby Walsh—who notes that most proponents of the technological singularity are not AI researchers[48]—suggests that 2062 will be the date at which a machine—and artificial general intelligence (AGI)—can outperform humans in a broad range of tasks.[49] Vinge and others see AI as being an essential component of this event—even if they are less optimistic (or pessimistic, depending on your viewpoint) as to the date of the event. Kurzwiel, for example, suggests the date will be 2045.[50] Notwithstanding the relative state of play in the technology, the fear is also expressed by prominent future-thinking engineers.[51] The consideration of the potential for and impact of the singularity represents a possible future—albeit one related to different periods of time—that illustrates the potential for fears of AI *beyond* science fiction.

The realistic technical distance from AGI, the singularity, or any other state in which machines may be capable of creating a dystopian outcome does little, however, to influence the potential impact that science fiction can have on popular perceptions. Stories of machines behaving badly have characterised the genre and given rise to some of the most impactful and popular science fiction stories ever. Empire's list of the 50 best sci-fi movies includes four in the top five in which a form of AI endangers humans or humankind.[52] Rotten Tomatoes' list has six in the top ten.[53] The popularity of these works of science fiction results in a considerable impact on society. The relative negative portrayal of the technology—when coupled with the relative background role played by 'good' AIs—seems capable of influencing the public perception of what AI can or will do. The relative perceptions of AI's possibilities—even where they are fundamentally detached from the scientific reality (explored immediately below)—are important, such that they can influence how the technology is developed and deployed.[54] There is a clear disjoint between the reality of AI and the fictional portrayal, and the relative disjoint inclines towards a more negative or pessimistic potential for the future.[55] The fear that exists within society has been described as a form of 'AI anxiety'.[56]

The fear that does exist in terms of AI expands *beyond* the realities of technology. Popular science fiction stories, through the common tropes in which AI will take over the world and seek to eradicate humans, are more generative of these fears. The broad state that exists is akin to the societal states of fear that operated for the Rule of Law's usual suspects.

Fear in the Use of AI

Although the fears detailed above may be based on fiction, this is not the only source of AI fear in society. There are also considerable fears that reflect the technological realities. Fear is generated through the idea that even though a 'friendly' AI is what is needed, this may not ultimately be the end result of the development of any super-intelligent AI.[57] There are clear benefits to having machines make certain decisions. However, algorithm aversion—an intuitive distrust of machines making

[46] The 2004 iRobot movie described a dystopian AI, but in Asimov's short stories, the AIs were not all evil. 'Robbie' illustrates this. Asimov, I, Robot.
[47] Vinge, "The Coming Technological Singularity."
[48] Walsh, 2062, 36.
[49] Walsh, 2062, 35–37.
[50] Kurzweil, The Singularity is Near.
[51] Elon Musk has been the most high profile critic. Shead, "Elon Musk Says DeepMind is His 'Top Concern' When it Comes to A.I."
[52] Travis, "The Best Sci-Fi Movies of All Time." The top five are Blade Runner, Alien, Star Wars: The Empire Strikes Back, The Matrix and 2001: A Space Odyssey.
[53] Rotten Tomatoes, "150 Best Sci-Fi Movies of All Time." The top ten are 2001: A Space Odyssey, Back to the Future, Blade Runner, Metropolis, Star Wars: A New Hope, The Matrix, Inception, Terminator 2: Judgement Day, Alien and Mad Max: Fury Road.
[54] Cave, "Hopes and Fears for Intelligent Machines in Fiction and Reality."
[55] Sartori, "Minding the Gap(s)."
[56] Johnson, "AI Anxiety."
[57] Boyles, "Why Friendly AIs Won't be That Friendly"; Muehlhauser, "Why We Need Friendly AI."

decisions that have a real impact on human welfare—may affect the willingness of some to accept AIs' decisions.[58] The fear associated with an AI's decision in this scenario would be merely perceived and an irrational fear. However, this does not make it non-impactful.

Fears associated with the contemporary applications of AI can be rational. A utopian view of an AI's ability to make decisions may see it as being both objective and transparent.[59] But this ideal is currently unachievable. Bias and racism follow from the application of certain algorithms.[60] Significant fears associated with the ability of AI to be able to make transparent decisions also exist. The 'black box' problem stems from the complexity of contemporary algorithms and results in there being no way to understand how the AI has made a particular decision.[61] Where decision-making is opaque, the process may lead to fears regarding the accuracy or legitimacy of the decisions.

The Fear of AIs Exercising Constitutional Power

What appears from the previous sections is that society has been primed to fear the impact of AI. If the impact and relative fear of AI in discreet processes are writ large—into the exercise of constitutional power—it seems that the potential for fear may also increase. I will briefly illustrate this claim by exploring three hypotheticals.

Hypothetical 1: Using an AI to Draft Legislation

An AI could be used to identify the need for and subsequently draft legislation. By virtue of AIs' basic ability to process vast amounts of data and identify trends, an AI could take account of large volumes of community preferences and prepare drafts of legislation that would respond to identified problems. The AI-drafted legislation would still be vetted and approved before being voted on in parliament or other law-making body.

This sort of process is not *too* far removed from the present.[62] A human remains 'in the loop'—as it is only the initial identification of a problem and the proposition of a solution of the problem that would be taken on by the AI. However, this would still represent a significant shift in current institutional practices. To date, the identification of the need for, and the ultimate content of, legislation has been a completely human-centric process. By using AI in this way, notwithstanding the minimal departure from current practices, fears relating to the AI's identification of both a problem *and* a proposal of a solution may follow. By giving an AI a more prominent role, algorithmic aversion or AI anxiety may increase the level of fear of the use of AI.[63]

Hypothetical 2: Using an AI to Create Secondary Legislation

An AI has powers delegated to it that allow it to make rules that directly relate to the public. Here, human intervention in the rule-making process is removed. While there would still be some human oversight, the delegation of power to the AI would allow it to perform basic secondary legislative acts—for example, adding a particular drug to the list of drugs on a list of proscribed substances—autonomously.[64]

This is a human 'over the loop' scenario—where there is still some oversight of the decision by humans in the legislature but the machine is able to act first. This sort of technology is not too far beyond what is currently used. As already noted, AI is already used in administrative decisions. This hypothetical extends that idea marginally by simply removing the human element in the creation of the norm (while retaining humans in an oversight role).

The reduction of human decision-makers' responsibilities to an oversight role seems likely to exacerbate the fears of AI's application. While only a minimal step, this seems to be a step closer to the use of AI that science fiction cautions against: situations where an AI dictates the rules in an environment. (For example, the controls of *2001*'s *HAL* over the humans aboard the *Discovery One* seem similar here.) The fact that this is secondary (not primary) legislation may be a distinction that is both

[58] Dietvorst, "Algorithm Aversion."
[59] de Fine Licht, "Artificial Intelligence, Transparency, and Public Decision-Making"; Araujo, "In AI We Trust?"
[60] Spielkamp, "Inspecting Algorithms for Bias"; Nissan, "Digital Technologies."
[61] Pasquale, The Black Box Society.
[62] For the suggestion that AI cannot—yet—be used to draft legislation but can currently be effectively employed to assist in the legislative process, see Priambudi, "Optimizing Omnibus Law in Indonesia."
[63] Dietvorst, "Algorithm Aversion"; Frick, "Here's Why People Trust Human Judgment Over Algorithms."
[64] A similar example, where drugs are added to a list (of banned substances) by an advisory council, exists in the *Misuse of Drugs Act 1971* (United Kingdom).

invisible and irrelevant to non-lawyers. Notwithstanding the human supervision, increased fears of the impact of potentially arbitrary decisions may follow—as fears of this sort are at the heart of Dicey's fears as outlined above.

Hypothetical 3: Replacing Human Legislators with AIs

AIs can be used to identify the need for laws and to draft, debate and pass legislation. This is the most futuristic extension of our available technology. By replacing each human representative with an individual AI algorithm, a virtual legislative body can be constituted. This would replace the human-populated legislature.[65] Here, humans are 'out of the loop'—they have no control over the AI or its outputs.

If the very real technological challenges are put to one side, the use of AIs in this way is the familiar refrain: AIs can make decisions more efficiently and more accurately humans. Given machines' ability to multitask, several debates could be conducted concurrently and very quickly—this could even lead to *more* objective decisions being made, resulting in a data-driven 'technocracy' that could avoid human legislators' potentially opaque motivations.[66]

Should any dystopian scenarios relating to AIs using their power to destroy humans (e.g., *Terminator*'s *Skynet*) be put to one side and it be assumed that the AIs in the legislature would be 'good', considerable fears may surround the provision of this sort of power to a non-human entity. This could include Rule of Law–relevant issues regarding an entity making laws that is not itself bound by them. The principle of legal equality requires the equal application of laws to the public and the lawmakers; but non-human entities cannot be subject to the same controls as humans.[67] This also takes a step away from 'government of *the people*, by the people, for the people'. Instances of rule-makers not being bound by the laws they make instantiate fears very similar to those that generated several Rule of Law accounts. Locke and Dicey's conceptions would clearly fall into this category. For these key reasons, considerable fear seems likely to follow the use of AI in this way.

Summary: Fear of the Exercise of Constitutional Power by an AI

In this part, I first demonstrated that the use of AI in society generally has generated fear and this has been exacerbated by science fiction's portrayal of AI. Then, by briefly posing three hypotheticals relating to AI's exercise of constitutional power in the future, I illustrated the potential for the fears associated with AI to greatly increase (often in ways that evoke popular sci-fi tropes).

States recognise the benefits and efficiencies associated with the application of AI and are currently using AIs in ways that even they cannot always quantify.[68] For this reason, regardless of potential fears, the use of AI in the exercise of constitutional power seems certain to increase. Even if the singularity or other dystopian outcomes are put to one side, scenarios like the above hypotheticals could become a reality. While *Hypothetical 3* may be seen as highly unlikely (given the technology and political ramifications), *Hypothetical 1* seems eminently possible. Should this happen, the fears of AI that have been propagated through science fiction tropes could permeate society more fully. Where the hypotheticals may become a reality, the very real fears that may exist in relation to the exercise of power by AIs—fears that have been enhanced by popular science fiction stories—would prime society for a *different* form of the Rule of Law which has previously only served to prevent the arbitrary application of power by *humans* within a state. I briefly expand on this idea in the final part of this article.

Conclusions, Reflections and Implications

If contemporary ideas of the Rule of Law are shaped by fear, and if fear exists in relation to AI's exercise of constitutional power, fears associated with AI's exercise of power may shape future conceptions of the Rule of Law. In this part, before offering some reflections and implications in the final section, I want to expand on how this conclusion may follow.

Conclusions

The conclusion to the argument above could operate in two ways. The first reflects the idea that the nature of the concept of the Rule of Law must change to account for the exercise of constitutional power by AIs. The second is that the fears themselves will affect the future conceptions. As the latter argument gives greater weight to the 'fear' aspect of the argument, that form should be preferred. However, I touch on both.

[65] This was explored in Burgess, "Algorithmic Augmentation of Democracy."
[66] Khanna provides a compelling argument for a similar position. Khanna, Technocracy in America. In some senses, people may prefer algorithmic judgment Logg, "Algorithm Appreciation."
[67] Chen, "The Boundaries of Legal Personhood."
[68] NSW Ombudsman, "The New Machinery of Government."

With regard to the first form of conclusion, where the Rule of Law opposes the exercise of arbitrary power (broadly conceived), an AI's potential exercise of power would need to be included. Contemporary Rule of Law conceptions have placed such a broad focus on the anti-arbitrariness function of the Rule of Law.[69] However, this was not a view that the usual suspects adopted as their accounts more particularly focused on the application of power by the state.[70] Given that the AIs would be operating as a state entity in exercising constitutional power, some account would need to be taken of the AIs' action.

The second form of the conclusion is that fears (of AI) will impact future conceptions of the Rule of Law. Here, 'fear' is given more weight than in the first form. It was the fears in several of the usual suspects' societies—of papal rule, the administrative state, or totalitarianism—that gave rise to the Rule of Law conceptions that remain influential today. The societal fears noted in terms of the usual suspects' accounts also exist in regard to the use of AI in the exercise of constitutional power, and this has been exacerbated by science fiction accounts of AI's role in society. The massive popularity of, in particular, science fiction movies in which AIs are frequently portrayed as playing a role in a dystopian future is capable of generating a similar societal state of fear. Where society was primed by fear, and this gave rise to conceptions of the Rule of Law that responded to those fears, fears associated with AI's exercise of power may shape future conceptions of the Rule of Law.

In this sense, future conceptions of the Rule of Law should take account of fears associated with AI's exercise of constitutional power. Core ideas of the Rule of Law have been seen to be responsive to societal fears associated with the exercise of power. The key difference, as noted briefly above, is that the Rule of Law has only previously responded to the exercise of power by humans. This is prominent in Aristotle's Rule of Law idea, where he considers it more expedient to be ruled by the best laws and not the best man.[71] For this reason, any idea of the Rule of Law that adequately responds to the fears that may exist in relation to AI would need to evolve to encompass this non-human element.

Reflections and Implications[72]

When the use of AI in the exercise of constitutional power is contrasted to the same exercise without AI, there is a clear overlap in terms of the broadly stated Rule of Law problem: power may be exercised arbitrarily or in ways that are not predictable, prospective, general, or equal. This is, after all, the broadly stated idea that has underpinned the Rule of Law across accounts that include the usual suspects. The core difference relates to one of accountability; or, more accurately, the outcome of accountability. Humans in power may have some desire to act (to achieve good ends, to retain power, or for some other reason) in a way that does not see them being held accountable for arbitrary actions. An AI may not have these motivations. The AIs contemplated in each of the three hypotheticals may have no desire to retain power or achieve good ends. An AI has no innate desire to remain in office and may not respond to the traditional motivators of human actors. An argument could be made that this may enhance Rule of Law (or democracy-related) outcomes,[73] but this does not detract from the fact that there may be less of an incentive to *not* act arbitrarily.[74] When considered in this way, both the locus of the exercise of power and the *way* that the power is exercised are different. This means that any future Rule of Law conceptions must retain the focus on anti-arbitrariness (to be a Rule of Law conception) but must also address the exercise of the power itself.

Beyond the ongoing discussions that relate to the potential extension of the Rule of Law from public to private exercises of power,[75] considering the concept of the Rule of Law in terms of the nature of the entity exercising the power is novel. This is not encapsulated by the traditional bifurcation of the concept into thin or thick conceptions.[76] Nor is it fully caught by the broadly accepted idea that the Rule of Law is a concept that opposes the arbitrary application of power by a state. The conclusions reached here regarding the exercise of power by an AI demonstrate there may be a difference between the *nature* of the entities that exercise the power. The control that the concept of the Rule of Law has previously held over an entity wielding power may not cover these—artificial—entities.

In broad terms, where fears about the exercise of power have guided influential conceptions of the Rule of Law, fears associated with the application of AI in the future exercise of constitutional power—which have been influenced by popular science fiction—are capable of informing the way the concept will need to develop in the future.

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[69] For example, Sempill, "What Rendered Ancient Tyrants Detestable"; Krygier, "Four Puzzles About the Rule of Law."
[70] Burgess, "Deriving the International Rule of Law."
[71] Aristotle, The Politics, para. 1286A7.
[72] This brief section is speculative. It could be seen as a prediction. It will, more certainly, act as a springboard for future work.
[73] Burgess, "Algorithmic Augmentation of Democracy."
[74] For an assessment of the difference in different forms of AI, and their legal accountability, see Chen, "The Boundaries of Legal Personhood."
[75] See, for example, the two views expressed in Bhatt, "Introduction"; Burgess, "Googling the Equivalence."
[76] Craig, "Formal and Substantive Conceptions."

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