AUGMENTED DEMOCRACY:
(TH)E-RULE OF LAW AND DEMOCRAC-E?

PAUL BURGESS
Faculty of Laws, University College London
paul.burgess@ucl.ac.uk

DRAFT – FOR UNSW JULY 2019

PLEASE DO NOT CITE ETC ETC

THIS PAPER, AS WILL BECOME APPARENT, IS AN EARLY DRAFT OF A NEW RESEARCH PROJECT. AS SUCH, PLEASE EXCUSE INSTANCES OF INCOMPLETE CITATIONS / THOUGHTS

PART 1: INTRODUCTION

> 'It was a heavy, pointed stone about six inches long, and though it did not fit in his hand perfectly, it would do. As he swung his hand around, puzzled by its suddenly increased weight, he felt a pleasing sense of power and authority. He started to move towards the nearest pig. ... [His] stone hammer obliterated its dim consciousness. ... [He then] understood that he need never be hungry again.'
>
> *2001; A Space Odyssey.*[1]

In this paper, I suggest four ways in which technology could be used to augment processes associated with both the selection of representatives to the legislature and the creation of legislation. In circumstances where I do not seek to completely replace democracy (as an ideal), I describe these innovative applications of technology as

[1] Arthur C. Clarke, Orbit, 2001, 18-19.

augmented democracy. Each reflects an existing—or near-existing—technology being applied in a new way. They fall on a spectrum between transferring voting online, to the wholesale replacement of human lawmakers with algorithms. After noting that less invasive forms of augmented democracy may be less objectionable than more extreme forms, I consider where the dividing line between these differing intuitions may be found. I critically assess whether the augmentation of existing systems in the ways suggested satisfies or enhances ideas associated with fundamental ideas in western democratic states: democracy and the Rule of Law. By situating this (not too far-fetched) future in a (not too far-removed) democratic state, my conclusion is that when it comes to democracy and the Rule of Law our intuitions may, in some respects, lead us astray.

Technological innovation is nothing new. It can sometimes be invisible. Its adoption should always be considered as one way to progress society. Whilst Arthur C. Clarke's story about how the adoption of even a rudimentary new technology can both spur a civilization forward and transform the structure of society is clearly fiction, there logically must have been a point—albeit a less dramatic or specific point—where an item like the one that is described was first innovatively applied to the sort of task that is described. The best technological innovations are those in which the technology (and the innovation) gets out of the way and facilities some form of improvement or benefit. In this sense, and in short, some of the best technological innovations are those that we don't even think about as being a technological innovation at all.

The extant form of modern democracy may be one such innovation that we do not contemplate. It is useful to briefly consider *why* the innovation in democracy that

we do not always see. Whilst democracy may have been able to spur civilizations forward in previous decades and centuries, some may not think of democracy as a form of innovation. Yet, where there are various obvious and/or disputed systems of organising power in a state or region, the more contemplative person may see democracy as being a form of innovation that is yet to disappear fully into the background. What may be more invisible, even some contemplative individuals, is the *way* in which democracy is conducted. The system of voting that many of us have grown accustomed to—by way of a marking a pre-printed ballot paper in secret in elections that are conducted by way of universal adult suffrage—could be seen as the 'only' way to do democracy that achieves a function of the democratic process: the fair election of representatives to various levels of government. Many may recall the innovative move to extend the vote to *all* adults—as this is still within living memory in many familiar countries and in *very* recent memory in many other parts of the world.[2] But, even amongst deeply thinking people, many may not acknowledge the technological innovation that was necessary to create the system of voting in which many of us have participated.

What we now see as voting required substantial innovation. Voting has existed for millennia; its presently accepted (and acceptable?) form and method has however changed dramatically over time. The Ancients and the Vikings voted on matters that concerned their city states or their communities. It is easy to imagine basic—non-formal—forms of voting evolving. Simple 'Yea' and 'Nay' votes, a show of hands, or moving to one side or another of a room, can be imagined as happening relatively organically when small groups needed to make decisions. With contemporary

[2] I am very happy to say that Australia was at the vanguard of the process of extending the vote to both men and women; but I am sad that, for many more decades, there remained restrictions related to race.

sensibilities, these could be criticized for exposing the voter (and her or his particular preferences) to being ostracised or coerced.[3] Accordingly, a relatively early innovation in vote casting was that of voting in a way that did not divulge a voter's preference or decision to others.[4] Although early forms of voting increased the level of secrecy, they included methods like (secretly) depositing tokens into receptacles or writing a candidate's name on a piece of paper. The secrecy of these forms was, however, imperfect as a voter's preference could be linked with the voter's identity. Something more recognisable as 'innovation' was required to take a step toward the modern form of voting.

Technological innovation came with the 'Australian ballot'. This was created in the late 18th century and introduced the revolutionary idea that there should be a pre-printed ballot on which a preference could be marked whilst secluded in a private room. Even this improvement was refined—from early versions in which non-preferred candidates were crossed through—to include a box to check for preferred candidates.[5] This innovation was rapidly adopted across over the remainder of the century and the next century. It is the system with which most of us will be familiar. Like all good innovations, it is reflective of a technological innovation that—whilst it was undoubtedly paradigm shifting at the time—successfully gets out of the way and

[3] Although, with an attitude that seems to be less common in modern political discussions, it could also be argued that taking a public position forces one to clearly consider any position taken in order to defend the position against other individuals' views. But, the debate about the merits of this form of voting is a debate for a different day.
[4] A brief but interesting account of early secret ballots is: Charles Gross, 'The Early History of the Ballot in England' (1898) 3(3) *The American Historical Review* 456.
[5] For a great explanation of the Australian Ballot and its history, see: Peter Brent, 'The Australian Ballot: Not the Secret Ballot' (2006) 41(1) *Australian Journal of Political Science* 39 ('The Australian Ballot').

facilitates some form of improvement in a way that means it is difficult to think of a time when it didn't exist.[6]

However, the fact that a technology is or was effective in its task does not mean other innovations in the same space should not be considered.[7] Other forms of democratic elections and democratic decision making that could improve the form of voting that has been ascendant for around 200 years should still be considered. Technological innovation—even in the most obvious sense—should be something that we explore even if we ultimately reject it. Accordingly, this paper examines one potential way in which innovation could be used to augment democracy.

Innovation is not always or necessarily a good thing. Vegemite 2.0 and 'new' Coke were, in my humble opinion, innovations that didn't need to happen. But, putting aside these marketing focused innovations, many (or even most) innovations—with the possible exception of the Sinclair C5—are useful in *some* respect. This is not to say that all innovations are useful for extended periods, or that they are widely facilitative of benefit forever. For example, the innovations of transport by canal, the Sony Walkman, and Blockbuster video—whilst each being seen as indispensable and world changing at the time of their popularity—have been superseded by more effective / efficient technologies. In order to be a successful innovation an innovation must be useful to somebody somewhere somewhen. Accordingly, innovation for innovation's sake should not be merely accepted, it should be explored and critically evaluated.

[6] Try to think what it was like organising a place / time to meet or coordinating an event in the pre-smart phone or pre-internet era! (Although, here, there are certainly valid arguments for the good ol' days!)

[7] For example, the encouraged introduction of the car on Manhattan to combat the public health crisis caused by the massive number of horses (and their output) does not indicate private cars—or, more specifically, petrol driven cars—should always be retained on the island.

It is on this basis that I propose and critically evaluate four ideas of augmented democracy. I imagine a (not too far-fetched) future and consider the extent to which technology can be used to more effectively or efficiently facilitate the broad-based aims of modern democracies. I suggest four ways in which technology could be used to augment the generally accepted processes associated with democratic elections. The innovations I explore exist on a continuum that stretches from minimal impact on the process of elections, to a near-total overhaul of the process of electing and communicating with a legislative entity. They represent technological innovations in terms of the modern idea of democracy, but they are largely, marginal extensions of technologies that already exist in some form or another. As the ideas involve repurposing technologies, they share the innovative sentiment invoked in the quote opening this paper, but what I explore is far from being work of science fiction worthy of Arthur C. Clarke.[8]

The ideas are thought experiments that are intended to provoke both discussion and further consideration. Each of the ideas takes a progressively larger step away from the existing paradigmatic democratic states' system. The intention is to try and identify at what stage the suggested augmentations cease to provide an improvement and, instead, represent a usurpation of the benefits (or other benefits) that they—otherwise—are intended to facilitate. In order to assess the potential usefulness of the ideas, I first—unsurprisingly—consider whether they achieve or

[8] However, this would be heady company to be in. Arthur C. Clarke was eerily prescient with some of his ideas - there is a delightful discussion of a 'Newspad' that plugs into an 'information circuit' in order to scan the latest news reports. This merely requires the user to know and be able to input the codes associated with the publications. (Which, Clarke describes the user as having noted on the back of the pad.) Whilst he was able to describe something akin to an iPad or an Amazon Kindle more than 40 years before they were released, he was not able to comprehend the use of a graphical user interface (that was created by Xerox only a few years after the book was written) or the function of a device's memory. Although, he does describe a 'postage stamp size rectangle that would expand on till it neatly filled the screen' at p. 53, 2001.

facilitate basic ideas of democracy. Then, in circumstances where the implementation of ideas associated with the nature, form, and structure of the legislature are concerned, I also consider whether any of the ideas facilitate or hider ideas associated with the Rule of Law. The conclusion I draw is an unintuitive one: the most minimal augmentation to the way democracy is currently conducted does not represent the most attractive idea in terms of the ideals of the Rule of Law and democracy; instead, the most extreme suggestion results in the most attractive idea.

In making my argument, the paper's structure is simple. After outlining each of the augmented democracy ideas (in the next part), I critically assess whether the augmentation of existing systems in this way can satisfy the ideals of democracy (Part 3) and the Rule of Law (Part 4). In drawing the paper to a conclusion in the final part, I comment on the potential desirability of augmenting democracy with technologies like those imagined and highlight the way that various differences between democracy and the Rule of Law are illuminated by considering augmented democracy.

PART 2: AUGMENTED DEMOCRACY - FOUR IDEAS

Before outlining the four ideas of augmented democracy, I must first clarify the basic democratic framework on which I will hang the ideas. In keeping with the broad thought-experiment that motivates the paper, I do not base my ideas in any one modern democratic state. Instead, I set each of the augmented ideas of democracy in a relatively recognizable state that has a paradigmatic (albeit simplified) modern representative democratic structure in which the legislature is elected at fixed intervals through universal adult suffrage on a first-past-the-post system. Elections are conducted in accordance with the Australian ballot model. Further, elections are—

sensibly—conducted on a Saturday, and voting is compulsory for all those eligible to vote. For ease, let's call this hypothetical state E-stralia.

Four augmented democracy changes are proposed to the E-stralian system. Each change results in a more substantial reform. I outline each a separate section below. The similarity in descriptions of the first pair (*Blockchain* and *Blockchain+*) and the second pair (*Algorithm* and *Algorithm+*) reflect the similarity of the technological innovation applied. In this part, I outline the ideas and their potential benefits as well as an intuitive reaction to their implementation. I reserve more substantive comment on their impact on democracy and the Rule of Law for Part 3 and Part 4.

Blockchain

Blockchain technology is, perhaps, best known for its application in terms of crypto-currency (like Bitcoin).[9] However, it can also be used to ensure an individual's identity online.[10] This application can facilitate one of the most obvious uses of technology in democracy: online voting.

The ability to vote online has logistical and financial benefits. It facilitates a way to conduct elections in a way that avoids the traditional (and expensive) need to cast a paper ballot at a pre-designated and staffed polling place. But, voting online has the potential for voter fraud. How can the individual responsible for tallying the vote know that Mrs. Smith's vote was actually cast by Mrs. Smith? In the use of the

[9] In general terms, blockchain technology facilitates a form of encrypted ledger that is held across a number of—non-centralised—locations. This form of data storage is intended to provide a way to prevent fraud.

[10] Online voting is often raised as a potential application of blockchain technology. See, for example, Marc Pilkington, 'Blockchain Technology: Principles and Applications' in F Xavier Olleros and Majlinda Zhegu (eds), *Research Handbook on Digital Transformations* (Edward Elgar Publishing Ltd, 2016).

internet—as it is used today—potential for hacking and voter fraud on mass scale exists. It is in this sense that blockchain has the potential to secure voting by decentralising records and making hacking more difficult. Blockchain technology would remove the worry that it was not Mrs. Smith casting her vote.[11] In its simplest sense, Blockchain—as a form of augmented democracy—reflects all voting being conducted (securely) online.

Blockchain+

Ready access to the internet in E-stralia facilitates voting via an app or website. Voting can be achieved quickly, cheaply, and securely. On a purely technical basis, if voter identification can be guaranteed there seems to be no reason why democracy cannot be conducted on more direct basis. Accordingly, in Blockchain+, online voter identification (from Blockchain) is utilized but E-stralia's representative democracy is changed to a more direct model.[12]

I describe Blockchain+ as a 'more direct model' as a representative structure remains to propose legislation and the provide a forum for debate. The determination of whether the resultant bills are made into law is however put to the people.[13] This

[11] Of course, this would not remove the problems associated with potential coercion. A coercer could be standing behind Mrs. Smith requiring her to vote in a particular way. However, there is little reason why this could not occur under the current system. And, in any event, the coercer-over-the-shoulder fear is unlikely to be scalable to mass voter fraud.

[12] This puts to one side the broader concerns regarding the attractiveness of direct democracy. In this respect, see 'Lea Raible and Leah Trueblood: The Swiss System of Referendums and the Impossibility of Direct Democracy', *UK Constitutional Law Association* (4 April 2017) <https://ukconstitutionallaw.org/2017/04/04/lea-raible-and-leah-trueblood-the-swiss-system-of-referendums-and-the-impossibility-of-direct-democracy/> ('Lea Raible and Leah Trueblood').

[13] For a more extreme use of blockchain technology, see: Reimagining Democracy: What if votes were a crypto-currency? Prabhul Chandra, 2 February 2018, https://www.democracywithoutborders.org/4625/reimagining-democracy-what-if-votes-were-a-crypto-currency/. In this paper, he imagines coins being issued that can then be 'spent' as a way of voting. The coins issue periodically and they can be spent as a way to illustrate preferences. Similar ideas relate to concepts like liquid democracy. See, for example, Christian Blum and Christina Isabel Zuber, 'Liquid Democracy: Potentials, Problems, and Perspectives' (2016) 24(2) *Journal of Political*

gives a voice to each voting member of the public but ensures that informed debate and some form of structure and focus to the legislative agenda.

Algorithm

In Algorithm, the representative aspect of E-stralia's representative democracy is retained—i.e. *without* the Blockchain+ form of direct democracy—but the way in which voter preferences (outside of elections) are communicated is fundamentally altered. Letters, polls, and other methods of preference communication are inefficient ways to communicate preferences to elected representatives. Furthermore, large sections of the public may not engage in this form of communication; this would leave a portion of society without a voice. To remedy this, Algorithm provides a more accurate and more efficient way to communicate constituents' preferences.

We could define—broadly—the function that these communication media accomplish in terms that reflect the definition of an algorithm: a prescribed set of well-defined rules or instructions for the solution of a problem. On this basis, there seems to be no immediate reason why this function cannot be performed algorithmically. There is a massive amount of preference data carried around in each individual's pocket in small internet-connected devices.

Background access to this data, in much the same way that Google has access to it now, would provide far more information to elected representatives than

Philosophy 162 ('Liquid Democracy'). For consideration of liquid democracy in computer science focused terms, see: Anson Kahng, Simon Mackenzie and Ariel D Procaccia, 'Liquid Democracy: An Algorithmic Perspective' in *Thirty-Second AAAI Conference on Artificial Intelligence* (2018) <https://www.aaai.org/ocs/index.php/AAAI/AAAI18/paper/view/17027> ('Liquid Democracy').

traditional communication forms.[14] Effective mining of this (anonymised) data means general preferences can be derived without an individual having to take positive steps to vote or communicate her/his intention in any way or to positively engage with issues (as is the case with Blockchain+); preferences can be derived on a much wider range of issues—in much finer detail and from a much wider range of individuals—than in more traditional ways of voter preference communication. Through mining the data more informed decisions can be made about the potential legislative actions to be taken.

Algorithm+

E-stralia's current representative democracy requires a member to be elected—usually as part of a political party. The member will take a particular view of the world—potentially in line with her party affiliation—and will assimilate information, identify her constituents' preferences, and make appropriate decisions. In Algorithm+, this human function is entirely replaced by an algorithm. The advantage is that decisions can be made faster, more efficiently, and more accurately than by any human.

The suggestion here is not, however, to replace the current constituent-based scheme with a single all-powerful algorithm.[15] Instead, a less extreme position is taken. Voting by constituents in constituencies (as in *Blockchain*) is retained; but, an algorithm and not a human representative is elected. As a result of this structure,

[14] I am fully aware that some inferences can be wildly incorrect based on current technology. (See, for example, some of the spurious examples that may occur in Google's own assessment of your activities in at: https://myactivity.google.com/myactivity you can also see some of the (curious) things that Google thinks you are doing at various places at: https://www.google.com/maps/timeline?pb . For the purpose of this hypothetical, we will assume an effective system is possible.

[15] Devotees of the Marvel Cinematic Universe would understand from the recent Captain Marvel that having an AI control a civilisation leads to decidedly sub-optimal outcomes.

multiple algorithms would constitute the legislature. In elections, votes are cast for a particular algorithm in a constituency. Each algorithm will make decisions based on particular priorities defined in advance (much like a political party). The various elected algorithms would then fulfil the normal role of proposing, debating, and voting on bills based on the needs of their communities and the algorithm's pre-determined priorities. (This includes through mining its constituents' preferences as derived in *Algorithm*.) Algorithm+ would, of course, see the end of the legislature as currently constituted.

This is not to say that the process of democratic decision making would be invisible or inaccessible. Debates, the decision-making processes, and the information on which decisions are based, would be available to the public.[16] However, given machines' ability to multi-task, it would be possible for several debates to be conducted concurrently. For these reasons, legislative decisions in Algorithm+ would be conducted far faster and more efficiently than human-based decisions.

An intuitive response

An intuitive response may be to consider Blockchain's minimal impact on the way democracy functions as being the more attractive option. In circumstances where the current model of democracy is not fundamentally broken, replacing it wholesale—with something as extreme as Algorithm+—seems extreme and, as with many unknowns, somewhat terrifying. Giving algorithms control of the creation of legislation represents a step that many may not be willing to take. The worry about

[16] Given the inherently logic way that an algorithm would function, an argument could easily be made that the decision-making process would be far *more* transparent than any current human-infected process.

technology performing this function may play a role in the intuitive undesirability of more extreme options. Accordingly, 'merely' moving the process of voting online may be not only more appealing but may—given our familiarity with performing all sorts of tasks online—represent an acceptable or even attractive outcome. On an intuitive level, the less extreme options of change represent more attractive options. However, a deeper assessment is necessary if we are to identify whether the intuitions are accurate.[17]

PART 3: DEMOCRATIC BENEFITS?

My description of the four ideas in the previous part as *augmented* democracy requires some clarification. I do not intend to suggest that the end result is necessarily more democratic, or even that they are necessarily more beneficial to democracy. The augmentation to which I refer relates to the relative addition of the four ideas to the general democratic structure. In this sense, it is relevant to question whether augmentation has a beneficial outcome for democracy more generally. It is this question I explore in this part.

The concept of democracy is slippery. Many sensible yet different definitions could be proposed. For simplicity, I adopt a very broad base-line to first illustrate what I take democracy to be (as well as accepting that the four ideas of augmented democracy fit within the paradigm) before considering whether some of the benefits of democracy are either satisfied or enhanced. For the base-line and the benefits I borrow Dahl's view.[18]

[17] Spoiler: they aren't.
[18] Robert A. Dahl, On Democracy, 2e Yale University Press 2015 ('Dahl').

A democratic base-line:

Dahl suggests there are at least five criteria for a democratic process: members must be able to make their views known about a policy; members are to have an equal opportunity to vote and all votes are to be counted equally; members are to have the ability to learn about alternative policies; members are to have control of the agenda; and, all (or most) adult permanent residents should have the full rights of citizens implied by the previous criteria.[19] Even in these under-elucidated terms, it is apparent E-stralia's democratic framework—as a representative democracy with universal adult suffrage—facilitates these in the broad sense.

As the augmented democracy ideas generally relate to procedural changes—in either minimal or maximal senses—to the way that democracy is facilitated, it is apparent that, like the general democratic framework, they do not fundamentally contradict any of Dahl's basic principles. Accordingly, if the ideas are capable of being considered—at least in the broadest sense—as democratic, and if an argument is to be made that there is a reason to consider the adoption of those ideas, it is sensible to ask whether democratic improvement would follow from their adoption.

The benefits of democracy (and whether augmented democracy can improve them)

Whilst any potential benefits of democracy could be seen as even more amorphous than democracy's conceptual boundaries, Dahl lists ten. Of these, I focus on five. They reflect the ability of democracy to:

- Help prevent government by autocrats;

[19] Dahl, 37-38.

- Insure citizens' broader range of personal freedom;
- Help people to protect their own interests;
- Allow people to live under laws of their own choosing; and
- Provide an opportunity for exercising moral responsibility.[20]

I accept these and will call them *democracy benefits*. If any of the augmented democracy ideas negatively impact the democracy benefits, the case for *not* adopting the ideas becomes stronger. However, if the augmented ideas can positively enhance the democracy benefits—or if they satisfy these benefits and add new ones—then other reasons for *not* adopting them may need to be reconsidered to justify retaining the existing E-stralian system. I consider each augmented democracy idea in terms of any potential democracy benefits in turn.

Blockchain

Blockchain does very little to change the status quo other than to amend the process by which a vote is cast. In changing the physical polling booth to a virtual one, there is no substantive difference in terms of the democracy benefits. This is not to say that there are no additional benefits. There would be substantial savings on the financial cost of an election as administrators would not be engaged to staff the polling places.[21] Furthermore, the level of security relating to identification of individual voters would be guaranteed.

[20] Robert A Dahl and Ian Shapiro, *On Democracy: Second Edition* (Yale University Press, 2nd Revised edition, 2015) 44–61 ('*On Democracy*'). The other five relate to: democracy guaranteeing fundamental rights; democracy fostering human development; the facilitation of a high level of political equality; the notion that democratic nations do not fight wars with one another; and that democratic contrives tend to be more prosperous. I do not deal with these as they are either of little relevance to the augmented democracy ideas I discuss, or because I do not necessarily agree with their formulation / inclusion.
[21] They would need to be engaged to facilitate online voting, but the relative number of people would likely be substantially reduced. Other benefits that may stem from Blockchain could be seen in jurisdictions outside of E-stralia. For example, the relative easing of the impact on voters of *going* to the polling place may increase election turnouts and ease the impact caused by the disruption to the

Given the mere formal change in voting, the arguments against Blockchain in E-stralia reflect what could be seen as similar criticisms of the processes of democracy at the moment. For example, voter coercion on an individual level—where an individual dictates how another should vote—cannot be prevented, but this is also the case with voting in person. In this sense, whilst there may not be strong reasons to adopt Blockchain, there seems to be no strong reason *not* to consider the idea.

Blockchain+

In its most basic sense, Blockchain+ represents a form of electronic direct democracy. By taking the 'there's an app for that' mentality to the extreme, voting can be conducted in relation to any number of issues quickly, easily, and cheaply. Arguments associated with direct democracy and—topically—the relative benefit of referendums more generally are apposite here.[22] In this respect, some of the practical benefits that relate to the process of voting—as outlined in relation to Blockchain relating to logistics and costs etc—are also relevant to the process of holding multiple public votes (as is required in a direct democracy).

When considered as a referendum-simplifier (i.e. as a way to facilitate occasional votes), Blockchain+ seems capable of facilitating enhancements in all five democracy benefits. By virtue of substantial decision-making power being ceded to the people, the form of electronic direct democracy in Blockchain+ could—as with referendums, when taken seriously—assist in preventing government by autocrats.

working day generally there may be a further reduction in administration costs and decreased impact on local infrastructure where elections are held on a weekday as no school closures would be required.

[22] Regarding referendums generally, see Leah Raible, 'Why Brexit Shouldn't Be the End of Referendums - Blog - Maastricht University', *Maastricht University Blog* <https://www.maastrichtuniversity.nl/blog/2019/06/why-brexit-shouldn%E2%80%99t-be-end-referendums>. See also 'Lea Raible and Leah Trueblood: The Swiss System of Referendums and the Impossibility of Direct Democracy' (n 12).

The other four benefits may be enhanced by virtue of the fact that individuals' relative agency, and control over the legislative output, is increased through the enhanced participatory process. In this sense, there does not appear to be an immediately deleterious impact on democracy benefits as a result of Blockchain+.

What if the application of Blockchain+ is seen as *more* than a referendum-simplifier? If it is expanded to be a way to make direct democracy—in relation to *every* legislative decision—logistically possible in a state that is larger than the average ancient city-state, what of the benefits? The ability of most people to quickly and effectively vote could facilitate the problematic logistics of an entire population voting on every decision; the internet can make any state a city state. Yet, the logistical issue does not get to the heart of the matter. In circumstances where technology can be used to facilitate direct democracy, the well-known arguments both for and against direct democracy in the broad sense are relevant.[23] Beyond these, are there any *additional* democracy benefits (or drawbacks) that can be associated with the application of Blockchain+? There seems to be little extra benefit. Arguably, there could even be a drawback as the continual 'ping' of a smartphone notification—as the iPhone version of a division bell—may be either easily ignored or, worse, treated as foreshadowing an unimportant decision. Perhaps there is something to be said for the pomp of more formal or, in the least, more occasional voting by the wider polis. In this sense, Blockchain+, whilst logistically feasible, seems to hold a potential drawback that magnifies some of the criticisms of referendums or direct democracy more generally.

[23] As noted above, a summary of some of the issues can be found at 'Lea Raible and Leah Trueblood: The Swiss System of Referendums and the Impossibility of Direct Democracy' (n 12).

Algorithm

Algorithm facilitates access to individuals'—albeit aggregated and potentially anonymized—personal data. This does not facilitate an increased benefit in terms of the prevention of government by autocrats. The accountability mechanism of voting out representatives would continue to apply. This would also be possible should representatives be seen to misuse the information derived from individuals' preferences. But, as the amount of information communicated to the government about preferences would be exponentially increased, a clear argument exists to suggest that access of this kind may facilitate a more *effective* autocrat. For example, because individuals' preferences may reveal their likely voting intention (perhaps based on social media comments and likes as well as web browsing history) and their residential home address (based on GPS information),[24] this allows very accurate gerrymandering which may, in turn, facilitate the consolidation of power. To some degree this worry may be mitigated by aggregating either the collection or analysis of data and by aggregating the information across constituency boundaries, but this does not avoid the fact that the raw data would need to be collected in some form. Accordingly, there is an argument to be made that individuals' personal freedom, as one of the other democracy benefits, may not be broadened—and may even be negatively impacted—if access to information facilitates nefarious use.[25]

How about the other democracy benefits? In relation to helping people protect their own interests, live under laws of their own choosing, and exercise moral responsibility, these things could be greatly enhanced. Each requires the

[24] It is these aspects that go into the structure of Algorithm+ in the next sub-section.
[25] Some of the discussions regarding positive and negative freedoms, and the recent distinctions made between liberty and liberalism by people like Quentin Skinner come to mind here. See Quentin Skinner, *Liberty before Liberalism* (Cambridge University Press, 2012).

communication of individuals' views and opinions (as to what their *interest* is, what sort of laws they may *prefer*, and in *what direction* their moral compass points). At some level these would, in E-stralia, be satisfied by letters, opinion polls, and—retrospectively—elections. Facilitating access to individuals' (even aggregated) preferences may greatly enhance the legislature's ability to understand the issues and ideas that are important to the polis. As the information is obtained in a way that is invisible to individuals, it may also provide an unbiased opinion[26] that has the potential to be more accurate and—as a result of the near total nature of the 'sample' size—more representative than extant methods of deriving preferences. In this sense, at least some of the democracy benefits seem to be enhanced in Algorithm.

Algorithm+

Algorithm+ is unabashedly the most extreme of the four augmented democracy ideas. It requires the wholesale reconstruction of E-stralia's existing democratic institutions. The scale is such that it is unlikely to be only arch-conservatives that immediately and intuitively regard the proposition with considerable skepticism; however, as will become apparent, consideration of the democracy benefits does not accord with the intuitive response.

In this hypothetical, it is assumed the elected algorithms are benign and of good intent,[27] and their actions are structured to facilitate their constituents' will,[28] On these terms, the idea of a highly efficient machine mining constituents' preferences and

[26] I.e. one that is not tainted by social or peer pressures, or where the mere presence of the observer results in different answers than those that would otherwise be given.
[27] Which requires putting aside the nefarious AI system like HAL (Heuristically programmed Algorithmic computer) in 2001, or Skynet in the Terminator franchise.
[28] Which requires also putting aside discussions associated with the identification of the Rousseauian general will or cognate ideas.

using that information to both propose and vote on legislation that would be beneficial to the voting public may be an enhancement over human legislators. The elected algorithm would not flip-flop in its 'political' stance; it would not seek to attain personal gain or favour; and its actions would always be transparent. All of this would happen whilst a level of accountability is retained. After all, if an algorithm's actions are seen as sub-optimal, it could be replaced at the next election by another that has a different set of pre-programmed preferences that may—more accurately—satisfy its constituents' broadly defined goals.

Despite this glowing report card, the removal of human agency from the law-making process (i.e. the removal of human legislators), could be seen as highly problematic. The legislator—in Burkean terms—is something more than a mere preference collator; she is something more than a mouthpiece; she has an essential agency role. However, there is no reason why this agency function could be programmed into the algorithm.[29] In this respect, agency—as a deliberative function that takes account of something more than mere preferences—remains. The difference is simply that it is not *human* agency. After all, as much as we may, perhaps nostalgically, wish to have a human performing the agency function, there is no general reason why a machine cannot replace a human's function where the machine cannot perform a task more efficiently or effectively. This has happened in many aspects of life. Consider the use of a bicycle, a calculator, or a food processor. In higher-stakes terms, consider the idea of self-driving cars and the potential for autonomous vehicles to be able to accomplish the task of driving in a safer way.[30] In

[29] Within the confines of this hypothetical, the importing of such a function does not appear to be too much of a stretch.

[30] See Nick Belay, 'Robot Ethics and Self-Driving Cars: How Ethical Determinations in Software Will Require a New Legal Framework Student Notes' (2015) 40 *Journal of the Legal Profession* 119 ('Robot Ethics and Self-Driving Cars'). For a citation-heavy but useful overview of liability issues, see KC

decision making, the processes involved are more nuanced, but if the same or a better result is able to be achieved, there seems to be no reason to necessarily write-off the use of a machine merely because it is not-human.

By virtue of taking account of preferences, Algorithm+ may enhance two of the democracy benefits: helping people protect their interests; and allowing them to live under laws of their own choosing—even if the ideas about what these things require is obtained indirectly. In circumstances where power is taken away from (human) individuals in the legislature, it could also be seen to assist to prevent government by autocrats.

In relation to the remaining two democracy benefits, Algorithm+ does little to change the citizens' personal freedoms when compared to the present system in E-stralia. But, there remains the prospect that a community may elect an algorithm that may seek to oppress the minority or to purse the enactment of laws that are morally problematic. This is not new or exclusive in Algorithm+; this remains the case in E-stralia at the moment. Morally repugnant laws can result in the current constituency based electoral system—as a first-past-the-post system—if a majority of people across the state elect members of a party with morally repugnant ideals (across a wide geographical area). Yet, even if particular pockets of voters exist that hold a particular view, laws of this kind rarely make it onto the books in a democracy. The same would be true for Algorithm+. For these reasons, Algorithm+ would not be substantially

---

Webb, 'Products Liability and Autonomous Vehicles: Who's Driving Whom' (2016) 23 *Richmond Journal of Law & Technology* 1 ('Products Liability and Autonomous Vehicles'). I have touched on some of these issues before in Jiahong Chen and Paul Burgess, 'The Boundaries of Legal Personhood: How Spontaneous Intelligence Can Problematise Differences between Humans, Artificial Intelligence, Companies and Animals' (2019) 27(1) *Artificial Intelligence and Law* 73 ('The Boundaries of Legal Personhood').

detrimental to the democracy benefits as a whole. There may even be some efficiencies realised.

PART 4: THE RULE OF LAW?

In the last part we saw that, in terms of the democracy benefits and in relation to the ideas of augmented democracy: Blockchain does not provide a strong reason either to adopt or not adopt the idea; Blockchain+ gives little extra benefit and potentially creates a drawback; but, Algorithm facilitates some enhancement of democracy benefits; and, Algorithm+ suggests there would be no detrimental effect and may even be an enhancement of democracy benefits. In these respects, the more extreme ideas (Algorithm and Algorithm+) provide an enhanced democracy-related benefit. Democracy, however, does not represent the only conceptual standard against which we can measure the augmented democracy ideas. The Rule of Law is essential to the proper functioning of a democratic state.

The Rule of Law, like democracy, is a slippery concept. Its meaning is highly (perhaps essentially) contested.[31] The concept is frequently thought of as either a thin or a thick idea.[32] In the thin approach, the Rule of Law reflects procedural aspects regarding the way in which a law is made.[33] One of the most popular ways to illustrate the thin idea—and the approach I largely adopt below—is through Fuller's eight

[31] For my own overview of the state of conceptual play, see: Paul Burgess, 'The Rule of Law: Beyond Contestedness' (2017) 8(3) *Jurisprudence* 480 ('The Rule of Law').
[32] The standard account to cite here is: Paul Craig, 'Formal and Substantive Conceptions of the Rule of Raw an Analytical Framework' [1997] (Autumn) *Public Law* 467.
[33] Three illustrations of this way of thinking can be found in Friedrich A von Hayek, *The Road to Serfdom*, ed Bruce Caldwell (University of Chicago Press, 2007) 112; Joseph Raz, *The Authority of Law: Essays on Law and Morality* (Oxford University Press, 2nd ed, 2009) 210 ('*The Authority of Law*'); AV Dicey, *Introduction to the Study of the Law of the Constitution* (Palgrave Macmillan UK, 10th ed, 1979) 202–203.

desiderata.[34] This thin, procedural, idea of the Rule of Law as a form of legality contrasts with the thick (or thick*er*) idea in which some focus is placed on the nature and content of the laws that result. Some common examples include whether the Rule of Law results in the protection of human rights, the enhancement of democracy, or other social goods.[35]

It is usual when conducting a broad conceptual analysis to take a thin view.[36] I adopt this approach not for this reason, but because in circumstances where the idea of democracy has been also considered above, taking a thick view—could be seen as encompassing a need to see democracy as a part of the Rule of Law—may be confusing. In addition, where the idea is contested, restricting an examination to the less-complicated forms of the concept pays analytical dividends.

As I did with democracy, I commence with a basic idea of what I will take the Rule of Law to be. As the concept is contested adopting any one conception renders an argument open to criticism. Yet, taking a broad approach is not without problems. It is commonly said that if the Rule of Law is about anything, then it is about the prevention of the exercise of arbitrary power.[37] Whilst use of this sentiment ensures little disagreement, an examination in these terms would cover some of the same

---

[34] I expand upon these and list them below.
[35] Jeff King is currently exploring a very thick version of the Rule of Law. See, Jeff King, '"Constitutional Boundaries" — The Social Dimension of the Rule of Law', *I·CONnect* (2018) <http://www.iconnectblog.com/2018/04/i-connect-symposium-on-constitutional-boundaries-the-social-dimension-of-the-rule-of-law/>. Tom Bingham, *The Rule of Law* (Allen Lane, 2010). Other thick ideas also exist. See, for example, UN Security Council, *The Rule of Law and Transitional Justice in Conflict and Post-Conflict Societies - Report of the Secretary-General* (No UN doc S/2004/616, 23 August 2004) <https://www.un.org/ruleoflaw/files/2004%20report.pdf>.
[36] It is apparent from the thick ideas, that they all include thin elements. See also, Charles Sampford, 'Reconceiving The Rule of Law for a Globalizing World' in Spencer Zifcak (ed), *Globalisation and the Rule of Law* (Routledge, 2005) 9.
[37] This formed one of Dicey's desiderata. It was also apparent in Aristotle's ideas and Locke's. John Locke, *Two Treatises of Government*, ed Peter Laslett (Cambridge University Press, 1988) 135; Dicey (n 33) 188–198 and 202–203; Aristotle, T Sinclair and Trevor J Saunders, *The Politics* (Penguin UK, 1981) 1287aI.

ground as the first of the democracy benefits (that democracy should help prevent government by autocrat). Accordingly, to avoid analytical overlap yet whilst still casting a wide net to ensure general agreement, a more nuanced idea is required.

In general terms, I take the Rule of Law to be an idea that relates to a normative constraint on the exercise of state power.[38] This is a broad—perhaps an overly broad—categorisation that would encompass a number of other cognate ideas (like the separation of powers, or constitutionalism more broadly) that may complicate the discussion here. To avoid this, and to provide a more recognisable and tangible benchmark, I use Fuller's eight desiderata: generality; publicity (through promulgation); prospectivity (or, at least, non-retrospectivity); intelligibility; consistency; practicability; stability; and congruence. Fuller's list provides some of the least objectionable desiderata.[39] In the way that Fuller sought to apply them, the desiderata relate to procedural requirements that must be satisfied in the making of laws in order that a legal system satisfy the demands of the concept of the Rule of Law. Whilst I do not intend to contradict Fuller's precise meaning, I also do not seek to delve into the precise meanings that Fuller intended to convey. The terms he used are relatively self-explanatory. It is in the general definitional sense that I use them. By taking this more general approach to the desiderata I hope to bring some specificity to my analysis whilst retaining a general approach to broad idea and avoiding the

[38] This is a shorthand approach that I have previously adopted. See Burgess, 'The Rule of Law' (n 31); Paul Burgess, 'Deriving the International Rule of Law: An Unnecessary, Impractical and Unhelpful Exercise' [2019] *Transnational Legal Theory* <https://www.tandfonline.com/doi/abs/10.1080/20414005.2019.1609813> ('Deriving the International Rule of Law'); Paul Burgess, 'The Rule of Lore in the Rule of Law: Putting the Problem of the Rule of Law in Context' [2019] *Hague Journal on the Rule of Law* <https://doi.org/10.1007/s40803-019-00096-0> ('The Rule of Lore in the Rule of Law').
[39] A useful and very brief discussion of these points in the way that Fuller describes them is provided by Waldron: Jeremy Waldron, 'The Rule of Law' in Edward N Zalta (ed), *The Stanford Encyclopedia of Philosophy* (Fall 2016, 2016) <http://plato.stanford.edu/archives/fall2016/entries/rule-of-law/>.

obvious criticism of advocating for the absolute correctness of a particular conception. I describe these as *the Rule of Law desiderata* or simply *the desiderata.*

In the following sub-sections, I explore each of the augmented democracy ideas in terms of the desiderata. For comparative purposes, a summary is below.

	Blockchain	Blockchain+	Algorithm	Algorithm+
General	No real impact on impact over present			
Promulgated				
Clear				
Not contradictory				
Consistent				
Possible to obey				
Prospective				
Certain (to follow)				

In many instances, there is no positive or negative effect that can be clearly identified. This is shown by the horizontal pointing finger. There are some instances where there is a clear positive or negative impact (thumb up or down, respectively). In some cases, the outcome is variable. I have illustrated this by including the relevant icons either side of the '/'. What can be seen is that the most positive outcome—somewhat non-intuitively—relates to the most extreme form of change.

Blockchain

In terms where Blockchain is largely a process-based change to the way that votes are cast it has little relationship to the way that the laws are made.[40] Accordingly, there is little change to the Rule of Law desiderata or the general Rule of Law idea.

Blockchain+

When considered in terms of the Rule of Law desideratum related to the promulgation of laws, Blockchain+ delivers the only single unambiguous positive outcome. By asking the public to directly vote on bills, the potential understanding and knowledge of the contents of bills—and any subsequent acts—is increased. This view could, however, be seen as simplistic. Putting a bill to the public does not necessarily mean the public would bother to engage with the proposition (or take any notice of it) and, further, this is not to say the contents of the bill would be understandable.[41] Yet, these things are equally the case under the present system as, once passed, acts are not always clear and easily understandable and they require specialist assistance to decipher. This is not always something that is inherently problematic for the Rule of Law.[42] In relation to the public's engagement, this also could be said of current legislators—there is no guarantee that they will engage with every bill. In this sense, more widely promulgating the bill and giving the public the

[40] Of course, this puts to the side the potential for relative changes in the outcome of elections as a result of a more tech savvy—and otherwise lazy—public being able to vote.
[41] The latter aspect is also addressed below in terms of different desiderata: that of clarity or certainty.
[42] The idea that the law may need to be interpreted by experts is touched upon by Waldron in his discussion of Fuller. Waldron (n 39).

chance to vote is—in the narrow sense of this Rule of Law desideratum—an enhancement.[43]

This is not to say that a positive outcome subsists across Blockchain+. In addition to the only positive outcome, Blockchain+ also has the only two clear negative outcomes. These relate to the desiderata of being non-contradictory or being consistent. Ordinarily, a government is formed of a particular political party, a particular ideology or philosophy may act as an aggregating and rationalising factor. When votes are taken by a disaggregated mass of individuals the resultant legislative outcomes have the potential to vary widely. In this respect, shifts in direction may mean later acts contradict earlier acts or that the acts more generally fail to provide a consistent approach that the populous can rely upon.[44] Whilst this could be, to some degree, softened as a result of the retained party structure (that is required to propose the legislation in the first place), there is a potential that the general thrust of the legislative agenda would be disjointed. This scope for dis-unity results in the two negative Rule of Law desiderata outcomes.

The other four desiderata remain broadly neutral in terms of change. This follows from the fact that the ultimate form in which the legislation would be passed would be largely unaltered. Accordingly, the factors that make up those desiderata (generality, possibility to obey, prospectiveness, and certainty) would also remain largely unchanged from the present system.

[43] This could be said in the general sense that the issue *has been* more widely promulgated or whether this process reflects a greater acknowledgement of individuals' dignity.
[44] Here, I mean something more than the intentional replacement of one act with another due to an overarching shift in a wider policy.

Accordingly, based on a crude (averaged) assessment, despite the clear positive outcome for one of the desiderata, there is an overall negative result that follows from the two negative outcomes and the other neutral positions.

Algorithm

In relation to Algorithm, there is an overall majority of neutral outcomes, with some negative outcomes, but no positive outcomes. Accordingly, as with Blockchain+, Algorithm results in a negative outcome (on average) overall. The basic premise in Algorithm is that the legislature receives far more detailed information on which to base its decision making. This subtly changes the focus from the procedural aspects of electing representatives and the passage of legislation (respectively in Blockchain and Blockchain+) to an idea that has a more substantive impact on the content and nature of the legislation that is either proposed or will be passed.[45]

Through taking account of very specific data (even if anonymised), legislation risks becoming too fine-grained and particular. This could, if unchecked, lead to a body of law that is contradictory, not consistent, unclear, and too specific to be focused on general purposes. This is reflected in the assessment of these desiderata. Whilst individual actors may not be 'targeted', the result could be legislation that is too narrow in scope. Yet, this does not, of itself, represent a clear negative outcome because in this scenario the legislation is, itself, still drafted, proposed, and voted on in the normal way (i.e. by representatives that have been elected to office). This simple fact would provide a relative check on the precise form of the legislation. Nevertheless,

[45] At this stage, it is relevant to note that there is a difference between Algorithm and Algorithm+ in terms of the relative positivity of the outcome of assessing the desiderata, and that Algorithm+ also reflects a relative procedural change.

the potential exists for, albeit well-meaning, legislators to use the information to incrementally tackle more and more specific problems. In effect, it is the continued (human) legislators' input into the system that must operate to ensure that the problems and preferences that may become apparent from the mined-data is not made the subject of inappropriate legislation. An example will illustrate this point.

Through mining individuals' data preferences, it becomes apparent that, in E-stralia, as in many developed states, people in rural areas drive further per capita than their urban equivalents.[46] E-stralia's hypothetical nature precludes real data. But, for the sake of this example, let's say the average rural dweller drives three times further in a car per year than a city-based equivalent. Accordingly, to combat the per capita strain on the road network, the costs of vehicle registration in rural areas is increased proportionately with the rate of vehicle use. This logical solution would, however, fundamentally contradict some of the Rule of Law desiderata as outlined above.

What becomes relatively clearly apparent is that in relation to Algorithm, there is some Rule of Law benefit as a result of mining individuals' preferences—but there are clearly several potential (and significant) drawbacks.

[46] In considering data from the UK a similar trend can be seen: "In rural areas, 90% of total distance covered for personal travel is by car or other private modes (excluding walking and cycling) and 9% is by public transport. In large urban areas these proportions are 78% and 18% respectively and in London they are 57% and 37%." Per person, per year, a rural person drives on average 8536 miles; whereas, a person from the London Boroughs drives 2938 miles. Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/230556/Travel_in_urban_and_rural_areas_personal_travel_factsheet__March_2010.pdf In Australia, it is stated: "According to the 2011 Census of Population and Housing, Tasmania had the largest proportion of people using a passenger vehicle as part of their transport to get to work (87%), followed by Queensland (85%) and then the ACT (83%, consisting mainly of people in Canberra). While New South Wales had the second smallest proportion they had the largest proportion of people using public transport , such as trains, buses, and ferries to get to work (16%)" Source: https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features40July+2013#state

Algorithm+

Up to now—from Blockchain, to Blockchain+, to Algorithm—we can see a general trend from relatively no impact to a more negative reception as technological innovation increases. This is, broadly at least, in line with the intuitions outlined earlier: that the more extreme the change, the less desirable the augmented democracy idea. Yet, in Algorithm+, across four of the eight desiderata, there is at least some possibility of a positive outcome. It certainly represents the most positive outcome of any of the four scenarios described in the table above. Given the trend thus far, and the intuitive response to the extreme nature of this form of augmented democracy, Algorithm+ bucking the trend may be somewhat surprising.

Whilst there are no unambiguously positive outcomes, there are a number of outcomes that trend toward positive. Each of the four positive outcomes—relating to promulgation, clarity, non-contradictory legislation, and consistency—are expressed with some element of either neutrality, or negativity. This is because whilst there is a positive way to view the contribution, this relies on how the algorithm is created and what it is designed / able to do.

It will be recalled that this scenario calls for the replacement of human legislators with algorithmic counterparts that have the same functional role as current elected representatives. The key difference is that the algorithms that are elected can both act more efficiently and can also access the key preferences information contained within their constituents' devices. The *way* that each algorithm performs the role is, therefore, dependent on how it is constructed. It seems possible to say, in much the same way that an individual with a particular philosophy and world view can (with like-minded others) form a political party, an algorithm can be created to take a

particular stance on an issue or issues. There seems to be no reason, under a present system of representative democracy, why individuals or groups that may hold—what some may see as—morally repugnant views cannot stand for election.[47] This remains the case even if they attract almost no votes. Similarly, there is no reason why a similarly morally bankrupt algorithm could not be created and be voted for.[48] However, it seems equally unlikely that this sort of e-representative would attract many votes. Accordingly, there seems to be an incentive to create algorithms—much like political parties—that would have mass appeal and would stand a chance of being elected. (Of course, this is not to say that aspects that are viewed positively in the polis are also necessarily compliant with the idea of the Rule of Law desiderata.)

The legislation that would follow would be logically created—to meet a particular need as expressed by preferences—and would, as with present legislatures, be created to be both consistent with the extant government's legislative agenda and also any prior acts. In this sense, Algorithm+ is able to at least match all of the same ends as the current system in E-stralia, but it is possible that these ends could be achieved in a more efficient, more rationale, and more transparent way. This results in the responses for clarity, consistency, and the non-contradictory nature of the resultant Rule of Law outcome.

[47] For example, there would be no reason why groups that hold *any* view—even a morally repugnant like a neo-nazi party—would be precluded from creating an algorithm that reflects their ideology. may adhere to can still form parties.

[48] There seems here to be a risk that the building of the algorithms would create an autocratic class that would, in effect, control the system by virtue of the fact that they could control, in effect, the 'parties' that could stand. Whilst this is true, it seems eminently possible that there could be a simple template way to create an algorithm. Although, this could simply shift the build question one step further removed. Of course, the same argument would exist in relation to the traditional formation of a political party and the authoring of its constitution or similar.

PART 5: AUGMENTED DEMOCRACY?

In terms of the concepts of democracy and the Rule of Law, what can we say about the four augmented democracy ideas? One thing that we can say is that there is no clear indication that augmented democracy—in the most general sense—is necessarily a good idea; however, we can also say that there is no clear indication that the general idea of augmented democracy is necessarily a bad idea. The results are mixed. This is unsurprising given the different natures of each of the augmented democracy ideas. In terms of the intuitions with which I started this paper, what is more surprising is that, where the ideas can broadly be placed on a continuum of—minimal to maximal—levels of interference, there is no obvious pattern that relates to the extent of interference. What we are left with, then, is four ideas that must be considered not as a group but, instead, as individual ideas. To do this, I consider the dual applicability of democracy and the Rule of Law to each idea. I provide brief comment on each of these things before reflecting on some of the differences that become apparent between the Rule of Law and democracy.

Intuitions, Institutions, and Human Beings

The concepts of democracy and the Rule of Law do not provide strong evidence for or against Blockchain. Accordingly, the potential adoption (or absolute rejection) of this sort of technology in E-stralia would need to be based on other factors. In relation to the idea of a secure and accurate way to facilitate online voting, the potential financial and logistical benefits provide some justification for a move of this sort. But these benefits are outside of the specific consideration of democracy and the Rule of Law. If Blockchain was implemented to facilitate these benefits, there

would, however, be no substantive objection to be made on the grounds of democracy or the Rule of Law.

Relative neutrality is not something that can be seen in terms of Blockchain+. A slight negative position derives from the averaging of one (on-balance) positive with a number of neutral or negative outcomes. In terms of democracy and Blockchain+, We have seen that by facilitating wider voting there is a little extra benefit, but there is a potential drawback regarding the potential lack of engagement with issues. In terms of the Rule of Law, there is a relatively negative outcome when all desiderata are considered. Many of the problems—outside of the practical / logistical one that Blockchain+ solves—related to direct democracy are, again, imported into this idea.[49] Although, it should be noted that the potential—and, in some sense, potentially contradictory—notions of decisions being made rapidly, easily, and efficiently cause problems related to the Rule of Law. In this sense, the general idea propounded by Aristotle—in a society with a direct democracy, but just not one that could make decisions so easily and quickly—was that decisions must be slow and considered.[50] In these terms, the electronic direct democracy idea of Blockchain+ imports some of the democratic benefits from Blockchain as well as its relative weakness in terms of the Rule of Law: speed and ease. However, as with Blockchain, the end result is that there are insufficient positive outcomes to weigh in favour of Blockchain+'s adoption. There are too many issues that weigh against it.

[49] This is relatively unsurprising as, in effect, Blockchain+ is to direct democracy what Blockchain is to representative democracy.
[50] Aristotle, decries the making of hasty and emotion-fueled decisions, refers to the requirement for the inclusion of some form of (what would now be deemed) legislative due process. Aristotle, *Rhetoric*, tr W Rhys Roberts (Dover, 2004) 1, Ch. 1.

In Algorithm, between democratic benefits—where there is some enhancement over non-augmented practices—and Rule of Law outcomes—that are marginally negative—a relatively neutral outcome is the result when the concepts are considered together. In this sense, whilst there are no strong reasons mitigating against adopting the idea, there are no strong reasons to support it either. The lack of strong reasons against its adoption could be seen as somewhat surprising as this more extreme application of technology introduces a fairly dramatic shift in the way that preferences are communicated to representative and shifts the way that power is exercised. Given these dramatic shifts, any other positive reasons to adopt this idea (i.e. financial or logistical) would need to be substantial in order to justify the change. Yet, if these could be satisfied, any substantial gain could—potentially—overcome the slight negative outcome the stems from the democracy benefits.

The absence of a strong positive justification for adopting any of the three augmented democracy ideas explored so far does not continue in relation to Algorithm+. In relation to this idea, a potential enhancement of democracy benefits and the Rule of Law related outcomes can be seen. The massive change that Algorithm+ would require to the democratic institutions and procedures in E-stralia runs contrary to any (conservative?) intuitive sense of what may be acceptable in relation to both democracy and the Rule of Law. Yet, the mass institutional upheaval in Algorithm+ provides a positive reason—and the only positive reason across the ideas—to adopt this idea of augmented democracy.

The intuitively non-appealing nature of Algorithm+ could reflect a relative unwillingness to dispose of—or an attachment to—institutions that are otherwise seen as being inherently democratic and Rule of Law based. It seems sensible to think that

the removal of any institution that is steeped in these ideas would result in a worse—negative—outcome when democracy benefits and the Rule of Law outcomes are considered. The intuitive unattractiveness may also reflect a relative attachment to the idea that a human—as the representative/legislator—is able to exercise democratic will more appropriately than a machine. It is useful to consider each in turn.

Removal of Institutions

One way to reconcile the outcome with the intuition that the augmented democracy ideas—especially the more extreme ones—is to suggest that the relative mistake comes from considering E-stralia's present institutions as being paradigmatic instances of democracy and the Rule of Law. If they do *not* represent the ultimate way that those concepts can be realised, then the wholesale replacement of the institutions does not necessarily result in a diminution of the concepts' achievement.

The question then becomes whether the institutions are paradigmatic instances of democracy of the Rule of Law. It would be a bold move to suggest that E-stralia's institutions as they are laid out here would fall into this category. Further, it seems any number of democratic states could have some aspect of their democratic institutions improved in some way. If this is the case and there *is* room for some improvement, then there is no reason why the form of change must be restricted to minor changes.

Retaining the Humans

There could be a notion that it is the humans—as representatives—that are necessary conditions in the general process of democratic governing of a state. However, it seems to be that—at least in the limited respects that have been outlined

here—the intervention of a human actor as a representative in a representative democracy is far from necessary. The human-representative-element is removed in Algorithm+, yet there is an enhancement of the democratic benefits and Rule of Law outcomes. This suggests this element cannot be necessary. It is simply, in the present way of doing democracy, the procedural method that is, and has historically, been used. This is not to say that it is the *most* effective way to achieve the same end. Its historical legacy and its history of relative success do not mean it is a necessary condition.

This is not to say there are no objections to be made. A few 'what ifs' could scratch the surface of these: What if the technology goes wrong? What if the algorithms decide to enslave us all? What if the algorithms legislate their way into a corner? These are all valid questions, but—and this is relative cop-out—they are all relatively solve-able in terms of the hypothetical that we are adopting. Any algorithms could be designed in such a way that this could never happen. As the algorithms represent only the legislative and not the executive arm, no immediate issue would arise if a law was passed that was, for example, contrary to morality. If the algorithms legislated themselves into a corner, there seems to be no reason why they could not legislate their way back out again in much the same way that a 'normal' representative democratic legislature would.

One key question that remains relates to a question of infinite regress or the question of who commands the commander. If it was necessary to program the algorithms, then wouldn't the programmer be the *true* sovereign? Would this lead to the creation of a caste of ultra-powerful programmer-kings? In answering this, it cannot be denied that there must be a programmer to create the algorithms. However,

this need not be any one individual; it need not be an algorithm-Tzar that centrally creates all options. The algorithms could be created by anyone with access to the internet within the confines of a particular system that only provide certain options.[51] For example, 'take over the world', 'kill all blue-eyed babies', or 'give all legislative power to ⌜*individual x*⌝' would not be options. In this sense, the programmer of the algorithm would not be able to build-in nefarious intent; and the programmer of the options (with which to create the algorithm) would herself not know which options would / would not be used. Further, any programmer—much like the founder/s of a political movement or political party—would not know which algorithms that would be created would ultimately be voted for. In many respects, this creates a set of checks and balances for the creation of the legislators.

If these safeguards are in place, and where the resultant system can operate more efficiently than humans, is there any reason—other than nostalgia and sentimentality—to retain the human legislators? It seems not.

Differences Between the Rule of Law and Democracy

As alluded to earlier, the concepts of democracy and the Rule of Law cover some of the same territory. Some of those that prefer a thick idea of the Rule of Law would include democracy within its remit whilst others view the ideas as separate constellations.[52] Yet, even if there is an overlap and some close connection between

[51] Of course, the very nature of those options would be strongly contested. Extreme differences of opinion between individuals with different political opinions—for example, individualists and collectivists—would radically impact what these options may be.

[52] Raz (n 33) 210–211; Jeremy Waldron, 'Legislation and the Rule of Law' (2007) 1(1) *Legisprudence* 91, 98. For the idea that democracy is a part of the Rule of Law, see Document of the Copenhagen Meeting of the Conference on the Human Dimension of the CSFE, June5–July 29, 1990, 3-4. It has been stated that 'democracy was synonymous for the Athenians with the "rule of law."' John Walter Jones, *The Law and Legal Theory of the Greeks: An Introduction* (Oxford at the Clarendon Press, 1st ed, 1956) 90 ('*The*

democracy and the Rule of Law, the two concepts are different. Whilst this may be intuitively or logically apparent, the differences are illuminated when augmented democracy is considered.

If democracy and the Rule of Law were the same, then we would expect to see the same outcomes in relation to relative benefits of democracy and the Rule of Law outcomes. This, however, is not what we see. There are clear differences in relation to each augmented democracy idea. This illustrates that, whilst there are some points at which the concepts come to the same result, there is a clear difference in the work that each concept is doing. Whilst I point to a couple of these factors immediately below, I do not intend to prove anything new by this (as this would require a much wider argument). I merely point to this to further illustrate what, to some, may in any event be obvious: that the Rule of Law are different concepts that perform different roles in the constitutional landscape.

In relation to Blockchain and Blockchain+, there is some level of agreement in relation to the overall result when the ideas are considered in terms of democracy and the Rule of Law. The outcomes are relatively neutral and marginally negative respectively. The results in Blockchain seem to come from an overall similar position in which there is no real impact when augmented democracy is considered. Yet, in Blockchain+ the results come from different places: for democracy, there is little in the way of benefit (and are drawbacks); but, for the Rule of Law, there is a clear positive (as a result of the increased promulgation of bills), that is nevertheless averaged-out by

Law and Legal Theory of the Greeks'). The U.N.'s conception of the Rule of Law requires 'participation in decision-making'. UN Security Council (n 35) 6.

negatives in other desiderata. Even in this subtle sense, we can see the two concepts doing different work.

In relation to Algorithm, the differences are starker. Under the lights of democracy, there is a positive outcome. In relation to the Rule of Law, there is a generally negative outcome where legislation risks becoming too fine-grained and particular. In other words, if Algorithm was only considered for application in a democratic society that did not value the Rule of Law—should such a society exist—there would be no reason not to adopt the idea. However, in E-stralia, the Rule of Law acts as a conceptual brake or veto to the implementation of Algorithm.

Algorithm+ also sees a difference, but it is a difference dispersed across the positive spectrum. Assessment of both democracy and the Rule of Law result in an outcome that favours the adoption of Algorithm+, but the Rule of Law outcome suggests an even stronger reason to adopt the idea than the democracy benefits would suggest.

In these respects, we see a number of different kinds of difference in the relative desirability of each augmented democracy idea when they are considered in terms of democracy and the Rule of Law. I do little more here than point to this fact to illustrate that the two concepts are each performing a different function in terms of the acceptance or rejection of the proposed ideas. Drawing the two ideas together seems to be conceptually problematic.

A Conclusion(?): The End of the Beginning, or the Beginning of the End?

Some may say that adopting an option like Algorithm+ or using technology to enhance democratic institutions would be the beginning of the end. What follows from my—somewhat fanciful, and clearly hypothetical—exploration is that this is not necessarily the case.

It is certainly true that some of the technologies explored do not facilitate a net gain. But Algorithm+ does appear capable of providing some benefits. Yet, the extreme changes necessary to facilitate that form of augmented democracy could be seen as being destructive of the very essence of democracy. After all, we already have a system that achieves all of the key requirements of a democratic state. This could have been claimed with earlier iterations of democratic institutions. Some may have said that the Australian ballot even though it was only exercisable to landed males; some may have said the same about direct democracy in city states, despite its inapplicability to larger nation states. But, just because something is currently beneficial does not mean change should not be considered or, eventually, be adopted.

Technology can—if considered and applied in the right way—can move society forward. The implementation of new technology can, sometimes, require the destruction of other things. Like the pig described in the opening quote, sometimes the things that are destroyed to implement innovation are never seen again. If a change is one that is capable of providing a positive enhancement of core ideas—like democracy and the Rule of Law—those ideas should not be avoided. Accordingly, whilst the implementation of something like Algorithm+ may appear extreme, and whilst it would require the destruction of institutions that have functioned for several hundred years, that does not necessarily mean their destruction is a bad thing. Some

innovations can facilitate augment democracy; and, augmenting democracy can be beneficial. In this sense, perhaps we should see the adoption of Algorithm+ not as the beginning of the end but, instead, as the end of the beginning.