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The Constitutional Rights of Advanced Robots (and of Human Beings)

R. George Wright*

I. INTRODUCTION

Constitutional rights create and destroy otherwise available options for the rights-bearer, for governments, and for affected third parties. Thus, conferring a constitutional right always requires at least some minimal defense.¹ But conferring a constitutional right can certainly be appropriate if the recipient of the right seems to deserve or otherwise qualify for the right in question, or if conferring the right makes sense on other, perhaps partly pragmatic, grounds.

Among our civic responsibilities is to better understand the nature, justification, and the appropriate scope and extension of constitutional rights. Most often, we consider these matters in some specific political context.² But it is also possible to reflect upon these dimensions of constitutional rights from a more detached perspective, stimulated by hypothetical, or at least less pressing, circumstances.

This Article takes the latter tack and seeks to enhance our understanding of constitutional rights for humans by considering the provocative case of what might be termed “advanced robots.”

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1. *See, e.g.*, *Obergefell v. Hodges*, 135 S. Ct. 2584, 2598-602 (2015) (conferring the Fourteenth Amendment’s Due Process clause to same-sex couples’ choice to marry, reasoning that the four fundamental constitutional purposes for marriage—individual autonomy, intimate association, protection of children and family, and social order—apply equally to same-sex couples); *Gideon v. Wainwright*, 372 U.S. 335, 341-44 (1963) (conferring the Sixth Amendment to indigent criminal defendants, reasoning that justice would not be done if this safeguard—and “fundamental human right[] of life and liberty”—was not extended to them).

2. *See, e.g.*, U.S. CONST. amend. XIX, § 1 (prohibiting denial of voting rights on the basis of sex); *Brown v. Bd. of Educ.*, 347 U.S. 483, 495 (1954) (prohibiting racial discrimination in public schools); *Obergefell*, 135 S. Ct. at 2599-601 (recognizing a constitutional right to same-sex marriage on the basis of equal protection and substantive due process).

We should want any future advanced robot constitutional rights cases to be decided correctly, and on the best grounds. In the meantime, considering such cases may enhance our broader understandings of the nature, justification, and the scope and extension of constitutional rights for the rest of us.

The reflections below on the capacities of advanced robots address questions of deserving, or being entitled to, typical constitutional rights.³ What does it take, that is, to merit the status of constitutional right-holder or thus, to properly bear a constitutional right? What must one be like in order to deserve a constitutional right? What capacities and to what degrees must a constitutional right-bearer have?

Most of the existing discussions of advanced robots as potential rights-bearers focus on the idea of some degree of consciousness, or at best, of self-consciousness with or without a capacity for sentient experience.⁴ These qualities of consciousness, self-consciousness involving a continuing “self,” and sentience may individually, or in some combination, be generally necessary in order to have the capacity to bear constitutional rights.⁵ No combination of consciousness, self-consciousness, and sentience, however, generally suffices for deserving to hold constitutional rights. What is required in addition turns out to be the possession of both objective and subjectively adopted interests, as clarified below.⁶

Consciousness, self-consciousness, and the capacity for sentient experience are mysterious and are indeed crucially relevant to the capacity to bear constitutional rights. But neither alone nor in combination can they suffice for deserving, or being entitled to, constitutional rights. Consciousness, self-consciousness, and even sentience may be present without any meaningful accompanying emotion or affect.⁷ Nor do these

3. This is to set aside the possibility of ascribing rights to any entity, including, for example, traditional sailing ships, on grounds of practical convenience, or for other largely instrumental reasons. *See infra* note 92 and accompanying text.

4. *See infra* Section II.

5. *See infra* notes 103-107 and accompanying text.

6. *See infra* notes 60-89 and accompanying text.

7. GARRY KASPAROV, *DEEP THINKING*, 70-77 (PublicAffairs 1st ed. 2017) (explaining that although a machine can make complex medical diagnoses or chess moves, it is all without “understanding,” and what “matters” to a machine is what we program it to value) (internal citations omitted).

attributes, separately or in any combination, imply the existence of any sustained preferences.⁸ And most crucially, such attributes do not imply the existence of either objective or subjectively adopted interests.⁹ As it turns out, having both objective and subjectively adopted interests are essential to meaningful constitutional rights entitlement.

This basic conclusion, among various other important conclusions reached below in the context of specific rights, is explored below with the aid¹⁰ of reference to the capacities and limitations of advanced robots.¹¹

II. ADVANCED ROBOT CAPACITIES, CONSCIOUSNESS, AND THE ROLE OF OBJECTIVE AND SUBJECTIVELY ADOPTED INTERESTS

The continuing advance of many computer capacities is remarkable. The idea of computer programs able to defeat even the best human chess players is already familiar.¹² More remarkable though, is the idea of a chess-playing robot able to defeat any human grandmaster through historically unprecedented tactics, based on a total of four hours of, in large measure, self-instruction in chess.¹³ More broadly, the relevant specialists tend to believe that by mid-century artificial

8. *Id.* at 72-77.

9. *Id.* at 70-77.

10. The use of the idea of advanced robots herein seems better described as an “intuition pump” than as a genuine thought experiment. *See* DANIEL DENNETT, INTUITION PUMPS AND OTHER TOOLS FOR THINKING, 5-7 (W.W. Norton & Co. 1st ed. 2013).

11. The references herein to advanced robots could be replaced by references to androids, cyborgs, or computer-directed entities. The main assumption is that robots are corporeal, embodied, or physically manifest in ways that, say, computer programs, software, or complex patterns of electrons are not. We are more comfortable with assigning constitutional rights to tangible entities, even if we think that an entity deserves constitutional rights largely in view of its intangible programming. Incidentally, it is possible that exploring the capacities of advanced robots might also shed light on the idea of constitutional rights for animals as well. For some recent case law, *see* Nonhuman Rights Project, Inc. v. Lavery, 152 A.D.3d 73, 77 (N.Y. App. Div. 2017); *Naruto v. Slater*, 2016 WL 362231, at *3-4 (N.D. Cal. 2016); *Tilikum v. Sea World Parks*, 842 F. Supp. 2d 1259, 1263 (S.D. Cal. 2012).

12. *Supra* note 7 at 50-51.

13. *See* John Naish, *Checkmate Humanity*, DAILY MAIL (Dec. 21, 2017, 9:16 PM), www.dailymail.co.uk/sciencetech/article-5204513/Robot-taught-never-see-chess [<https://perma.cc/6VMN-B9M3>].

intelligence will surpass human intelligence in tasks such as language translation, essay writing, truck driving, retail sales, and performing surgery.¹⁴

All such predictions may, of course, err in either direction. We need take no position on any such question or even on the bare possibility of any artificial consciousness, mentality, or subjectivity. All such questions are controversial. It has been argued that, at a minimum, the familiar laws of nature do not rule out subjectivity in humanly developed artifacts.¹⁵ Some believe that there is good reason to believe in such possibilities.¹⁶ Others believe that machine consciousness is not only possible, but impending.¹⁷ It has also been argued that consciousness is a first-person experience that is simply not subject to objective third-person validation.¹⁸ In sharp contrast though, the argument has been made that even the most advanced computers will inevitably lack genuine beliefs, desires, motivations, autonomy, agency, and intelligence in a crucial sense,¹⁹ or at the very least that genuine machine consciousness is unlikely even over the long term.²⁰

For our purposes, we need not endorse any of these views.²¹ Nor need we, within limits, specify a particular definition of

14. See Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang & Owain Evans, *When Will AI Exceed Human Performance? Evidence from AI Experts* 3-14 (May 3, 2018), <https://arxiv.org/pdf/1705.08807.pdf> [<https://perma.cc/AV6R-95P6>].

15. See, e.g., Riccardo Mazotti & Vincenzo Tagliasco, *Artificial Consciousness: A Discipline Between Technological and Theoretical Obstacles*, 44 *ARTIFICIAL INTELLIGENCE IN MED.* 105, 107 (2008).

16. See, e.g., DAVID J. CHALMERS, *THE CONSCIOUS MIND* 332 (Oxford University Press 1996).

17. See, e.g., Yuri Barzov, *Conscious Machines Are Here. What's Next?*, *TOWARDS DATA SCIENCE* (June 21, 2017), <https://towardsdatascience.com/conscious-machines-are-here-whats-next-d601ac4e638e> [<https://perma.cc/XV7J-EQQD>].

18. See, e.g., A. L. NELSON, *ARTIFICIAL LIFE AND MACHINE CONSCIOUSNESS* 52, (AAAI Fall Symposium Series: AAAI Technical Report FS-13-02 vol. 2 2013).

19. Professor John Searle is a leading exponent of such views. John R. Searle, *What Your Computer Can't Know*, 61 *NEW YORK REVIEW OF BOOKS* at 52, 52-54 (October 9, 2014) (reviewing *The 4th Revolution: How the Infosphere Is Reshaping Human Reality* by Luciano Floridi and *Superintelligence: Paths, Dangers, Strategies* by Nick Bostrom).⁷

20. See, e.g., Harry Haroutioun Haladjian & Carlos Montemayor, *Artificial Consciousness and the Consciousness-Attention Dissociation*, 46 *CONSCIOUSNESS AND COGNITION* 210, 210 (2016).

21. Cf. NICK BOSTROM, *SUPERINTELLIGENCE: PATHS, DANGERS, STRATEGIES* 22 (2014) (holding open the possibility that a superintelligent machine could experience what is referred to as qualia, or subjective conscious experience).

consciousness itself.²² Consciousness in some advanced robots will herein be taken merely as a hypothetical, but stimulating and fruitful, assumption.

The mere idea of a conscious robot has already provoked the question whether such robots would be entitled to moral or legal rights.²³ If consciousness, rudimentary or sophisticated, is essential to any entitlement to rights, we would then need some satisfactory means of determining whether a given entity should count as conscious or not.

The related question of whether a given entity is genuinely capable of thinking was famously explored by Alan Turing.²⁴ Turing imagined a sort of free flowing question-and-answer format in which screened interrogators reach their best judgment as to whether the unknown respondent is evidently thinking when formulating its answers.²⁵ Some critics however, have suggested that this format leads to too many “false positives,” that questions beyond a machine’s semantic or metaphysical comprehension can be responded to with something like apparent playfulness, irony, subject-changing, or sassy evasion in ways that may falsely suggest a human respondent.²⁶

An alternative approach to testing for actual thinking, if not for consciousness or genuine intelligence, relies on the fact that even many simple sentences are latently ambiguous in ways that

22. See Manzotti & Tagliasco, *supra* note 15, at 107 (“The international scientific community has not yet precisely defined the meaning of consciousness.”).

23. See, e.g., Aishwarya Limaye, *Friend or Foe: Legal Rights of Artificial Intelligence*, B.C. INTELL. PROP. & TECH. F., 2017, at 1; Christof Koch & Giulio Tononi, *Can We Quantify Machine Consciousness?*, IEEE SPECTRUM, June 2017, at 65-69 (noting the possibility of different degrees of consciousness, and linking “highly conscious” machines with “intrinsic rights”). The theoretical physicist Max Tegmark adds a further criterion in arguing that “whether intelligent machines should be granted some form of rights depends crucially on whether they’re conscious and can suffer or feel joy.” MAX TEGMARK, LIFE 3.0: BEING HUMAN IN THE AGE OF ARTIFICIAL INTELLIGENCE 282 (2017).

24. A.M. Turing, *Computing Machinery and Intelligence*, 49 MIND, Oct. 1950, at 433-34 (presenting the “imitation game” scenario); see also Graham Oppy & David Dowe, *The Turing Test*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Feb. 8, 2016), <https://plato.stanford.edu/entries/turing-test/> [<https://perma.cc/WX6L-YK9C>].

25. See Turing, *supra* note 24, at 433-34.

26. See, e.g., HECTOR J. LEVESQUE, COMMON SENSE, THE TURING TEST, AND THE QUEST FOR REAL AI 59 (2017); Gary Marcus, *What Comes After the Turing Test?*, THE NEW YORKER (June 9, 2014), <https://www.newyorker.com/tech/elements/what-comes-after-the-turing-test> [<https://perma.cc/NS6T-UD6P>]; Gary Marcus, *Am I Human?: Researchers Need New Ways to Distinguish Artificial Intelligence from the Natural Kind*, SCI. AM., March 2017, at 59, 60, 63 [hereinafter Marcus, *Am I Human?*].

most adults, but as yet no machines, can easily and reliably interpret.²⁷ Adults in particular handle technically equivocal pronoun references more readily than do current machines.²⁸ Consider the sentence “The large ball crashed right through the table because it was made of [s]tyrofoam[.]”²⁹ or similarly, “Joan made sure to thank Susan for all the help she had given.”³⁰

Competent adult speakers immediately recognize that in the first sentence the pronoun “it” refers to the table, rather than to the large ball. This is a matter of human language comprehension and common sense. Similarly, the pronoun “she” in the second sentence has “Susan” rather than “Joan” as its antecedent. Again, and despite the phenomenon of occasional genuinely unclear pronoun antecedents, the meaning is usually clear to competent adults, but less so to sophisticated contemporary computers.³¹

Other sorts of tests for computer thought, intelligence, or consciousness are certainly possible.³² Whatever the tests or combinations thereof, the most interesting questions arise only when some sort of advanced robot or other artificial intelligence unequivocally passes the tests in question. Unless we decide that appearing to be conscious is the same thing for practical purposes as actually being conscious, we will have to face up to the possibility that appearances may not reflect the underlying reality.³³ Belief that other humans have minds can be questioned in the classroom, but is otherwise normally taken for granted. It

27. See, e.g., LEVESQUE, *supra* note 26, at 54 (discussing the so-called “Winograd Schema” that seeks to take useful advantage thereof); Marcus, *Am I Human?*, *supra* note 26, at 61.

28. Marcus, *Am I Human?*, *supra* note 26 at 63.

29. *Id.* (internal citations omitted).

30. LEVESQUE, *supra* note 26, at 54.

31. Compare Naish, *supra* note 13 and accompanying text (noting the oddness of a computer revolutionizing chess after a mere several hours of, in large measure, self-teaching), with “Drew Harwell, *AI Models Beat Humans at Reading Comprehension, but They’ve Still Got a Ways to Go*, WASH. POST (Jan. 16, 2018), https://www.washingtonpost.com/business/economy/ai-ability-to-read-hailed-as-historical-milestone-but-computers-arent-quite-there/2018/01/16/04638f2e-faf6-11e7-a46b-a3614530bd87_story.html?utm_term=.f889ff8a5f64 [https://perma.cc/RC7U-WKRR] (exploring appropriately dedicated computers which currently struggle with basic syntax and semantics).

32. Susan Schneider & Edwin Turner, *Is Anyone Home? A Way to Find Out If AI Has Become Self-Aware*, SCI. AM. BLOG NETWORK (July 19, 2017), <https://blogs.scientificamerican.com/observations/is-anyone-home-a-way-to-find-out-if-ai-has-become-self-aware/> [https://perma.cc/AN63-KMMB].

33. See, e.g., ALVIN PLANTINGA, GOD AND OTHER MINDS 187-95, 211 (1967).

is less clear though, that an advanced robot designed to pass our tests for consciousness or for genuine intelligence would leave us with no greater residual doubts.³⁴ For all we know, the language of a genuinely conscious robot might strike us as incomprehensible.³⁵ Minds might crucially vary at basic levels.³⁶

Thus, it is possible that we could routinely interact with advanced robots that seem to manifest all the indicia of consciousness, even to a high degree, while making no commitment to the idea that those advanced robots really were conscious.³⁷ We could in this sense maintain the distinction between external appearance and underlying reality.

As a matter of human psychology though, routinely maintaining any such doubts might be difficult.³⁸ It has thus been suggested that “if an android is disposed to behave outwardly exactly as a normal human being is, then we would find ourselves unable to effectively interact with it without treating it as if it were phenomenally conscious.”³⁹ This might be especially true if advanced robots appeared to spontaneously claim to be conscious.⁴⁰

In the fictional realm, the Star Trek android known as Data presents a provocative case. In the “Measure of a Man” episode, Data’s creator⁴¹, Dr. Bruce Maddox asserts that Data is not a

34. See COLIN MCGINN, *THE MYSTERIOUS FLAME: CONSCIOUS MINDS IN A MATERIAL WORLD* 191 (1999) (“Merely knowing that [a machine] acts as if it were conscious does not settle the question.”). See also *id.* at 190.

35. E.g., Ludwig Wittgenstein, *Philosophical Investigations*, part II, § xi, at 190 (G.E.M. Anscombe trans., 3d ed. 2001) (“If a lion could talk, we could not understand him.”).

36. See ISAAC ASIMOV, I, *ROBOT* 6-8 (Bantam ed., 2008) (1950) (displaying the classic and non-obsolete exposition of robot ethics and its problems and paradoxes); see also *id.* at 95 (“‘I see into minds, you see,’ the robot continued, ‘and you have no idea how complicated they are. I can’t begin to understand everything because my own mind has so little in common with them.’”).

37. See Brian P. McLaughlin, *Type Materialism for Phenomenal Consciousness*, in *THE BLACKWELL COMPANION TO CONSCIOUSNESS* 415, 426 (2d ed. 2017). See also MCGINN, *supra* note 34, at 190-91.

38. This is not to suggest that humans cannot go to great lengths to deny the full humanity of despised groups, despite all the impeaching evidence readily available. See, e.g., MICHAEL J. PERRY, *TOWARD A THEORY OF HUMAN RIGHTS: RELIGION, LAW, AND COURTS* 3-4 (2006) (showing examples of such denials in practice).

39. McLaughlin, *supra* note 37, at 426.

40. See Hilary Putnam, *Robots: Machines or Artificially Created Life?*, 61 *J. PHIL.* 668, 688 (1964).

41. We may assume here that having a distinct personal creator, apart from a biological parent, does not by itself rule out the possibility of conscious personhood with any attendant

person⁴² but virtually everyone who interacts routinely with Data reacts to such a suggestion with something like incredulity, indignation, or hostility.⁴³ A crew member who denied Data's personhood would likely be engaging in a performative contradiction,⁴⁴ as the crew members' own typical language, emotions, and actions would be difficult to reconcile with claiming that Data is merely a sophisticated piece of machinery.⁴⁵

Perhaps our culture will ultimately conclude that there is simply no consciousness, and no continuing "self" to be conscious beyond any observable behavior and its material causes. In the meantime though, the requirements for the existence of advanced robot consciousness, or any other form of consciousness, are energetically contested.⁴⁶

Thus some define consciousness, however vaguely,⁴⁷ in terms of self-awareness;⁴⁸ of being a subject and not merely an object;⁴⁹ or of there being something that it is like to be that entity.⁵⁰ It has been argued that at a minimum, several elements are necessary, if not also sufficient, for the existence of consciousness, including the ability to store⁵¹ and process⁵² substantial information in an integrated way,⁵³ largely independent of any external influences.⁵⁴ Other writers have emphasized the presence of "[r]eactive, contemplative, and

rights. See R. George Wright, *The Pale Cast of Thought: On the Legal Status of Sophisticated Androids*, 25 LEGAL STUD. F. 297, 298-301 (2001).

42. See *id.* at 298-300.

43. See generally *id.* at 300-01.

44. See generally Martin Morris, *On the Logic of the Performative Contradiction: Habermas and the Radical Critique of Reason*, 58 REV. POL. 735 (1996).

45. See Wright, *supra* note 41, at 298. See generally Dwight Van de Vate, *The Problem of Robot Consciousness*, 31 PHIL. & PHENOMENOLOGICAL RES. 149 (1971) (discussing robot consciousness in a broad scope).

46. See generally Van de Vate, *supra* note 45.

47. See Aaron Sloman & Ron Chrisley, *Virtual Machines and Consciousness*, in MACHINE CONSCIOUSNESS 133, 136 (Owen Holland ed., 1974).

48. See *id.*

49. See *id.*

50. See, Thomas Nagel, *What Is It Like to Be a Bat?*, 83 PHIL. REV. 435 (1974).

Presumably, there is nothing that it is like to be a piece of silicon or, for that matter, a zombie.

51. See TEGMARK, *supra* note 23, at 304.

52. See *id.*

53. See *id.*

54. See *id.*

supervisory levels of reasoning”⁵⁵ Perhaps more ambitiously, it has been argued that consciousness requires being “awake,”⁵⁶ having “an operational mind,”⁵⁷ and crucially, an “automatic, unprompted, undeduced sense of self as protagonist of the experience”⁵⁸

For our purposes, no choice need be made among these more and less demanding understandings of what consciousness requires. Crucially, even the most ambitious and demanding understandings of consciousness, self-consciousness, and sentience do not amount to sufficient grounds for deserved or intrinsically merited constitutional rights. The key problem is that an entity might fulfill all of the requirements for consciousness without also having, in the required sense, objective and subjectively adopted interests.⁵⁹ In the absence of relevant objective and subjectively adopted interests, appropriately understood, even a fully conscious, self-conscious, and sentient being cannot be entitled to constitutional rights.

The idea of an “interest” is itself ambiguous. Distinguishing among the various meanings of “interest” can occasionally be tricky. One can take an interest in almost anything, in the sense of merely wishing to pursue or caring about some matter, perhaps on arbitrary grounds.⁶⁰ But in the sense that matters for our purposes, one might not know for various reasons that one has an (objective) interest in some process or outcome.⁶¹ Of course, having both a strong objective interest and a strong subjectively adopted interest in, say, some particular outcome does not mean that one has a right, let alone a constitutional right, to that

55. See Igor Aleksander, *Machine Consciousness*, in THE BLACKWELL COMPANION TO CONSCIOUSNESS 93, 94 (Susan Schneider & Max Velmans eds., 2d ed. 2017).

56. ANTONIO DAMASIO, SELF COMES TO MIND: CONSTRUCTING THE CONSCIOUS BRAIN 171 (2010).

57. *Id.*

58. *Id.*

59. *Id.*

60. See, e.g., S.I. Benn, ‘Interests’ in Politics, 60 PROCEEDINGS OF THE ARISTOTELIAN SOC. 123, 124 (1960).

61. See, e.g., VIRGINIA HELD, THE PUBLIC INTEREST AND INDIVIDUAL INTERESTS 19 (1970); Benn, *supra* note 60, at 128-29 (“might not the ‘objective interests’ of a class mean what might be reasonably demanded for it in its particular situation, irrespective of whether it actually aspires to it itself?”). This possibility raises the problems of false consciousness and adaptive preferences.

outcome.⁶² Objective and subjectively adopted⁶³ interests of the right sort are thus necessary, but not sufficient, for deserving constitutional rights.⁶⁴

Otherwise put, having an interest in the relevant sense means, at a very minimum, that some things may or may not promote one's good,⁶⁵ one's advantage in some meaningful way,⁶⁶ or otherwise accrue to one's meaningful benefit,⁶⁷ perhaps in a publicly-minded or socially responsible sense. One's good, advantage, or benefit may or may not rise above subjective preference satisfaction into something like deep self-actualization, self-realization, self-fulfillment, or genuine flourishing.⁶⁸ But for some entity to be a candidate for constitutional rights, some sufficient set of objective interests and subjectively adopted interests must be in play, above and beyond conscientiousness, self-consciousness, or sentience in themselves.

An advanced robot, or some other entity, might qualify as conscious, and even as self-conscious, with a capacity to describe, respond to, or intervene in the environment. By themselves

62. See Held, *supra* note 61, at 28. One might thus have a strong objective interest and a strong subjectively adopted interest in winning some award without thereby having any sort of right to win the award. Having interests of the right sort makes one a "candidate" for deserving rights, including constitutional rights. See R.G. Frey, *Rights, Interests, Desires, and Beliefs*, 16 AM. PHIL. Q. 233, 239 (1979).

63. The need for a capacity to subjectively recognize, to an appropriate degree, one's interests, narrowly or broadly understood, partly reflects the nature of constitutional and some other forms of rights. In general, rights by their very nature can be variously exercised in one way or another and may be exercised or waived. A constitutional right to vote, or to speak, for example, thus typically requires some subjective attention to what one takes to be one's interests. For clarity, there may be a moral or legal duty, let us say, to not burn down a forest. But this would not itself mean that the forest has a right not to be burned down. One might conceivably say that a forest has some sort of objective interest in not being burned down. See THOMAS AQUINAS, *SUMMA THEOLOGICA PART II*, qu. 94, art. 2 (Fathers of the English Dominican Province trans., R. & T. Washbourne, Ltd. ed., 1915). But even if we wish to say this, we would not thereby imply that the forest, or any individual tree, has subjectively adopted, or could conceivably subjectively adopt, an interest in not being burned down. Nor would it follow that the forest itself has a right of any sort to not be burned down or to choose between being burned down and not being burned down.

64. See Held, *supra* note 61, at 28.

65. See, e.g., Christine Swanton, *The Concept of Interests*, 8 POLITICAL THEORY 83, 83 (1980).

66. See *id.*

67. See, e.g., WILLIAM E. CONNOLLY, *THE TERMS OF POLITICAL DISCOURSE* ch. 2, at 46 (1974).

68. See *id.* at 61.

though, these capacities do not imply a capacity for short or long term plans, life-projects, goals, or aspirations.⁶⁹ We might group the latter capacities, broadly understood, under the rubric of objective and subjectively adopted interests.

The lurking complication here is that the idea of “sentience” seems to be ambiguous in this regard. We again have no quarrel with any reasonable definition of “sentience,” or any other term. But the ambiguities of “sentience” may straddle the line between having interests and not having interests.⁷⁰ If we take “sentient” to mean, roughly, having use of something like the five human senses or of being aware of one’s environment, then sentience does not seem to imply that one has objective and subjectively approved interests.⁷¹ But if we choose to define “sentience” so as to necessarily include, say, the capacity to feel pain⁷² in a

69. KASPAROV, *supra* note 7, at 259 (referring to the capacity to have a genuine purpose, or to dream, perhaps in the sense of aspiring).

70. *See, e.g., Sentient*, OXFORD ENG. DICTIONARY (2018), <http://www.oed.com/view/Entry/176055?> [<https://perma.cc/267M-Z2LC>] (indicating ambiguity in the definition of “sentient”).

71. Very roughly, knowing all about something, perhaps largely through sentient experience, and being able to interact with the environment in relevant ways do not establish that the knower has even the slightest subjective desire to steer the course of events in any direction. An advanced robot might not care in the slightest about raising its robot umbrella to prevent rusting due to a rainstorm. The advanced robot might well be programmed to raise its umbrella, but this need not imply having objective and subjectively approved interests. In fact, even an advanced robot that has largely “programmed itself,” according to relevant underlying or more basic programming, to raise its umbrella need not have an interest in doing so, in the sense of a subjectively approved interest. A further capacity on the part of the robot for genuine concern, dread, fear, or anxiety would be another matter.

72. *See, e.g.,* Bruce MacLennan, *Cruelty to Robots? The Hard Problem of Robot Suffering* (2009), http://www.iacap.org/proceedings_IACAP13/paper_9.pdf [<https://perma.cc/BDU7-WDPY>] (“it is by no means impossible that some future robots may feel their emotions, that is, that they may have subjective emotional experiences homologous, but not identical, to ours”). There may or may not be a meaningful difference between subjectively feeling pain, dread, fear, or anxiety, and appearing to do so, based on the advanced robot’s observable behavior. *See, e.g., id.*; Richard Fisher, *Is It OK to Torture or Murder a Robot?* (November 27, 2013), www.bbc.com/future/story/20131127-would-you-murder-a-robot [<https://perma.cc/73VW-M2P9>]. One complication is that it might well be morally wrong for humans to physically impair or damage their own machine, whatever its capacities, if doing so would tend to more broadly desensitize the human to harming, or would contribute to developing a destructive disposition or habit. *See* ARISTOTLE, *NICOMACHEAN ETHICS* bk. II 34-40 (Terence Irwin 2d ed., Terence Irwin trans., Hackett Publ’g Co. 1999) (c. 384 B.C.E.). This is not to suggest that pain, or some near or distant analogue thereto in an advanced robot, cannot have positive value for that robot or for others. *See* Evan Ackerman, *Researchers Teaching Robots to Feel and React to Pain*, IEEE SPECTRUM (2016), <https://spectrum.ieee.org/automaton/robotics/robotics->

genuinely subjectively experiential way, then the idea of sentience at least opens the door⁷³ to having objective and subjectively approved interests.

The basic idea is that consciousness, self-consciousness, and at least some forms of sentience do not also imply the presence of objective and subjectively adopted interests sufficient to open the possibility of deserved constitutional rights. An advanced robot's conscious knowledge, for example, that it may well be permanently shut down, hardly opens up the possibility of a deserved right not to be shut down if that robot lacks, for example, any relevant plans or aspirations, let alone any associated emotions. A deserved constitutional right generally requires this form of interest, as well as a capacity to meaningfully and subjectively care in some non-random, non-arbitrary, non-fleeting, structured way.⁷⁴ In general, we cannot imagine a deserving constitutional right-holder who lacks at all relevant times the capacity to genuinely care about that right, its exercise one way or another, its waiver, or its violation.

The idea of advanced robots thus allows us to see clearly the essential linkage between deserving constitutional rights and having objective and subjectively adopted interests.⁷⁵ The further lesson, then, has to do with the broader role of interests in constitutional law. As it happens, a role for interest analysis in constitutional law is already well-established.⁷⁶ Oddly though, constitutional reflection on interests is often largely confined to

software/researchers-teaching-robots-to-feel-and-react-to-pain [https://perma.cc/8JPG-RAQN].

73. It might be clearer that the advanced robot had the right sort of interests if the capacity for pain or suffering itself were also accompanied by a capacity to fear or to dread future pain, as well as the capacity to remember previous pain with genuine negative effect.

74. See Frey, *supra* note 62, at 239; see also *supra* note 11.

75. The idea of an interest is understood consistently with our examination of the conceptual literature. See *supra* notes 60-69 and accompanying text. While subjectively adopted interests are generally necessary for deserving a constitutional right, so are objective interests. See *supra* note 63. A merely subjectively adopted interest completely detached from, if not at odds with, any objective interest would not generally suffice. And to be entitled to a constitutional right, the putative right-holder must be capable at some relevant point of subjectively caring about the right, its exercise, waiver, or violation.

76. Consider the compelling governmental interest test applied in constitutional strict scrutiny cases. See, e.g., Stephen E. Gottlieb, *Compelling Governmental Interests: An Essential But Unanalyzed Term in Constitutional Adjudication*, 68 B.U.L. REV. 917, 918, 968 (1988).

governmental or public interests.⁷⁷ Ironically, the role of interests, and of interest analysis, is often minimal to non-existent with specific regard to putative rights-bearers.⁷⁸ Our focus herein on the conditions of deserving a constitutional right highlights the curious judicial tendency to minimize explicit analysis of the right-claimant's own relevant interests or lack thereof.⁷⁹ Often, constitutional rights cases are treated as involving a conflict between governmental or public interests on the one hand, and the claimant's rights or assertions thereof on the other, with the claimant's own interests being set aside or backgrounded.⁸⁰

Consider, merely for example, the free speech case of *Brown v. Entertainment Merchants Association*.⁸¹ As in many recent free speech and other constitutional rights cases, the Court rejected a relatively broad consideration of the claimant's interests in favor of a standard strict scrutiny focus on governmental and public interests.⁸² In fact, the contest in *Brown* was between a strict scrutiny test with no immediate or explicit focus on the claimant's speech interests⁸³ and a rejected test that would have weighed the social costs of the speech against the value of an entire category or kind of speech.⁸⁴

77. See R. George Wright, *A Hard Look for Exacting Scrutiny*, 85 UMKC L. REV. 207, 209-10, 219, 227, 230 (2016).

78. See Gottlieb, *supra* note 76, at 978.

79. This is not to deny that courts often take explicit account of a constitutional right-claimant's own interests, as in procedural due process cases on the nature and timing of a hearing. See *Mathews v. Eldridge*, 424 U.S. 319, 335 (1976) (using a three-part balancing test considering the weight of the claimant's interest). 'But see *Board of Regents of State Colleges v. Roth*, 408 U.S. 564, 571, 578 (1972) (denying the relevance, for property interest purposes, of the weight, as distinct from the nature, of the claimant's interests).' Justice Breyer is probably the current, foremost American judicial advocate of a relatively broad examination of affected interests in constitutional cases. See, e.g., *United States v. Alvarez*, 567 U.S. 709, 730, 730-31 (2012) (Breyer, J., concurring); 'see also Wright, *supra* note 77, at 217 (discussing Justice Breyer's constitutional proportionalism and related themes).

80. See generally, *Burwell v. Hobby Lobby Stores*, 134 S.Ct. 2751, 2759, 2767 (2014); *Fisher v. Univ. of Tex. at Austin* 136 S. Ct. 2198, 2208 (2016).

81. 564 U.S. 786, 788 (2011).

82. See *id.* at 792, 799.

83. See *id.* at 799.

84. See *id.* at 792; *United States v. Alvarez*, 567 U.S. 709, 717 (2012) (citing *United States v. Stevens*, 559 U.S. 460, 470 (2010) (affirming, but slightly altering the test articulated in *Stevens*)). Kinds of speech in this context refer to something like libel, obscenity, fighting words, or incitement to illegal acts. See *id.* at 719. This approach is traceable to the "fighting words" case of *Chaplinsky v. New Hampshire*, 315 U.S. 568 (1942). But even *Chaplinsky* refers not to the objective and subjectively adopted interests of the speaker, but to the broader value of speech and the pursuit of truth more generally. See *id.* at

On either test, it is too easy to assume that the weight of the claimant's objective and subjectively approved interests will somehow be accommodated.⁸⁵ This need not be so. But the point of our emphasizing the interests of the rights-claimant, or of multiple rights-claimants, is not necessarily to suggest that those interests tend to be underweighted in free speech cases. It would certainly be possible to argue that in many cases, increased attention to the objective and subjectively adopted interests of the claimant could actually result in greater legal accommodation of the governmental and other public interests.⁸⁶ Explicit attention to the relevant interests of the speakers may thus, sometimes result in driving the constitutional weight of the speaker's case downward.⁸⁷

III. AUTONOMY, AGENCY, PERSONHOOD, AND THE QUESTION OF MATERIALISM AND DESERVING CONSTITUTIONAL RIGHTS

At first glance, it would seem that much progress could be made on questions of constitutional rights for advanced robots by determining whether the robot should count as autonomous,⁸⁸ as

572 (referring to broad categories of speech "of such slight social value as a step to truth that any benefit that may be derived from them is clearly outweighed by the social interest in order and morality.").

85. The First Amendment's text is often thought to reflect a final balancing and proper accommodation of all relevant interests. *See, e.g., Stevens*, 559 U.S. at 470. It seems fair to say, however, that the actual constitutional case results do not typically fall neatly out of a close reading of the First Amendment's text.

86. *See* STEVEN H. SHIFFRIN, *WHAT'S WRONG WITH THE FIRST AMENDMENT?* (2016) (exploring some useful theory in a much broader context).

87. Consider, as mere possibilities, that the consumer interest in *Brown* was largely in obtaining, as an adolescent, though sale or rental, as opposed to other sources, access to a starkly limited class of especially violent video games that must be shown to be without serious literary, scientific, artistic, or political value for such a consumer. *See Brown*, 564 U.S. at 789. Close to the essence of *Stevens* was the interstate marketing of so-called "animal crush videos." *See Stevens*, 559 U.S. at 465. (internal quotations omitted). *Alvarez* ultimately involved respondent's deliberate lie that he had earned a distinguished military medal. *See, e.g., Alvarez*, 567 U.S. at 709. Additionally, in *Barnes v. Glen Theatre, Inc.*, 501 U.S. 560, 560 (1991), a free speech case in which the primary speaker, as distinct from the lounge owner, was speaking in the form of commercial barroom nude dancing where no message was intended by the dancer, her motivation instead being to make more money. *See Barnes*, at 563. The weight of these interests, for purposes of free speech right adjudication, might actually cut against recognizing strongly protected constitutional rights.

88. The importance of autonomy is most conspicuous in the work of the philosopher Immanuel Kant, but is easily traceable to the work of Giovanni Pico Della Mirandola. *See*

capable of agency,⁸⁹ or as a person.⁹⁰ The crucial problem here is that the ideas of autonomy, agency, and personhood have long been used in what we might call thicker and thinner, or in deeper and shallower, senses.⁹¹ As robot capacities develop, autonomy, agency, and personhood can be ascribed to robots at least in some thin or shallow senses of the terms.⁹² The important error to avoid

GIOVANNI PICO DELLA MIRANDOLA, ON THE DIGNITY OF MAN 5 (Charles Glenn Wallis trans., 1965) (Hackett Publishing Company, Inc. 1998) (1486) (“[n]either heavenly nor earthly . . . have [w]e made thee. Thou . . . art the molder and maker of thyself; thou mayest sculpt thyself into whatever shape thou dost prefer”). “” See also ISAIAH BERLIN, TWO CONCEPTS OF LIBERTY, IN LIBERTY 166, 179-83 (Henry Hardy ed., Oxford University Press 2002) (1969); MURRAY SHANAHAN, THE TECHNOLOGICAL SINGULARITY 183 (MIT Press 2015); R. Alami, et al., *An Architecture for Autonomy*, 17 INT. J. ROBOTICS RES. 315 (1998); Gianmarco Veruggio, et al., *Roboethics: Ethics Applied to Robotics*, 18 IEEE ROBOTICS AND AUTOMATION MAG. 21, 22 (March 2011). A linkage between at least some forms of autonomy and some forms of personhood is officially made in EUROPEAN PARLIAMENT COMMITTEE ON LEGAL AFFAIRS, REPORT TO THE COMMISSION ON CIVIL RULES ON ROBOTICS p. 6, <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A8-2017-0005+0+DOC+PDF+V0//EN> [<https://perma.cc/V4KT-SJCY>] (Jan. 27, 2017).

89. See, e.g., JERRY KAPLAN, ARTIFICIAL INTELLIGENCE 106 (2016); WENDELL WALLACH & COLIN ALLEN, MORAL MACHINES: TEACHING ROBOTS RIGHT FROM WRONG 16 (Oxford University Press 2010); Brian Talbot, Ryan Jenkins & Duncan Purves, *When Robots Should Do the Wrong Thing*, in ROBOT ETHICS 2.0: FROM AUTONOMOUS CARS TO ARTIFICIAL INTELLIGENCE 258, 258 (Patrick Lin, Keith Abney & Ryan Jenkins eds., Oxford University Press 2017).

90. See CHRISTIAN SMITH, WHAT IS A PERSON?: RETHINKING HUMANITY, SOCIAL LIFE, AND THE MORAL GOOD FROM THE PERSON UP 16 (2011); ROBERT SPAEMANN, PERSONS: THE DIFFERENCE BETWEEN ‘SOMEONE’ AND ‘SOMETHING’ 2 (Oliver O’Donovan trans., 2017) (1996)“”; Jack M. Balkin, *The Path of Robotics Law*, 6 CAL. L. REV. CIR. 45, 57 (June 2015) (“[p]eople may treat the robot as a person (or animal) for some purposes and as an object for others.”); Alexis Dyschkant, *Legal Personhood: How We Are Getting It Wrong*, 2015 U. ILL. L. REV. 2075, 2076-77; Douglas Lind, *Pragmatism and Anthropomorphism: Reconceiving the Doctrine of the Personality of the Ship*, 22 U. S.F. MAR. L.J. 39, 40-42 (2010) (discussing the pragmatic, as opposed to deserved, personification of and the ascription of certain limited rights to ships under admiralty law); Bryant Smith, *Legal Personality*, 37 YALE L.J. 283, 287 (1927) (“[t]he master of the vessel appears in court to represent the ship and the ship vindicates the rights or makes a vicarious atonement for the wrongs of its owner.”); Lawrence B. Solum, *Legal Personhood and Artificial Intelligence*, 70 N.C.L. REV. 1231, 1286 (1992) (distinguishing ordinary corporate personhood and concluding that “[i]f AIs behaved the right way and if cognitive science confirmed that the underlying processes producing these behaviors were relatively similar to the processes of the human mind, we would have very good ground to treat AIs as persons.”); James Vincent, *Giving Robots ‘Personhood’ Is Actually About Making Corporations Accountable*, THE VERGE, www.theverge.com/2017/1/19/14322334/robot-electronic-persons-eu-report (January 9, 2017).

91. See *supra* notes 88-90 (showing examples of both shallower and deeper understandings of autonomy, agency, and personhood).

92. *Id.*

is assuming without argument that being autonomous, an agent, or a person in merely some shallow sense suffices for deserving constitutional rights, or else assuming, again without argument, that differences among shallow and deep senses of autonomy, agency, and personhood do not exist or simply do not matter.

In a shallow or minimalist sense then, we might refer to a driverless car as an autonomous vehicle. Autonomy in this shallow sense may mean simply that the advanced robot in question responds well to environmental changes without real-time external human intervention, beyond its initial programming.⁹³ Historically though, there have also been understandings of autonomy requiring more and different capabilities.⁹⁴ Thus for Immanuel Kant, genuine freedom and autonomy require the capacity to overcome empirical causation or, at a minimum, one's own desires and appetites.⁹⁵ Here, we might add an advanced robot's programming, however paradoxically, to that which the robot would have to be able to overcome in order to have autonomy in Kant's full sense.

93. See, e.g., SHANAHAN, *supra* note 88, at 183 (autonomous AI as "able to act without human intervention."); EU COMMITTEE ON LEGAL AFFAIRS, *supra* note 88, at p. 6 ("a robot's autonomy can be defined as the ability to take decisions and implement them in the outside world, independently of external control or influence . . ."); R. Alami, et al., *supra* note 88, at 315 ("[a]utonomy and adaptability" as requiring that "the robot be able to carry out its actions, and refine or modify the task and its own behavior according to the current goal and execution context as these are perceived.").

94. See IMMANUEL KANT, *THE MORAL LAW: KANT'S GROUNDWORK OF THE METAPHYSIC OF MORALS* 114 (H. J. Paton trans., Hutchinson & Co. 1961) (1785) (requiring for freedom or autonomy, a sort of causation by reason as distinct from any physical or biological causation). See also THOMAS E. HILL, JR., *AUTONOMY AND SELF-RESPECT* 29 (1991); ONORA O'NEILL, *CONSTRUCTIONS OF REASON: EXPLORATIONS OF KANT'S PRACTICAL PHILOSOPHY* 52 (1989); ROGER J. SULLIVAN, *IMMANUEL KANT'S MORAL THEORY* 46 (1989); CHRISTINE M. KORSGAARD, *CREATING THE KINGDOM OF ENDS* 25 (1996).

95. See KANT, *supra* note 94, at 114; BERLIN, *supra* note 88, at 183. Of inspiration to Kant was Rousseau's crucial claim that "the mere impulse of appetite is slavery, while obedience to a [self-prescribed law] is liberty." See Jean Jacques Rousseau, *The Social Contract*, in *THE SOCIAL CONTRACT AND DISCOURSES* 19 (G.D.H. Cole trans., E.P. Dutton & Co. 1950) (1762). If we analogize one's desires to a portion or all of an advanced robot's programming, then to be a deeply autonomous robot, on Rousseau's understanding, the robot would have to be capable of obeying a self-prescribed law—perhaps via its own somehow independently generated programming. This capability would contrast with the robot's merely conforming to its "appetites" as analogized perhaps to its past and current programming.

The idea of agency could be analyzed in similar fashion.⁹⁶ A shallow or thin sense of agency can track a thin sense of autonomy. Thus an “autonomous” highway vehicle might correspondingly be said to display a kind of “agency” in slowing down due to a sudden rain or the darting of an animal.⁹⁷ But it is also commonly held that moral agency requires, at a minimum, consciousness.⁹⁸ And more stringently, it has also been argued that moral agency in an advanced robot would require “a conscience and freedom to choose its own actions on the basis of a full comprehension of their implications and consequences.”⁹⁹ Understandably, theories of agency that require more in terms of agent capacity tend to be relatively skeptical as to near-term robot agency.¹⁰⁰

A somewhat similar story can more readily be told with regard to legal, if not moral, personhood.¹⁰¹ Among other entities, ships and corporations have long been regarded as legal persons, at least in a thin or shallow sense of the idea of personhood.¹⁰² But a combination of legal and moral personhood may, on some theories, require capacities not historically possessed by sailing ships, or even by sophisticated programs.¹⁰³ Thus the sociologist Christian Smith sees “reflexivity, self-transcendence, self-identity, morality, causal self-direction, communion, [and] responsibility[]”¹⁰⁴ as exclusive to persons.¹⁰⁵

96. An ambitious or full sense of “autonomy” tracks that of a full sense of ‘agency.’ See Stephen Darwall, *The Value of Autonomy and Autonomy of the Will*, 116 U. CHI. ETHICS J. 263, 281-82 (Jan. 2006).

97. For a discussion of a computer program’s possible agency in at least a thin or shallow sense, see KAPLAN, *supra* note 89, at 106 (“[t]here’s nothing that requires a moral agent to ‘feel’ anything about right or wrong. . .”).

98. See, e.g., WALLACH & ALLEN, *supra* note 89, at 63 (moral agency as “seldom attributed to individuals who do not understand or are not conscious of what they are doing. . .”).

99. Veruggio et al., *supra* note 88, at 22.

100. See, e.g., TALBOT ET AL., *supra* note 89, at 258-59.

101. On legal personhood, see Dyschkant, *supra* note 90, at 2075-78. For more background, see *generally* THE IDENTITIES OF PERSONS (Amélie Oksenberg Rorty ed., 1976).

102. See Lind, *supra* note 90, at 40-42; Bryant Smith, *supra* note 90, at 288; Solum, *supra* note 90, at 1286.

103. See *supra* note 102 and accompanying sources.

104. CHRISTIAN SMITH, *supra* note 90, at 88-89.

105. See SPAEMANN, *supra* note 90, at 248 (explaining that living beings with “an inner life of sentience” and a typical capacity for rationality and “self-awareness” falls within the class of persons—explicitly including porpoises).

Thus, the path is admittedly open to adopt thin, shallow, undemanding understandings of the ideas of autonomy, agency, and personhood, and on this basis, to conclude that many sorts of advanced robots can deserve or be entitled to various constitutional rights on the merits.¹⁰⁶ We might have pragmatic or moral reasons for doing so. But there are also substantial risks in setting aside fuller and deeper conceptions of autonomy, agency, and personhood. And there are associated risks with extending constitutional rights, as somehow sufficiently merited or appropriate, on the basis of thin or shallow conceptions.¹⁰⁷

This is not to suggest that what we have referred to as thin or shallow conceptions of autonomy, agency, and personhood are not currently fashionable, or even dominant, among the experts. Such thin conceptions are commonly held today on the basis of what we might call, merely for convenience, one form or another of materialism.¹⁰⁸ Judgments as to the merits of materialist accounts of conscious subjectivity, of a continuing and somehow not entirely material self, or of a self-consciousness that is not entirely reducible to the physical realm, have long and sharply differed.¹⁰⁹ Today, materialist accounts of consciousness, self-consciousness, and of mind are widely,¹¹⁰ though not

106. See *supra* notes 88-90.

107. See *supra* Section III and accompanying text.

108. See generally William Ramsey, *Eliminative Materialism*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (last updated Apr. 16, 2013), <https://plato.stanford.edu/entries/materialism-eliminative> [<https://perma.cc/DNP8-2BQC>]. See also Daniel Stoljar, *Physicalism*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (last updated Mar. 9, 2015), <https://plato.stanford.edu/entries/physicalism> [<https://perma.cc/9WJM-FZCD>]; J. J. C. Smart, *The Mind/Brain Identity Theory*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (last updated May 18, 2007), <https://plato.stanford.edu/entries/mind-identity> [<https://perma.cc/355B-662F>]; Michael Tye, *Qualia*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (last updated Dec. 18, 2017), <https://plato.stanford.edu/entries/qualia> [<https://perma.cc/RZX4-TBTK>].

109. See, e.g., A. P. MARTINICH, HOBBS 25, 42 (2005); Michael LeBuffe, *Paul-Henri Thiry (Baron) d'Holbach* § 2, STANFORD ENCYCLOPEDIA OF PHILOSOPHY (last updated Oct. 22, 2014), <https://plato.stanford.edu/entries/holbach>.⁷ (discussing the materialism of Hobbes and Holbach respectively). See also Julien Offray de la Mettrie, *Man a Machine*, in THE PORTABLE ENLIGHTENMENT READER 202-03 (Isaac Kramnick ed., 1995) (1747). But see, Rene Descartes, *Discourse on Method*, in DISCOURSE ON METHOD AND MEDITATIONS 27 (Laurence J. Lafleur trans., 1960) (1637) (“I had already recognized very clearly that intelligent nature is distinct from corporeal nature”); *Id.* at 44 (“our soul is by nature entirely independent of the body”).

110. See THOMAS NAGEL, MIND AND COSMOS: WHY THE MATERIALIST NEO-DARWINIAN CONCEPTION OF NATURE IS ALMOST CERTAINLY FALSE 4 (Oxford University Press 2012). See also *supra* note 109; Daniel Dennett, *Consciousness in Human and Robot*

universally,¹¹¹ popular. So it is not surprising that thin or shallow understandings of autonomy, agency, and personhood apparently compatible with materialism, are similarly popular.

Materialist views of consciousness and of thin or shallow forms of autonomy, agency, and personhood, require a reassessment of our casually assumed folk psychology. The initial implications of these materialist views can be starkly expressed:

We can ignore the evidence and philosophical difficulties, hang on to the way our precious self feels, and believe in a soul or spirit[.] Alternatively, we can try to live with the knowledge that self is an illusion, accepting that every time ‘I’ seem to exist, this is just a temporary fiction. . . . This is tough, but I think it gets easier with practice.¹¹²

If we accept a materialist view of the conscious self, and of autonomy, agency, and personhood, we can certainly try to address questions of advanced robot constitutional rights on that basis. We could then argue that if subjective experience and related phenomena are just a persistent and powerful illusion in human beings,¹¹³ a robot otherwise qualifying for a constitutional right would, as a matter of logic and equality, only have to be capable of experiencing the same or at least relevantly similar illusions.

That is, an otherwise qualified advanced robot might imagine that it possesses self-consciousness, along with autonomy, agency, and personhood in the fullest and deepest senses.¹¹⁴ And this belief might be critically judged to be false, or

Minds, IAS SYMPOSIUM ON COGNITION, COMPUTATION AND CONSCIOUSNESS (Sept. 3, 1994), <https://ase.tufts.edu/cogstud/dennett/papers/concrobot.htm> [<https://perma.cc/2YVB-M4B6>].

111. See, e.g., NAGEL, *supra* note 110, at 4-5; Laurence Bonjour, *Against Materialism*, in *THE WANING OF MATERIALISM 3* (Robert C. Koons & George Bealer eds., 2010) (noting also the recent dominance of materialist views of mind).

112. SUSAN BLACKMORE, *CONSCIOUSNESS: A VERY SHORT INTRODUCTION* 82 (2d ed. 2017); One aspect of an alternative view suggests that rejecting, reducing, or explaining away subjective conscious experience “does not explain the distinction between 0.000075 centimeter electromagnetic radiation and my experience of redness.” RAY KURZWEIL, *THE AGE OF SPIRITUAL MACHINES: WHEN COMPUTERS EXCEED HUMAN INTELLIGENCE* 59 (1999).

113. See Blackmore, *supra* note 112, at 82-83; BRUCE HOOD, *THE SELF ILLUSION: HOW THE SOCIAL BRAIN CREATES IDENTITY*, at IX (2012).

114. See *supra* note 93.

in any number of senses, an illusion.¹¹⁵ But in these respects, the critical judgments of falsity and illusion might well place the advanced robots in circumstances relatively similar to those of comparatively deluded human beings. Human beings may undisputedly bear constitutional rights.¹¹⁶ Thus it would follow that otherwise qualified robots could merit constitutional rights, even if subjective self-consciousness and other related ideas are delusional and the only viable senses of autonomy, agency, and personhood are quite thin, shallow, and otherwise limited.¹¹⁷ Any other approach under these crucial assumptions would seem to involve arbitrary anti-robot discrimination.

However, a problem lurks in the decision to accord deserved constitutional rights to anyone, human or robotic, for whom subjective conscious experience, an experience of the self, autonomy, agency, and personhood can be applied only in the shallowest senses, if at all. We can admittedly imagine a scenario in which according a variety of constitutional rights to machines has, over some time frame, desired consequences. But we should also consider the broader implications of such a lax approach over the longer term.

Suppose, more concretely, that we choose to confer a broad range of constitutional rights on humans and non-humans that we believe to be ultimately reducible to something like a mere “arrangements of brain cells,”¹¹⁸ the robotic analogue thereof, to “physical blobs,”¹¹⁹ “chemical scum,”¹²⁰ “a bag of chemicals,”¹²¹

115. Compare sources cited *supra* note 113 with MARY MIDGLEY, ARE YOU AN ILLUSION? 1-4 (2014).

116. See *Bd. of Regents v. Roth*, 408 U.S. 564, 569-71 (1972) (discussing due process requirements when a person’s constitutional right is at stake).

117. See *Brown v. Entm’t Merchs. Ass’n*, 564 U.S. 786, 804-05 (2010) (extending First Amendment rights to minors, though they are not considered to be completely developed and autonomous).

118. Midgley, *supra* note 115, at vii.

119. VALERIE TIBERIUS, MORAL PSYCHOLOGY: A CONTEMPORARY INTRODUCTION 16 (2015).

120. DAVID DEUTSCH, THE FABRIC OF REALITY: THE SCIENCE OF PARALLEL UNIVERSES—AND ITS IMPLICATIONS 177 (1997) (quoting the renowned Professor Stephen Hawking).—

121. Anthony R. Cashmore, *The Lucretian Swerve: The Biological Basis of Human Behavior and the Criminal Justice System*, 107 PROC. NAT’L ACAD. SCI. U.S. 4499, 4504 (2010). ’

“a vast assembly of nerve cells and their associated molecules,”¹²² or “complex biological machines,”¹²³ with capacities that rise no higher than what we would normally ascribe to such entities.¹²⁴

It is at this point important to remember that constitutional rights, no less than other sorts of rights, are crucially intended to hold when considerations of pains and pleasures, other forms of welfare and utility, or of real harms and benefits point against upholding the constitutional right in question.¹²⁵ Rights, as Professor Ronald Dworkin has famously observed, are intended to trump such considerations.¹²⁶

Over the long term and once we have fully adjusted to belief in, at best, quite thin, if not ultimately vacuous, understandings of consciousness and related phenomena, we might begin to wonder why we should continually suffer entirely avoidable net pain and discomfort for the sake of more or less arbitrarily assigned rights granted to merely material entities. Why, even more concisely, should we sacrifice in the form of avoidable net suffering where our science and metaphysics offer us no sufficient grounding for doing so?

In sum, granting constitutional rights to machines however technically sophisticated may, on typical materialist assumptions, work reasonably well only until we, as a culture, have had time to fully process and internalize the implications of those materialist assumptions. We might then decline to further engage in whatever net sacrifices are required by upholding a range of

122. FRANCIS CRICK, *THE ASTONISHING HYPOTHESIS: THE SCIENTIFIC SEARCH FOR THE SOUL* 3 (1995).

123. Joshua D. Greene, *Social Neuroscience and the Soul's Last Stand*, in *SOCIAL NEUROSCIENCE: TOWARD UNDERSTANDING THE UNDERPINNINGS OF THE SOCIAL MIND* 263, 264 (Alexander Todorov et al. eds., Oxford Univ. Press 2011).

124. See generally R. George Wright, *Criminal Law and Sentencing: What Goes With Free Will?*, 5 *DREXEL L. REV.* 1, 4-8 (2013); R. George Wright, *Pulling On the Thread of the Insanity Defense*, 59 *VILL. L. REV.* 221, 226-33 (2013); R. George Wright, *Legal Paternalism and the Eclipse of Principle*, 71 *U. MIAMI L. REV.* 194, 212-14 (2017).

125. Thus the Court upholds free speech rights as exercised in connection with military funerals by the Westboro Baptist Church without inquiring whether at least in this and similar cases, any balancing of interests, sentiments, or welfare actually recommends such a course. See *Snyder v. Phelps*, 562 U.S. 443, 458-61 (2011).

126. See Ronald Dworkin, *Rights as Trumps*, in *THEORIES OF RIGHTS* 152, 164 (Jeremy Waldron ed., Oxford Univ. Press 1984); RONALD DWORIN, *TAKING RIGHTS SERIOUSLY* xi, 364 (Harvard Univ. Press 1978); see also *UTILITY AND RIGHTS* 8-9 (R.G. Frey ed., Univ. of Minn. Press 1984); H.L.A. Hart, *Between Utility and Rights*, 79 *COLUM. L. REV.* 828, 829 (1979) (discussing John Rawls's approach, among others).

constitutional rights for advanced robots. But crucially, if we determined that according such rights to robots is arbitrary and unnecessarily sacrificial and that human beings, on our materialist views, are actually similarly situated, the constitutional rights of humans would be no less imperiled.¹²⁷

After all, it is not entirely clear that humans, if they are indeed reducible to anything like “chemical scum,”¹²⁸ can even have genuinely meaningful interests as a prerequisite to rights.¹²⁹ Significant sacrifice on behalf of some conception of the “rights” of anything reducible to a chemical scum would seem arbitrary.

IV. SOME OBSERVATIONS IN THE REALM OF SPECIFIC CONSTITUTIONAL RIGHTS

Having considered broad questions associated with the possibility of advanced robots deserving a range of constitutional rights, we now briefly consider robot constitutional rights questions at the level of specific rights. This tour will, of obvious necessity, be highly selective. Many different constitutional rights might be claimable by or on behalf of advanced robots.¹³⁰ But it is obviously difficult to deny the importance and centrality of the equal protection rights of persons, and so we begin with reference thereto.

In this regard, focusing on the idea of equality itself does not take us very far. The idea of equality centers on access to, or distribution of, benefits and harms on relevant criteria.¹³¹ If we are to meaningfully address issues of robot equality,¹³² and in particular of robot equal protection, we would have to somehow

127. See, e.g., Hart *supra* note 126, at 829-31 (discussing how individual sacrifice is necessary for greater happiness, though that individual may not experience the greater sum of happiness).

128. See *supra* note 120 and accompanying text.

129. See *supra* Section II.

130. See Toni M. Massaro & Helen Norton, *Seriously? Free Speech Rights and Artificial Intelligence*, 110 NW. U. L. REV. 1169, 1171-74, 1180 (2016) (discussing the foundations for extending First Amendment rights to artificial intelligence).

131. See generally IWAO HIROSE, *EGALITARIANISM* 1-11 (2015); Kenneth W. Simons, *The Logic of Egalitarian Norms*, 80 B.U. L. REV. 693, 696 (2000). For a sense of the range and variety in important respects of egalitarian theory, see R. George Wright, *Equal Protection and the Idea of Equality*, 34 LAW & INEQ. 1 (2016).

132. See COLIN MCGINN, *THE MYSTERIOUS FLAME: CONSCIOUS MINDS IN A MATERIAL WORLD* 177 (1999) (raising issues of robot equality and other potential robot rights, without attempted resolution).

settle upon answers to some basic questions. In order to qualify for equal protection rights, advanced robots would have to qualify as “persons” in the relevant constitutional sense.¹³³ And there are, as we have seen,¹³⁴ distinct senses of “person” or personhood in some but not all of which senses advanced robots might qualify as “persons.”¹³⁵ There would then be the question of whether and if the senses in which a robot might qualify as a person correspond to the sense of “person” embodied in the Fourteenth Amendment.¹³⁶

At some point we would have to confront the question of the relevant grounds or bases in virtue of which an advanced robot would be judged to be the constitutional equal of human persons. Historically, there have been many attempts to identify the grounds on which persons should be treated by the law as equals.¹³⁷ Whether any of these proffered grounds are satisfactory in the case of human beings, and whether these grounds can be usefully deployed in cases of advanced robots, is controversial.¹³⁸

133. See U.S. CONST. amend. XIV; see also *Bolling v. Sharpe*, 347 U.S. 497, 498-99 (1954) (in the federal legal context). Even more fundamentally, personhood and elemental equality are at the heart of the Thirteenth Amendment prohibition of slavery and involuntary servitude. See generally Baher Azmy, *Unshackling The Thirteenth Amendment: Modern Slavery and a Reconstructed Civil Rights Agenda*, 71 *FORDHAM L. REV.* 981, 1060-61 (2002); William M. Carter, Jr., *The Promises of Freedom: The Contemporary Relevance of the Thirteenth Amendment*, 85 *TEMP. L. REV.* 867, 870 (2013) (slavery as “an evolving matrix of subordination”); Jamal Greene, *Thirteenth Amendment Optimism*, 112 *COLUM. L. REV.* 1733, 1733 (2012); George Rutherglen, *The Thirteenth Amendment, the Power of Congress, and the Shifting Sources of Civil Rights Law*, 112 *COLUM. L. REV.* 1551, 1551 (2012) (discussing expansive versus restrictive interpretations of the Thirteenth Amendment); Alexander Tsesis, *Interpreting the Thirteenth Amendment*, 11 *U. PA. J. CONST. L.* 1337, 1361-62 (2009); Rebecca E. Zietlow, *Free at Last! Anti-Subordination and the Thirteenth Amendment*, 90 *B.U. L. REV.* 255, 256 (2010) (explaining Congress’s anti-subordination approach to its own enforcement of the Thirteenth Amendment).

134. See *supra* Section III.

135. See *id.*

136. Philip Bump, *You’re Worried About Trump? In 100 Years, Robots Might be Running for President*, *Washington Post* (Dec. 15, 2015), <https://www.washingtonpost.com/news/the-fix/wp/2015/12/10/can-a-robot-run-for-president-seriously/?https://perma.cc/6XUU-JQUK>. A final question might be whether the minimum requirements for being a Fourteenth Amendment person might vary according to context.

137. For an excellent contemporary survey and critique of such grounds, see generally JEREMY WALDRON, *ONE ANOTHER’S EQUALS: THE BASIS OF HUMAN EQUALITY* 1-3 (2017’).

138. See *id.* at 2.

Thus attempts have been made to ground equality, or equal rights, on sufficiently similar DNA,¹³⁹ partly religious grounds,¹⁴⁰ the capacity to feel pain or to in some sense suffer,¹⁴¹ actual or potential reasoning ability,¹⁴² ability to articulate or think in language,¹⁴³ capacity to rise above material causal influences,¹⁴⁴ ability to consciously live our lives from the inside out and over time,¹⁴⁵ a more or less equal vulnerability to be killed by one or more other persons,¹⁴⁶ shared individuality,¹⁴⁷ or on some apt combination of a variety of properties.¹⁴⁸

As suggested above,¹⁴⁹ whether an advanced robot could qualify as the equal of an acknowledged person, or simply as a person, for equal protection purposes will depend not only on our choice among these criteria, but on how we choose to define—stringently or laxly—the key concepts involved. A sophisticated robot might be, say, conscious¹⁵⁰ and perhaps arguably a person entitled to equal protection on some definitions but not others.¹⁵¹

The key point to emphasize though, is that if, in a spirit of generosity or indulgence, we adopt a broadly inclusive definition of consciousness, the self, autonomy, agency, or personhood we may thereby unwittingly be creating for ourselves major long-term problems of arbitrariness and motivation, as noted above.¹⁵²

139. *See id.* at 87.

140. *See* the argument in JOHN E. COONS & PATRICK M. BRENNAN, *BY NATURE EQUAL: THE ANATOMY OF A WESTERN INSIGHT* 152 (1999).

141. *See* WALDRON, *supra* note 137, at 89. Relatedly, we might also think of the capacity to anticipate, or to recollect, subjective feelings of joy or pain and perhaps thereby to actually engage such feelings.

142. *See id.* at 94-95.

143. *See id.* at 96 (citing GEORGE KETAB, *HUMAN DIGNITY* 138 (2011)).

144. *See* WALDRON, *supra* note 137, at 100-01. *But see* Bernard Williams, *The Idea of Equality*, in *JUSTICE AND EQUALITY* 122 (Hugo A. Bedau ed., 1971) (expressing skepticism in this respect).

145. *See* WALDRON, *supra* note 137, at 107, 122-23; GEORGE SHER, *EQUALITY FOR INEGALITIANS* 79 (2014) (focusing on conscious subjectivity).

146. *See* WALDRON, *supra* note 137, at 121 (discussing the Hobbesian state of nature).

147. Geoffrey Cupit, *The Basis of Equality*, 75 *J. OF THE ROYAL INST. OF PHIL.* 105, 116 (2000).

148. *See* WALDRON, *supra* note 137, at 126-27. *See also* Ian Carter, *Respect and The Basis of Equality*, 121 *U. CHI. ETHICS J.* 538, 539 (2011).

149. *See supra* Section III.

150. *See supra* Section II.

151. *See id.*

152. *See supra* notes 95-108 and accompanying text.

More positively, for robot equal protection advocates, is that there may be no need to show that a particular robot is the equal of human persons in some specific capacity in order to qualify for equal protection. This paradox reflects the possibility that the property required to qualify as a constitutional person may be, as the term has it, a “range property.”¹⁵³ The basic idea of a range property is that for some purposes, two entities can both count as persons and in that sense as equals even if they do not score equally high on some crucial criterion, as long as they both score sufficiently high on that criterion.¹⁵⁴ Thus advanced robots might score higher, equally high, or lower than human beings on a supposed criterion of, for example, intelligence, and still qualify as persons for equal protection purposes as long as their intelligence is above some appropriate threshold.¹⁵⁵

Equal protection of the laws, of course, can arise as a key issue in many social and cultural contexts.¹⁵⁶ Many such contexts may be remote from the nature, capacities, activities, and interests of advanced robots. Others will be directly relevant.¹⁵⁷ The specific contexts in which the questions of equal protection of advanced robots may arise can be usefully explored through considering the equality dimensions of other distinct possible constitutional rights of advanced robots, to several of which rights we now briefly attend.

Equality and voting rights, for example, are typically inseparable.¹⁵⁸ An advanced robot with, among other qualities, both objective and subjectively adopted interests¹⁵⁹ would likely

153. See WALDRON, *supra* note 137, at 118-19; SHER, *supra* note 145, at 77; JOHN RAWLS, *A THEORY OF JUSTICE* 508 (1971).

154. See WALDRON, *supra* note 137, at 118-19; SHER, *supra* note 145, at 77; See RAWLS, *supra* note 153, at 508.

155. John Rawls notes that all the points inside a circle are equal to one another in being somewhere inside the circle as opposed to outside the circle, even though some points inside the circle are closer than others to the circumference of the circle. See RAWLS, *supra* note 153, at 508.

156. See, e.g., GEOFFREY R. STONE ET AL., *CONSTITUTIONAL LAW* 465-718 (8th ed. 2018).

157. Coby McDonald, *The Good, the Bad, and the Robot: Experts Are Trying to Make Machines Be “Moral,”* CAL. MAG. (June 4, 2015, 12:37 PM), <https://alumni.berkeley.edu/california-magazine/just-in/2015-06-08/good-bad-and-robot-experts-are-trying-make-machines-be-moral> [<https://perma.cc/G6JQ-JFFR>].

158. See, e.g., *Baker v. Carr*, 369 U.S. 186, 187-88 (1962); *City of Mobile v. Bolden*, 446 U.S. 55, 58, 75-76 (1980); *Shaw v. Reno*, 509 U.S. 630, 633 (1993).

159. See *supra* notes 51-61 and accompanying text.

have a further interest in voting¹⁶⁰ in order to protect those interests. As the Supreme Court has understandably claimed, the constitutional right to vote is instrumentally important.¹⁶¹ Voting is said to be “preservative of other basic civil and political rights. . . .”¹⁶² So at the very least, when the franchise is arbitrarily restricted, special judicial scrutiny of legislation disfavoring the arbitrarily excluded group may be appropriate.¹⁶³

Of course, someone might argue that no voting rights need be extended to even the most qualified and somehow independent-minded robot, on the grounds that the interests of such robots will typically be protected by human voters who help produce, utilize, or otherwise benefit from such robots. This would, however, remind us of the disturbing historical argument against the practical value of extending the franchise to women.¹⁶⁴

More uniquely, voting rights for robots would raise questions of the relation between voting rights for all qualified persons and what might be called reproduction, propagation, or replication.¹⁶⁵ Human beings do not typically reproduce for the purpose of voting, or affecting the outcome of elections.¹⁶⁶

160. Presumably at several jurisdictional levels.

161. *Kramer v. Union Free Sch. Dist.*, 395 U.S. 621, 626 (1969) (quoting *Reynolds v. Sims*, 377 U.S. 533, 562 (1964)).

162. *Id.* One could sensibly argue that if voting operates to protect one’s interests and rights, so also might freedom of speech, along with the freedom to actually, or virtually, assemble in order to petition for redress of grievances. See *infra* notes 167-180 and accompanying text (discussing speech rights for advanced robots).

163. See, e.g., Michael J. Klarman, *An Interpretive History of Modern Equal Protection*, 90 MICH. L. REV. 213, 219-20 (1991). Whether robots, or advanced robots, can count as historically disfavored or marginalized may be either unanswerable or irrelevant. See Bruce A. Ackerman, *Beyond Carolene Products*, 98 HARV. L. REV. 713, 715 (1985) (discussing the relation between the scope of voting rights and political legitimacy).

164. See Reva B. Siegel, *She the People: The Nineteenth Amendment, Sex Equality, Federalism, and the Family*, 115 HARV. L. REV. 947, 948 (2002); Adam Winkler, *A Revolution Too Soon: Woman Suffragists and the “Living Constitution”*, 76 N.Y.U. L. REV. 1456, 1457-58 (2001).

165. *The Ethics of AI: Should Robots Be Allowed to Vote?*, CHIPIN, www.chipin.com/ethics-ai-should-robots-vote [https://perma.cc/C7XT-K5G3] (last visited Sept. 22, 2018).

166. Cf. Drew Desilver, *U.S. Trails Most Developed Countries in Voter Turnout*, PEW RES. CTR. (May 21, 2018), <http://www.pewresearch.org/fact-tank/2018/05/21/u-s-voter-turnout-trails-most-developed-countries/> [https://perma.cc/S3AY-RUCM] (showing no present suggestion of an increase in U.S. voter population partially due to purposeful reproduction); Thom File, *Voting in America: A Look at the 2016 Presidential Election*, CENSUS BLOGS (May 10, 2017), https://www.census.gov/newsroom/blogs/random-samplings/2017/05/voting_in_america.html [https://perma.cc/TRG2-MXNA].

Individual persons do not, as voters, typically affect elections.¹⁶⁷ Human reproduction for the purpose of affecting elections would, at a minimum, involve an eighteen year lag period before any fruition.¹⁶⁸

In the case of advanced robots, or related physical entities, however, these familiar constraints could largely evaporate. Dramatically put, if an enfranchised robot can, at a modest cost, make enormous numbers of copies of itself, how many additional voters, if any, should be recognized? Millions of more or less identical robots would in a sense have the same voting qualifications as their voting progenitor. But granting all of these equally well-qualified robots the right to vote might largely undermine the meaningfulness and legitimacy of the voting process.¹⁶⁹ Would it make a difference if the millions of second-generation¹⁷⁰ robots were somehow objectively or subjectively distinct from their progenitor, perhaps through adapting their own programming based on their own unique experiences?¹⁷¹

The answer to some of these questions might depend upon whether, as in the case of human persons,¹⁷² the processes by which advanced robots reproduce could reasonably be said to involve meaningful privacy interests. But even if no such privacy interests arise in the processes of robotic reproduction, some interest-based and practical issues would remain.¹⁷³

167. See, e.g., ILYA SOMIN, *DEMOCRACY AND POLITICAL IGNORANCE: WHY SMALLER GOVERNMENT IS SMARTER* 62-89 (2013).

168. See U.S. CONST. amend. XXVI.

169. There could be cases in which one immense robot voting "faction" counterbalances, and largely cancels the influence of, another robot voting faction. THE FEDERALIST NO. 10 (James Madison) (discussing the classic theory in a non-robotic context). We set aside the question of self-perpetuating "arms races" in generating immense numbers of politically opposed robot factions.

170. Or, presumably thereafter, as even today's computer devices are supplanted by new, upgraded generations within several years.

171. See, e.g., TEGMARK, *supra* note 23, at 109; McDonald, *supra* note 157; *The Ethics of AI: Should Robots Be Allowed to Vote?*, *supra* note 165.

172. See *Griswold v. Connecticut*, 381 U.S. 479, 485-86 (1965) (classic contraceptive privacy case).

173. Consider, more concretely, how many votes should be allocated to the Borg Collective. Should there be one vote only on the view that the Borg are, or is, a "hive" mind? Or are there instead potential differences of objective and subjectively adopted interests among those entities that make up the Borg Collective? See generally *Borg Collective*, MEMORY ALPHA, https://memory-alpha.wiki.com/wiki/Borg_Collective (last visited Feb. 2, 2018).⁴⁴

More manageably, voting rights for advanced robots would raise questions of citizenship, residence, and age.¹⁷⁴ In particular, persons are typically not permitted to vote if they are less than 18 years old.¹⁷⁵ A human person at age seven is thought to be less competent to vote, in general, than the “same”¹⁷⁶ person at age 27. But these familiar understandings are irrelevant, if not grossly misleading, in cases of advanced robots. An advanced robot might be most capable of responsible voting soon after “birth,”¹⁷⁷ and might then obsolesce. Or an advanced robot might gradually increase in voting competence, reaching a maximum well before 18 years have passed. Perhaps the debates over such matters might inform, and in turn be informed by, our best thinking as to whether the minimum age to serve as President,¹⁷⁷ or in some other official capacity,¹⁷⁸ should be thought of entirely in chronological terms, or whether some concern for the value of accumulated experience or wisdom is also appropriate.¹⁷⁹

The question of a robot’s constitutional right to serve on a petit jury as a “peer”¹⁸⁰ of, say, a human criminal defendant raises both overlapping and distinctive issues. We can imagine a potentially immensely helpful robot juror trier of fact, at least if the robot juror scrupulously follows the court’s jury instructions

174. See, e.g., *Kramer v. Union Free Sch. Dist.*, 395 U.S. 621, 625 (1969).

175. See U.S. CONST. amend. XXVI (reflecting on the duration of geographic residence in a jurisdiction by an advanced robot might helpfully provoke us to rethink durational residency requirements for voting in an era of near-instantaneous information exchange). See *Dunn v. Blumstein*, 405 U.S. 330, 332-33 (1972) (describing old assumptions).

176. These judgments implicate questions of continuity, or lack of sustained continuity, of identity among robots. There might also arise interesting issues of determining when, for voting purposes, an advanced robot was “born” or otherwise created.

177. U.S. CONST. art. II, § 1, cl. 4. see also Randy E. Barnett, *Underlying Principles*, 24 Const. Comment. 405, 412 (2007); Ronald Dworkin, *The Arduous Virtue of Fidelity: Originalism, Scalia, Tribe, and Nerve*, 83 FORDHAM L. REV. 2221, 2224 (2015); Clarence Thomas, *Judging*, 45 U. KAN. L. REV. 1, 5 (1996). Of some interest as well would be the capacity of some robots to genuinely and meaningfully undertake an “oath” of office, as perhaps distinct from wiring or re-wiring itself to carry out certain tasks. To concede that a particular robot is capable of genuinely taking an oath is to concede much of what would often be thought to be necessary for personhood.

178. See, e.g., U.S. CONST. art. I, § 3, cl. 3 (minimum age of Senators).

179. See sources cited *supra* note 177.

180. See generally Robert C. Walters, Michael D. Marin & Mark Curriden, *Jury of Our Peers: An Unfulfilled Constitutional Promise*, 58 SMU L. REV. 319, 319-24 (2005). Query whether jurors or litigants would think of advanced robots as their “peers,” in the sense of being of their own general “rank” or “station.”

and perhaps special jury instructions tailored to address the robot's distinctive capacities.¹⁸¹ Or perhaps in scrupulously following the juror instructions, a robot juror might expose for the rest of us the fact that typical jury instructions are imperfect, or are best taken with a proverbial grain of salt and are best only partially complied with. Jury deliberations including an advanced robot might involve something akin to human jurors having immediate access to the internet.¹⁸² Some persons might be troubled by perceived disproportionate influence of an advanced robot on jury deliberations.¹⁸³ Whether a robot could be subject to peremptory challenge on the basis of robot-status could then be litigated.

The peremptory juror challenge issue regarding advanced robots seems especially open to debate. Even in civil cases, discrimination on a basis such as the race of a potential juror is generally prohibited.¹⁸⁴ Should advanced robot-status count as somehow sufficiently analogous to race, or would a difference in species be more apt? Equal protection challenges have also been upheld in cases of excluding a potential juror on the basis of gender,¹⁸⁵ sexual orientation,¹⁸⁶ and religious belief.¹⁸⁷

But in contrast, striking a potential juror on the basis of blindness¹⁸⁸ or particular employment¹⁸⁹ has been judicially upheld. Could a particular robot otherwise qualify for jury

181. Imagine a human juror in a death penalty case asking an advanced robot fellow juror to recite verbatim every authoritative Scriptural passage bearing upon murder or a penalty of death. *See generally* R. George Wright, *Epistemic Peerhood in the Law*, 91 ST. JOHN'S L. REV. 663, 663 (2017).

182. Consider the attempted distinction between prohibiting writings in the jury deliberation room, or consulting books therein, and allowing the individual juror's "training" to play a legitimate role in jury deliberations. *See* *People v. Mincey*, 827 P.2d 388, 425 (Cal. 1992).

183. Individual influence as a juror tends to correlate with, among other factors, the level of formal education of the juror. *See* DENNIS J. DEVINE, *JURY DECISION MAKING: THE STATE OF THE SCIENCE* 166, 166 (2012).

184. *See* *Edmonson v. Leesville Concrete Co.*, 500 U.S. 614, 628-29 (1991).

185. *See* *J.E.B. v. Alabama ex rel. T.B.*, 511 U.S. 127, 128-29 (1994); *United States v. Martinez*, 621 F.3d 101, 107-08 (2d Cir. 2010).

186. *See* *Smithkline Beecham Corp. v. Abbott Labs.*, 740 F.3d 471, 485 (9th Cir. 2014).

187. *See* *Highler v. State*, 854 N.E.2d 823, 829 (Ind. 2006).

188. *See, e.g.*, *United States v. Watson*, 483 F.3d 828, 829 (D.C. Cir. 2007) (challenges of blind juror upheld on rational basis review).

189. *See* *Looney v. Davis*, 721 So. 2d 152, 166 (Ala. 1998) (particular employment as a permissible basis for peremptory challenges were relevant).

service, but be peremptorily stricken or stricken for cause, on a basis such as insufficient empathy or insufficient capacity for compassion?¹⁹⁰ Would the views of advanced robots be subject to impermissible stereotyping?¹⁹¹ Or is there potentially wisdom in a concern that robots of even immense sophistication in some respects may lack inarticulate “tacit knowledge”¹⁹² that is sometimes necessary for the best decisional outcome?

Perhaps the most important lesson to be learned from reflecting on these matters is to appreciate the distinctive contributions to the quality of jury deliberations that can flow from legitimizing and validating the wide range of backgrounds of potential jurors.¹⁹³ Taking seriously the contributions of many jurors with diverse, conflicting, or incommensurable experiences and values tends, in practice, to enhance the quality of the jury deliberative process and outcome.¹⁹⁴

Also important is that the idea of sophisticated robot jurors illustrates the untenable nature of our current law of permissible and impermissible influences on jury deliberations. Imagine an advanced robot juror with encyclopedic knowledge of virtually everything relevant to any litigated case, including, controversially,¹⁹⁵ the ability to recite the references in every religious text on the subject of any crime, tort, or punishment. Current law attempts to distinguish between “external” influences on juries, which may be presumptively improper, and “internal” influences on juries, which are not.¹⁹⁶ But nothing the robot juror knows is external to the deliberation, and the robot may be, not

190. *Id.*

191. See *Martinez*, 621 F.3d at 107.

192. See generally MICHAEL POLANYI, *THE TACIT DIMENSION* (rev. ed. 2009).

193. Nancy S. Marder, *Juries, Justice, and Multiculturalism*, 75 S. CAL. L. REV. 659, 663 (2002).

194. See Devine *supra* note 183, at 165; Marder *supra* note 193, at 663; Dennis J. Devine, et al., *Deliberation Quality: A Preliminary Examination in Criminal Juries*, 4 J. EMPIRICAL LEGAL STUD. 273, 276 (2007); Nancy S. Marder, *Gender Dynamics and Jury Deliberations*, 96 YALE L.J. 593, 596 (1987).

195. See generally Monica K. Miller, et al., *Bibles in the Jury Room: Psychological Theories Question Judicial Assumptions*, 39 OHIO N.U. L. REV. 579, 579-88 (2013).

196. Among the many cases attempting to rely on this “internal” versus “external” influence distinction see, e.g., *Perkins v. State*, 144 So. 3d 457, 496 (Ala. Crim. App. 2002); *Young v. State*, 12 P.3d 20, 49 (Okla. 2000). For the broader underlying theory of this attempted distinction see *Tanner v. United States*, 483 U.S. 107, 117 (1987); *Robinson v. Polk*, 438 F.3d 350, 362 (4th Cir. 2006); *Oliver v. Quarterman*, 541 F.3d 329, 336 (5th Cir. 2008).

only immensely knowledgeable, but apparently authoritative.¹⁹⁷ The law's attempt to distinguish between "external" and "internal" influences on jury deliberation is ultimately hopeless in any event, but the thought experiment of the robot juror illustrates this with unprecedented clarity.

Finally, let us briefly consider what the case of advanced robots might suggest to us about the proper scope and limitations of free speech law. Special constitutional protection for speech is widely assumed to promote particular interests and values.¹⁹⁸ Among the most commonly cited such interests and values are the development of personal autonomy or self-realization, in one sense or another; the optimal pursuit of truth in various fields; and the promotion of democratic self-government.¹⁹⁹

What we can learn from the advanced robot cases about autonomy in the free speech context derives largely from broader debates over the meaning of autonomy, as discussed above.²⁰⁰ Thinking about advanced robots in the contexts of the pursuit of truth and of democratic self-governance, however, raises distinct and important concerns.

In particular, consider the general problem of dominance and inequality in electoral and other political contexts. Often, dominance in otherwise democratic electoral contexts is thought of in terms of wealth, wealth expenditures, campaign fundraising, and campaign spending.²⁰¹ But there are other potential forms of dominance that could undermine the health of a democratic electoral process. Whether advanced robots are allowed to vote or not,²⁰² it is at least conceivable that their²⁰³ practical impact on

197. See Brian Bergstein, *The Great AI Paradox*, MIT TECH. REV. (Dec. 15, 2017), <https://www.technologyreview.com/s/609318/the-great-ai-paradox/> [<https://perma.cc/R5ZR-CXRY>].

198. See, e.g., THOMAS I. EMERSON, TOWARD A GENERAL THEORY OF THE FIRST AMENDMENT 3-15 (1967); FREDERICK SCHAUER, FREE SPEECH: A PHILOSOPHICAL ENQUIRY (1982); Kent Greenwalt, *Free Speech Justifications*, 89 COLUM. L. REV. 119, 120-24 (1989).

199. See sources cited *supra* note 198.

200. See *supra* Section III.

201. See generally J. Skelly Wright, *Politics and the Constitution: Is Money speech?*, 85 YALE L.J. 1001, 1004 (1976); see also *Buckley v. Valeo*, 424 U.S. 1, 26-27 (1976); *Citizens United v. FEC*, 558 U.S. 310, 311-13 (2010) (discussing independent campaign communication expenditures by for-profit and other corporate entities).

202. See generally *supra* notes 158-179 and accompanying text.

203. For some purposes, we would want to factor in the interests of all those persons, corporate entities, or universities that crucially design and program the advanced robots, as

elections could be disproportionate. Information gathering by ordinary voters is already limited, whether rationally or not.²⁰⁴ What effects on truth seeking in politics, and on the health of democracy, might ensue if voters felt intimidated by the predictions and factual assertions of advanced robots? After all, such advanced robots might be immensely, almost inconceivably, knowledgeable.²⁰⁵

The rise of immensely knowledgeable advanced robots, whether they dispute and contradict one another or not,²⁰⁶ might involve a new manifestation of unhealthy dominance in the electoral process. But whether we consider such a prospect to be likely or not, working through the possible scenarios could benefit us in the present.

In particular, the recurring problem of anti-intellectualism in politics and in public policy choice²⁰⁷ is accompanied by a common tendency to ascribe too much weight and authority to the views and predictions of clearly knowledgeable experts.²⁰⁸ Consider this summary of his own extensive research by Professor Philip Tetlock: “When we pit experts against minimalist performance benchmarks—dilettantes, dart-throwing chimps, and assorted extrapolation algorithms—we find few

well as non-persons including data bases or the descendants of Siri and Alexa, for whom personhood might not be claimed. *See generally* Massaro & Norton, *supra* note 130, at 1192-1194; Tim Wu, *Machine Speech*; 161 U. PA. REV. 1495, 1499-1506 (2013); Tim Wu, *Free Speech for Computers?*, N.Y. TIMES (June 19, 2012), www.nytimes.com/2012/06/20/opinion/free-speech-for-computers.html [<https://perma.cc/WBL3-5KPS>].

204. *See generally* SOMIN, *supra* note 167, at ch. 3.

205. We again set aside the complications created by information databases not pretending to anything like conscious personhood.

206. Unfortunately, we cannot assume that a clash of opposing robot messages implies a complete cancelation of their adverse effects on the health of electoral politics any more than in the case of opposing corporate voices under *Citizens United*, 558 U.S. at 310. For further discussion of the controversy provoked by *Citizens United*, *see, e.g.*, Laurence H. Tribe, *Dividing Citizens United: The Case v. The Controversy*, 30 CONST. COMMENT. 463, 464 (2015); Melina Constantine Bell, *Citizens United, Liberty, and John Stuart Mill*, 30 NOTRE DAME J.L. ETHICS & PUB. POL’Y 1 (2016) (*Citizens United* as undermining liberty and self-government).’

207. *See generally* RICHARD HOFSTADTER, *ANTI-INTELLECTUALISM IN AMERICAN LIFE* (Vintage Books, 1963).

208. *See* PHILIP E. TETLOCK, *EXPERT POLITICAL JUDGMENT: HOW GOOD IS IT? HOW CAN WE KNOW?* (2005); PHILIP E. TETLOCK & DAN GARDNER, *SUPERFORCASTING: THE ART AND SCIENCE OF PREDICTION 3* (2015). For Tetlock’s ongoing research project on predictions *see* GOOD JUDGMENT(S) OPEN, www.gjopen.com [<https://perma.cc/2MAV-F9UB>] (last visited Feb. 2, 2018).

signs that expertise translates into greater ability to make either ‘well-calibrated’ or ‘discriminating’ forecasts.”²⁰⁹

Imagining the overall effects of any number of expert robot speakers²¹⁰ thus encourages us to steer a constitutional and personal choice between two extremes. Anti-intellectualism on the one hand is ultimately a matter of illogic and self-destruction. But so, on the other hand, is our tendency to extend undeserved credit, and undeserved intellectual authority, to specialist opinion-molders in general.²¹¹

V. CONCLUSION

There are several important lessons to be drawn from reflecting on the possibility of deserved constitutional rights for advanced robots. Most broadly, there is a heightened sense of the importance of objective and subjectively adopted interests²¹² and of the substantial long-term risks associated with adopting “thin” understandings of autonomy and agency for constitutional purposes.²¹³

Less broadly, but still importantly, the idea of advanced robots forces us to confront the question of the grounds on which all persons are entitled to equal protection.²¹⁴ As well, reflecting on a possible right to vote has implications for the requirements for, and value of, voting; the historical logic of women’s suffrage; the relation between a right to vote and reproductive or privacy rights; and the meaningfulness of minimum age and physical

209. TETLOCK, EXPERT, *supra* note 208, at 20. See TETLOCK, SUPERFORECASTING, *supra* note 208, at 5 (“[w]hat my research had shown was that the average expert had done little better than guessing on many of the political and economic questions I had posed”). “The experts tend to fare worst on predictions that could not be verified or falsified within the immediate 3-5 year period. See *id.*”

210. For discussion of a focus of speakers as distinct from an actual or potential audience see Leslie Kendrick, *Are Speech Rights for Speakers?*, 103 VA.L. REV. 1767, 1767 (2017).

211. A robot expert might be best advised to cultivate the virtue of a realistic humility, at least in the sense of a broad-based openness to continually reassessing its own judgments and its decision-making processes. See TETLOCK, SUPERFORECASTING, *supra* note 208, at 192.

212. See *supra* Section II.

213. See *supra* Section III.

214. See *supra* notes 127-157 and accompanying text.

residency requirements in the context of voting.²¹⁵ Questions of advanced robot jury service shed light on familiar issues of bias and discrimination, the proper use of peremptory and for cause challenges, the quality of the jury deliberation process, and the role of tacit or unteachable knowledge in rendering just verdicts.²¹⁶ Finally, questions of advanced robot free speech rights force us to think again about the very meaning of the value of autonomy, the possible forms and means of electoral dominance, knowledge and ignorance in democratic decision making, and the problems of both anti-intellectualism and undeserved deference to remarkably fallible experts.²¹⁷

215. *See supra* notes 158-177 and accompanying text.

216. *See supra* notes 178-195 and accompanying text.

217. *See supra* notes 196-211 and accompanying text.