JACK OF ALL TRADES, MASTER OF NONE: IS COPYRIGHT PROTECTION JUSTIFIED FOR ROBOTIC FAUX-RIGINALITY?

Sarit K. Mizrahi[*]

ABSTRACT

The twenty-first century is credited with machines that can generate anything from poems to novels, as well as musical compositions and works of art – all with a certain level of proficiency that would have any human doubting that it was created by a machine. In view of machines' capacity to generate creative works that are indistinguishable from those of humans, several scholars have posited that such content ought to be entitled to copyright protection because it ostensibly satisfies copyright's low originality threshold. Very few, however, have seriously contemplated whether these imitations of authorship are the types of works that copyright even *ought* to promote.

This article argues that, despite the ability for machine-generated content to appear creative, it is inherently incapable of pursuing the goals that are fundamental to achieving copyright's purpose and should therefore not be afforded such protection. By delineating the types of intellectual endeavours copyright was historically constructed to protect, the first part of this article distinguishes authorship's essence from what the originality principle has come to embody in modern copyright legislation. It demonstrates why copyright's low originality threshold is not enough to justify protecting robotic works, despite their appearance of creativity. The second part of this article proceeds to unearth the social dialogue that sits at the core of authorship and illustrates why robots lack the necessary qualities enabling them to participate in this crucial discourse. In its third part, this article exposes the acute difference between robotic productions and rule-based creations by humans. It demonstrates how the lack of intellectual labour implicated in the former makes it impossible to advance – and even risks hindering – the social dialogue underlying copyright. By illustrating how the denial of copyright protection for machine-generated content is unlikely to thwart advances in this arena, this article concludes that there is little to justify extending copyright protection to such works and offers support for their inclusion in the public domain.

> *Helene spies herself in the enthralling conic-section yet she is but an*
> *enrapturing reflection of Bill. His consciousness contains a mirror, a sphere*
> *in which to unfortunately see Helene. She adorns her soul with desire while*
> *he watches her and widens his thinking about enthralling love. Such are*
> *their reflections.*
> - *Racter*∞

INTRODUCTION

The above excerpt was generated by Racter, a machine. One would doubt upon reading it that it was not penned by a human. It exudes a sense of sentience and insight that we generally only attribute to humankind. In this respect, there is little doubt that it passes the Turing Test. Developed in 1950 by Alan Turing, this test aims to measure a machine's ability to exhibit intelligent behaviour indistinguishable from that of a human. The premise of the test is that it would be difficult to deny the ability of a machine to at least imitate human intelligence if it can successfully deceive a person into believing that he is interacting with another human.[1]

The increasing development of algorithms that behave unpredictably, in a manner that provides the illusion that robots make choices in their output, has led to the creation of a good deal of machine-generated content that appears creative. The twenty-first century is credited with machines that can create anything from poems[2] to novels,[3] as well as musical compositions[4] and works of art[5] – all with a certain level of

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∞ *The Policeman's Beard is Half Constructed* (New York: Time-Warner Publishing, 1984).

[1] *See:* Alan M Turing, "Computing Machinery and Intelligence" (1950) 236 Quarterly Review of Psychology and Philosophy 1.

[2] *See, e.g.:* Dan Robitzski, "This AI wrote a poem that's good enough to make you think it's human" (30 April 2018), online: <https://www.weforum.org/agenda/2018/04/artificial-intelligence-writes-bad-poems-just-like-an-angsty-teen>.

[3] *See, e.g.:* Natalie Shoemaker, "Japanese AI Writes a Novel, Nearly Wins Literary Award" (24 March 2016), online: <https://bigthink.com/natalie-shoemaker/a-japanese-ai-wrote-a-novel-almost-wins-literary-award>.

[4] *See, e.g.:* Dani Deahl, "How AI-Generated Music Is Changing The Way Hits Are Made" (31 August 2018), online: <https://www.theverge.com/2018/8/31/17777008/artificial-intelligence-taryn-southern-amper-music>.

[5] *See, e.g.:* Natashah Hitti, "Christie's sells AI-created artwork painted using algorithm for $432,000" (29 October 2018), online: <https://www.dezeen.com/2018/10/29/christies-ai-artwork-obvious-portrait-edmond-de-

proficiency that would have any human doubting that it was created by a machine.[6]   This reality has led several scholars to posit that machine-generated content should be entitled to copyright protection because it ostensibly satisfies copyright's low originality threshold.[7]   Very few, however, have seriously contemplated whether these imitations of authorship are the types of works that copyright even *ought* to promote.

Although I might be hard pressed to deny that machine-generated content might *appear* to be creative,[8] I would be equally remiss if I did not question whether it would be justified for copyright to endorse this form of "creativity". By "justified", I do not mean whether the main philosophical underpinnings[9] conventionally used to legitimize and support copyright could favour protecting machine-generated content. The fact that they do not is uncontested. Machines neither require incentives to create[10] nor do they possess a sense of self that might be physically embodied in the works they generate,[11] and there is certainly no intellectual labour involved in their

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belamy-design/>.

[6] *See:* Alex Hern, "New AI fake text generator may be too dangerous to release, say creators" *The Guardian* (14 February 2019), online: <https://www.theguardian.com/technology/2019/feb/14/elon-musk-backed-ai-writes-convincing-news-fiction>.

[7] *See:* Robert Yu, "The Machine Author: What Level of Copyright Protection is Appropriate for Fully Independent Computer-Generated Works?" (2017) 165 U Penn L Rev 1241; James Grimmelmann, "There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too" (2016) 39 Colum J L & Arts 403; Annemarie Bridy, "Coding Creativity: Copyright and the Artificially Intelligent Author" (2012) Stan Tech L Rev 5; Evan H Farr, "Copyrightability of Computer-Created Works" (1989) 15 Rutgers Computer & Tech LJ 63; Pamela Samuelson, "Allocating Ownership Rights in Computer-Generated Works" (1985) 47 U Pitt L Rev 1185.

[8] *See:* Margaret A Boden, *The Creative Mind: Myths and Mechanisms* (London: Routledge, 2004).

[9] There are three philosophical underpinnings conventionally used to support copyright. The first is John Locke's Labour Theory, which maintains that a person should be entitled to reap the benefits for the efforts he exerts in developing works. The second is Georg Hegel's Personality Theory, which recognizes that artistic expression is an external manifestation of one's self – an effort that must be rewarded but that cannot be alienated. It is from this theory that the notion of an author's moral rights was born. The third and last of copyright's philosophical underpinnings is grounded in John Bentham's Utilitarianism, which asserts that copyright offers the necessary incentive that drives social progress.

[10] Christopher May & Susan K Sell, *Intellectual Property Rights: A Critical History* (London: Lynne Riener, 2006) at 22.

[11] Georg WF Hegel, *Philosophy of Right* (1821) (TM Knox trans 1967, Clarendon Press) p. 43.

development of such content.[12] Rather, what I intend to illustrate is that copyright protection of machine-generated content is not justified because it simply cannot advance copyright's purpose.

In effect, "one of the central purposes of [copyright] is to construct a scarcity (or rivalrousness) that allows a price to be taken and knowledge to be exchanged in market mechanisms to further social efficiency."[13] Knowledge is created through mental exertion and is exchanged through social dialogue, and it is this discourse that serves to further social efficiency.[14] Creators' intellectual efforts build upon works that precede their own and contribute to the world's knowledge database by communicating these works to an audience, which can then build upon this content to achieve this same purpose. This act of communication generates a social dialogue that is crucial to copyright's purpose, and a person's ability and intention to contribute to this discourse is a necessary quality for authorship.

Despite its ability to appear creative, however, machine-generated content is inherently incapable of pursuing these goals that are so fundamental to copyright's purpose. By delineating the types of intellectual endeavours copyright was historically constructed to protect, the first part of this article distinguishes authorship's essence from what the originality principle has come to embody in modern copyright legislation. It demonstrates why copyright's low originality threshold is not enough to justify protecting robotic works, despite their appearance of creativity. The second part of this article proceeds to unearth the social dialogue that sits at the core of authorship and demonstrates why robots lack the necessary qualities enabling them to participate in this crucial discourse. In its third part, this article exposes the acute difference between robotic productions and rule-based creations by humans. It demonstrates how the lack of intellectual labour implicated in the former makes it impossible to advance – and even risks hindering – the social dialogue underlying copyright. Conversely, rule-based creations by humans do not suffer from these same

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[12] Shlomit Yanisky-Ravid, "Generating Rembrandt: Artificial Intelligence, Copyright and Accountability in the 3A Era – The Human-Like Authors Are Already Here – A New Model" (2017) Mich St L Rev 659, 706-7.

[13] May & Sell, *supra* note 10, at 22.

[14] Niva Elkin-Koren, "Copyright Law and Social Dialogue on the Information Superhighway: The Case against Copyright Liability of Bulletin Board Operators" (1995) 13 Cardozo Arts & Ent LJ 345, 400.

limitations, even despite their similar use of seemingly random processes to create works. By illustrating how the denial of copyright protection for machine-generated content is unlikely to thwart advances in this arena, this article concludes that there is little to justify extending copyright protection to such works and offers support for their inclusion in the public domain.

I. ROMANTIC VS. ROMANTICIZED: DISTINGUISHING AUTHORSHIP'S ESSENCE FROM COPYRIGHT LAW'S LOW ORIGINALITY THRESHOLD

It is undeniable that the figure of the romantic author lies at the normative heart of our conception of copyright.[15] Copyright law, as it was first enacted, is "historically and culturally contingent on the idea of the author as an individual creative personality, a solitary originator of stylistically consistent works."[16] Initially being used to describe works infused with creative genius, all references to authorial "originality" were essentially an endorsement of this romantic vision of authorship.

During the early days of copyright, many insisted upon the importance of an elevated originality threshold.[17] Among them was Edward Young, who asserted that "[a]bove all, in this, as in every work of genius, somewhat of an original spirit should be at least attempted; otherwise the poet, whose character disclaims mediocrity, makes a secondary praise his ultimate ambition; which has something of a contradiction in it. Originals only have true life, and differ as much from the best imitations as men from the most animated pictures of them."[18]

Over time, the originality requirement therefore came to embody what we view as entitled to protection under copyright. However, in contrast to the connotation that was initially afforded to the term, it is now being used to instill copyright protection in individuals from whom content originated,[19] with little emphasis on the level of creativity imbued in such works.

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[15] Oren Bracha, "The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright" (2008) 118 Yale LJ 187, 188.

[16] Bridy, *supra* note 7, para 7.

[17] *See:* Mark Rose, *Authors and Owners: The Invention of Copyright* (Harvard University Press: Cambridge, 1993) at 6.

[18] Edward Young, "On Lyric Poetry" (1728) in Scott Elledge, ed, *Eighteenth-Century Critical Essays* (Ithaca: Cornell University Press, 1961) 410 at 414.

[19] Jane C Ginsburg, "The Concept of Authorship in Comparative Copyright Law" (2003) 52 DePaul L Rev 1063, 1066.

This disconnect between the originality requirement and the romantic conception of authorship resulted from "newly powerful economic actors – commercial publishers, textbook and dictionary publishers, advertisers and more – [who] pushed back against the doctrinal and legislative consequences of authorship."[20] These actors fought hard to ensure that judges would not attempt to assess adequate levels of creativity, for fear that they would negatively affect the industry's commercial interests by setting the bar too high. These entities were largely successful in their endeavour, mostly due to "a philosophical shift towards evaluating the market value of objects rather than their intrinsic value, and the rise of the formalist hands-off judge, in place of the judge who looks to social welfare. The consequence over time was that the originality threshold lowered, now requiring just ['skill and judgment'] instead of human genius. Thus instead of assessing creativity, courts assess authorial process and actions […]."[21]

Despite the social and economic factors involved in the originality principle's evolution, many authors trace its sinking threshold throughout history and use it to justify extending protection to machine-generated content.[22] The argument is essentially that "the low originality threshold, which conflates the fact or process of creation with adequate human creativity, allows doctrinal room for a non-human author."[23] Attempting to employ this lowered threshold to support such a position, however, obfuscates what is at risk: authorship.

But what *is* authorship, from a normative perspective? Unfortunately, "few judicial decisions address what authorship means, or who is an author. Fewer laws define authorship."[24] There have nevertheless been some notable efforts from scholars trying to identify its nature in copyright law. They have all reached conclusions that revolve around a single theme: "the *sine qua non* of becoming a 'copyright author' is the act of [communicating] […] original expression."[25] Acts of authorship

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[20] Margot E Kaminski, "Authorship, Disrupted: AI Authors in Copyright and First Amendment Law" (2017) 51 University of California, Davis 589, 600.

[21] *Id.*

[22] *See e.g.:* Bridy, *supra* note 7.

[23] Kaminski, *supra* note 20, 601.

[24] Ginsburg, *supra* note 19, 1066.

[25] Russ VerSteeg, "Defining 'Author' for Purposes of Copyright" (1996) 45 American University Law Review 1323, 1339; *see also:* Abraham Drassinower, *What's Wrong With*

lie in a person's "[intention] to produce mental effects in an audience through the fixed, original, and creative selection of elements capable of producing those effects."[26] Linked to this theory is one that holds an author as the person whose message or meaning is conveyed in a given work.[27]

Computer-generated works, however, "destabilize copyright law's approach to authorship by obscuring the connection between the creative process and the work."[28] This disconnect makes it impossible to know whose thoughts are embodied in that content and whose intention is being conveyed. Despite many a claim that such content fulfills copyright's originality threshold – defined in Canadian law as requiring skill and judgment to be fulfilled[29] – it remains difficult to determine "whether the AI program can be said to actually be applying skill or judgment, or merely imitating skill and judgment based on the programming it initially acquired from the skill and judgment of the programmer."[30] In all likelihood, it is the latter case.

The "skill and judgment" seemingly employed by algorithms is based on the application of numerous rules that have been incorporated into its programming. An algorithm is supplied with an input file consisting of human-authored creations. In analyzing these works, the algorithm is able to create a word-sequence model based on which it can produce "original" pieces.[31]

This type of analysis does not appear to exude any real skill or judgment. It merely seeks patterns based on which it can string words together. While its ability to execute this task may demonstrate some form of skill, which by definition is "the ability to use one's knowledge effectively and readily in *execution* or *performance*,"[32] it does not involve any judgment whatsoever. In order to exercise judgment, one must

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Copying? (Cambridge: Harvard University Press, 2015) at 111-13.

[26] Christopher Buccafusco, "A Theory of Copyright Authorship" (2016) 102 Virginia Law Review 1229, 1273.

[27] Bruce E Boyden, "Emergent Works" (2016) 39 Colum JL & Arts 377, 393.

[28] *Id.*, 380.

[29] *CCH Canadian Ltd v Law Society of Upper Canada*, 2004 SCC 13.

[30] James Wagner, "Rise of the Artificial Intelligence Author" (2017) 75 Advocated (Vancouver) 527, 531.

[31] Raymond Kurzweil, ed, *The Age of Intelligent Machines* (Cambridge: The MIT Press, 1991) at 374.

[32] Merriam-Webster Dictionary, "Skill", online: <https://www.merriam-webster.com/dictionary/skill>.

necessarily "[form] an opinion or evaluation by discerning and comparing."[33] Although algorithms do compare, it is questionable whether they can discern and undeniable that they are incapable of forming opinions.[34] Without the ability to form opinions, they can have no message or meaning to convey and thus no intention to produce mental effects in an audience.

By generating art for art's sake – with no underlying reason – the works machines generate lack any real value for the purposes of copyright. Creative works are valuable because they're the product of an author's intention to portray their "thoughts, criticisms, frustrations, passions, insights, hopes, ideals [or for] all kinds of other motives."[35] Their works act "as part of a culture's conversation with itself about what things are and the way we give them value."[36]

Take, for example, Marcel Duchamp's sculpture of a urinal, entitled "Fountain." It was a thought-provoking piece that was meant to act as a statement, and "Duchamp's reasons [for creating it] were, in part, to do with abandoning the tired, conventional wisdom that assumed art had to look like a certain kind of object. He decided to think differently about what an artwork could be […]. Originality lies in questioning the reasons for what has become commonplace […]. No machine has thus far chosen *not* to make art."[37] With no intention underlying the works they generate, machines are just as incapable of making statements about the state of the art as they are of advancing it, as will be discussed in further detail below,[38] and they therefore lack the qualities necessary for authorship.

While this approach might appear to channel the oft-criticized literary intentionalism at the heart of the romantic conception of authorship to a certain extent, it does not go quite as far. Literary intentionalism is

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[33] *Id.*, "Judgment", online: <https://www.merriam-webster.com/dictionary/judgment>.

[34] Although algorithms may be able "to form reliable beliefs and observational knowledge about people," (Ian Kerr, Schrödinger's Robot: Privacy in Uncertain States" (2019) 20:1 Theoretical Inquiries in Law 123, 127) these "beliefs" are based on links and predictions arising from trends in data that cannot be equated to the formation of opinions in the sense significant to copyright.

[35] JJ Charlesworth, "AI can produce pictures, but can it create art for itself?" *CNN* (10 September 2018), online: <https://www.cnn.com/style/article/artificial-intelligence-ai-art/index.html>.

[36] *Id.*

[37] *Id.*

[38] *Infra*, p. 18-20.

grounded in the belief that a works' interpretation must be based on the intention of the author, who possesses absolute authority over its meaning.[39] The intention-based approach to authorship, on the other hand, does not look to determine *what* the author's intention is, but merely requires that he possess one. Although this approach remains author-centric, it is malleable enough to address some of the criticisms to which the romantic conception of authorship has been subjected.

Roland Barthes[40] and Michel Foucault[41] – two of the most prominent critics of literary intentionalism – do not deny that an author may possess an intention in creating a work. What they find problematic is the claim that readers ought to weed out *what* that intention is based on the author's ideology and the historical context surrounding his life. Though Barthes and Foucault each adopt a different approach to literary analysis, their theories are based on the premise that the *text* itself and the *language* used to create it are standalone aspects; entirely apart from the author's voice, intention or nature. According to them, readers must be given the freedom to imbue meaning into authors' words using their own intellectual capacities, as opposed to attempting to determine the words' significance through the author's lens.

Requiring that an author possess an intention to produce mental effects in an audience when they communicate a work, however, does not deprive readers of this freedom. If anything, the existence of a reason underlying a work serves to endorse this liberty. It enables the audience's ability to engage with the work and evaluate how it fits into the larger narrative. Without a purpose for the work's creation, there would be little reason for a discussion surrounding its meaning.

For copyright's purpose to effectively be fulfilled, we therefore cannot divorce the act of communication from an author's intention to

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[39] Sherri Irvin, "L'œuvre d'art et l'intention de l'artiste" in Jacques Morizot and Roger Pouivet, eds, *Dictionnaire d'esthétique et de philosophie de l'art* (Paris: Colin, 2007) at 251. Literary intentionalism is at the heart of a number of literary theories. Essentially, "l'orientation expressive du modernisme et les orientations mimétiques [de Platon] et pragmatique du marxisme sont toutes intentionnalistes car elles renvoient aux intentions auctoriales inscrites dans l'œuvre." (Samiky Abdellatif, *Le concept de la mort de l'auteur chez Roland Barthes* (M. A. Thesis, York University Faculty of Arts, 2014) [unpublished] at 32).

[40] Roland Barthes, "La mort de l'auteur", *Le Bruissement de la langue* (Paris: Seuil, 1984).

[41] Michel Foucault, "Qu'est-ce qu'un auteur ?", *Dits et écrits* (Paris: Gallimard, 1969).

create mental effects in an audience. Authorship comprehends so much more than language proficiency and text generation. It is not enough to simply communicate a work that strings words along in a way that makes sense but has no real meaning. Communicating a work without intending to convey any particular message eliminates the value that this work might bestow upon society, because it would neglect to engender the cultural conversation that is so crucial to advancing the world's knowledge database. Not only do robots lack the requisite intention acknowledged as a quality necessary for authorship, however, but their nature makes it inherently impossible for them to contribute to this discourse that is fundamental to achieving copyright's purpose, as will be discussed in the next section.

II. HUMAN UNDERSTANDING VS. ROBOTIC IGNORANCE: IDENTIFYING THE IMPORTANCE OF THE HUMAN CONDITION TO THE SOCIAL DIALOGUE UNDERLYING COPYRIGHT

Although the previous section might *prima facie* address Barthes' and Foucault's critiques of the romantic notion of authorship, it does not go further than demonstrating that the authorial intention sufficient for copyright's purposes is different than the one criticized by these post-structuralist critiques. There remains, however, one more aspect of their position that must be considered: if what is crucial to authorship *is* language and text, as opposed to authorial intention, could we still support the claim that robotic works should be deprived of copyright protection? Essentially, their ability to *demonstrate* originality is no different than that of humans. In the same way that I profess robots to be mere imitators of authorship, Barthes – channeling Plato's view that all human works are purely mimetic[42] – maintains that "*l'écrivain ne peut qu'imiter un geste toujours antérieur, jamais originel ; son seul pouvoir est de mêler les écritures, de les contrarier les unes par les autres, de façon à ne jamais prendre appui sur l'une d'elles.*"[43]

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[42] Plato, "The Allegory of the Cave", *The Republic* (Book VII), trans. Benjamin Jowett.

[43] Barthes, *supra* note 40, at 62; the English translation does not do this excerpt justice, which is why I have cited it in its original French, but – loosely translated – it means "the writer can only imitate prior gestures, never create original ones; his only power is to mix the writings and to compare them, but never to truly build upon any of

Yet, even if it is true that humans are not ever really original, it does not follow that copyright should also subsist in robots similarly capable of imitating originality. The reason for this claim can be extricated from the heart of Barthes' theory itself. According to him, all readers are critics. In communicating their thoughts and critiques, based on the meaning they infuse into the words of prior authors, they become authors as well. Viewed from this perspective, the post-structuralist assertion that the *text* is all that matters cannot be taken to mean that all that is necessary in authoring is stringing along words to form sentences.   There is some intellectual stimulation that is critical to Barthes' and Foucault's literary approaches, and it lies in their belief that it is a reader's *understanding* of a text that must give it meaning.   Once a reader's appreciation of a text is immortalized in the reader's own written words based on the values they assign to the author's text, a dialogue is effectively created between authors, who communicate texts, and readers, who respond to them. In this light, these post-structuralist critiques of authorship emphasize the importance of developing a literary discourse between authors and readers.

Despite copyright's strong links to the romantic conception of authorship, it is precisely this type of social dialogue that it seeks to promote.[44] It essentially identifies "authors [as] catalysts. Thus, while the law incentivizes and seeks to protect the contributions of authors […] – and justly so – it also recognizes the downstream investment and innovation of those who build upon their creativity."[45]   Copyright acknowledges that developing and creating works that build upon the creativity of others necessarily involves "an engagement in a social dialogue. Under this view, various social agents are engaged in an ongoing process of constructing the meaning of symbols. Through this process social agents give meaning to the objective world and define their own identity. The process of creating and communicating information may thus be perceived as a process of creating meaning."[46]

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them."

[44] *See:* Drassinower, *supra* note 25.

[45] Maria A Pallante, "From Monkey Selfies to Open Source: The Essential Interplay of Creative Culture, Technology, Copyright Office Practice, and the Law" (2017) 12 Wash JL Tech & Arts 123, 124.

[46] Elkin-Koren, *supra* note 14, 400; *See also:*   Rosemary J Coombe, "Objects of Property and Subject of Politics: Intellectual Property Laws and Democratic Dialogue" (1991) 69 Texas L Rev 1853; Michael Gardiner, *The Dialogics of Critique, M.M. Bakhtin*

In order to effectively participate in this process of meaning-making, however, one must necessarily *understand* the shared words and symbols that are being used to signify various ideas. As advanced by Ludwig Wittgenstein, "words only [have] meaning within a sentence, and the sentence only as part of a language, […] and uses of language are social practices. They get their point from shared needs and interests which are biologically, socially, and historically determined. They are conventional, not natural […]."[47] Without being immersed in the social practices and cultures that give words and symbols meaning, it is impossible to truly understand their significance. One must therefore be able to adopt an internal perspective to this discourse in order to contribute to it in any meaningful way.[48]

Robots are, however, necessarily external to this dialogue. Not being part of the social practices that imbue words with meaning, they "can neither comprehend nor reproduce the ways in which [this discourse functions] in the lives of […] members of society."[49] A machine is unable to achieve this feat because it "always lacks understanding of the meaning of the output it is creating, as it lacks the ability to assign values or judgment to the symbols it processes."[50] Thus, "although a computer may use the same words we do, we have no basis for believing that it *understands* the same things by those words."[51] This position is based on

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and the Theory of Ideology (1992); Keith Aoki, "Adrift In The Intertext: Authorship and Audience 'Recoding' Rights – Comment on Robert H. Rothstein, 'Beyond Metaphor: Copyright Infringement and the Fiction of the Work" (1993) 68 Chi-Kent L Rev 805, 835-37;

[47] DJ Schalkwyk, "A Social theory of language: Ludwig Wittgenstein and the current theoretical debate" (1985) 1:2 Journal of Literary Studies 43, 47-48.

[48] Ian Kerr & Carissima Mathen, "Chief Justice John Roberts is a Robot" (Paper delivered at the WeRobot Conference, University of Miami, Florida, 1 April 2014) [unpublished] at 28, online: <http://robots.law.miami.edu/2014/wp-content/uploads/2013/06/Chief-Justice-John-Roberts-is-a-Robot-March-13-.pdf>; *see also:* HLA Hart, *The Concept of Law* (Oxford: Clarendon Press, 1994).

[49] Kerr & Mathen, *Id.*

[50] Wagner, *supra* note 30, 531; this contention is based on Searle's Chinese Room Argument – a thought experiment where an English-speaking person unfamiliar with Chinese is placed in a room with Chinese-speaking people. Provided with a translation manual, he is able to respond to written questions in Chinese, leading those outside the room to the misguided assumption that he can speak Chinese. The goal of this thought experiment is to "cast doubt upon the belief that it is possible for a digital computer running a program to have a 'mind' and 'consciousness' in the same sense that people do" (Kerr & Mathen, *supra* note 48, 5).

[51] David Gelernter, *The Muse in the Machine: Computerizing the Poetry of Human*

the fact that, "[i]n the absence of experience, [a machine cannot] claim to understand things that are conceived by normal people to be comprehensible only on the basis of experience."[52] Essentially, "[t]hought and meaning require a history of a particular sort. We know a lot, in general, about the histories of people […], but unless we are told, or can observe it in action over time, we have no basis for guessing how a computer came to have the dispositions it has."[53] Thus, even if, as some suggest,[54] we were to create a legal construct recognizing machines as equal members of our society, their inability to effectively contribute to this discourse would remain. They could never experience the world in the same way that we do, and a legal fiction would not change that.

Machines may very well "have the beginnings of an understanding of what it is to compare two symbols, and of what it is to plan and to parse [or] to compare two formal structures [… or] to build a new one by using certain hierarchical rules."[55]   There is, however, no machine that can "really understand any natural-language word. Too many of the relevant causal connections are missing. [BORIS, a machine who generated a rather interesting short story, for example,] does not really understand why […] Paul phones his friend Robert for legal advice on discovering his wife's infidelity. It does not really know what a telephone is, still less what lawyers, friendship, and jealousy are."[56]

Without a true understanding of such emotions and experiences, robots cannot effectively contribute to the social dialogue. Insight into the human condition is a necessary element enabling artistic creations to contribute to society's ongoing process of meaning-making. The human race's continuous search for meaning can only be advanced by a mutual understanding.[57] A large part of what attracts people to a given work is the inspiration elicited by their recognition of some commonality between them

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Thought (New York: The Free Press, 1994) at 154.

[52] *Id.*, 153.

[53] Donald Davidson, "Turing's Test" in KA Mohyeldin Said, WH Newton-Smith, R Viale, and KV Wilkes eds, *Modelling the Mind* (Clarendon Press: Oxford, 1990) 10.

[54] Boden, *supra* note 8, at 297.

[55] *Id.*, 293.

[56] *Id.*

[57] *See, e.g.:* Tori DeAngelis, "In Search of Meaning: Psychologists are using a variety of approaches to help clients lead richer, more fulfilling lives" (2018) 49:9 Monitor on Psychology 38.

and the creator of that work.[58] People often use the phrase "it just speaks to me" when attempting to describe why they feel such an affinity for a novel, song or piece of art. What appeals to them is their identification of a kindred spirit that evokes a visceral response to the work – a recognition that the person who painted those strokes or who penned those words has shared similar experiences.[59] What's more is that this recognition inspires their own creativity and encourages them to participate in the social dialogue by building upon the creativity of previous creators.[60]

Would this sentiment and desire to contribute to the social discourse remain, however, if the work that aroused such strong emotions within us was in fact generated by a machine that neither knows nor understands what it's like to suffer from the human condition? I don't believe it would. Consider, hypothetically, how an American citizen might feel if the Star-Spangled Banner was in fact generated by a machine. This anthem inspires strong sentiments of nationalistic pride that not only connects every U.S. citizen, past and present, through their mutual love of their country, but also serves as an homage to all those that gave their lives for "the land of the free and the home of the brave." It describes the toil of the American forebearers, times of uncertainty and despair, filled with courage in the face of adversity – experiences that only truly have meaning to beings made of flesh and blood. It is absolutely impossible for a machine to understand the depths of emotions that arise from these types of challenges, so how could we trust any such descriptions generated by a machine? We could never. The Star-Spangled Banner has meaning to American citizens only inasmuch as it was written by one of their own, who was so moved upon seeing U.S. soldiers raising an American flag over Fort McHenry following their victory over the British forces that he was inspired to pen those evocative words.[61] This anthem immortalizes their shared history and the great

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[58] Todd M Thrash and Andrew J Elliot, "Inspiration as a Psychological Construct" (2003) 84:4 *Journal of Personality and Social Psychology* 871, 872-3; *see also:* Bjarne Sode Funsch, *The Psychology of Art Appreciation* (Copenhagen: Museum Tusculanum Press, 1997).

[59] Ann O'Sullivan and Jackie Reynolds, "Connecting Through Creativity: The Power of Stories" *Discover Society* (3 June 2015), online: <https://discoversociety.org/2015/06/03/connecting-through-creativity-the-power-of-stories/>.

[60] Pallante, *supra* note 45, 124.

[61]   Smithsonian, "The Star-Spangled Banner", online: <https://amhistory.si.edu/starspangledbanner/>.

potential of their people.

Whether Americans in my hypothetical situation were made aware of their anthem's origin or whether they suddenly discovered the deception, the impact on the social dialogue would not differ. In the former case, it would be difficult for them to attach so much meaning to its lyrics because they could never be certain that its words correspond to the connotations they afford to them, which they derive from their experiences that are not shared by machines.[62] Rather than inspiring emotions of awe, this absence of mutual understanding would leave people wondering whether they can trust those words to mean what they mean to them. This guessing game would irrevocably alter the social dialogue surrounding this monumental song. It would serve to erect a barrier, preventing those words from eliciting the intended emotions and thus limiting any responses to them.

In the latter case, on the other hand, one might imagine that the American people would feel as if the link that had connected them so strongly to their forebearers was suddenly severed, leaving them bereft. The sentiment induced upon revealing such a deception risks chilling social dialogue rather than enriching it.[63] Instead of inspiring people with a desire to respond, the feeling that they've been lied to and cheated would rather serve to alienate them.[64] As David Gelernter advances in his critique of the Turing Test, "[h]umans say things all the time that are meaningful only against the background of the fact that they *are* humans. Normal human conversation doesn't probe for these assumptions, because normal conversation takes place *only* among humans! So [a person] can have what *appears* to be a perfectly normal, intelligent human conversation with a computer – that turns out in retrospect to have been a fraud, because the human was making allowances that aren't fair."[65] The unfair allowances that Gelernter is referring to is in effect that the computer *understands* what the human *means*. Discovering that one has been so easily misled by inferring a computer's humanity is likely to only engender resentment. The knowledge that one has been defrauded would hardly inspire a desire to

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[62] *Id.*, 153.

[63] Gelernter, *supra* note 51, at 152.

[64] Susan Krauss Whitbourne, "Why Being Lied to Hurts Us So Much" *Psychology Today* (4 September 2012), online: <https://www.psychologytoday.com/ca/blog/fulfillment-any-age/201209/why-being-lied-hurts-us-so-much>.

[65] Gelernter, *supra* note 51, at 152.

further engage in any dialogue.[66]

The negative impact on the social discourse would be no different if a painting or novel we've so connected with was machine-generated, and it would remain so whether we are aware of the work's provenance upon first viewing or only later discover it. We connect with creative works because they not only make us "aware of both the history and potential of the human condition,"[67] but as humans ourselves, we feel linked to something greater than us. It is this connection that makes creative works so effective in promoting social dialogue.[68] Discovering that the work we admire was in fact created by a machine, which can no more share in our experiences than understand how we feel, will sever this crucial link. In cases where we've been defrauded, our desire to respond to the machine-generated content will drastically diminish. In cases where we *are* aware that a work originated from a machine, we will likely see no benefit in responding because we recognize that the entity we'd be responding to doesn't truly understand us. The value of the exchange will therefore be reduced, at least in the sense relevant to copyright, because the machine cannot internalize our response in order to respond to it in return and further elaborate the social dialogue.[69]

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[66] The power of such betrayal to halt any dialogue whatsoever is exuded by the 2016 Ashley Madison scam, where the website famous for luring cheatings husbands was discovered to have used fembots attached to fake accounts with photos of attractive women in order to acquire new subscribers. The discovery of this practice led to a loss of trust in the company and its practices, leading many subscribers to close their accounts. (*See:* Annalee Newitz, "Ashley Madison admits using fembots to lure men into spending money" *Ars Technica* (7 August 2016), online: <https://arstechnica.com/tech-policy/2016/07/ashley-madison-admits-using-fembots-to-lure-men-into-spending-money/>).

[67] Pallante, *supra* note 45, 124.

[68] Olafur Eliasson, "Why Art Has the Power to Change the World" *World Economic Forum* (18 January 2016), online: <https://www.weforum.org/agenda/2016/01/why-art-has-the-power-to-change-the-world/>; Sarah L Kaufman, Dani Player, Jayne Orenstein, May-Ying Lam, Elizabeth Hart & Shelly Tan, "This is Your Brain on Art" *Washington Post* (18 September 2017), online: <https://www.washingtonpost.com/graphics/2017/lifestyle/your-brain-on-art/?noredirect=on&utm_term=.2574503b7b45>.

[69] While several people have demonstrated an inclination to recount their secrets to a chatbot, this type of private dialogue is not equivalent to the one copyright seeks to promote (*See:* Ian Kerr, "Bots, Babes and the Californication of Commerce" (2003) 1 UOLTJ 285, 303-5). In effect, peoples' desire to engage in private dialogue with a chatbot stems from a need to get things off their chest in a way that they did not feel sufficiently comfortable doing with another human. Although chatbots can somehow compute what an appropriate response might be to a human's statement or question, this capacity is not sufficient to pursuing copyright's goals. In effect, these limited types of responses do little

Thus, while robots' lack of understanding might not detract from their outputs' *appearance* of creativity,[70] their mere satisfaction of the originality requirement is not enough to justify their content's copyright protection. Without such understanding, robotic creations can make no contributions that add value to the societal discourse underlying copyright, and even further risk chilling it.

As such, even if we contend that humans and robots are similarly imitators of originality, it does not follow that robots should receive copyright protection just because humans do. This position is based on the fact that originality is merely a single element necessary to extend protection to a given work, but it is not the *purpose* for creating and receiving copyright protection.

From as far back as the *Statute of Anne*,[71] copyright's purpose[72] has been to encourage both learning as well as the pursuit of knowledge. The former not only occurs by reading and understanding the writings of others, but also by embarking on an intellectually stimulating journey that allows individuals to participate in the social dialogue and ultimately achieve self-actualization.[73] This mental exertion is an integral part of one's ability to effectively contribute to the social dialogue and advance copyright's purpose of knowledge pursuit. Not only does robots' lack of understanding make it impossible to pursue this goal, but their automatic generation of content is equally an obstacle in this respect, as will be discussed in further detail in the next section.

III. Man vs. Machine: Differentiating Robotic Productions from Rule-Based Creations by Humans

Even if arbitrary rule-following by machines can neither contribute

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to advance the social dialogue underlying copyright, which necessarily relies on the act of building upon previous ideas to advance the state of knowledge by communicating them to the public.

[70] Turing, *supra* note 1, 7; *see also:* Boden, *supra* note 8.

[71] *An Act for the Encouragement of Learning by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies*, 8 Ann, c 19, pmbl (1710).

[72] While copyright is presented as a balance between creators' and users' rights (*Théberge v Galerie d'Art du Petit Champlain inc*, 2002 SCC 34, para 30), the encouragement of learning is the goal underlying the necessity of this balance.

[73] Christopher S Yoo, "Copyright and Personhood Revisited" (2012) Faculty Scholarship, Paper 423, online: <http://scholarship.law.upenn.edu/faculty_scholarship/423>.

to the social dialogue underlying copyright nor exhibit skill or judgment, one must still question why rule-based creations by humans should not be probed in the same manner. Essentially, "[i]f an author, for her own convenience, decides to automate some of the steps by programming a computer, copyright should not look any less generously upon her."[74] This statement is based on the fact that "creativity can also inhere in a creator's selection of the rules she will follow. She can introduce copyrightable authorship through her choice of rules or through her choice among variations permitted by the rules, and as a general matter these two kinds of authorship are equivalent."[75] Since robots seemingly make similar choices, the logic goes that we should not look unfavourably upon their creations either.

I cannot, however, concede that our acceptance of rule-based creations by humans ought to mean that copyright should equally embrace algorithmic productions. My reasons are twofold, but both based on copyright's dependence on the human intellect for the advancement of its purposes. To begin, machine-generated content is unable to advance the state of knowledge. Secondly, these works lack the intellectual effort that is so crucial to ensuring that the social dialogue is both upheld and enhanced.

A. *Foresight vs. Hindsight: Works That Build Upon Other Works as Crucial to Progress*

Differently from rule-based creations by humans, robotic works are unable to effectively advance the world's knowledge database. Whereas the former is able to build upon the works of prior authors in a way that sometimes leads to the development of revolutionary new genres, the latter is merely capable of regurgitating variations of existing works without contributing anything new to the discourse.

Take, for example, the abstract impressionist paintings of Jackson Pollock. He created his works by dripping or throwing paint onto a canvas in a random fashion. Not only does his development of this novel technique – that stimulated an entirely new artistic genre – present an outstanding intellectual achievement, but the effort involved in such creations necessarily rests on skill and judgment. Although the final product of each

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[74] Grimmelmann, *supra* note 7, 408.

[75] *Id.*

of his paintings was the arbitrary result of chance,[76] he handpicked the paint colours, dipped his brush in them, and sprayed that paint all over the canvas using different amounts of force to create varying effects, which he chose based on his capacity for discernment.

How is Pollock's process then so different from that of PIX18? PIX18[77] is a robot that "consists of an algorithm that conceptualizes a painting [by drawing inspiration from numerous sources] and an articulated arm that translates it to a canvas by [finding a collection of strokes that best represents the image. It then proceeds to paint these strokes onto the canvas by] autonomously selecting a palette of paints, mixing them, and cleaning the brushes as needed."[78] Hod Lipson, the creator of PIX18, argues that since this robot "can independently and deliberately conceive of its own subject matter, it *is* an artist. Since the conception is based on past experience of the robot, it is personal to the robot. Since it involves excited neurons in the massive neural network comprising more than 1 million neurons, it is a form of sentience."[79]

The procedure whereby PIX18 creates art seems almost indistinguishable from that of a human. Why then should we protect the latter and not the former? My reason in this regard has less to do with originality than with progress. While there is some truth to the claims of philosophers, from Plato to Barthes', that humans themselves are merely imitators who lack originality, there is a good reason why we protect less than original human creations. This reason is because, every once in a while, there is a human that entirely transforms the act of creating by developing new genres and techniques, not unlike Pollock with action painting,[80] Chuck Berry with rock'n'roll music,[81] or J.R.R. Tolkien with

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[76] Abdellatif, *supra* note 39, at 52.

[77] PIX18, "How Does PIX18 Work?", online <http://www.pix18.com/how-it-works.html

[78] Kyle Wiggers, "AI-Assisted art moves from pixels to paintbrushes" (20 July 2018) online: <https://venturebeat.com/2018/07/20/ai-assisted-art-moves-from-pixels-to-paintbrushes/>.

[79] PIX18, "What Is PIX18?", online: <http://www.pix18.com/what-is-pix18.html>.

[80] The Art Story, "Jackson Pollock: American Painter", online: <https://www.theartstory.org/artist-pollock-jackson.htm>.

[81] Kalhan Rosenblatt, "Chuck Berry, Father of Rock'n'Roll, Dies at 90" *NBC News* (18 March 2017), online: <https://www.nbcnews.com/pop-culture/celebrity/chuck-berry-father-rock-n-roll-dies-90-missouri-police-n699311>.

fantasy novels.[82] These new genres advance the revolutionary methods and ideas that copyright holds out for, and the protection of less than original content is a necessary sacrifice to this end.

Robots, however, cannot – at least for the moment – really rise to the occasion. Their artistic endeavours would always be based on past works; nothing more than "a sophisticated variation on an established corpus of pre-existing art. Moreover, this approach to inventiveness has been based in human-centered evaluation and judgment – it's us who confirm whether the work is 'good' or 'bad.' Yes, captcha, this is an image of a bridge."[83] Machines would therefore be less likely to engender the pioneering breakthroughs and forces of change that make history and expand human knowledge.[84] They would forever be creating in hindsight, never moving forward.

Coupled with their lack of intention for creating, which is an element so crucial to authorship and its advancement of the social dialogue as discussed above,[85] machines are incapable of contributing to the expansion of knowledge. They neither build upon prior works nor is there any reason underlying their creations that serves to stimulate the minds of others, both of which present barriers to their participation in the social dialogue. They are simply unable to offer valuable contributions to further the cultural conversation surrounding creative works because they can do nothing more than blindly "[confirm] what has already been done,"[86] essentially lacking the perspective and purpose that enables progress and enhances the social dialogue.

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[82] Sandra Fisher, "Tolkien, The Father of Modern Fantasy" (16 August 2010), online: <http://graphology-world.com/tolkien-the-father-of-modern-fantasy/>.

[83] Charlesworth, *supra* note 35.

[84] Just as the common law would likely remain stagnant if we allowed decision-making machines to judge based solely on precedents, leaving no possibility for change, neither would art progress if we left creating up to machines (*See:* Frank Pasquale, "A Rule of Persons, Not Machines: The Limits of Legal Automation" (2018) U Maryland Legal Studies Research Paper No 2018-08, online: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3135549>).

[85] *Supra*, p. 6-10.

[86] Charlesworth, *supra* note 35.

B. Intellectual Effort vs. Automation: Mental Exertion as Crucial to Preserving the Social Dialogue

In addition to being unable to advance the state of knowledge, there is yet another reason why machine-generated content should be deprived of copyright protection: the intellectual effort involved in rule-based creations by humans is entirely absent in machine-generated content. Whether the former is left to chance or bound by restrictions, there is always some mental exertion involved in a human adhering to such limitations, and this effort is crucial towards upholding the social dialogue underlying copyright.

Take, for example, the use of the Oulipian method by Georges Perec in his novel *La disparition*. The Oulipian method aims "to explore the possibilities of incorporating mathematical structures into literary creation […]."[87] Adopting this approach, Perec's novel was penned entirely devoid of the letter "e".[88] The aim of "creating new literary works within these rigid constraints [is to] bring to the fore the dialectical relationship between rules and innovation, determinism and choice that is inherent in all processes of cultural production."[89]

The mental energy involved in a human abiding by these constraints is undeniable. I sat in front of my laptop for almost a quart of an hour trying to fashion this phrasing *sans* a particular sonant. It was no easy feat and certainly not something I simply "generated". Even despite my efforts and numerous consultations with my trusty thesaurus, the sentence is not entirely in proper parlance.

For a machine, however, it would take no effort. The programmer would merely have to incorporate the rule into the algorithm, and the machine would be able to generate such a work *automatically*. Therein lies the difference between humans and machines. The former must exert some mental effort to produce works, whereas the latter are merely automatons.

I therefore find it difficult to accept the contention that the human brain is no more than a machine *par excellence*.[90] While authors may be "writing machines" that adhere to a similar style throughout their works in a

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[87] Loss Pequeño Glazier, *Digital Poetics: The Making of E-Poetries* (Alabama: University of Alabama Press, 2002) 128.

[88] Warren F Motte Jr, ed, *Oulipo: A Primer of Potential Literature* (Illinois: Dalkey Archive Press, 1986) 5.

[89] Bridy, *supra* note 7, para 26.

[90] *Id.*, para 25.

way that some might dub mechanical,[91] there is no part of the human authoring process that is entirely automatic. Even where humans incorporate computational or algorithmic methods into their writing, they are still exercising a certain mental exertion to bring these works to fruition. Automation is simply not accompanied by the same intellectual struggle.

Although creativity is often depicted as an intuitive flash of genius – and many researchers have demonstrated that it often arises from unconscious thought[92] – all acts of creativity are preceded and followed by an enormous amount of intellectual labour.[93] Being the only possible way for people to pursue knowledge, a certain mental exertion in the development of creative works is necessary towards fulfilling copyright's purpose.

Pursuing knowledge is not a purely computational endeavour that simply involves generating strings of words that somehow make sense when linked to each other. Not only is it an intellectually laborious task and an endless undertaking, it is also absolutely necessary for promoting a social dialogue. Take, for example "[b]ooks [which] are an excellent container for the assimilation, quiet scrutiny and organized analysis of information and ideas. It takes time to write a book, and to read one; time to discuss its contents and to make judgments about their merit, including the form of their presentation. A book is an attempt to make thought permanent and to contribute to the great conversation conducted by authors of the past."[94] The intellectual labour involved in expanding our minds is therefore integral to the ability to contribute to and maintain the social dialogue that underlies copyright. By encouraging a lifetime endeavour of knowledge pursuit, copyright aims to enable continuous advancements to the social discourse underlying its purpose.

With machines generating content almost instantaneously, however, not only is intellectual labour absent from their process of creation, but the

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[91] Grimmelmann, *supra* note 7, 408; *see also:* Alan L Durham, "The Random Muse: Authorship and Indeterminacy" (2002) 44 Wm & Mary L Rev 569.

[92] Boden, *supra* note 8, at 25-39; Gelernter, *supra* note 51, at 1-36; D N Perkins, *The Mind's Best Work* (Cambridge: Harvard University Press, 1981); Howard E Gruber, *Darwin on Man: A Psychological Study of Scientific Creativity* (London: University of Chicago Press, 1974).

[93] Boden, *id.*, at 25-39.

[94] Neil Postman, *Amusing Ourselves to Death* (New York: Penguin Books, 1985) at 69-70.

high speed with which they create content might irrevocably and adversely affect societal discourse. The development of the telegraph – characterized by the accelerated rate with which it creates and disseminates content – has already proven to culminate in this unfortunate result. In effect, "[t]he value of telegraphy is undermined by applying the test of permanence, continuity or coherence. The telegraph is suited only to the flashing of messages, each to be quickly replaced by a more up-to-date message. Facts push other facts into and then out of consciousness at speeds that neither permit nor require evaluation."[95]   In other words, technologies that prioritize accelerated content creation deprive us of the time we need to exert the intellectual labour necessary for evaluating such works and upholding the social dialogue.

If we do not take the time to engage in the laborious task of reading and digesting other works, thinking about them critically, formulating our own opinions, and then organizing those thoughts into written prose or works of art that are then communicated to an audience, the social dialogue that is so crucial to copyright's purpose will effectively cease. All we would possess would be a significant number of works that are unrelated to one another – a bunch of ideas expressed in isolation from each other, none of them truly building and expanding upon previous ideas.

In this light, there is therefore little to inspire recognizing the legitimacy of machine-generated content under copyright law. Even if some are inclined to argue that robots like PIX18 might demonstrate a certain level of skill and judgment, robot's lack of any mental exertion not only makes it impossible for it to advance the state of knowledge, but the speed with which it generates content might risk hindering it by limiting the social dialogue.

It is for this reason that my position would remain unchanged even if we might someday develop a robot that could create something truly novel. The automatic generation of content is simply unable to pursue copyright's purposes of encouraging the pursuit of knowledge through participation in the social discourse. It therefore ought to be of little consequence to the realm of copyright that a machine might be sufficiently adept at *appearing* creative such that an average person might believe that the content it generated was produced by a human. Rather, what should

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[95] *Id.*

matter is that recognizing these creations under copyright would be inherently contradictory to its lofty goals.

CONCLUSION

Robots lack the necessary qualities for authorship, not only because their creations are not borne from any desire to convey a message to an audience, but also because their content is generated in isolation from the works of prior creators despite being based on them. Their inability to understand the cultural and historical significance behind the words and symbols that make up natural-language effectively bars them from contributing to the social dialogue. Without the capacity to internalize and think critically about the writings of others, they can neither respond to what was written before them nor advance the state of knowledge in any meaningful way. The ability to build upon the works of others is an absolute necessity in order to be successful in this undertaking. Not only is it impossible for robots to achieve this feat, but the speed with which they generate content could further impede the world's knowledge database by limiting the social dialogue. With robots' inherent inability to pursue copyright's goals, there is nothing to justify offering protection to machine-generated content, regardless of its ability to appear creative.

I have no qualms positing that machine-generated content should not receive the benefits of copyright law, not because I do not think it is worth pursuing such endeavours, but rather because it is unlikely that preventing their outputs' protection will thwart advances in this arena. There are already extensive uses for content-generating machines, even despite the uncertainty regarding their productions' copyright protection. They include generating simple newspaper articles,[96] producing artistic works that can be sold for monetary gain,[97] and creating detailed product descriptions of merchandise sold by e-tailers,[98] among others.[99]

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[96] *See, e.g.:* Neil Sahota, "A.I. May Have Written This Article. But Is That Such a Bad Thing?" (16 September 2018), online: <https://www.forbes.com/sites/cognitiveworld/2018/09/16/did-ai-write-this-article/#364aecba1885>.

[97] *See, e.g.:* Christie's, "The First Piece of AI-Generated Art to Come to Auction" (12 December 2018), online: <https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx>.

[98] *See, e.g.:* Mark Vieleers, "Five Practical Use Cases for AI Generated Content in 2018" (1 September 2018), online: <https://www.exlrt.com/blog/five-practical-use-cases-

These numerous and growing uses for content-generating machines provide incentive enough for programmers to develop them. With these programmers already receiving copyright protection for the artificially intelligent code they develop, it is superfluous to endow them with additional protections for their programs' outputs. Such an approach would essentially undermine the equilibrium essential to copyright's goals. As elucidated by the Supreme Court of Canada, "the *Copyright Act* is usually presented as a balance between promoting the public interest in the encouragement and dissemination of works of the arts and intellect and obtaining a just reward for the creator. […] The proper balance […] lies not only in recognizing the creator's rights but in giving due weight to their limited nature."[100] Subsisting a double protection in programmers would heavily tilt the balance in their favour.

At the same time, instilling copyright for machine-generated content in users might risk disincentivizing them from developing their own knowledge skills as they would likely rely more heavily on machines to create in their stead. This would risk reducing human participation in the social dialogue, and thus stall the state of human knowledge.

Moreover – and despite their lack of legal personhood preventing them from possessing rights[101] – subsisting copyright in the machines themselves is equally unnecessary. Aside from their inability to either participate in or advance the social dialogue that underlies copyright's purpose, they neither need incentives to create[102] nor do they infuse any personality into their output that warrants protection.[103] Furthermore, because humans could never compete with the efficiency and endurance of robots, recognizing the legitimacy of machine-generated content under copyright might risk discouraging humans from pursuing knowledge-based activities themselves.

It would therefore make little sense if copyright for robotic creations

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for-ai-generated-content-in-2018>.

[99] *See, e.g.:* Tiphaine Couple, "Gartner Reports That 20% of All Content Will Be Written by Software in 2018" (15 October 2015), online: <https://yseop.com/blog/gartner-reports-20-content-will-written-software-2018-2/>.

[100] *Théberge v Galerie d'Art du Petit Champlain inc*, *supra* note 72, paras 30-31.

[101] *See:* Lawrence B Solum, "Legal Personhood for Artificial Intelligences" (1992) 70 NC L Rev 1231.

[102] Samuelson, *supra* note 7, 1199.

[103] Jane C Ginsburg, "People Not Machines: Authorship and What It Means in the Berne Convention" (2018) 49 IIC 131, 134-5.

were to subsist in either programmers, users or machines. In light of the foregoing – and considering that the lack of protection for machine-generated content has neither upset copyright's balance nor quelled a market for such programs – there is little reason to deny its inclusion in the public domain.

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