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The Curious Case of Computer-Generated Works under the Copyright, Designs and Patents Act 1988

Abstract

Under section 9(3) of the Copyright, Designs, and Patents Act 1988, works that are ‘computer-generated’ (and which have no human author) will be protected by copyright. Ownership of the copyright vests in the person who has made the necessary ‘arrangements’ for the work’s creation. This article introduces two questions in relation to section 9(3). Firstly, how does the section fit with copyright’s originality requirement? Secondly, what is the justification for the provision? In exploring these questions the article develops a novel criticism of section 9(3): the section is either unnecessary or unjustifiably extends legal protection to a class of works which belong in the public domain. While previous literature has praised section 9(3) and suggested that it ought to be adopted more widely, this article concludes that other jurisdictions ought to think carefully before adopting this provision.

Keywords: Copyright, Computer-Generated Works

On the 25th of October, 2018, the famous art auction house, Christie’s, sold a portrait called *Portrait of Edmond de Belamy*¹. The impressionistic-style work displays a young man with dark hair wearing a jacket. Described as such, the portrait sounds unremarkable. However, when the gavel eventually fell, the portrait sold for \$432,500; a figure far in excess of the pre-auction valuation of \$7,000 to \$10,000. The reason for this hefty sum was that *Edmond de Belamy* is far from unremarkable; rather it is the first artwork of artificial intelligence to be sold at an auction house. To create the work, a French collective known as Obvious Art used a publicly accessible machine learning algorithm². The trio fed the algorithm 30,000 portraits to analyse. After the

¹ Gabe Cohn, ‘AI Art at Christie’s Sells for \$432,500’ (*The New York Times*, 29 October 2018) <<https://www.nytimes.com/2018/10/25/arts/design/ai-art-sold-christies.html>> accessed 28 January 2020.

² For a general introduction to the technical workings of machine learning, see Gopinath Rebala et al, *Introduction to Machine Learning* (Springer 2019) 1-5.

training period, the algorithm produced *Edmond* as part of a series of portraits. Obvious Art selected an appropriate frame for the work, and decided to add a short string of code to the painting in the bottom right corner, to serve as a signature.

The case of *Edmond de Belamy* is one example of the fast-growing area of art produced by machine learning. Works of machine learning have recently received significant interest from copyright lawyers. There now exists a burgeoning literature analysing such works, seeking to answer whether the works are eligible for copyright protection and, if so, who is the owner of such works³. Under traditional principles of copyright law, the author of a copyright-eligible work is the first owner (with some exceptions for works produced by employees)⁴. Naturally, this raises the question of who, if anyone, is the ‘author’ of works like *Edmond*? Traditionally the ‘author’ is understood as the creator of the work, i.e. the person who supplies the necessary ‘original’ expression⁵. But who is that person in this context? Is the author the coder who produced the machine learning algorithm (a 19 year old by the name of Robbie Barrat⁶)? Are the members of Obvious Art, who conceived the idea of a machine learning portrait and used the algorithm to produce such a work, authors of the work? Is the work authorless? Or, most controversial of all, is

³ See e.g. Enrico Bonadio and Luke McDonagh, ‘Artificial Intelligence as Producer and Consumer of Copyright Works: Evaluating the Consequences of Algorithmic Creativity’ (2020) 20 Intellectual Property Quarterly 112; Andres Guadamuz, ‘Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works’ (2017) 2 I.P.Q. 169; Jane Ginsburg and Luke Budiardjo, ‘Authors and Machines’ (2019) 34 Berkeley Technology Law Journal 343.

⁴ Copyright, Designs, Patents Act 1988, s 11 (hereinafter CDPA).

⁵ Lionel Bently, Brad Sherman, Dev Gangjee, Phillip Johnson, Intellectual Property Law (OUP 2018) 126-127 (‘Basically, in order for someone to be classified as an author, it is necessary for them to be able to show that their contribution to the work is of the type and amount that is protected by copyright – that is, that the contribution would be sufficient to confer originality on the relevant work’).

⁶ Cohn (n 1).

it fair to call the algorithm itself the author of the work? Across multiple jurisdictions, scholars are currently debating this question.

Against this international backdrop, UK copyright law is an outlier. While most countries are debating who, if anyone, counts as the ‘author’ of machine-learning works, the UK has, since 1988, adopted a unique statutory provision designed to avoid such questions. Under section 9(3) of the Copyright, Designs, and Patents Act (CDPA), when a work has ‘no human author’ and is instead ‘computer-generated’⁷, the ‘author’ will be taken to be the person who made ‘arrangements necessary for the creation of the work’. That individual will receive economic rights in the work, but not moral rights⁸. Currently within the UK, the focus of debate is largely centred on the question of which party can be said to have made the necessary ‘arrangements’ for the work: the algorithm’s programmer or the algorithm’s user (if they are different people)⁹? But, for the most part, the section has been well-received. Illustrative here are the views of Andres Guadamuz. While acknowledging the uncertainty still inherent in the provision, Guadamuz argues the law clarifies the status of computer-generated works, and on that basis ought to be ‘adopted more widely’¹⁰. And the provision is indeed being adopted more widely, with countries like New Zealand¹¹ and

⁷ CDPA s 178 (providing the definition of ‘computer-generated work’).

⁸ CDPA ss 77 - 95.

⁹ Guadamuz (n 3) at 175-177.

¹⁰ *ibid* at 186.

¹¹ Copyright Act 1994 (New Zealand) s 5(2)(a).

Ireland¹² copying the model, and commentators in the USA¹³ and Australia¹⁴ also expressing interest.

This article, by contrast, is critical of section 9(3) and the UK model of protection. The purpose of this article is to raise two questions about the computer-generated works clause which have so far received little attention in the academic literature. The first question may be called the ‘doctrinal question’. How does section 9(3) fit within the system of copyright and associated rights in the UK, and in particular, with the originality doctrine? The second question may be called the ‘justification question’. The justification question asks what is the basis, rationale, or justification for section 9(3)? This is not quite the same as asking whether computer-generated works ought to be protected by copyright (a subject upon which many lawyers have already written¹⁵). Rather our inquiry is a more limited one, i.e.: Is the precise form of protection offered by section 9(3) desirable?

In exploring these two questions, the article unpacks a novel criticism of section 9(3). The central thesis of the article is that either the computer-generated works clause is meaningless, or if it has meaning, that meaning is of dubious normative value. As a doctrinal matter, it is not clear where section 9(3) fits within the system of rights created by the CDPA. In particular, it is not

¹² Copyright and Related Rights Act 2000 (Ireland) s 21(f).

¹³ Annemarie Bridy, ‘Coding Creativity: Copyright and the Artificially Intelligent Author’ (2012) 5 Stanford Technology Law Review 26-27.

¹⁴ Jani McCutcheon, ‘The Vanishing Author in Computer-Generated Works: A Critical Analysis of Recent Australian Case Law’ (2012) 36 Melbourne University Law Review 915.

¹⁵ See e.g. Robert Denicola, ‘Ex Machina: Copyright Protection for Computer-Generated Works’ (2016) 69 Rutgers University Law Review 251 (arguing that such works should receive protection), Bruce Boyden, ‘Emergent Works’ (2016) 39 Columbia Journal of Law and the Arts 377 (arguing that such works should receive protection when the computer’s output was reasonably foreseeable). Cf US Copyright Office, Compendium of US Copyright Office Practices §306 (3d ed 2014) (denying copyright protection to works not created by human beings).

clear whether such works require originality to enjoy protection. If, as is most likely, such works are subject to an originality requirement, then section 9(3) is meaningless. The section is meaningless because the person who supplies the necessary originality would be considered a human author of the work. As a result, not only is the work not truly a computer-generated work, but also that author would be entitled to claim full copyright in the normal manner. Alternatively, section 9(3) may be understood as an exception to the originality requirement. Perhaps the section creates a type of neighbouring rights protection which extends copyright-like exclusivity to works which are not original. In this case the clause is not meaningless but it is lacking justification. Why should non-original computer-generated works be protected at all instead of falling into the public domain? Very little justification has so far been offered for this outcome.

The article will first demonstrate the doctrinal ambiguity of section 9(3) and how it does not fit neatly into any of the categories of protection created by the CDPA. Once that doctrinal ambiguity is exposed, the article turns to the justification question demonstrating that the section is either redundant or lacking justification. The analysis concludes that the provision should not be adopted more widely in other jurisdictions. And should the thesis fail to convince, engaging with it at least will shed light on the section and bring us closer to understanding what it could mean and what it could not.

I. The Doctrinal Question

Under UK copyright law, a literary, dramatic, musical, or artistic work (hereinafter called ‘LDMA works’) may qualify for copyright protection if it is ‘original’¹⁶. Unlike the novelty requirement in patent law, ‘originality’ refers to a particular type of relationship between the person claiming

¹⁶ CDPA s 1(1)(a).

authorship of the work and the work itself¹⁷. The nature of the ‘originality’ requirement is contested. Under EU copyright law, the necessary relationship will exist if the work is the ‘author’s own intellectual creation’¹⁸. This threshold will be passed if the author makes ‘free and creative choices’¹⁹ that imprint her ‘personal touch’²⁰ upon the work. The EU originality standard replaced older British conceptions of originality (although the degree to which the new standard replaced old law remains a debated point²¹). Prior to the 2009 *Infopaq* case announcing the ‘authorial intellectual creation’ standard, the leading conception of originality stated that the work would be original if its creation was the product of sufficient ‘skill, labour and judgment’ of the right kind²². It is an open question whether the UK will return to the ‘skill, labour and judgment’ standard, or a variant of it, after departure from the EU²³. If the work is eligible for copyright, the author (i.e. the person who supplies the originality) will be entitled to both economic and moral rights in the work for her lifetime plus 70 years²⁴.

¹⁷ Bently (n 5) at 93.

¹⁸ *Infopaq International A/S v Danske Dagblades Forening* [2009] ECR I-6569

¹⁹ *Eva-Maria Painer v Standard Verlags GmbH and Others* Case C-145/10 [2012] ECDR 6

²⁰ *ibid.*

²¹ See Andrea Rahmatian, ‘Originality in UK Copyright Law: The Old ‘Skill and Labour’ Doctrine Under Pressure’ (2013) 44(1) *International Review of Intellectual Property and Competition Law* 4. See also *Temple Island Collects Ltd v New English Teas Ltd* [2012] EWPCC 1 [20] (per HHJ Birss) (indicating that despite the difference in language there was little difference of approach between the two jurisdictions).

²² *Interlego AG v Tyco Industries Inc* (1989) AC 217; *Ladbroke v William Hill* [1964] 1 All ER 465. Of course, the British case law on originality is complex and not easy to summarise in one sentence. The article will later discuss the origination element of British originality doctrine.

²³ See e.g. Richard Arnold, Lionel Bently, Estelle Derclaye, Graeme Dinwoodie, ‘The Legal Consequences of Brexit Through the Lens of IP Law’ (2017) 101 *Judicature* 65.

²⁴ CDPA s 12.

Films, sound recordings, broadcasts and typographical arrangements (so called ‘entrepreneurial works’²⁵) are not subject to an originality requirement. Such works receive copyright protection so long as they are ‘not copied’ from a pre-existing work²⁶. However, the copyright protection in such works is ‘thin’. The duration of copyright protection is shorter than is available for LDMA works – typically between 25 and 75 years protection post creation²⁷. The rights available in such works are also restricted. With the exception of films, moral rights typically do not vest in the creator of an entrepreneurial work²⁸. Furthermore, the economic rights in such works are limited (for example, typically they do not benefit from an exclusive right of adaptation²⁹).

Lastly, in addition to copyright, a number of ‘related rights’ exist which are associated with copyright, but nevertheless fall outside of copyright. The oldest such related right is the ‘performers’ right’³⁰. Those who perform copyrighted works (such as a pianist playing a musical work, or an actor reading aloud a dramatic work) enjoy a variety of rights in their performance (including the right to authorise the recording of a performance, the right to make copies of the recording, the right to rent or communicate the recording to the public, and moral rights)³¹. More recently, the EU has added related rights for the creators of databases³² and for press publishers³³. Much like the protection for entrepreneurial works, these activities do not need to be original in

²⁵ Bently (n 5) at 118; CDPA ss 5A(2), 5B(4), 8(2).

²⁶ CDPA ss 5A(2), 5B(4), 8(2).

²⁷ CDPA ss 13-15.

²⁸ CDPA ss 77 - 95.

²⁹ CDPA s 21.

³⁰ CDPA s 180.

³¹ CDPA ss 182 – 184.

³² Directive 96/9/EC on the Legal Protection of Databases (1996).

³³ Directive 2019/790 on Copyright in the Digital Single Market, art 15 (2019).

order to enjoy related right protection. However, such related right protection is frequently conditional upon achieving an alternative threshold test. For example, database right protection can only be obtained if the database in question was the product of substantial investment³⁴. Like entrepreneurial rights, the term of protection is shorter than for LDMA works (for example, the performers' right lasts for 50 years post recording)³⁵.

In which category do 'computer-generated works' belong? Does section 9(3) create: a) a legal provision governing computer-generated copyrightable LDMA works, b) a new category of copyrightable entrepreneurial work, or c) a new type of non-copyright related right? The answer to this question is hardly trivial for the potential rights-holders, as the scope of protection they receive will vary depending on the answer to this question. Furthermore, the answer to this question will determine whether putative owners of computer-generated works will need to show 'originality' in order to receive legal protection. As the rest of this section discusses, without further law-making (either judicial or legislative) section 9(3) does not clearly sit within any of the three categories.

1. Option A: Computer-Generated Works are Authorial LDMA works

The most plausible interpretation is that section 9(3) does not create a new category of entrepreneurial work or a new related right, but simply adds some specific legal rules for LDMA works which are 'computer-generated'. If this is how we understand section 9(3), then presumably the works still need to pass the originality threshold (as is the case with all other LDMA works)³⁶. Under this interpretation of the clause, if the work passes the originality threshold, then presumably

³⁴ Directive 96/9/EC on the Legal Protection of Databases art 7 (1996).

³⁵ CDPA s 191.

³⁶ CDPA s 1(1)(a).

the work will be protected, and the economic rights (but not moral rights) will vest in the person who made the necessary arrangements for the work.

There are some good reasons to view this as the ‘right’ interpretation of section 9(3). The clearest reason is that the text of the statute clearly says that the section only applies to ‘literary, dramatic, musical, and artistic’ works – works which will be protected by copyright but only if they are original. Further support for this interpretation comes from the only case to so far interpret section 9(3). In *Nova Productions Ltd v. Mazooma Games*, Jacob LJ decided that the person who had made the ‘arrangements necessary’ for the work, was the person who had contributed ‘skill or labour of an artistic kind’³⁷. At the time the case was decided (2007), the standard for originality in the UK was not ‘authorial intellectual creation’ but instead ‘skill or labour of an artistic kind’³⁸. Accordingly, it seems that Jacob LJ interpreted ‘arrangements necessary’ as synonymous with the originality requirement, suggesting that the originality threshold is relevant when determining who ought to own the work.

Furthermore, the legislative history behind section 9(3) adds further support for this interpretation. Prior to the passage of the Copyright, Designs and Patents Act, the Whitford Committee’s report *Copyright and Designs Law* of 1977³⁹ and the government 1981 green paper, *Reform of the Law relating to Copyright, Designs and Performers’ Protection*⁴⁰, both considered the question of copyright in computer-generated works. After considering these reports and the public responses, the Department of Trade and Industry issued a white paper on *Intellectual*

³⁷ *Nova Productions Ltd v Mazooma Games Ltd & Ors* [2006] EWHC 24 (Ch) (para 106).

³⁸ *Interlego v Tyco* [1988] RPC 343, 371.

³⁹ Whitford Committee, ‘Copyright and Designs Law: Report of the Committee to consider the Law on Copyright and Designs’ (March 1977).

⁴⁰ ‘Reform of the Law relating to Copyright, Designs and Performers’ Protection: A Consultative Document’ (1981).

Property and Innovation in 1986⁴¹. The white paper concluded that there may be three potential ‘authors’ of such works: the creator of the programme, the originator of the data which the computer uses to create the new work, and the person responsible for running the computer. The white paper, after considering responses to the 1981 green paper, found that ‘no practical problems arise from the absence of specific authorship provisions’ in respect to computer-generated works, and thus that ‘no specific provisions should be made to determine this question’⁴². The report concluded its discussion on this point by saying that the ‘question of authorship of works created with the aid of a computer will therefore be decided as for other categories of copyright work, i.e. on the basis of who, if anyone, has provided the *essential skill and labour* in the creation of the work’⁴³. If ‘no human skill and effort has been expended then no work warranting copyright protection has been created’⁴⁴. Thus, the legislative history suggests further that computer-generated works remain subject to the originality requirement.

However, there is a significant problem with this interpretation: it is inherently contradictory. In order for a computer-generated work to pass the originality threshold, then there must be a human author supplying the necessary originality (hence why LDMA works are commonly known as ‘*authorial* works’⁴⁵). But if there is a human author supplying the necessary originality, then the work is clearly not computer-generated under the terms of the legislation. Furthermore, the author who supplies the necessary originality would be able to claim copyright (including moral rights) in the normal manner. This point can be put in the form of a syllogism:

⁴¹ Secretary of State for Trade and Industry, ‘Intellectual Property and Innovation’ (April 1986).

⁴² *ibid* at 51.

⁴³ *ibid* (emphasis added).

⁴⁴ *ibid*.

⁴⁵ See e.g. Bently (n 5) 36 (distinguishing ‘authorial works’ from ‘entrepreneurial works’).

originality requires human authorship; in order to be protected, computer-generated works require originality; ergo computer-generated works require human authorship to be protected. Of course, the soundness of this argument depends on the truth of the first premise, i.e. that originality necessarily requires human authorship. So let us now shore up that assertion.

Under EU copyright law, originality clearly requires human authorship. A LDMA work is only original if it is the ‘author’s own intellectual creation’⁴⁶. The case law’s references to personality and personal touch suggest strongly that this standard requires a natural person. This interpretation has been further supported by Advocate-General Trstenjak in the *Painer* case who stated that ‘only human creations’ are protected (although this can include ‘persons who employ a technical aid, such as a camera’⁴⁷). Numerous scholars have concluded that under EU copyright, there must be a human author supplying originality and this may exclude computer-generated works from the realm of copyright protection⁴⁸.

Under the older British standard of ‘skill, labour, and judgement’ human authorship is equally necessary. Assuming that there is no general artificial intelligence, we would all largely agree that skill, labour, and judgement are characteristics that can only be exhibited by humans. It is very difficult to imagine how a computer may satisfy the requirement that its output is the result of ‘skill’, for example. And there is no puzzle why the older British standard of originality necessarily assumes human authorship. The judges who created this standard were operating in a world where, due to technological capabilities, non-human creativity was largely the province of

⁴⁶ *Infopaq* (n 18)

⁴⁷ *Eva-Maria Painer v Standard Verlags GmbH*, Case C-145/10 [2011] ECDR (13) 297, 324 [AG121].

⁴⁸ Guadamuz (n 3) at 178; Ana Ramalho, ‘Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems’ (2017) *Journal of Internet Law* 1, 8; Timothy Pinto, ‘Robo ART! The Copyright Implications of Artificial Intelligence Generated Art’ (2019) 30 *Entertainment Law Review* 174, 177.

science fiction. Consequentially, the doctrine that elaborates upon the nature of this standard is replete with references to authors⁴⁹.

But perhaps we are not so constrained by history. Perhaps we could redefine the concept of originality in relation to computer-generated works in a way that excises the necessary requirement of human authorship. One such strategy, for example, may be to say that a computer-generated work is ‘original’ if it is ‘new’ and different from anything that came before it (regardless of whether a human author was involved or not).⁵⁰ However, doing so would take us into ‘Humpty Dumpty territory’. ‘When I use a word’ Humpty Dumpty famously said, ‘it means just what I choose it to mean – neither more nor less’⁵¹. But most lawyers would agree that Humpty Dumpty’s approach to language is deeply flawed. Words have meaning and are not subject to redefinition at whim. In this case, nearly all IP lawyers would agree that the concept of originality cannot be satisfied by a demonstration that the work is new; that is a showing of *novelty* (as found in patent law), not originality. And nor is this merely a conceptual problem, but it also has practical implications. There are good reasons why we do not require novelty in copyright: the purpose of the law is to encourage and to reward creativity, not novelty and innovation. In sum, this is not a plausibly coherent conceptualisation of the originality test with which computer-generated works would necessarily need to comply under this interpretation.

⁴⁹ See e.g. *University of London Press v University of Tutorial Press* [1916] 2 Ch 601, 609 (the act requires that the work should ‘originate from the author’)(per Peterson J), cited in *Interlego* (n 22) at 259-260; *L.B. (Plastics) Ltd. v Swish Products Ltd.* [1979] R.P.C. 551, 567 (the skill and labour standard requires a work be ‘original in the sense that it is all the author’s own work’) (per Whitford J) cited in *Interlego* (n 22) at 262.

⁵⁰ Bently (n 5) 117.

⁵¹ Lewis Carrol, *Through the Looking Glass* (1978, London Galaxy Books) 168.

Alternatively, perhaps we could redefine originality in this area to mean ‘not copied’⁵². We could consider a computer-generated work to be original if it is the result of independent acts of the computer and is thus not copied from an existing source (regardless of the presence or absence of a human author). But this approach faces the same problem as the last one, i.e. it leaves us in Humpty Dumpty territory. A ‘not copied’ standard may, in some ways, be closer to an originality standard than a novelty requirement, but it is still not a plausibly coherent conceptualisation of originality as required by the CDPA. This can be demonstrated easily by considering entrepreneurial works. Such works do not need to be original in order to be protected, but they do need to be ‘not copied’⁵³. Clearly the CDPA scheme envisions the ‘not copied’ standard as something distinct from, and different to, originality. And, if we start to re-imagine the ‘not copied’ standard as a type of originality, we are left in the strange position that entrepreneurial works require a type of originality in order to gain protection, despite their being no statutory basis for this outcome. Of course, there has been some confusion on the relationship of the ‘not copied’ standard and originality in the distant past. *Peterson J in University of London Press v University Tutorial Press* suggested that originality could be satisfied if a work was not copied, but instead originated from the author⁵⁴. But this standard has not been favoured for many years (around a century) because of the obvious flaw that it does not provide lawyers with any information about

⁵² See e.g. Bently (n 5) 117.

⁵³ See e.g. Bently (n 5) 118 (‘Unlike the case with literary, dramatic, musical and artistic works (authorial works), there is no requirement that films, sound recordings, broadcasts or published editions be original. Instead, the CDPA 1988 provides that copyright does not subsist in a sound recording, a film, or a published edition to the extent that it is itself copied from a previous work of the same kind.’).

⁵⁴ [1916] 2 Ch 601, 609. In many ways, the ‘not copied’ standard adopted in this case was a hangover from the case of *Walter v Lane* [1900] AC 539, 551-2 (per Lord Davey) which introduced the ‘not copied’ / ‘origination’ standard as a requirement of authorship (prior to the introduction of a statutory originality requirement).

when a work can be said to ‘originate’ from an author⁵⁵. Under the CDPA as it exists today, therefore, a showing that a computer-generated work is ‘not copied’ would not be enough to demonstrate originality.

It seems therefore that section 9(3) cannot be a provision which simply further defines the rules regarding copyrightability of computer-generated LDMA works. Such an interpretation would be inherently contradictory because it would require said works to pass an originality threshold. But the only plausibly coherent originality thresholds (i.e. authorial intellectual creation, or skill, labour and judgement) both necessarily involve human authorship. Therefore, in order to be a computer-generated work, there would need to be no human author, but in order for that work to be protected, there would need to be an author supplying the necessary originality. Simply put, there is no way the current section 9(3) provision can be subject to an originality requirement without becoming incoherent⁵⁶.

2. Options B and C: Entrepreneurial Works or Neighbouring Rights

Perhaps, then, section 9(3) simply creates a new category of entrepreneurial work? Like sound recordings and films, computer-generated works do not need to be ‘original’ in order to be protectable by copyright. And there is some support for this interpretation in the academic literature. Guadamuz, for example, calls the provision an ‘exception’ to the originality requirement⁵⁷ – suggesting that either the statute creates a new type of entrepreneurial work or a related right; both of which are currently exceptions to the originality requirement. Furthermore, if we were to adopt a ‘not copied’ threshold for computer-generated works, then we would surely

⁵⁵ See e.g. Bently (n 5) 97.

⁵⁶ The incoherency in the statute existed from the moment that section 9(3) was enacted. While AI technology has developed significantly since 1988, the incoherency of the statutory scheme has been a constant. The conceptual problems caused by subjecting putatively authorless works to an originality standard have always existed.

⁵⁷ Guadamuz (n 3) 177.

be closer to an understanding of computer-generated works as a new form of entrepreneurial works.

This interpretation, however, can be dismissed pretty quickly, as it is even more flawed than the prior one. Section 9(3) clearly states that the provision is limited to LDMA works. The statute does not envision a *new category* of works (such as sound recordings or typographical arrangements), but instead envisions an *old category* of work (i.e. LDMA works) created in a new manner. The words of the statute make it clear that section 9(3) does not create a new category of copyrightable works. If it did do so, that new category would need to be added to the list of protectable works enumerated in section 1; which Parliament clearly did not do.

Perhaps then section 9(3) simply creates a new related right? Perhaps like performers and database creators, the person who makes the necessary ‘arrangements’ for the production of a computer-generated LDMA work deserves some sort of legal protection, albeit protection that falls short of copyright. However, once again, this is hardly a satisfactory interpretation of section 9(3). Nowhere does the statute say that it is creating a related or neighbouring right. In fact, the statute seems to make it fairly obvious that the person making the ‘arrangements necessary’ will receive *copyright* rather than a related right. Section 9(3) of the act comes directly under the heading ‘Authorship and Ownership of Copyright’. The section is embedded in a set of textual provisions allocating copyright ownership, rather than creating new rights associated with copyright. All other LDMA works receive copyright rather than related rights. Section 9(3) states that the person who makes the necessary ‘arrangements’ will be the ‘author’ and section 11 makes clear that all authors of protectable (i.e. original) LDMA works receive copyright. In sum, the provision does not seem to create a related right either.

II. The Justification Question

Not only is the clause ambiguous (perhaps incomprehensibly so), but it is not clear whether the provision is justifiable. A number of scholars have debated whether computer-generated works ought to receive copyright protection⁵⁸. But this is not precisely the question we will be posing here. Our question is subtly, but importantly, different. The question is whether the *precise form* of protection envisioned by section 9(3) is justifiable. On this point, I remain dubious. This particular provision is either redundant or extends protection to a class of works which probably ought to be in the public domain.

Literature which has so far praised the provision seems to emphasize legal certainty. The advantage of the provision is that it, allegedly, clarifies the legal status and ownership of works created by computers⁵⁹. Indeed, the legislative history behind the provision suggests that legal certainty is its chief advantage⁶⁰. However, clearly the provision does not do a particularly good job at creating legal certainty. Scholars have already pointed out that identifying the individual who has made the necessary ‘arrangements’ is a difficult and uncertain analysis⁶¹. But I want to go further than that. As the analysis above demonstrates, it is not clear at all where the provision fits within the copyright system or how it relates to the originality requirement. In effect, I remain unconvinced that the provision has greatly clarified the legal status of computer-generated works. And yet the problems do not stop there.

⁵⁸ See e.g. Denicola (n 15), Boyden (n 15).

⁵⁹ Guadamuz (n 3).

⁶⁰ See e.g. HC Debate 28 April 1988, Hansard volume 132, comments of Mr Gould (praising the provision for ‘getting to grips with that problem [of computer generated works] ahead of anybody else in the world’).

⁶¹ Guadamuz (n 3) at 175-77.

Let us assume for the time being that the provision does not create a new category of copyrightable entrepreneurial work, nor create a related right, but instead simply modifies existing rules relating to LDMA works when they are computer-generated. If this is the right way to interpret the provision, then the provision is simply unnecessary. Anyone claiming the benefit of the provision would necessarily need to show that the work is original, lest they risk losing protection for not complying with section 1(1)(a) of the statute. But as discussed above, the only coherent conceptions of originality necessarily assume the existence of a human author. Assuming there is an author who can supply the necessary originality to pass the threshold, then that person would be entitled to claim to be an author of a human-authored work and to acquire both economic and moral rights in the traditional manner. Alternatively, if they cannot pass the originality threshold, then the work is not an original LDMA work and not eligible for any protection. This begs the question, why have this section at all? We would be in exactly the same position if we had created no new provision, but instead simply stuck to the traditional copyright principle that copyright is only obtainable if an author creates an original LDMA work. We do not need to debate whether computer-generated works need encouragement or not, to recognise that a provision which merely duplicates a principle found elsewhere in existing copyright law is redundant.

Alternatively, consider the situation if we understand section 9(3) as creating a new category of entrepreneurial work or creating a new neighbouring right. If the computer-generated work does involve original expression, then the contributor of that originality (the author) is far more likely to claim authorial copyright rather than rely on the thin level of protection that entrepreneurial works or neighbouring rights receive. In this case, the provision would once again seem redundant. On the other hand, the provision would have a meaningful effect in cases where the work is not capable of passing the originality threshold. Like other entrepreneurial works or

neighbouring rights, the possible impact of section 9(3) would be to extend copyright (or copyright-like) protection to a class of non-original works. But this raises the important question: why ought these works to be protected at all rather than fall into the public domain? In this case, section 9(3) is not meaningless, but it is of dubious normative value.

The originality doctrine in copyright law plays a vital filtering role⁶², and should not be bypassed without strong justification. Originality is a normative threshold⁶³. Works which are original are works which tend to take time and effort to create, and which are imbued with the author's personality. Accordingly, original creative works of authors generally deserve copyright protection for both utilitarian and natural rights reasons. Works which do not pass the originality threshold (e.g. single words⁶⁴, stick-figure drawings), do not deserve the protection of a legal monopoly – such protection is not necessary to encourage their creation and the creators generally have no legitimate claims in morality to ownership of the resulting work. For the most part, there is no reason to depart from the normal rules of free market competition in such cases, and they ought not to be subject to a legally enforced monopoly. For this reason, we generally should be sceptical about a provision that may extend copyright to non-original computer-generated works. Indeed, there are strong reasons to be sceptical of any new copyright, even for original works.⁶⁵

Of course, there are legitimate exceptions to the originality requirement. During the twentieth century, it was generally agreed that some non-original works may nevertheless deserve copyright protection. For example, databases which require 'substantial investment' may be under-

⁶² Bently (n 5) at 95-96 (on the purpose of the originality requirement).

⁶³ *ibid.*

⁶⁴ *Exxon Corporation v Exxon Insurance* [1982] RPC 69.

⁶⁵ See Stephen Breyer, 'The Unease Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs' (1970) 84 Harvard L Rev 281.

produced by the market without legal exclusivity, and for utilitarian reasons, may enjoy justifiable protection even when they are non-original.⁶⁶ Similarly, many would agree that performers have a natural right to control recordings of their performances.⁶⁷ Even if performers do not create any ‘original’ creative work, their performances would seem to capture an important part of their personality.

However, do any of these justifications apply in the case of *non-original* computer-generated works? If we are utilitarian about the matter, is there any evidence at all that the free market will ‘fail’ us here, and that such works will be under-supplied? I have yet to see any. Indeed, the economics of computer-generated works points in the other direction. If anything, new artificial intelligence technology is making it easier and cheaper to create new work, and thus undercutting the need for legal monopoly as a means of recovering high fixed cost investment⁶⁸. As the fixed costs of using AI to create new works decreases, so too does the rationale for providing copyright in the resulting works. Perhaps, like the *sui generis* database right, we could limit protection to those instances where the work requires ‘substantial investment’⁶⁹. But the current law is clearly not so limited. Of course, the matter is different with original computer-generated works, which rightly would receive copyright protection without section 9(3) in the normal manner.

Alternatively, is there any compelling natural rights-based reason for granting copyright-like protection to non-original computer-generated works (akin to the way we grant performers

⁶⁶ See Mark J Davison, *The Legal Protection of Databases* (CUP 2003) 239.

⁶⁷ Cf Mathilde Pavis, *The Author-Performer Divide in Intellectual Property Law: A Comparative Analysis of the American, Australian, British and French Legal Frameworks* (Unpublished PhD thesis, University of Exeter, 2016) at <https://ore.exeter.ac.uk/repository/bitstream/handle/10871/23692/PavisM.pdf?sequence=1>.

⁶⁸ See e.g. CEO of Amper Music (an AI music platform) explaining how Amper makes it possible for individuals not trained in music to become creators, Drew Silverstein, *The Greatest Creative Revolution in the History of Music*, TedX (Jun 21, 2019) at https://www.youtube.com/watch?v=aH_uBvYIs24.

⁶⁹ Directive 96/9/EC on the Legal Protection of Databases art 7 (1996).

rights in order to protect their personality)? Of course, I can see clear natural rights based reasons to grant copyright protection to original computer-generated works. The author who supplies that originality deserves protection as recompense for their creativity and labour just as any other author would. But I do not see any natural rights reason why we ought to expand protection to computer-generated works which do not involve originality. These are works which, by definition, do not involve sufficient personality to achieve the ‘authorial intellectual creation’ standard, and as a result, do not present a strong personality justification for protection.⁷⁰ They are also works which do not meet the skill, labour and judgement standard, and for which there is no Lockean labour justification for protection.⁷¹ Even if section 9(3) created legal certainty, such legal certainty is not desirable when its effect is to extend protection (even of the thin variety) to works that should not be protected in the first place.

Lastly, one might argue that, if non-original computer-generated works are not protected, then the retail price of such works sold commercially would be low, and such works would undercut the market for human-authored works.⁷² But it is not clear why this is a bad thing for society. In utilitarian theory, copyright is a necessary evil. Copyright restricts what people can do with creative works and introduces scarcity where there is none. We put up with such restrictions to the extent they are necessary to encourage creative works; without this mechanism we would under-supply such works and society would be left with unfulfilled demand⁷³. However, the argument above assumes that it is possible to have a thriving market of creative works produced by computers in absence of copyright. If that is true, then we have a situation where demand is

⁷⁰ See generally Justin Hughes, ‘The Philosophy of Intellectual Property’ (1988) 77 Georgetown LJ 287 330-350.

⁷¹ *ibid* at 296-330.

⁷² This point was raised to the author by an anonymous reviewer, but is not clearly found within the literature.

⁷³ William Landes and Richard Posner, ‘An Economic Analysis of Copyright Law’ (1989) 18 J Legal Stud 363.

being successfully fulfilled (i.e. there is no market failure) without the encouragement of a legal monopoly. In such a world, the whole justification for copyright of any kind falls away. Why provide humans with legal monopolies over creative works at all, if computers will fulfil the demand without the need for such restrictive legal measures? Unfortunately for some, there is nothing special about human-authorship in utilitarian theory.

And, for sake of completeness, nor should we be overly-concerned about authors' natural property rights in such a scenario. If non-original computer-generated works are ineligible for copyright, authors of human-authored works would still be able to claim copyright in their original creations. Their moral claim to control how their works are used would be protected by those rights. The copyright they receive in such circumstances would protect their personality and labour, just as it does now. The profits authors earn, of course, may decrease in the face of competition from artificially created works. But a natural property right is not a guarantee of income; it merely secures the author the ability to control how their work is used.

Conclusion

I have sympathy for the drafters of section 9(3) of the CDPA. Legislation is rarely perfect. Arguably the role of judges is to interpret provisions creatively to show them in their best light⁷⁴. And it is certainly plausible that original computer-generated works deserve the protection of copyright in some way. Yet, this particular mode of providing said protection throws up a lot more questions than it answers. It should not, therefore, be 'adopted more widely'⁷⁵. Instead, jurisdictions should consider very carefully before duplicating this provision within their own

⁷⁴ Ronald Dworkin, *Law's Empire* (1987).

⁷⁵ Guadamuz (n 3) at 186.

laws. At the very least, they ought to first address the question that UK lawyers have yet to answer, i.e.: How does the provision fit with the originality requirement?

If anything, the UK ought to consider abolishing section 9(3). The most plausible interpretation is that this provision was meant to clarify certain rules regarding the ownership of copyright in computer-generated LDMA works, and that such works, like all other LDMA works, must be original in order to be protected. If that is how we are to interpret the provision, then we are in a strange position where the section applies to works which putatively have no human author, but which are only capable of protection if they are the original creation of an author. Not only is this inherently contradictory, it also highlights how unnecessary the provision is. If computer-generated works need to be original to receive protection, then section 9(3) is redundant, because these works would have received protection any way under traditional copyright principles. The only way section 9(3) is not redundant is if we agree that it is not subject to the originality requirement. But in this case, the effect of the provision is to expand protection to non-original computer-generated works. Yet there is no compelling natural rights or utilitarian reason for doing so.

In sum, UK law would be on firmer footing if, like most other jurisdictions, computer-generated works were subject to the traditional rules of copyright, i.e. they can be protected by copyright (for life plus 70 years including economic and moral rights) if they are the original creative work of an author; if they do not pass that threshold, then they would be better off in being dedicated to the public domain.

