JUST ANOTHER SUMMER OR A NEW ERA: ARTIFICIAL AUTHORS

by

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Abstract

Through recent history, the development and advancement of machines has constantly challenged the concept of intellectual property and its foundational principles. The mass production of works of authorship through machines led to the emergence of copyright law as a means of protecting the rights of creators. As technology continues to evolve, the development of new forms of machine, such as artificially intelligent systems, has sparked discussions of the concept of authorship in copyright law. Can these advanced machines be deemed creative and produce original works? If so, who should be recognised as the author of these outputs – the creator of the program, the user or the machine itself? With the realisation that artificial intelligence systems, which have flourished in recent years, can produce unique works that are indistinguishable from those created by humans, these questions highlight the need for a careful reconsideration of the fundamental concepts of authorship like creativity and originality in copyright law. Determining authorship in the context of generative AI has significant implications for the allocation of both economic and moral rights in the realm of intellectual property and for shaping the future of copyright law.

This thesis frames these and similar questions that generative machines prompt, and revisits the fundamental concepts of copyright related to authorship. It addresses the issues raised in the field of copyright law by developments in artificial intelligence in a way that serves the purposes of that law. In the end, it briefly proposes a new framework that would help address these developments in a way that serves the purposes of intellectual property law of promoting cultural heritage and technological development and protecting authors' rights. To do so, it first examines the concepts of creativity and originality in copyright law. It then evaluates the concept of authorship in the context of artificial intelligence by considering arguments about these concepts. To do this, it looks at the main justifications for intellectual property and the approaches to authorship in copyright laws that are influenced by these justifications. Finally, the study presents a new approach to authorship by arguing that artificial authorship by developing technology is already happening, so the inclusion of this concept in copyright law is essential.

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To myself! Do not forget the days when all doors were closed in your face in arrogance and indifference. Do not forget the day you went to His home crying, after all that rejection. That door was the first and only one you had to knock on. You know who is behind all these achievements in your life. He always takes care of you and is the one with you in times of abundance and of hardship. His friendship is real, and His company is precious. Please, remember always!

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INTRODUCTION

The development and advancement of machines has constantly challenged the concept of intellectual property (IP) and its foundational principles, throughout recent history. One notable example is the mass production of works of authorship by machines, which led to the emergence of copyright law as a means of protecting the rights of creators.[1] With the continued evolution of technology, new forms of machines, such as generative artificial intelligence (AI) systems, have emerged and sparked discussions on the concept of authorship in copyright law.[2] An example of an AI system that is capable of generating unique works comparable to those created by humans is DALL·E, which was developed by OpenAI in 2021.[3] DALL·E is a system that can generate images based on a given text description.[4] For example, when given the prompt 'a two-storey pink house with a white fence and a red door', DALL·E generates a unique image of a house that closely matches the description. Another example of an AI system that can produce unique works is Generative Pre-trained Transformer 3 (GPT-3), also

[1] See, for the effect of inventing the printing press, Graham Pollard, 'The Company of Stationers before 1557' (1937) s4-XVIII The Library 1; Leo Kirschbaum, 'Author's Copyright in England before 1640' (1946) 40 The Papers of the Bibliographical Society of America 43; Frank D Prager, 'Brunelleschi's Patent' [1946] J. Pat. Off. Soc'y 109; Martha Woodmansee, 'The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the "Author"' (1984) 17 Eighteenth-Century Studies 425; Mark Rose, *Authors and Owners: The Invention of Copyright* (Harvard University Press 1993); Peter Jaszi, 'Toward a Theory of Copyright: The Metamorphoses of "Authorship"' [1991] Duke Law Journal 455.

[2] Jane C Ginsburg and Luke Ali Budiardjo, 'Authors and Machines' (2019) 34 Berkeley Technology Law Journal 343; Annemarie Bridy, 'Coding Creativity: Copyright and the Artificially Intelligent Author' (2012) 5 Stanford Technology Law Review 1; Rosa Maria Ballardini, 'AI-Generated Content: Authorship and Inventorship in the Age of Artificial Intelligence' in Taina Pihlajarinne, Juha Vesala and Olli Honkkila, *Online Distribution of Content in the EU* (Edward Elgar Publishing 2019) <https://www.elgaronline.com/view/edcoll/9781788119894/9781788119894.00015.xml> accessed 17 March 2019; Gianmaria Ajani, 'Chapter 15 Human Authorship and Art Created by Artificial Intelligence – Where Do We Stand.Pdf' (2022); Daniel J Gervais, 'The Machine as Author' (2020) 105 Iowa L. Rev. 2053.

[3] 'DALL·E 2' (OpenAI) <https://openai.com/dall-e-2/> accessed 23 December 2022.

[4] For detailed information see Aditya Ramesh and others, 'Hierarchical Text-Conditional Image Generation with CLIP Latents' <http://arxiv.org/abs/2204.06125> accessed 24 September 2022.

developed by OpenAI in 2021.[5] GPT-3 is a language system that can generate human-like text based on a prompt. If a user, for instance, asks GPT-3 to 'write a story about a detective solving a mystery', it will generate a unique story that includes characters, plot and dialogue.[6] These outputs generated by DALL·E and GPT-3 are not copied from existing images or stories, but rather are generated from scratch by the AIs to match an analysis of the input text.

As AIs such as DALL·E and GPT-3 become more sophisticated at creating unique works, questions arise about who should be considered their authors for intellectual property purposes. In this respect, the traditional understanding of authorship which, to possess a certain level of creativity and originality, typically requires a human creator,[7] needs re-evaluation with regard to modern AI technology. There are different approaches within copyright law attempting to grapple with this issue,[8] such as considering AIs as means or tools utilised by human creators who would still receive credit for resulting works.[9] This approach is similar to the way in which copyright law treats other technological tools, such as cameras, drafting software or musical instruments. However, this framework may not fully capture highly original and creative AIs, such as those described in Chapter 4 of this thesis. Another way to address the question of AI and authorship in copyright law is viewing an AI system as a co-author or joint author alongside humans who use it.[10] However, before such an approach can be taken, it is necessary to resolve the question whether AI systems qualify as authors per se under copyright law. A third option could be to consider the AI system as the sole author of its outputs,[11] with the human creator or the user of the system being recognised as the owner of

[5] 'OpenAI API' (OpenAI, 12 November 2021) <https://openai.com/api/> accessed 23 December 2022.

[6] ibid.

[7] Detailed information about creativity and originality requirements for copyright authorship can be found Chapters 2 and 3 respectively.

[8] For arguments against protection of AI creations see Anna Shtefan, 'Creativity and Artificial Intelligence: A View from the Perspective of Copyright' (2021) 16 Journal of Intellectual Property Law & Practice 720; Gervais (n 2) 2106.

[9] Ginsburg and Budiardjo (n 2) 407.

[10] Jared Vasconcellos Grubow, 'O.K. Computer: The Devolution of Human Creativity and Granting Musical Copyrights to Artificially Intelligent Joint Authors' (2018) 40 Cardozo Law Review 37, 415.

[11] Ryan Abbott, 'I Think, Therefore I Invent: Creative Computers and the Future of Patent Law' (2016) 57 Boston College Law Review 1079, 1121.

any rights associated with the work.[12] In order to evaluate these options for determining authorship in the context of AI and ensure that copyright law can keep pace with the changing social dynamics brought about by developing technology, this thesis aims to answer the following research questions.

1. Research Questions

Considering recent advancements in the field of artificial intelligence, a critical issue arises concerning its relationship with copyright laws: Are sophisticated generative AI models capable of producing truly original works and can they be deemed creative? A work must exhibit a certain degree of creativity and originality in order to qualify for copyright protection.[13] This requirement has traditionally been understood to apply only to human-created works,[14] but the emergence of AI systems capable of generating original works raises questions about the extent to which these systems should be recognised as creative. When it comes to establishing who is the actual author of works created by AI, this subject is of the greatest importance. As a result, one of the main the purposes of this research is to answer the question of what creativity is in copyright law, whether AI systems can be considered creative, and, if so, what the implications of this recognition are for copyright law.

Another significant concern regarding generative AI systems deals with defining their output's level of originality under copyright law protections' standards. To meet copyright protection criteria, a work must display sufficient levels of creativity and independence from already existing creations, which is typically understood to require independent creation. Merely copying an existing work is insufficient for legal protection.[15] Yet new developments in generative AI technology can produce unique pieces comparable to human-generated works raising questions about whether such output warrants legal recognition as original works

[12] See chapter 4.

[13] *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 348 (1991) (*Feist*), *Infopaq International v. Danske Dagblades Forening* [2009] ECDR 16 (Case C-5/08) (*Infopaq*).

[14] 'To qualify as a work of "authorship" a work must be created by a human being.' The US Copyright Office, *Compendium of US Copyright Office Practices* (3rd edn, 2021), Chapter 300 https://www.copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf> 313.2.

[15] *University of London Press Ltd v. University Tutorial Press Ltd*. [1916] 2 Ch 601.

compliant with current copyright laws. In this respect, addressing these questions and exploring their implications constitute key objectives within this thesis.

Furthermore, if it is determined that AI systems can be creative and create original works, the question arises who should be recognised as the author of these outputs. Some may argue that the creator of the program should be accepted as the author, as they have created the tool that produces the works.[16] Others may say that the program's user should be considered the author, as the user has at least partially defined the content of the output through their use of the program.[17] Alternatively, it can be argued that the AI system itself should be accepted as the author, given that the creation is original and the system is the source of it.[18] Determining the authorship of AI-generated works has significant implications for allocating economic and moral rights under intellectual property law. This research, in this regard, deals with authorship identification within these works and its effects on copyright guidelines.

Finally, one of most critical issue regarding generative AIs is whether we attribute authorship to the AI system itself since it produces original content. If this is indeed plausible then how it can fit into current copyright regulations? One conceivable method would be amending existing legal provisions specifically naming AI systems as creators. Another way could be to develop a dedicated set of regulations addressing the novelty imposed by the creative capacity of Artificial Intelligence.[19] Nevertheless figuring out how artificial authorship will be acknowledged in copyright law demands careful contemplation about underlying principles and goals while keeping in perspective potential impacts on cultural advancements, technological progressions and the rights of other authors involved. This thesis aims to explore applicable approaches for recognising artificial authorship in relation to copyright law and provide suggestions for how this concept can be incorporated to promote the aims of intellectual property law.

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[16] Jani Ihalainen, 'Computer Creativity: Artificial Intelligence and Copyright' (2018) 13 Journal of Intellectual Property Law & Practice 724, 725.

[17] Bridy (n 2) 26.

[18] Abbott (n 11) 1121.

[19] See Chapter 4.

2. Thesis Structure and Contribution to the Field

To answer these research questions, this thesis, in Chapter 1, examines the current approaches to creativity in the United States of America (USA), European Union (EU) and United Kingdom (UK) and their copyright laws, and considers the legal implications of these approaches for AI-generated works. It then discusses arguments in favour of the view that creativity is a human trait and non-humans cannot be creative. The final section of the chapter argues that creativity can be coded, and machines can be creative, by examining theories and approaches to creativity in the fields of psychology, philosophy and neuroscience. This analysis provides a foundation for exploring the concept of authorship in the context of AI in later chapters.

Chapter 2 of this thesis examines the current approaches to originality in copyright law in the USA, EU and UK. It considers the legal and practical challenges in determining whether a work is original. This part of the chapter shows that the current legal climate tends to favour a subjective approach to originality that focuses on independent creation and the creative process, including the author's intention, creative choices and personality, rather than seeking a more objective examination of the work itself and how the public perceives it. In the following sections, this thesis contends that these requirements lead to a subjective assessment that is not ideal for copyright law and can result in inconsistency in the law's application, as well as a lack of predictability for creators. As a result, this thesis proposes replacing these requirements with a more objective standard for originality.

Chapter 3 of this thesis begins by examining the personality justification for copyright law, which posits that creators have a natural right to the fruits of their labour and that copyright law is a means of protecting this right.[20] This justification is based on the idea that the creative process is an expression of the creator's personality and that the work manifests their unique identity.[21] As such, copyright law should recognise the creator as the author and the primary owner of the work and grant them exclusive rights to control its use and dissemination. The chapter then explores the labour justification for intellectual property, which emphasises the economic value of creative works and the role of copyright law in rewarding creators for their

[20] For more information about personality theory, see Margaret Jane Radin, 'Property and Personhood' (1982) 34 Stanford Law Review 957, 971.

[21] ibid.

contributions to society.[22] Under this view, copyright law serves as a form of compensation for the time, effort and resources invested in creating a work.[23] After looking at the utilitarian justifications for copyright law, which focus on the social benefits of creative works and the role of copyright law in promoting the public good,[24] the author of this thesis explores how these justifications have shaped the definition of an author in copyright laws. In particular, he examines how the concept of authorship has evolved and how different philosophical perspectives on creativity and property ownership have influenced it.

The final chapter of this thesis argues that AI could be considered "creative" and their creations could be "original". Moreover, it is proposed to include artificial authors in copyright law rather than dismissing technological advancements made in this constantly evolving field. In the context of this chapter and the whole thesis, it is duly acknowledged that all the generative artificial intelligence systems referenced have been trained through legitimate means. The first part of this chapter presents arguments in support of considering AI systems as capable of creativity by drawing from discussions on creativity in previous chapters alongside examples from generative AI models like DALL·E and GPT-3, highlighting their original outputs.

Subsequently, the chapter goes on to establish that works created by AI possess "originality" based on copyright laws' criteria for identifying such content. The chapter, then, posits a view where authorship recognition is given to artificial intelligence itself as being responsible for creative and unique works produced. The chapter also discusses the negative consequences of the current approach, that artificial intelligence cannot create original works meriting copyright protection and the need for the recognition of artificial authors in copyright law. Furthermore, the chapter considers whether artificial authorship would be possible within the personality, labour and utilitarian justifications. Later on, the author of the thesis briefly proposes a new copyright system as a basis for the concept of artificial authorship in copyright law.[25] He briefly discusses the characteristics that a system would need to have for the concept

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[22] Bryan Cwik, 'Labor as the Basis for Intellectual Property Rights' (2014) 17 Ethical Theory and Moral Practice 681.

[23] ibid.

[24] Edwin C Hettinger, 'Justifying Intellectual Property' (1989) 18 Philosophy & Public Affairs <http://Ebooks.Cambridge.Org/Ref/Id/Cbo9780511625114> Accessed 5 June 2019.

[25] See Section 4.3.1 and 4.3.2.

of artificial authorship to be effectively and sustainably implemented in copyright law, and considers the potential social and economic benefits of recognising artificial authors in copyright law and how this recognition could encourage innovation and creativity. The thesis, then, suggests that further research and policy development in copyright law on generative artificial intelligence, creativity and originality is needed.

By following this thesis structure, the author of this thesis seeks to contribute to the field of intellectual property by addressing the issues for copyright law raised by recent developments in the field of artificial intelligence,[26] in a way that serves the purposes of copyright law.[27] Through a detailed examination of the concepts of creativity and originality, as well as an evaluation of the various approaches to determining authorship in the context of AI, this research aims to provide a comprehensive analysis of the challenges and opportunities posed by artificial intelligence in the realm of copyright law. The aim of the author is to provide a new perspective on the role of artificial intelligence in shaping the future of copyright law and to offer practical recommendations for addressing the challenges and opportunities it presents.

3. Methodology

Exploring how artificial intelligence impacts creativity, originality and authorship in copyright law requires a meticulous approach to research due to its multi-faceted nature. This study delves into this intersection by examining how AI is changing – or should change – our understanding of these concepts within copyright law. To accomplish this goal, various research methods were employed under the umbrella of theoretical approaches.[28] Specifically,

[26] Peter Stone and others, 'Artificial Intelligence and Life in 2030: The One Hundred Year Study on Artificial Intelligence' <http://arxiv.org/abs/2211.06318> accessed 24 December 2022.

[27] Jane C Ginsburg, 'Authors and Users in Copyright Part I' (1997) 45 Journal of the Copyright Society of the U.S.A. 1, 1.

[28] For research methodologies, see Mike McConville, *Research Methods for Law* (Edinburgh University Press 2017).

this research utilised the doctrinal research method,[29] comparative analysis[30] and recasting project.[31]

The doctrinal research method entails close examination of legal texts like case laws, statutes and regulations.[32] This method is often used to analyse the existing legal framework surrounding a particular topic, focusing on understanding the underlying principles and policy considerations that shape the law.[33] In this study, the doctrinal research method was used to analyse the current legal framework surrounding creativity, originality and authorship in copyright law. In order to delve into the intricacies surrounding creativity, originality and authorship in copyright law, a meticulous review of applicable laws and judicial opinions was carried out. Relevant legal materials from the USA, EU and UK were examined to determine key principles governing these concepts. This method served as an excellent foundation for further research. In addition to analysing legal texts, doctrinal research also entailed delving into existing literature on these concepts within copyright law[34] through searches of academic databases like law reviews as well as books & conference proceedings that dealt with similar issues.[35] Themes were identified within all sources reviewed which helped explain theoretical issues at hand in greater detail.

The comparative analysis method involves a systematic comparison of two or more legal systems, with a focus on identifying similarities and differences in the way that these systems approach a particular topic.[36] In this thesis, the comparative analysis method was employed to study how copyright laws define creativity, originality and authorship across three different legal systems - United States, European Union and United Kingdom. One of the key goals of this comparative analysis was examine the approaches taken by each jurisdiction when defining creativity as it pertains to copyright law. Chapter 1 began this process by comparing these three regions' unique interpretations of creative concepts with those found in psychology,

[29] ibid 18.

[30] ibid 87.

[31] Dawn Watkins and Mandy Burton, *Research Methods in Law* (Routledge 2017) 15.

[32] ibid 13.

[33] ibid.

[34] ibid 18.

[35] ibid.

[36] McConville (n 28) 104.

philosophy and neuroscience literature. This involved a review of the existing literature on these topics, as well as an analysis of relevant legal texts and case law. By comparing the approaches of different disciplines, this chapter offers a nuanced and multi-faceted perspective on the concept of creativity.

In Chapter two, the concept of originality is discussed by comparing the nuanced approaches taken by each jurisdiction under examination. This involved a review of relevant laws and judicial opinions, as well as an analysis of the underlying policy considerations and debates. By comparing the approaches of these three systems, this chapter provides a deeper understanding of the concept of originality and how it has been shaped by different legal traditions. In Chapter three, the concept of authorship in copyright law is examined in the context of personality, labour and utilitarian justifications. This involved a comparison of the three legal systems and an analysis of how these theories influenced the concept of authorship. By comparing the approaches of these systems, this chapter provides a deeper understanding of the complex interplay between different theories and the concept of authorship in copyright law.

To provide a new perspective alongside examining existing literature about non-human authors this thesis employs a research methodology called 'recasting project' under the doctrinal research approach. This method gathers multiple cases from different legal fields across periods and categories to highlight any inconsistencies or interconnectedness.[37] It also aims to propose a new framework or model that can encompass past, present and future materials.[38] This method is used to provide a fresh perspective on existing legal materials and potentially offer a new way of understanding them.[39] In this regard, this thesis looks at how legal doctrine has led to the current situation, how that situation has changed over time and how it is used in the context of the main concepts explored in the thesis, to show that the current treatment of non-human authorship is contrary to the goal of the advancement of science and culture, which is one of the main aims of copyright law. Finally, the thesis introduces a new framework for creativity, originality and authorship in copyright law.

[37] Watkins and Burton (n 31) 15.

[38] ibid.

[39] ibid.

In sum, considering the recent developments in the field of generative AI, this research provides a comprehensive and innovative approach to the intersection of creativity, originality and authorship in copyright law. By utilising a range of research methods and introducing a new framework for thinking about these concepts, this study offers a rich and broad perspective on these complex and evolving issues and contributes to the ongoing debates and discussions surrounding the role of AI and emerging technologies in shaping the future of creativity and copyright law.

4. Central Argument

This PhD thesis argues that AI systems can be creative and that their creations can be original. It further contends that accepting artificial authors in copyright law serves the purposes of copyright law better than ignoring the technological advancements in this field. One of the main arguments against recognising artificial authors in copyright law is that AI systems are incapable of creativity and that their creations are merely the result of algorithms and data inputs.[40] However, this thesis refutes this argument after examining the training and creation process of two of the most successful examples of generative AIs and demonstrating some of their creative and original outputs. It asserts that AI systems can indeed be creative.

In addition to arguing that AI systems can be creative, this thesis also claims that their creations can be original by examining the concept of originality in copyright law and showing how AI-generated works can meet the criteria for originality. The thesis then claims that the author-in-fact of the outputs of generative artificial intelligence systems is the AI itself, based on the view that artificial intelligence can be creative and produce original works. It explains the negative consequences of the general approach that artificial intelligence cannot create original works that merit copyright, the necessity of copyright law accepting artificial authors and the benefits this would provide.

This thesis also examines whether artificial authorship would be possible within the framework of the personality, labour and utilitarian justifications for copyright law. It presents a basis for the concept of artificial authorship in copyrights in line with the economic analysis

[40] By comparing different legal systems Ginsburg reached the conclusion that ‘an author is a human being who exercises subjective judgment in composing the work and who controls its execution’. See Jane C Ginsburg, ‘The Concept of Authorship in Comparative Copyright Law’ (2003) 52 DePaul L. Rev. 1063, 1066.

of law.[41] It provides a framework for the characteristics of the system necessary for the concept of artificial authorship to be recognised in copyright law effectively and sustainably. Finally, by considering the potential social and economic benefits of recognising artificial authors in copyright law and how this recognition can encourage innovation and creativity, the thesis proposes a new copyright system to contribute to the research and policy that needs to be carried out in the field of copyright on generative artificial intelligence, creativity and originality.

In conclusion, this thesis provides a detailed analysis on issues surrounding artificial authorship within copyright law while showcasing new perspectives that prioritise technological advancement. By delving into the concepts of creativity and originality, exploring the justifications for intellectual property, and examining existing approaches to authorship in copyright law, it provides a nuanced and thought-provoking exploration of the challenges that AI poses to the established legal framework of copyright. The central argument of this thesis is that developing technology makes artificial authorship possible and that copyright law should include this concept to effectively protect the original works produced by generative AIs to promote cultural and technological development. This argument is reinforced by a detailed examination of the creative and original capabilities of AI systems, along with an analysis of the different rationales behind copyright laws and their implications for recognising artificial authors in copyright law. In the end, this thesis briefly proposes a new copyright system that would provide a framework for identifying artificial authors in copyright law and encourage innovation and creativity. By offering a new perspective on the challenges posed by AI to copyright law and providing practical approaches for addressing these challenges, this thesis aims to make a significant contribution to the field of intellectual property.

[41] Watkins and Burton (n 31) 170.

Chapter 1: CREATIVITY CAN BE CODED

Introduction

Creativity has long been seen as something that makes humans different from other animals and machines.[42] It is often linked to artistic expression, new ideas, and finding solutions to problems, and it is thought to be important for culture and technological growth.[43] But as artificial intelligence and computer systems get ever more intelligent, there has been more and more discussion about whether creativity can be coded and whether AI systems are deemed creative.[44]

On the one hand, some contend that incomparable human characteristics prevent machines from duplicating or simulating creativity. They contend that sophisticated cognitive processes associated with creativity, such as inspiration, emotional expression, and intuition, are outside the capabilities of present AI technology. In addition, they note that creativity frequently involves taking risks, making errors, and breaking the norms, which may not be possible or desirable for an AI system programmed to follow predetermined algorithms. Others, on the other hand, contend that, given the proper algorithms and information, creativity is a process that a computer can model and imitate. They highlight instances when AI systems have created works of art, music, and even poetry that have received high appreciation for their uniqueness and aesthetic worth. They also contend that creativity is not intrinsic to humans or their experiences, but rather is a process of coming up with new and beneficial ideas within established constraints and with the achievement of certain ends in mind.

The question whether creativity can be coded and whether AI systems can be considered creative has important implications not only for our understanding of creativity and AI, but also for issues related to copyright law. If AI systems can indeed be creative, this raises questions about who or what should be credited or held responsible for their creative output,

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[42] Roland T Rust and Ming-Hui Huang, 'The Feeling Economy' in Roland T Rust and Ming-Hui Huang, *The Feeling Economy* (Springer International Publishing 2021) 139 <https://link.springer.com/10.1007/978-3-030-52977-2_4> accessed 24 December 2022.

[43] See M Csikszentmihalyi and M Csikszentmihalyi, *Creativity: Flow and the Psychology of Discovery and Invention* (HarperCollinsPublishers 1996) <https://books.google.co.uk/books?id=K0buAAAAMAAJ>.

[44] Bridy (n 2); Ginsburg and Budiardjo (n 2); Gervais (n 2).

and whether AI-generated works should be eligible for copyright protection. Some argue that AI systems should be treated as tools or instruments, and that the human creators or users of these systems should be credited or held responsible for any creative output.

The debate about the creative potential of AI systems has also sparked broader discussions about the role and value of creativity in society. Some worry that the increasing reliance on AI systems for creative tasks could lead to a loss of human creativity and a degradation of cultural diversity. Others argue that AI systems can augment and enhance human creativity, by providing new sources of inspiration and by enabling the creation of more complex and sophisticated works than would be possible for a single human to produce.

Because the standards for creativity in copyright laws are generally quite low, and even now, generative AI systems are capable of generating works that cannot be distinguished from ones created by humans,[45] these works may exhibit a level of novelty and originality that exceeds the standards set by current copyright laws. This raises questions about whether the current standards for creativity in copyright are sufficient to capture the full range of creative potential, both human and non-human. Therefore, it may be time for copyright law to reconsider the term 'creativity' and the role it plays in determining who or what should be credited or held responsible for creative works.

In this context, this chapter first examines the current approaches to creativity in US, EU and UK copyright laws and considers the legal implications of these approaches for AI-generated works. It then discusses arguments in favour of the view that creativity is a human trait and non-humans cannot be creative. In the last section, the author of this thesis argues that creativity can be coded, and machines can be creative by examining theories and approaches to creativity in the fields of psychology, philosophy and neuroscience.

1. Contemporary Approaches to Creativity in Copyright

Copyright is an automatic right that covers a wide range of creative works in physical form.[46] It gives the creators of original works the right to control how other people use their work for a

[45] Russ Pearlman, 'Recognizing Artificial Intelligence (AI) as Authors and Inventors under U.S. Intellectual Property Law By' (2018) 24 Richmond Journal of Law & Technology 42.

[46] Hal R Varian, 'Copying and Copyright' (2005) 19 Journal of Economic Perspectives 121, 124.

certain amount of time.[47] In this respect, creativity and originality lie at the heart of copyright law. In copyright law's terminology, creators are called authors, but most of the regulations do not provide a clear definition of 'author'.[48] Accordingly, what counts as 'creativity' and the answer to the question who could be a creator in terms of issues related to copyright law is very important. Internationally, the Berne Convention says that 'protection shall operate for the benefit of the author' but it does not define what makes an author creative.[49] In the USA, a work must 'possess at least some minimal degree of creativity'[50] to merit copyright protection and it is considered that only human beings can be creative,[51] but the law refrains from defining 'creativity'. Similarly, case law in the EU recognises creativity as a human trait and protects only the outputs of human creation.[52] This assumption is mirrored in the national legislation of civil law nations such as France, Germany and Spain, which require works to contain the author's personality mark.[53] Even though copyright protection of a work in the UK depends mainly on the author's 'skill, labour, and judgement' and a work originating from an author, interpretations in case law and the provisions of UK copyright law demonstrate the importance of an author's creativity.[54] This section examines the current approaches to creativity in the US, EU and UK copyright laws.

1.1 Creativity requires creative choices to be made by a human

The US Constitution gives the Federal government the power to create laws relating to copyrights and patents: 'Congress shall have Power... To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their

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[47] Lyman Patterson, 'Copyright and the Exclusive Right of Authors' (1993) 1 J. Intell. Prop. L. 1.

[48] According to Copyright, Designs and Patents Act 1988 (CDPA) author 'in relation to a work, means the person who creates it'. However, US Copyright Act of 1976 and directives of the European Parliament and of the Council do not provide a definition for author in relation to copyright.

[49] Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as revised in Paris on July 24, 1971 and amended in 1979, S, Treaty Doc. No. 99-27 (1986), Art. 2.6.

[50] *Feist*, 357–8.

[51] US Copyright Office, *Compendium*, §101 313.2.

[52] *Infopaq*, [37]–[39].

[53] See Section 1.1.2.

[54] See Section 1.1.3.

respective Writings and Discoveries...'[55] In line with this authorisation, the Copyright Act of 1976 supports creativity by stating that 'original works of authorship fixed in any tangible medium of expression' are protected by copyright.[56] Legal support for creativity is associated with economic incentives that grant temporary, monopoly-like rights to the authors of works.[57] This economic incentive, imposed by the Congress to protect authors and their creations, was based on the belief that encouraging individual effort through personal gain is the most effective approach to improve public welfare through the talents of authors expressed in useful arts.[58] In this context, since 1790 – when Congress passed the first copyright laws – one fundamental question in US copyright law has been how far Congress may go in safeguarding the 'writings' of 'authors'.[59] Early cases examining the Constitutional limitations of Congressional authority tended to divide that question into two different but connected Constitutional inquiries: who may be counted as a creator, and what can be counted as a creation for the purpose of copyright protection?[60]

In the *Trade-Mark Cases*, for example, the Supreme Court defined 'writings' as 'only those that are original and are grounded in the creative faculties of the mind'.[61] Unlike trademark insignia, works eligible for copyright protection, according to the Court, are restricted to 'the fruits of intellectual labour' and 'rely on brain function.'[62] Later, in *Burrow-Giles*, an author is defined as 'he to whom anything owes its origin; originator; maker; one who completes a work of science or literature'; and copyright is 'the exclusive right of a man to the production of his own genius or intellect'.[63] The Court determined that 'author' may also be interpreted in terms of causation: the author is 'the cause of the picture' and 'the man who... gives effect to the idea, fancy, or imagination'.[64] A photo was taken by a camera, but the

[55] U.S. Constitution, art. I, § 8, cl. 8.

[56] The Copyright Act of 1976, S 102 (a).

[57] Craig Joyce (ed), *Copyright Law* (8th ed, LexisNexis 2010) 20.

[58] *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

[59] Bridy (n 2) 4.

[60] Bridy (n 2) 5.

[61] *Trade-Mark Cases*, 100 US 94.

[62] ibid.

[63] *Burrow-Giles Lithographic Co. v. Sarony* 111 US 53 (1884) (*Burrow-Giles).*

[64] ibid 58–59, 61.

composition was created by the person behind the lens.[65] The camera was only used as a tool to help the human operator realise his or her creative vision, which is the basis for copyright in the final work.[66]

Justice Holmes, in *Bleistein v. Donaldson Lithographing Co.,* proposed an authorship approach based on the fundamental uniqueness of human personality: 'The copy is the personal reaction of an individual upon nature. Personality always contains something unique… something irreducible, which is one man's alone. That something he may copyright.'[67] Although this more modest view of authorship-as-personality does away with the language of genius and intelligence, it emphasises individual authorship and the human aspect that the court stressed in *Burrow-Giles*.[68] From *Burrow-Giles* to *Bleistein*, the legal construction of authorship evolved – or, rather, devolved – from genius or creativity to mere personhood.[69] The Court in *Bleistein* ruled that for the purpose of copyright protection a creation does not require a connection to the arts or high culture; it simply requires the mark of a unique personality.[70] This democratising recalibration of the originality threshold marks the jurisprudential moment when copyright protection became almost assured for every work produced by a human hand with some creativity, regardless of perceived ingenuity or artistic value.[71]

Later rulings using the *Bleistein* approach for copyright protection established a low-water mark: 'The artistic work must be "original", but this means no more than that the work must not be copied from another artistic work of the same character'.[72] In *Bell*, creations worth copyright protection were defined as 'a marked departure from the past', not 'startling, novel or unusual'.[73] The court stated that such a high creative bar is reserved for patent law.[74]

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[65] ibid 61.

[66] ibid.

[67] *Bleistein v. Donaldson Lithographing Co.*, 188 US 239 (1903), 250 (*Bleistein*).

[68] Bridy (n 2) 6.

[69] ibid.

[70] *Bleistein*.

[71] Bridy (n 2) 6.

[72] *Ansehl v. Puritan Pharm. Co.*, 61 F.2nd 131 (8th Cir. 1932), 136.

[73] *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2nd 99 (2nd Cir. 1951), (*Bell*), 102.

[74] ibid.

However, the court had argued in *Sony* that the privileges of copyright are 'intended to motivate the creative activity of authors and inventors by the provision of a special reward, and to allow the public access to the products of their genius.'[75] By demanding the mark of creativity rather than the effort, time or money involved in the creation process, the Supreme Court underlined the necessity for a creative consideration that society can anticipate from its deal with the author, and explained that copyright is not an investment protection scheme.[76]

Similarly, the Seventh Circuit in *Baltimore Orioles, Inc. v. Major League Baseball Players Association* stated that not being a copy is not enough to qualify a work as a creation worth copyright protection.[77] According to the Court originality, creativity and novelty are three characteristics that must be distinguished. If a work is created independently by its author, it is considered 'original'.[78] If some intellectual labour has gone into a work, it is considered 'creative', and it is 'novel' if it varies from previous works in any significant way.[79] A work must be original and creative, but not necessarily novel, to be copyrightable. (As a result, unlike patent law, a work created independently by two writers can be copyrighted by both.)[80]

According to the Supreme Court in *Feist*, a work 'is copyrightable only if it satisfies the originality requirement… the originality requirement applies to all works'.[81] Then the Court explained the meaning of originality: 'Original, as the term is used in copyright, means only that the work was *independently created by the author* (as opposed to copied from other works), and that it possesses *at least some minimal degree of creativity*'.[82] In other words, *creative choices* observable in *selection and arrangement* were required to establish substantial

[75] *Sony Corp. of America v. Universal City Studios, Inc.*, 464 US 417 (1984), 429.

[76] Gervais (n 2) 2090. See *Feist*, 357–8.

[77] *Baltimore Orioles, Inc. v. Major League Baseball Players Ass'n*, 805 F.2nd 663-668 (7th Cir. 1986), (*Baltimore Orioles*).

[78] ibid.

[79] ibid.

[80] ibid.

[81] *Feist*.

[82] ibid 345.

originality and deserve copyright protection.[83] According to the *Feist* concept of choices, a choice is creative if:

- *made independently by the author* and
- *not dictated by the function of the work, the method or technique used, or by applicable standards or relevant good practice* ('practical inevitability') (because there is no opportunity for creativity when function determines the path to be taken) and
- *selection that is just random, arbitrary, or meaningless is inadequate*.[84]

Until the *Feist* judgment, creativity had taken an unclear place in the copyright debate.[85] However, the Court's subsequent statement emphasised the importance of creativity in the copyright protection analysis: 'As a constitutional matter, copyright protects only those constituent elements of a work that possess more than a *de minimis* quantum of creativity'.[86] Nonetheless, the Court was ambiguous on the meaning of creativity in copyright law and its categorical rejection of the routine and the mechanical tacitly places the work done by machines beyond the scope of copyright, reaffirming the long-held *Burrow-Giles* view that simple mechanical labour is not creative: 'As mentioned, originality is not a stringent standard; it does not require that facts be presented in an innovative or surprising way. It is equally true, however, that the selection and arrangement of facts cannot be so mechanical or routine as to require no creativity whatsoever.'[87]

In a more recent case,[88] the US District Court of the Northern District of California addressed the issue of animal ownership in photographic works, in which a monkey used a photographer's camera to take an image of itself.[89] The monkey's claim for authorship was

[83] ibid 348.

[84] Gervais (n 2) 2090–91.

[85] Alfred C Yen, 'The Legacy of *Feist*: Consequences of the Weak Connection Between Copyright and the Economics of Public Goods' (1991) 52 Ohio St. Law Journal 1343, 1344.

[86] *Feist*.

[87] *Feist*, 362.

[88] *Naruto v. David John Slater et al.*, No. 3:2015cv04324 – Document 45 (N.D. Cal. 2016), settled out of court.

[89] ibid.

rejected by the court because copyright law mostly refers to a 'person' involved in the creation of the work, and for a work to qualify for copyright protection, it has to be created by a person.[90] Even though People for the Ethical Treatment of Animals (PETA),[91] on behalf of Naruto, filed an appeal, the dispute was subsequently resolved without going to court.[92] This case is consistent with the United States Copyright Office's *Compendium*,[93] which clearly prohibits protection of non-human creations.[94]

In sum, under US copyright law, a work is considered a creation meriting copyright protection if it is made independently by an author and possesses at least some degree of creativity. Creativity refers to the choices made in the selection and arrangement of elements in a work that are not determined by the purpose of the work, the methods or techniques used, or by established standards or best practices. For a work to be considered creation, the final condition is creation by a human being.

1.2 Creativity as author's personality

The reference to creativity in EU copyright law can be found in Directive 96/9/EC on the legal protection of databases (Database directive), Directive 2006/116/EC on the term protection of copyright and certain related rights regarding photographs (Term directive) and Directive 2009/24/EC on the legal protection of computer programs (Software directive). Under Article 3(1) of the Database directive, 'databases which, by reason of the selection or arrangement of their contents, constitute *the author's own intellectual creation* shall be protected as such by copyright. No other criteria shall be applied to determine their eligibility for that protection.'[95] Similarly, the Term directive's Article 6 states that '[p]hotographs which are original in the sense that they are the *author's own intellectual creation* shall be protected in accordance with

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[90] ibid 6.

[91] A non-profit animal rights organisation. See 'About PETA' (PETA) <https://www.peta.org/about-peta/> accessed 24 September 2023.

[92] Zachary Toliver, 'The "Monkey Selfie" Case Has Been Settled — This Is How It Broke Ground for Animal Rights' (PETA, 11 September 2017) <https://www.peta.org/blog/settlement-reached-monkey-selfie-case-broke-new-ground-animal-rights/> accessed 25 December 2022.

[93] *Compendium* (n 14).

[94] Ihalainen (n 16) 726.

[95] Directive 96/9/EC on the legal protection of databases ('Database directive'), Art. 3(1).

Article 1. No other criteria shall be applied to determine their eligibility for protection.'[96] Even though this article states that only works that are the author's own intellectual creation will be protected, Recital 16 of the directive's preamble explains that a photographic work is deemed original if it is the author's own intellectual production representing his 'personality'.[97] Similar wording can also be found in Article 1(3) of the Software directive: '[a] computer program shall be protected if it is original in the sense that it is the a*uthor's own intellectual creation*. No other criteria shall be applied to determine its eligibility for protection.'[98]

One of the first examples of the 'author's own intellectual creation' condition for works to be protected by copyright can be seen in German law on computer programs. According to Article 69a (3) of the German Act on Copyright and Related Rights, 'computer programs shall be protected if they represent individual works in the sense that they are the result of *the author's own intellectual creation*. No other criteria, especially qualitative or aesthetic criteria, shall be applied to determine its eligibility for protection.'[99] According to a 1985 ruling of the German Federal Supreme Court in *Inkassoprogram*,[100] a computer program may only be protected by copyright in Germany if it exhibits a degree of creativity above the ordinary ability prevalent in works of this kind.[101] Similarly, the Italian copyright laws grant copyright to intellectual works with a creative character.[102] According to the Italian courts, the creative character condition is met when a work is 'the result of the expressive endeavour of the author, mirroring the author's personal way of representing facts, ideas, situations and feelings'.[103]

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[96] Directive 2006/116/EC on the term protection of copyright and certain related rights regarding photographs (Term directive), Art. 6.

[97] Term directive, Recital 16.

[98] Directive 2009/24/EC on the legal protection of computer programs (Software directive), Art. 1(3).

[99] Translation can be found at https://www.gesetze-im-internet.de/englisch_urhg/englisch_urhg.html.

[100] BGH GRUR 1985, 1041/1047.

[101] Frederick M Abbott, Thomas Cottier and Francis Gurry, *International intellectual property in an integrated world economy* (2nd edn, Wolters Kluwer Law & Business, 2011), 610–11.

[102] Art. 1(1), Legge 22 April 1941, No 633 – Protezione del diritto d'autore e di altri diritti connessi al suo esercizio ('Protection of copyright and other rights connected to its exercise') and Art. 2575, Codice Civile ('Civil Code').

[103] Tribunal of Milan, Sezione specializzata in materia di impresa, ordinanza February 4, 2015, AIDA 1743, 1745 (2016). See also Enrico Bonadio and Nicola Lucchi, *Non-Conventional*

For copyright protection in both France and Spain, the source of creativity must be human. This is reinforced by the French Code, which defines protected subject matter as 'oeuvres de l'esprit'.[104] The term 'esprit' (mind) refers to human, not artificial, authors: 'the part of a person that makes them able to be aware of things, to think and to feel'.[105] When it comes to copyright protection in Spain, the fundamental elements of the law are defined as '… the rights that correspond to the author, that is the person who realised the purely human and personal effort of creating the work and that, for that reason, constitute the essential nucleus of the subject matter'.[106] Additionally, Spanish law establishes that a natural person who produces a work is the author.[107]

Although numerous formulations have been adopted in civil law countries, seeing copyright protection as being provided for 'the author's own intellectual creation' may be recognised as a valid assumption on the continent.[108] In the current continental understanding, to merit copyright protection a work does not need to demonstrate a specified level of novelty, but the personality of the author must be apparent in the process of creating the final product.[109] In *Infopaq*, the Court of Justice of the European Union (CJEU) harmonised the complex conceptions of 'originality' and 'creativity'. While the EU legislative has harmonised the originality criterion only for computer programs, databases and photos, the CJEU held in *Infopaq* that the meaning of originality provided in Database, Term and Software directives

Copyright (Edward Elgar Publishing 2018) 387 <https://www.elgaronline.com/view/edcoll/9781786434067/9781786434067.xml> accessed 4 November 2021.

[104] In the French government's English translation, 'works of the mind'. See Art. L112-1, French Code de la Propriété Intellectuelle. English text at: https://www.wipo.int/edocs/lexdocs/laws/en/fr/fr467en.pdf.

[105] See 'Mind_1 Noun - Definition, Pictures, Pronunciation and Usage Notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.Com' <https://www.oxfordlearnersdictionaries.com/definition/english/mind_1?q=mind> accessed 24 September 2023.

[106] See Art. 5, Ley de Propiedad Intelectual (BOE 1996, 8930).

[107] Bonadio and Lucchi (n 103) 387–388.

[108] Andreas Rahmatian, 'Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure' (2013) 44 IIC – International Review of Intellectual Property and Competition Law 4, 7.

[109] ibid 18.

also applies under the InfoSoc directive (2001/29).[110] In this regard, the Court harmonised the originality requirement in three steps, and established a link between the act of generating a copyrightable creation and the human being who creates it, so that where there is no natural person behind a work, there is no creation subject to copyright protection:[111]

> [C]opyright within the meaning of Article 2(a) of Directive 2001/29 is liable to apply only in relation to a subject-matter which is original in the sense that it is its author's own intellectual creation.
>
> As regards the parts of a work, it should be borne in mind that there is nothing in Directive 2001/29 or any other relevant directive indicating that those parts are to be treated any differently from the work as a whole. It follows that they are protected by copyright since, as such, they share the originality of the whole work…
>
> [T]he various parts of a work thus enjoy protection under Article 2(a) of Directive 2001/29, provided that they contain elements which are the expression of the intellectual creation of the author of the work.[112]

In later judgments, the CJEU went into greater depth on the concept 'author's own intellectual creation'. It stated in *BSA,* for instance, that 'the graphic user interface can, as a work, be protected by copyright if it is its author's own intellectual creation...'[113] A similar statement can also be found in the *FAPL* decision: 'To be so classified, the subject-matter concerned would have to be original in the sense that it is its author's own intellectual creation'.[114] The *Painer* decision provides another step by pointing out that a work is protected by copyright only if it is original in the sense that it is its author's own intellectual creation and represents the author's personality.[115] According to the Court this would be the case 'if the

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[110] Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society.

[111] Eleonora Rosati, 'Originality in a Work, or a Work of Originality: The Effects of the *Infopaq* Decision Part I: Articles' (2011) 58 Journal of the Copyright Society of the USA 795, 802.

[112] *Infopaq*, [37]–[39].

[113] C-393/09 *BSA*, (2010), para. 46.

[114] *Football Association Premier League Ltd v QC Leisure* (C-403/08) [2011] E.C.D.R. 11 (03 February 2011) (*FAPL)*, para. 97.

[115] Case C-145/10 *Eva-Maria Painer v. Standard Verlags GmbH, Axel Springer AG, Süddeutsche Zeitung GmbH, SPIEGEL-Verlag Rudolf AUGSTEIN GmbH & Co. KG and*

author was able to express his creative abilities in the… production of the work by making *free and creative choices*'.[116] This shows that to be protected by copyright creations must entail some level of human creativity as Advocate-General Trstenjak said in his Opinion in *Painer*: 'only human creations are… protected'.[117]

In sum, according to the CJEU's reasoning in these judgments, copyright protection should only arise if a work is a result of the 'author's own intellectual creation' and if its human creator made 'free and creative choices' during its creation. The CJEU determined additionally that a work that is completely dictated by its technological functionality, meaning that it had only been made to accomplish a given technical result, cannot be protected by copyright law.[118] In this regard, the Court state that 'Where the expression of […] components [of a work] is dictated by their technical function, the criterion of originality is not met, since the different methods of implementing an idea are so limited that the idea and the expression become indissociable.'[119] As a result under EU copyright law creativity can be described as a human author's personality.

1.3 Creativity as more than skill, labour and judgement

Even though conditions for copyright protection in copyright law in the European Union have been developed around authors and their personality, a more impersonal test of 'labour and skill' has been adopted in the United Kingdom, which requires less connection to a human being for works to be copyrightable. Under section 1(1)(a) of the Copyright, Designs and Patents Act 1988 (c.48) (CDPA) copyright protection is not given to literary, dramatic or musical works that are not original. Although a clear definition of the term 'original' is not

Verlag M. DuMont Schauberg Expedition der Kölnischen Zeitung GmbH & Co. KG, [2013] ECR I-138 [85–88].

[116] ibid [89] (emphasis added).

[117] ibid Opinion of Advocate-General Verica Trstenjak, 12 April 2011.

[118] ibid para. 92, and Case C-604/10 *Football Dataco/Yahoo* [2012], para. 38.

[119] *Bezpečnostní softwarová asociace — Svaz softwarové ochrany v. Ministerstvo kultury* C-393/09, [2011] E.C.D.R. 3 (2010) (*BSA*) para. 49.

provided in the Act, a distinct understanding of originality has arisen in UK case law, which has historically interpreted it to mean 'originating' from the author.[120]

In *Dick v. Yates*, one the earliest cases dealing with copyrightability of a work, Lord Justice Lush stated it 'to be established law that to be the subject of copyright the matter must be original, it must be a composition of the author, something which has grown up in his mind, the product of something which if it were applied to patent rights would be called invention. Nothing short of that would entitle a man to copyright.'[121] *Walter v. Lane* took a step further by holding that a work merits copyright protection when a sufficient level of skill, labour or judgement is discovered.[122] Following adoption of the requirement for originality under statutory copyright law in 1911, Peterson J held in *University of London Press Ltd v. University Tutorial Press Ltd* that:

> [t]he word 'original' does not in this connection mean that the work must be the expression of original or inventive thought. Copyright Acts are not concerned with the originality of ideas, but with the expression of thought... The originality which is required relates to the expression of the thought. But the [Copyright] Act does not require that the expression must be in an original or novel form, but that the work must not be copied from another work – that it should originate from the author.[123]

Since 1911, this idea of originality has remained mostly unchanged, and it continues to be used to justify the need for originality in UK legislation.[124] The court in *Ladbroke (Football) Ltd v. William Hill (Football) Ltd,* for example, stated that '… originality is a matter of degree depending on the amount of skill, judgement or labour that has been involved in making the compilation'.[125] In another case, a sufficient level of skill (above the minimum), labour or judgement was deemed to satisfy the criterion of originality.[126] However, as Lord Oliver of

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[120] Rosati (n 111) 803.

[121] (1881) 18 Ch D 76. This case was however distinguished in *Walter v. Lane*, cit.

[122] *Walter v Lane* [1900] A.C. 539; [1900] 8 WLUK 11 (HL). For detailed analysis of *Walter v. Lane* see Nigel P Gravells, 'Authorship and Originality: The Persistent Influence of *Walter v. Lane*' (2007) 3 Intellectual Property Quarterly 267.

[123] *University of London Press Ltd v. University Tutorial Press Ltd.* [1916] 2 Ch 608.

[124] See Garnett, Davies and Harbottle, *Copinger and Skone James on copyright*, Vol. I, 141.

[125] *Ladbroke (Football) Ltd v. William Hill* [1964] 1 WLR 273 at 291.

[126] *Express Newspapers plc v. News (UK) Ltd* 1990

Aylmerton stated in *Interlego v. Tyco Industries*,[127] 'skill, labour, or judgement merely in the process of copying cannot confer originality'.[128] In the same way, it was stated in *Football Dataco Ltd and Others v. Brittens Pools Ltd and Others* that 'to be original, the work must not be a mere copy of a pre-existing work: it must originate with the author rather than anyone else'.[129] Hence, historically, in the United Kingdom a work was deemed to be original if it was the outcome of the author's 'skill, labour and judgement'.

Section 9(3) CDPA, however, clearly provides an exception to the criterion of originality as it has traditionally been understood by UK courts: 'In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken'. A computer-generated work, under the CPDA, is one that is created by a computer in a situation where no human author is involved.[130] Section 9(3) effectively creates a legal fiction. According to this definition, the author is a person who has not actually created the work, but has just established the necessary preparations for its production to take place. The underlying reason for this 'deemed author' approach is the adoption of the idea that only human beings can be considered author in copyright law. Section 9(3) broadens the definition of author by considering the objective production of the output and then determining the most likely proximate 'author' (and owner).[131]

In sum, under UK copyright law, a work deserves copyright protection if it was created independently by the author's own skill, mental labour or judgement and not simply copied. If a work is generated without a human author involved, the author is the person closest to the creation process who employs 'skill, labour or judgement', even though that person has not actually created the work. In this regard, the current approach to creativity in UK copyright law can be defined as a human being's 'skill, labour and judgement', but mere 'skill, labour or judgement' in the process of creation is not enough for a work to merit protection by copyright;

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[127] [1989] AC 217.

[128] Lord Oliver in ibid.

[129] *Football Dataco Ltd & Ors v. Brittens Pools Ltd (In Action 3222) & Ors* [2010] EWHC 841 (Ch) (23 April 2010), para. 53.

[130] CDPA Section 178: '"computer-generated", in relation to a work, means that the work is generated by computer in circumstances such that there is no human author of the work…'

[131] Timothy Butler, 'Can a Computer be an Author?' (1982) 4 *Hastings Comm. & Ent. L.J.* 707, 744–5.

a bit more than that is needed. And case law requires that to originate with the author rather than anyone else. This additional condition can be considered as creativity needed for a work to be 'original' in UK law.

As demonstrated in this section, while common law copyright systems are concerned with the work and its potential economic worth, author's rights regimes are concerned with the author and seek to preserve that person's work on the grounds that it contains signs of their personality. In the EU, it is not the work itself that protects the author (or the person who made it): it is the author's identity as a person that protects the works that come from that person.[132] As a result, while in the USA creativity in copyright can be described as creative choices observable in the selection and arrangement, and as a bit more than mere skill, labour and judgement in the UK, it can be defined as a human being's personhood for the purpose of copyright protection in the EU. In any case, for now, it seems that creativity in copyright requires the author to be a human being.

2. Creativity Is a Human Faculty

The primary requirement for obtaining copyright in these jurisdictions is that the work of authorship must be original and originality in copyright law requires creativity.[133] In other words, creative choices observable in selection and arrangement are required to establish originality deserving of copyright protection.[134] Should human creativity, however, be required under copyright law? As mentioned in part 1 of this chapter, this question can easily be answered affirmatively in the EU and the USA. A work produced without 'any creative input or intervention from a human author' is not protected by the US Copyright Office and,[135] to be considered copyrightable, that work needs to demonstrate the personality of the author in the process of creating the final product under EU copyright law.[136] The presumption that authorship is synonymous with human authorship, motivated by practical and historical

[132] Eleonora Rosati, *Originality in EU Copyright: Full Harmonization through Case Law* (Edward Elgar Publishing Limited 2013) 69.

[133] For the detailed analysis of the creativity and originality requirements see, Section 1 of this Chapter and Chapter 2 respectively.

[134] *Feist*, 348.

[135] US Copyright Office, *Compendium* (n 14), §101 313.2.

[136] *Infopaq*; *Painer*, [89] and Opinion of AG Trstenjak.

concerns, can also be seen in both US and EU case law.[137] The 1965 Annual Report of the Register of Copyrights addresses the issue explicitly in terms of a human–computer gap.[138] If a work is created by a human being, it is copyrighted.[139] If it is created by a machine, it is not.[140] The Commission on New Technological Uses of Copyrighted Works (CONTU) report concludes the same way: without some degree of human creative endeavour, there is no protection.[141]

Since the 1980s, experts in copyright law have been debating whether machines may be creative for the purpose of copyright and whether their creations can be legally protected under existing copyright regimes.[142] Many examples of 'creation by machines' may be found, from news reports[143] to musical compositions[144] and works of visual art that are fashioned after the work of famous artists.[145] Accordingly, numerous experts have stated that copyright is experiencing a 'digitally induced crisis' as a result of the emerging issue of AI creativity and procedurally generated works produced by computers programmed to create works that replicate human creativity.[146] However, others argue that modern AI is 'not really like human

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[137] See *Naruto v. Slater*; *Infopaq*, para. 45; *BSA*, para. 50; *Painer*, para. 89; and *Funke Medien NRW GmbH v Bundesrepublik Deutschland* C-469/17, [2019], para. 20.

[138] Register of Copyrights, *Sixty-Eighth Annual Report of The Register of Copyrights* (1966), 5.

[139] ibid.

[140] ibid.

[141] National Commission on New Technological Uses of Copyrighted Works, Final Report.

[142] Bridy (n 2) 21–27. See also Jane C Ginsburg and Luke Ali Budiardjo, 'Authors and Machines', (2019) 34 Berkeley Technology Law Journal 343, 394–7.

[143] 'RADAR AI Generated News Stories - from PA Media' (RADAR AI generated news stories - from PA Media : PA Media) <https://pa.media/radar/> accessed 25 December 2022.

[144] 'AIVA - The AI Composing Emotional Soundtrack Music' <https://www.aiva.ai/> accessed 25 December 2022.

[145] 'The Next Rembrandt' (The Next Rembrandt) <https://www.nextrembrandt.com> accessed 25 December 2022.

[146] Bridy (n 2) 69; Enrico Bonadio and Luke McDonagh, 'Artificial Intelligence as Producer and Consumer of Copyright Works: Evaluating the Consequences of Algorithmic Creativity' (2020) 2 Intellectual Property Quarterly 112; Kalin Hristov, 'Artificial Intelligence and the Copyright Survey'; Kyung Hee Kim, 'The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking' (2011) 23 Creativity research journal 285; Nina I Brown, 'Artificial Authors: A Case for Copyright in Computer-Generated Works' (2018) 20 Colum. Sci. & Tech. L. Rev. 1.

intelligence at all'.[147] It is widely accepted that creativity is a human faculty and only human beings can be creative.[148] Even the most advanced AI systems are intricate logical labyrinths meant to replicate tiny slices of human intellect using 'brute-force computational strength' and they cannot be considered creative in the context of copyright law.[149] This section examines arguments in favour of the view that creativity is a human trait and non-humans cannot be creative.

2.1 The process matters, not the product

For some commentators, copyright is a legal instrument intended to assist in the production of works that are the outcome of a human creative process; the motivation is for people to participate in the process regardless of whether the outcome is a blank sheet or *The Tragedy of Hamlet*.[150] According to them, 'creativity is a positive virtue, not just because of its results but because of how the process of making meaning contributes to human flourishing'.[151] It is thought to be 'the natural human process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results'.[152] For this reason, it can be argued that creating a unique work is

[147] Ron Miller, 'Artificial Intelligence Is not as Smart as You (or Elon Musk) Think', *Techcrunch* (25 July 2017), https://techcrunch.com/2017/07/25/artificial-intelligence-isnot-as-smart-as-you-or-elon-musk-think/ [perma.cc/BUR8-T7GH]; Nick Ismail, 'True AI Doesn't Exist Yet... It's Augmented Intelligence', *Info. Age* (11 September 2017), http://www.information-age.com/true-ai-doesnt-exist-augmented-intelligence-123468452/. [perma.cc/4P9V-6Y5Z].

[148] Dahlia W Zaidel, 'Creativity, Brain, and Art: Biological and Neurological Considerations' (2014) 8 Frontiers in Human Neuroscience 389, 6.

[149] Ginsburg and Budiardjo (n 2) 401.

[150] Gervais (n 2) 2092–2094.

[151] Rebecca Tushnet, 'Economies of Desire: Fair Use and Marketplace Assumptions', (2009) 51 Wm. & Mary L. Rev. 513, 537.

[152] EP Torrance, 'Scientific Views of Creativity and Factors Affecting Its Growth', (1965) 94 (3) Creativity and Learning 663, 663–4.

irrelevant since copyright does not need novelty and is interested chiefly in outcome; it requires the independent production of works of authorship.[153]

In this view, creativity is mostly a process; it is a method of self-expression. People create because doing so is fundamental to their existence and being. Spirituality, world view, moral values, aesthetic ideals and orientations may all be revealed via creativity. If individuals use their imagination and ingenuity, they can create something that did not previously exist and thereby alter the world.[154] Creative process is diverse and heterogeneous; it encompasses both self-knowledge and cognition, and can rethink the world; it might be focused on discovering new solutions to problems or refining known ones; it can foster existing societal trends or work against them.[155] Based on this reasoning, only human beings can create works meriting copyright; only direct human creations can be considered as creation subject to copyright protection.[156] As a result, any non-human entities such as artificial intelligence systems cannot be creative. They may generate original content, but this is irrelevant from a copyright standpoint since novelty does not merit copyright; rather, copyright protects the independent human production of works of original authorship.[157]

The process by which computers generate works can be divided into three main phases. By defining the potential types and amounts of human participation at each stage, AI creations may be protected by copyright law.[158] The first step is *the selection and categorisation of training data* for the AI. Human intellectual effort may be involved in this stage in selecting and possibly also categorising the input data. The second step is *generation of the work*. Here, an AI system may generate a work with the help of instructions provided by a human, or create

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[153] *Feist*, 345: 'Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity'.

[154] Shtefan (n 8) 721.

[155] ibid.

[156] ibid 723.

[157] *Feist*, 345.

[158] Niloufer Selvadurai and Rita Matulionyte, 'Reconsidering Creativity: Copyright Protection for Works Generated Using Artificial Intelligence' (2020) 15 Journal of Intellectual Property Law & Practice 536, 538–9.

the work itself. The final phase is *quality assurance and delivery of the completed work*. A human may get involved in checking and/or delivering the final product to the end-user.[159]

If human involvement is confined to selecting and categorising data, the final work may not be considered to merit protection since it does not entail a human creator's independent creative effort. In contrast, when independent human intellectual effort is provided to lead the AI system through the second step in the production process, this would be enough to prove that the work is the outcome of creative process. Lastly, human labour such as element selection, digital manipulation, the use of filters and similar human actions at the final step, might meet the creativity standards for copyright protection in this view.[160] In sum, only works in which a human being has made a significant contribution to the creation process should be protected by copyright.[161]

One might think that AI systems make decisions through a creative process, whether human intellectual effort is involved or not. Why cannot those choices be considered creative? Because to be creative, in this view of creativity, decisions should not be too confined, e.g. governed by efficiency, functionality, external standards or practices.[162] Besides, most copyright systems require human labour to have been invested in creating a work,[163] and AI conception and execution may not meet the requirements for creativity and authorship. Although their outputs may look 'creative' and even artistically comparable to works created by humans, current machines are primarily composed of human-designed processes that perform certain operations.[164] They are constrained by encoded functions and unable to execute operations not specified in their programming code.[165] By analysing and comparing particular

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[159] ibid.

[160] Selvadurai and Matulionyte (n 158) 538–39.

[161] According to Miller, there is a human being 'behind every robot' because machines are developed, programmed and directed by human beings. See Arthur R Miller, 'Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU' (1993) 106 Harvard Law Review 977, 1045.

[162] *Feist,* 345.

[163] ibid 359–60. The *Infopaq* and *Painer* decisions imply a human creativity: see M. De Cock Buning, 'Autonomous Intelligent Systems as Creative Agents under the EU Framework for Intellectual Property' (2016) European Journal of Risk Regulation 310, 314.

[164] Shtefan (n 8) 727.

[165] ibid.

data, the computer executes algorithmic computations and produces a decision that results in text, graphics, music and other outputs.[166] This action depends on works already created or other data, as AI is incapable of creating outputs without data to draw on.[167] It is unable to think or invent. It can only make choices based on the data it already has access to.[168]

However, the idea of protecting creative process without any outcome seems less than ideal since copyright needs an expression of an idea fixed in tangible medium. An expression obviously cannot occur spontaneously; it is always preceded by human creative activity. A person can work hard to make something, but nothing is copyrightable without an outcome. As a result, the 'creativity is a process' perspective does not meet current requirements for copyright, as it only addresses the preconditions for the creation of a work that may merit legal protection, not the work itself. At present, the law seems to consider creativity in copyright as a result of a symbiotic relationship between process and outcome, with an emphasis on outcome.

2.2 Tools cannot be creative

The other main argument in favour of creativity as a human faculty is the idea that machines are just tools for human use.[169] Anything created by artificial intelligence is the outcome of synthesising data after analysis. Although AI is improving and getting more complex in its operation and ability to mimic human brain functions, its activity is considered to be entirely mechanical, and so unlike human creativity in several respects.[170] While a person may develop a work from start to finish without employing a template or a sample, a machine is incapable of executing tasks comparable to such fundamental human creativity. In the absence of comparator data, it is unable to generate an output. Besides, an AI can only produce works that its programme code can envisage. Its ability to generate work of its own choosing is limited and it cannot produce something that does not come with built-in coding. Moreover, a person might pick a field of creativity without previous instruction, for purely internal reasons.

[166] ibid.

[167] ibid.

[168] ibid 727.

[169] Miller (n 161).

[170] Shtefan (n. 8), 727.

Conversely, for AI to generate a distinct type of output, new computer code must first be written.[171]

All of these indicate that an AI's creative process is purely mechanical. The AI, like a camera or a typewriter, is a tool that can only work when it is triggered, either directly or indirectly, by a human. When activated, it is only capable of doing the tasks that have been assigned to it in the way they have been assigned.[172] For these reasons, it is argued that no machine can be creative in itself and any output of an AI that appears creative should be directly attributed to the programmers who developed and train it, or to the users who run it.[173] People who programme, train or use an AI may be surprised by the machine doing something they did not expect, but that does not mean that the machine is able to make the creative choices required by copyright law.[174]

Besides, it may be argued that even though today's computers have significantly more memory and processing capacity than their forerunners, they still rely on people to set the rules by which they operate. As with the photographer behind the camera, every artificially intelligent machine is backed by an intelligent programmer or team of programmers. People make rules, and machines obey them. The creator of the machine may develop a complicated network of code instructing it to analyse a data set, 'learn' patterns and then use those patterns to generate outputs.[175] However, even if the final product is singular and appears random, it is a direct outcome of the machine's process, which was in turn created by some human creator or user.[176]

Therefore, according to this view, a work created by an AI represents the programmer's original intellectual conception because it can be imagined and generated within the confines of the programmer's creative space; and this occurs because the programmer is frequently able to impose sufficient constraints and limits on both the final user's and the machine's creative

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[171] ibid.

[172] National Commission on New Technological Uses of Copyrighted Works, Final Report (n 141).

[173] Miller (n 161), 1045.

[174] Ginsburg and Budiardjo (n 65), 398.

[175] Ginsburg and Budiardjo (n 2) 402.

[176] ibid.

action.[177] In other words, the programmer creates the critical algorithm(s) and makes creative choices in picking the model and preparing the parameter, selecting and allocating data, deciding and double-checking other processes such as monitoring and modifying an algorithm once it come into operation. As a result, it is argued in the context of artificial intelligence that programmers are the 'authors' that generate programmes as a tool for creative humans,[178] and that people who build programmes that create art are the authors of the art their programmes create.[179]

Others claim that the programmer or designer of a machine makes decisions about how the machine should be used, but it is the user who actually initiates the production of the final output.[180] According to this idea, programmers generate just the 'potential for a creation', not the actual creation.[181] In this perspective, programs and machines are seen as tools that help users create works.[182] The user often sets the parameters and provides the data for the algorithm, which can significantly affect the final result and, in some cases, the user may even influence how the algorithm operates.[183] Additionally, the same program can produce different sets of output when used by different people, depending on the creative choices made by each user, which supports the idea that users have a more direct connection to the generation of the final output.[184] Either way, whether the creator is considered a programmer or an end-user does not change the idea that the machine is a tool.

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[177] Samantha Hedrick, 'I Think, Therefore I Create', (2019) 8 NYU J. Intell. Prop. & Ent. L. 324, 346. See also Dan Rosen, 'A Common Law for the Ages of Intellectual Property', (1984) 38 U. Miami L. Rev. 769, 803–4.

[178] Annemarie Bridy, 'The Evolution of Authorship' (2016) 39 Colum. J. L. & Arts 395.

[179] Pamela Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (1985–6) 47 U. Pitt. L. Rev. 1185, 1205.

[180] 'The pragmatic answer to the AI authorship puzzle is the user who is responsible for generating the outputs': Pamela Samuelson, 'AI Authorship?' (2020) 63 Communications of the ACM 20, 22; 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, 725. See also, National Commission on New Technological Uses of Copyrighted Works, Final Report (1979).

[181] Samuelson (n 179), 1209.

[182] ibid.

[183] Hedrick (n 91), 344–6.

[184] ibid.

Even though the UK's case stands out in comparison to others by providing copyright protection to computer-generated works in the CDPA 1988, it does not entirely eliminate the human element; instead, it relocates it to a different stage of the creation process: 'In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.'[185] Although the human element does not really conduct the cognitive process of creation, (s)he nonetheless presses the enter button or offers the necessary input. As a result, it can be claimed that the generative machine was a tool and the human who made the arrangements may be considered the creator of the work.[186]

One of the primary justifications for these arguments is the requirement for originality in creative works, which must be specific to the individual work rather than a general capability. In other words, the issue is not whether a particular artificial intelligence machine can produce works that resemble original creations in general, but rather whether it can make the necessary decisions to produce a specific creation that is deemed an original work of authorship.[187] Commentators not accepting AI creativity say the choices included in the machine's output are made by human programmers or end-users and not by the AI, so may be considered creative; the production may be protected as a human work and these choices make the AI a tool.[188]

It is true that by integrating aspects of randomness into their processing, AIs may be programmed to produce unexpected outcomes.[189] If unpredictability is a surrogate for creativity, then instructing computers to make some choices unpredictably may be enough to constitute creativity. However, some authors argue that just programming AIs to generate disorder or break the rules would never be sufficient to make machines genuinely creative, as

[185] CDPA Section 9(3).

[186] Jesus Manuel Niebla Zatarain, 'The Role of Automated Technology in the Creation of Copyright Works: The Challenges of Artificial Intelligence' (2017) 31 International Review of Law, Computers & Technology 91, 97.

[187] Gervais (n 2) 2098.

[188] ibid.

[189] See Ben Goertzel, *The Structure Of Intelligence: A New Mathematical Model Of Mind* (Springer, 1993), 12. See also David Levy, *Robots Unlimited: Life In A Virtual Age* (AK Peters/CRC Press, 2019), 150–51.

creativity is believed to require human consciousness.[190] From this perspective artificial intelligence creativity will always be an oxymoron, and no substitute for genuine creativity will ever exist.[191]

It is also argued that the progress of advanced AIs via the use of machine learning techniques such as 'deep learning' does not alter this conclusion.[192] Learning models are meant to seek patterns in data, experiment with alternative procedural pathways, generate general pattern-based principles and apply these to enhance their capacity to complete specific tasks like producing artworks.[193] In other words, the machine is fundamentally self-programming. Instead of designing machines with carefully designed processes, the developers of these AIs frequently prioritise accuracy over explainability, programming the machines to develop their own processes and generalisations in ways that rapidly become too complex and multi-dimensional for human programmers to comprehend.[194] This leads to the 'black-box dilemma', a term used by certain AI researchers to describe how the algorithms' models become 'so complicated' that 'even the algorithm's creators have little understanding of just how or why the created model' may be so accurate at doing its tasks.[195] However, it is argued that 'deep learning' models that are neither exactly intelligible nor supervised (as opposed to fully coded and interpretable 'expert systems') do not alter the conclusion that AIs are just tools for humans and cannot be 'creative', because the AI is still controlled by its programmers, who decide what the machine should do (define problems for it), what it should look for (input parameters and output variables), how it should try to improve itself (its 'loss function') and when it should start working.[196]

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[190] Selmer Bringsjord and David A Ferrucci, *Artificial Intelligence And Literary Creativity: Inside The Mind Of Brutus, A Storytelling Machine* (Psychology Press, 2000), xxvi.

[191] See John R. Searle, 'Minds, Brains, and Programs', (1980) 3 Behavioral & Brain Sciences 417.

[192] Ginsburg and Budiardjo (n 2) 405.

[193] Michael L. Rich, 'Machine Learning, Automated Suspicion Algorithms, and the Fourth Amendment', 164 U. Pa. L. Rev. 871, 886 (2016).

[194] Will Knight, 'The Dark Secret at the Heart of AI', MIT tech. Rev., Apr. 11, 2017, https://www.technologyreview.com/s/604087/the-dark-secret-at-the-heart-of-ai/ [perma.cc/3QV2-LZQJ].

[195] Rich (n 193), 886.

[196] See David Lehr and Paul Ohm, 'What Legal Scholars Should Learn About Machine Learning', (2017) 51 U.C. Davis L. Rev. 653.

For these reasons, it is argued that AIs are only tools for their programmers or users and the author may control a tool without understanding or being able to explain what it does.[197] Concerns about AI creativity may be best addressed by looking at the long-standing copyright position on tools, which disregards the generative function of technologies like cameras and recognises the authorship claims of the human 'masterminds' who stand behind them.[198] The underlying premise behind the 'mastermind' idea of authorship is acknowledgement that an author may 'outsource' execution to a machine or another person and yet retain her authorship so long as she retains primary control over the process in question.[199] A principal/exclusive author's authorship is unaffected even where an agent/amanuensis physically executes the creative process on the principal's behalf since the principal has defined responsibilities for the agent in 'specific detail'[200] and exercised a 'high degree of control' over the process of creation.[201] It is only when the agent or tool begins a 'frolic of [her/its] own', operating totally without the influence of the principal author, that she/it is recognised as an author.[202]

Overall, it can be argued that every action, step or calculation performed by AI ultimately has a human origin, whether the originator is the programmer or the end-user. AI systems that are designed and utilised by humans can be considered extensions of their creators and users, as they are unable to deviate from the instructions they have been given and therefore require supervision. As a result, AI can be viewed as the perfect tool for humans since it lacks the ability to engage in independent actions or create original works.

2.3 No personality, no creativity

While it is unknown at what level of technological sophistication a machine will be capable of embarking on a 'frolic of its own' and producing work 'entirely without' the instructions of a human programmer, it is argued that today's machines, and those of foreseeable futures, are

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[197] Miller (n 161) 1045.

[198] Ginsburg and Budiardjo (n 65). Discussion of 'mastermind' theory can be found in Sections I.A and I.B.

[199] James Grimmelmann, 'There's No Such Thing as a Computer-Authored Work- And It's a Good Thing, Too' (2016) 39 Columbia Journal of Law & the Arts 403, 408.

[200] See *Andrien v. S. Ocean Cty. Chamber of Commerce*, 927 F.2nd 132, 135 (3rd Cir. 1991).

[201] *Lindsay v. The Wrecked and Abandoned Vessel R.M.S. Titanic*, 1999 WL 816163, at *4–5 (SDNY, 13 October 1999).

[202] Ginsburg and Budiardjo (n 65), 398.

completely subservient to the humans who define their instructions and tasks,[203] because machines do not have the ability to think creatively like humans. They only seek to identify particular characteristics prior to processing them in order to generate new works.[204] Without understanding precisely what their role is in the replication of creativity, AIs just search for features that will enable them to engage with a piece of work. They are unaware of what they are doing and have no internal comprehension of it.[205] Machines do not catch the *Zeitgeist*, analyse social and cultural perceptions, or become subconsciously inspired.[206] Artificial neural networks (ANNs) mimic the functions of human consciousness, yet AI will never be able to experience emotions or the urge to express itself.[207] Individuals have a spiritual world, ambitions, sentiments and experiences that they express via creativity; each work has the author's unique mental and emotional input, which represents their personality.[208] While a machine can execute orders, only a human being can be inspired, comprehend, realise and develop ideas and bring them to life.[209]

It is believed that these are critical factors in determining whether a work is a result of creative processes under copyright law.[210] As well as originality, creativity demands a meaningful goal, some level of knowledge, a degree of judgement and a capacity to evaluate the situation in which one finds oneself.[211] Additionally, the author's personal experiences and characteristics have an effect on their creative output.[212] These abilities are still beyond the reach of machines. Because AIs are incapable of thinking spontaneously or mimicking improvised cognitive processes, they fall outside the legal definition of creator. Besides, it is

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[203] ibid.

[204] Nycum, 'Legal Protection for Computer Programs', I Computer/Law J. 1, 11-12 (1978).

[205] Yanisky-Ravid (n 180), 724.

[206] Patrick Zurth, 'A Case Against Copyright Protection for AI-Generated Works', (2021) 25 UCLA Journal of Law & Technology 20, 11.

[207] Shtefan (n 8).

[208] ibid.

[209] ibid 727–8.

[210] *Feist*.

[211] Madeleine de Cock Buning, 'Autonomous Intelligent Systems as Creative Agents under the EU Framework for Intellectual Property' (2016) 7 European Journal of Risk Regulation 310, 316.

[212] Zurth (n. 112), 12.

argued that the capacity of AI technology to surprise audiences, even those who designed and trained the AI, should not imply that it could be creative, because copyright still safeguards the human being's status as the only creature capable of meeting the cognitive qualifications required to be labelled a 'creator' (in the strict sense).[213] To authors holding this view, whether seen as a natural right or as an economic incentive, a creation of the human intellect has always been at the heart of copyright policy.[214] Consequently, to be considered creative and gain copyright protection, there must be a significant element of human personality in the production process.

In conclusion, according to authors who deny AI creativity, creation meriting copyright serves two purposes: the author's desire for personal expression,[215] and the needs of other individuals seeking cultural, aesthetic, spiritual or further growth via art.[216] Anyone who has created anything has a strong interest in that work, regardless of who inspired them to do so or what aim they sought to accomplish with it. The nature of AI production, on the other hand, is distinct from human creativity. AI activity does not even attempt to replicate human creativity since it is not motivated by the factors that drive humans to create. AIs create items just to pique the attention of particular individuals, having no interest in or necessity for this activity. They operate on fundamentally different principles and are wholly mechanical in nature. They only exist to meet particular human demands, such as those of a programmer or a user, and hence serve as a tool in the hands of humans. Each item formed by AIs is entirely the consequence of algorithmic, calculation-based decisions. As a result, the items obtained in this manner cannot be deemed works of creativity, even if they are of tremendous societal worth. As long as computers do not have the ability to think, feel or express themselves, creativity will remain a human trait.

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[213] Zatarain (n 186) 98.

[214] Gervais (n 2) 2079.

[215] Chapter 1 (Works), note 7 to Art. 1.1.(1), 'Wittem International Network Project on a European Copyright Code' (IVIR) <https://www.ivir.nl/copyrightcode/european-copyright-code/> accessed 25 December 2022.

[216] Shtefan (n 8) 728.

3. A Human is a Creative Machine and Creativity can be Coded

As mentioned before, to be protected by EU copyright law a work needs to demonstrate the personality of the author in the process of creating the final product,[217] and a work produced without 'any creative input or intervention from a human author' is not protected by the US Copyright Office.[218] Both US and EU case law presume that authorship is synonymous with human authorship.[219] Requiring a bit more than mere skill, labour and judgement indicates that human creativity is also a condition for copyright protection in the UK.[220] To assert that authorship must be human may not impose a condition favouring human-produced products over machine-made ones; instead, it may assert that human communication is central to creativity as a social activity.

Initially, creativity was a way for humans to communicate.[221] Later, communication from a human to a machine became considered a creative act and copyright protection was provided to computer software as literary works, because the inclusion of a set of human expressions in a program written for a machine to complete a task implies that the machine's execution of that program might transmit that expression to human users.[222] Now, we are witnessing a third, unprecedented situation in which a machine communicates with humans by creating works independently without any human intervention.[223] To decide whether there is a communication meriting copyright protection in this case, the term 'creativity' in copyright law needs to be revisited and reshaped comprehensively.

People, as they have always been, are already creative machines, learning from previously created works and analysing them, extrapolating principles from their precedents

[217] *Infopaq*; *Painer*, [89], Opinion of AG Trstenjak.

[218] USCO, *Compendium*, § 101 313.2;

[219] See Chapter 3.

[220] See Section 1.1.3.

[221] Gervais (n 2) 2085; Carys Craig and Ian Kerr, 'The Death of the AI Author' (2020) 52 Ottawa L. Rev. 31.

[222] Gervais (n 2) 2085. See also, See Dan L. Burk, 'Patenting Speech', (2000) 79 Tex. L. Rev. 99, 127.

[223] Gervais (n 2), 2085, Bridy (n 2), 12.

and then applying those laws to the work of composition.[224] Does human creativity really take place within the framework of certain rules and methods? Can it be precisely defined, and be computational or algorithmic? Humans and machines may not be as dissimilar as we are conditioned to assume when we examine the rule-bound nature of their respective outputs and the existing models they often emulate.[225] Maybe it is time to look at how humanisation of the author figure stops us from facing both the rule-based nature of human creativity and the potential unruliness of machine production.[226] As explained in section 1 of this chapter, human authors are required to demonstrate little creativity in order to be protected by copyright law. Besides, with the recent advancement in machine learning and AI technology, it is increasingly impossible to tell whether a work was created by a person or generated procedurally by a computer code. Accordingly, when it comes to creativity for copyright protection, it is now time to consider whether it makes sense to require more from machines than from humans.

The question whether AI systems will ever be creative in the same way that humans are creative is hotly debated. The answer is almost completely determined by how creativity is defined. What is the best way to describe creativity? One new idea might be creative and merit copyright protection, while another is not. What is the difference between the two? Unpredictability is a feature of creative ideas. They even seem to be improbable at times, yet they do occur. How is it possible to be creative? If creativity is considered as a distinctively human ability, then no matter how advanced AI systems get, they will never be able to accomplish it *ex vi termini*.[227] This is one of the main arguments deployed by legislation, courts and commentators against AI creativity, as surveyed in section 2 of this chapter. However, if it is characterised as a combination of features or behaviours, it may be coded.

Although competing definitions can be found in psychology, philosophy and neuroscience literature, legislations and courts require minimal standards for creativity in

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[224] Italo Calvino, *The Uses of Literature: Essays* (Houghton Mifflin Harcourt 1987) 15.

[225] See Alison James, 'Automatism, Arbitrariness, and the Oulipian Author', 31 *French Forum* 111, at 122 (2006) (arguing that Calvino 'divides the process of creation into mechanical and human components, suggesting that the author... can work both with and against the automatism of the machine').

[226] Bridy (n 2).

[227] See Roger Schank & Christopher Owens, The Mechanics of Creativity, in *The Age of Intelligent Machines* 394 (Raymond Kurzweil ed., 1991), 394 (arguing that that machines can never truly be creative because creativity is fundamentally mysterious and cannot be reduced to rules and procedures.)

return for copyright protection and avoid providing a clear definition for the term. Without a doubt, courts are aware that creativity entails more than choosing between two alternatives. Although they employ terms like 'true artistic skill',[228] 'intellectual invention',[229] 'creative judg[e]ment',[230] 'intellectual production',[231] and 'intellectual conception',[232] to characterise creativity,[233] they make every effort to avoid examination of the creativity criterion in detail, finding quickly that the bare minimum amount of required creativity exists and then moving on to other legal matters. They are also extraordinarily generous in their assessment of the creative value of works that are the result of even a small number of intellectual decisions. It does not matter whether a work is completely conventional or entirely accident-driven; it gets copyright protection from the courts.[234]

In legally establishing a creativity barrier for copyright protection, the Supreme Court of the US, for instance, stated that the work must 'entail a minimal degree of creativity'.[235] According to the Court, 'the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, "no matter how crude, humble or obvious" it might be.'[236] According to EU case law, anything produced by a human expressing creative ability in generating the work by making free and creative choices seems enough.[237] To be considered creative under UK copyright law, the work must be created independently by the author's own skill, mental labour or judgement and not simply copied.[238] There is a point at which an individual's endeavour to

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[228] *L. Batlin & Son, Inc. v. Snyder*, 536 F.2nd 486, 491 (2nd Cir. 1976).

[229] *Burrow-Giles*, 59.

[230] *Rogers v. Koons*, 960 F.2d 301, 304 (2nd Cir. 1992).

[231] *Feist*, 347.

[232] *Burrow-Giles*, 59.

[233] Mark Bartholomew, 'Copyright and the Creative Process' (2021) 97 Notre Dame Law Review 61.

[234] *Bell v. Catalda*, 105: '[h]aving hit upon… a variation unintentionally, the "author" may adopt it as his and copyright it'; *Time Inc. v. Bernard Geis Assocs*, 293 F. Supp. 130, 143 (SDNY 1968).

[235] *Feist* 348-50.

[236] ibid.

[237] *Painer*, [89].

[238] *University London Press*.

create is not sufficiently creative to deserve copyright protection, but this point is simply the 'narrowest and most obvious limits'.[239]

Even rigorous copyright law is extraordinarily generous in the assessment of the creative value of works deserving of copyright protection; the assumption behind such law, particularly in the United States and the European Union, is that creativity meriting copyright protection is a human trait. Not only does copyright law look at the work produced to determine the level of creativity, but it also looks at the creator's contribution to the work of art; was there a reasonable amount of human creative effort and was it the author's own intellectual creation? As a result, if the generator of the work is devoid of human creativity, it is most likely incapable of creating copyrightable works. In this context, it is possible to assess the creativity by looking at creators, creation itself or the process of creation. What makes a creation original is not being a copy; and the creative process itself. And a person who creates a work that is not a copy, meriting copyright protection as a result of the creative process, is defined as a creator. There is a reasonable number of decisions and arguments that can be found in case law and literature regarding the characteristics of a 'creator' and the creative conditions for a work to be protected by copyright.[240] However, without disregarding the importance of the other two, the key factor in the assessment of copyright protectability is the process of creation since it is a bridge between the creator and the creation, and it directly impacts both. Nevertheless, with the recent developments in generative artificial intelligence, the legal boundaries of creativity in the context of copyright law do not adequately take into account philosophical, psychological and neuroscientific theories and studies, which causes inconsistency regarding copyright authorship. To be future-proof, the creativity concept in copyright law needs to be comprehensively reconsidered in the context of these theories and research, as this section aims.

[239] See *Bell v. Catalda*, 105; *Time v. Geis*, 143.

[240] See Sections 1 and 2 of the Chapter 1.

3.1 Psychological view

The dominant theories of the creation process in psychology see creativity mainly as (1) problem-solving process,[241](2) problem-finding process,[242] (3) cognitive process[243] and (4) componential process.[244]

3.1.1 The problem-solving theory of creativity

According to this theory, the creative process is distinguished by the presence of ill-defined goals and problems, in contrast to traditional problem-solving, where the problem is understood but the solution is not.[245] While there may be instances where there is no clear problem to be solved, it is often possible to break down poorly defined problems into more clearly defined subproblems that can be approached using traditional problem-solving methods.[246] This theory places equal emphasis on both the creative process and the individual engaged in it, with the former receiving attention because it is concerned with standard cognitive psychology methods such as 'problem representation' and 'heuristic searching', and the latter receiving attention because of the emphasis placed on the author's need for domain-specific knowledge.[247] This approach sees creativity occurring in three main, recursive stages.[248] The first is a filtering stage, in which the author's attention is focused on a particular input.[249] In the following stage, cognition, the author works out what the problem is and how to describe it.[250] At this point, the

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[241] Aaron Kozbelt, Ronald A Beghetto and Mark A Runco, 'Theories of Creativity' in James C Kaufman and Robert J Sternberg (eds), *The Cambridge Handbook of Creativity* (Cambridge University Press 2010) 33 <https://www.cambridge.org/core/books/cambridge-handbook-of-creativity/theories-of-creativity/D114418F37F6C5DFB13CBA5557ED197F> accessed 26 December 2022.

[242] ibid. See also Jacob W Getzels and Mihaly Csikszentmihalyi, *The Creative Vision: A Longitudinal Study of Problem Finding in Art* (John Wiley & Sons 1976).

[243] Kozbelt, Beghetto and Runco (n 241) 31.

[244] G Wallas, *The Art of Thought* (Harcourt, Brace 1926) <https://books.google.co.uk/books?id=ZlF9AAAAMAAJ>.

[245] Kozbelt, Beghetto and Runco (n 241) 33.

[246] ibid.

[247] ibid.

[248] Joy Paul Guilford, *The Nature of Human Intelligence* (McGraw-Hill Inc., US 1967) 313–16.

[249] ibid.

[250] ibid.

author's cognition is receptive to extra environmental inputs.[251] The subsequent phase is production, when prospective solutions to the problem are generated.[252] Then, a new cycle of the phases of cognition and production emerges; new information is learned and new possible approaches are developed.[253] This cycle concludes when one possible approach proves well matched with the underlying problem.[254] There is an intermediate, evaluative step between each of these phases, during which the author verifies the accuracy of the input, the structure of the problem and potential solutions.[255] The author's stored memory, including visual-figural, symbolic, semantic and behavioural information, serves as the basis for the entire process and feeds each of the these phases.[256]

3.1.2 The problem-finding theory of creativity

However, as a response to the problem-solving approach to creativity, which does not adequately explain how authors identify problems and begin the actions necessary to facilitate problem solving, some argue that identifying the problem is an essential initial stage in the problem-solving process, and is not necessarily independent of the solution itself.[257]

3.1.3 The cognitive process theory of creativity

Seeing creativity as a cognitive process, which is divided into divergent and convergent thinking, is another approach.[258] Divergent thinking is unfocused, associative thinking that goes in different directions and could lead to an original idea that is useful for the task at hand.[259] In contrast, convergent thinking happens when cognition seeks an accurate, useful and useable answer that conforms to task-relevant rules, primarily through deduction.[260] In this context, creativity is defined as the capacity to repackage previously absorbed ideas in order to

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[251] ibid.

[252] ibid 313–16.

[253] ibid.

[254] ibid.

[255] ibid.

[256] ibid.

[257] Getzels and Csikszentmihalyi (n 242) 89–106.

[258] Kozbelt, Beghetto and Runco (n 241) 31; Guilford (n 248) 138.

[259] Guilford (n 248) 138.

[260] ibid 171.

solve novel problems.[261] To do that, there is extensive utilisation of stored memory,[262] which has an impact on the creative result, and a high level of intellect and cognitive inhibition must be present to manipulate previously absorbed material efficiently.

3.1.4 The componential process theory of creativity

The fourth approach to creativity in psychology as a componential process is defined by Wallas four main phases: preparation, incubation, illumination and verification.[263] Amabile developed his approach on the basis of Wallas' stage theory and defined this stages as presentation, preparation, response generation and response validation.[264] The presentation of the task or problem is the first phase.[265] This phase occurs when the author is motivated to recognise a problem or complete a task, or when an outside source presents the task or problem.[266] The second phase, preparation, consists of the author constructing or activating a knowledge database that is specific to the work at hand.[267] This phase may be greatly accelerated when the author has adequate task-relevant knowledge and experience.[268] The third phase is response generation, during which the author produces potential answers to the task or problem by exploring consciously or subconsciously for potential routes to a solution.[269] Response validation is the fourth phase, during which knowledge and abilities relevant to the task play a key role.[270] At this stage, the possible answers to the problem(s) defined in the first phase are analysed using what is already known and put together in a way that fits the problem(s) satisfactorily and works.[271]

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[261] Divya Sadana and others, 'The Neuropsychology of Creativity: A Profile of Indian Artists.' (2017) 15 Acta Neuropsychologica 145.

[262] Guilford (n 248) 313–15.

[263] Wallas (n 244) 80.

[264] T Amabile, *Creativity In Context: Update To The Social Psychology Of Creativity* (Avalon Publishing 1996), 95.

[265] Amabile (n 264) 95.

[266] ibid.

[267] ibid.

[268] ibid.

[269] ibid 55–6.

[270] ibid 96.

[271] ibid.

Each phase also involves three cognitive components: domain-relevant skills, creativity-relevant abilities and task motivation.[272] Domain-relevant skills contain all responses the author can perceive.[273] From this pool of potential responses, a new response is developed and then confirmed using task-relevant information and expertise.[274] The author's previous factual knowledge of the task domain, which comprises facts, principles, paradigms, aesthetic standards and the technical skills required for the task, forms part of this component.[275] The manner in which task-relevant knowledge is saved and coded is of critical relevance; material coded by general principles will be more beneficial to the author than a collection of facts with limited application.[276] This component can be found as mostly occurring during the phases of preparation and response validation.[277]

The 'something extra' needed for creative activity is referred to as creativity-related skills.[278] The extent to which the new concept improves upon its predecessors is determined by this component.[279] Even the most talented authors are unlikely to create something new if they lack the creativity-related skills to do so.[280] This component involves the ability to transcend established ways of thinking, to devise novel cognitive systems for solving problems, to comprehend complex situations, to maintain a diverse array of potential responses over time, to temporarily set aside the need for response validation, to utilise the broadest categories possible, to have a highly accurate memory and to possess the capacity for creative conception of works in the world.[281] This component is related to the generation of responses.[282]

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[272] Teresa M Amabile, 'A Model of Creativity and Innovation in Organizations' (1988) 10 Research in Organizational Behavior 123, 137; Åke E Andersson and Nils-Eric Sahlin, *The Complexity of Creativity* (Springer 2011) 118.

[273] Amabile (n 264) 85.

[274] ibid.

[275] Amabile (n 272), 139.

[276] ibid.

[277] ibid.

[278] Amabile (n 264) 86.

[279] ibid.

[280] ibid 88–9.

[281] ibid.

[282] ibid 94.

Task motivation may be internal (the author's interest in a particular activity) and/or external (a social or professional limitation that obliges the author to participate in a specific task).[283] Unlike internal motivation, external motivation restricts the author's creative abilities.[284] The task motivation component influences both task presentation and response validation.[285]

3.1.5 Knowledge and knowledge components

According to all four theories, previous knowledge includes a variety of types of information that might serve as the foundation for a work of authorship.[286] Previous knowledge includes both ideas (in their legal sense) and more abstract elements, such as techniques and procedures, that are central to the creative process.[287] These theories also recognise the role of knowledge components that reflect tangible and explicit expressions (in the legal context) derived from works that are retained in the author's memory in determining the relevance of knowledge to the task at hand.[288] Cognitive psychology sees both sorts of knowledge as possible bases for creative action.[289] Under copyright law, the 'previous knowledge' used in the first stages of the creative process may be any sort of knowledge that the theories take into account, such as the preparation and response creation phases of the componential process theory. Copyright law only concerns itself with the final outcome of the creative process, rather than the early stages of creation. This focus on the output means that copyright law allows for the use of ideas or unprotected expressions as the basis for creativity in the final product, but prohibits the use of copyrighted expressions, with certain exceptions (such as the doctrine of fair use).

3.1.6 Discussion

In all four theories, the creative process can be divided into two main subprocesses and described as follows. The first process, which all theories of creativity have in common, is an

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[283] Mark A. Runco & Ivonne Chand, Cognition and Creativity (1995) 7 EDUC. PSYCHOL. REV. 243, 245.

[284] ibid.

[285] ibid.

[286] Omri Rachum-Twaig, 'Recreating Copyright: The Cognitive Process of Creation and Copyright Law' (2016) 27 Fordham Intell. Prop. Media & Ent. Law Journal LJ 287, 304.

[287] ibid.

[288] ibid.

[289] ibid 304.

unfocused period during which the abstract ideas that will eventually lead to the creative activity are shaped.[290] The second process, again shared by all four theories, is dependence on past, task-relevant, information and memory at various phases of the creative process.[291] This process involves the crystallisation of disorganised thinking into a tangible, perceptible, creative result, which is mostly controlled by task-relevant knowledge and memory stored in the author's brain.[292] While the first subprocess is relevant to the originality criterion of copyright law, which centres on the author's ability to make an original and independent contribution to the final creative result, the second subprocess is pertinent to the idea/expression dichotomy.[293]

By examining recent developments in the field of deep learning and artificial intelligence, as well as the creation processes and outputs of the latest generative AIs, I argue that today's artificial intelligence systems may possess these components. They all exhibit the components of creativity cited in psychological theories:

(1) motivation to define a problem or to participate in a task,
(2) ability to build a task-relevant information database,
(3) capacity to respond to the problem or task by searching for potential solutions and
(4) competence to analyse responses generated to the problem using existing knowledge and to form these into solutions in an effective and functional way.

All of these components can be coded with today's AI technology. Since today's generative AI systems have these components and can generate works that fit the other conditions of copyright law (fixation and originality, in the sense of not being copied) they might meet the definition of 'creators' of their outputs for copyright law purposes.

3.2 Philosophical view

From ideas like scientific hypotheses or jokes to objects like origami, sculpture and many more, creativity is found in almost every part of existence. It is not limited to artists and creators, but can be found in every aspect of our cognitive abilities such as conceptual thinking and memory

[290] ibid 319.

[291] ibid.

[292] ibid 320.

[293] ibid.

retention skills. As a result, it is more reasonable to ask 'how creative is that idea?' than 'is that idea creative?' This will assist in appreciating the complexities of an individual's creativity and provide insight into how they came up with unusual ideas in the first place. In this context, it is argued in philosophy that creativity is the ability to generate ideas or artefacts that are new, surprising and valuable.[294]

The term 'new/novel' has two distinct meanings in this context. The idea may be new merely to the individual or, as far as we know, in history. 'Psychological creativity (P-creativity)' describes the first kind of new idea generation, and 'historical creativity (H-creativity)' the second.[295] H-creativity requires an idea to be developed for the first time in human history and not previously encountered by anybody else.[296] It is H-creativity that matters most to historians of the arts, sciences and technology.[297]

P-creativity, on the other hand, is critical for understanding the psychology of creativity. It entails coming up with an unexpected, beneficial idea that is novel to the individual who comes up with it.[298] The fact that an idea is brilliant but not novel does not make less creative the people who develop similar ideas later.[299] P-creativity, which emphasises the novelty of an idea only in relation to the individual who has it, is consistent with the copyright law's originality standard and with the requirement for independent creation rather than absolute novelty in copyright law.[300] Work may still be deemed original under copyright law even where another author has previously produced similar work, so long as the second work does not imitate the first.[301]

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[294] Margaret A Boden, 'Music, Creativity, and Computers' in Jordan BL Smith, Elaine Chew and Gérard Assayag, Lecture Notes Series, Institute for Mathematical Sciences, National University of Singapore, vol 32 (co-published with Imperial College Press 2016) 75 <http://www.worldscientific.com/doi/abs/10.1142/9789813140103_0005> accessed 28 February 2021.

[295] Margaret A Boden, 'Creativity and Artificial Intelligence' (1998) 103 Artificial intelligence 347, 348.

[296] ibid.

[297] ibid.

[298] Boden (n 294) 76.

[299] ibid.

[300] *Feist*, 345–6.

[301] ibid.

Simply creating something out of nothing and coming up with 'surprising' new ideas seems magical at first glance. It is, however, impossible for humans because people need inputs to generate an output. By examining the many instances of human creativity that surround us, it is argued that 'surprising' creativity occurs in three distinct ways. Surprising ideas may only be generated by a process of 'combination', 'exploration' or 'transformation'.[302] Combinational creativity generates novel combinations of existing ideas through establishing linkages between previously unconnected concepts. Analogy is a kind of combinational creativity that makes use of common conceptual structure and is extensively employed in science and art.[303] Combinational creativity may occur either purposefully or unintentionally. Making a novel combination, however, requires a significant store of information in the person's mind, as well as a variety of methods to move about inside it.[304] Novel combinations are valued because the ideas have some intelligible conceptual pathway between one another for the combination to 'make sense'. Therefore, combinational works which result from random matching rarely achieve value.

Exploratory creativity is based on a culturally acceptable thinking style, or 'conceptual space'.[305] A collection of generative rules is used to define and confine the space. These norms are usually, perhaps always, implicit.[306] Each work created in accordance with them will be compatible with the style in question.[307] In exploratory creativity, the individual wanders across space, discovering what is there (including previously undiscovered locations) – and, in the most exciting circumstances, discovering both the possibilities and the limitations of the conceptual space.[308] Exploratory creativity is a well-known and recognised vocation for many people, including scientists, painters and musicians who work within an established way of thinking and investigate its contents, bounds and possibilities, and sometimes superficially tweaking these.[309]

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[302] Margaret A Boden, 'Computer Models of Creativity' [2009] AI Magazine 23, 23.

[303] Boden (n 302) 24–5.

[304] Boden (n 294) 77–8.

[305] Boden (n 302) 25.

[306] ibid.

[307] ibid.

[308] ibid.

[309] ibid.

In transformative creativity, one or more of the distinguishing aspects of the space or style are changed (or dropped).[310] Consequently, ideas that could not have been formed before the alteration may now be generated.[311] This is the most exciting of the three forms of creativity, since it may generate ideas that are not just novel but fundamentally different from those that have come before. As a result, they often seem paradoxical. Humans sometimes change or remove one or more of the dimensions of a recognised conceptual space, or create a new space. Such change allows thoughts to be generated that previously were unthinkable (in that conceptual space). The more profound the alteration and/or the modified dimension, the more diverse the newly conceivable structures may be.[312]

Apart from being 'novel' and 'surprising', a work must also be 'valuable' to qualify as creative.[313] However, it is difficult to identify aesthetic standards, and much more difficult to express them in a precise manner. Because creativity, by definition, entails not just novelty (on some level) but also value, and because values vary widely, many debates regarding creativity are based on value conflicts.[314] For this reason, copyright law avoids evaluating the work from an aesthetic point of view while assessing its originality. The fact that a work is created outside a random or mechanical process and does not resemble another work makes its originality valuable in the context of copyright. Taking these together, processes for generating new and surprising ideas (that constitute creativity) can be coded, which means AI can also be creative.

3.3 Neuroscientific view

As well as the psychological and philosophical theories, recent neuroscientific research shows that the human creative process can be objectively studied. Researchers can now study the biological characteristics of creative thought via electroencephalography (EEG), positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) technologies that can show neuronal processes in real time.[315] EEG detects fast changes in the brain's electric

[310] Boden (n 302) 25.

[311] ibid.

[312] Boden (n 294) 80.

[313] ibid 85.

[314] ibid.

[315] Nora D Volkow, Bruce Rosen and Lars Farde, 'Imaging the Living Human Brain: Magnetic Resonance Imaging and Positron Emission Tomography' (1997) 94 Proceedings of the National Academy of Sciences 2787.

and magnetic fields.[316] PET identifies areas of the brain with increased chemical activity by using a radioactive tracer,[317] while fMRI measures changes in brain oxygenation and blood flow, indicating which brain areas and networks are active in response to certain stimuli.[318]

Rather than relying on self-reporting, neuroscientists assess the brain activity of individuals engaged in creative tasks to evaluate their creativity.[319] In these tests, professionals in the relevant creative discipline independently assess the artistic works' relative creativity. The specialists' creativity ratings are regarded as legitimate if their assessments show a significant level of agreement. It is thus possible to score the outputs on a scale ranging from low to high levels of creativity and compare them to each creator's brain activity.[320] Examining the creative process through analysis provides empirical support for the existence of mental phenomena that are beyond our conscious awareness or incapable of being articulated. As we do not possess the means to concretely define the creative process as it occurs within the human mind, neuroscientific research offers a valuable method for investigating this phenomenon.

Some of these studies find that the 'alpha' EEG frequency band is more active when people are engaged in creative thinking.[321] One such study found that college students who were considered highly creative by their instructors exhibited stronger alpha signals during the inspiration phase of a creative writing task, whereas those who were less creative did not show this distinction.[322] According to a more recent study, the broad alpha range may be divided into

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316 ibid.

317 ibid.

318 ibid.

319 Andreas Fink and others, 'Creativity Meets Neuroscience: Experimental Tasks for the Neuroscientific Study of Creative Thinking' (2007) 42 Methods 68, 68.

320 See Genevieve M. Cseh and Karl K. Jeffries, 'A Scattered CAT: A Critical Evaluation of the Consensual Assessment Technique for Creativity Research', (2019) 13 Psych. Aesthetics, Creativity & Arts 159, 159. This assessment method has been described as the 'gold standard' for reliable creativity research.

321 Mark A Runco, '*Creativity: Theories and Themes: Research, Development, and Practice'*, 78 [2007] Development and Practice. Amsterdam: Elsevier 92.

322 Andreas Fink, Barbara Graif and Aljoscha C Neubauer, 'Brain Correlates Underlying Creative Thinking: EEG Alpha Activity in Professional vs. Novice Dancers' (2009) 46 NeuroImage 854.

multiple subfrequencies, providing a finer-grained picture of creative ideation.[323] It has been observed that lower frequencies within this range are more often associated with general task-related needs, such as attentiveness and focus, while higher frequencies may be linked to specific task demands, such as retrieving relevant phrases or images from memory.[324] Other research has also identified a connection between specific types of alpha activation and an individual's subjective evaluation of their own thoughts as original.[325] While these studies do not fully encompass the complexities of the creative thinking process, the consistent and reliable association between alpha frequencies and creative ideation suggests that it may be possible to objectively assess certain elements of creative thought.[326]

Neuroscience allows us to differentiate between the utilisation of internal images for creative and non-creative purposes.[327] Intuitively, people link the creative process with the generation of mental imagery.[328] It turns out that creating such imagery is important for both visual and non-visual creativity.[329] Although not all usage of imagery is creative, scientists believe that the brain's ability to imagine new images 'certainly represents a crucial capacity underlying creative thought'.[330] Moreover, neuroscience indicates that the more robust the interaction between three distinct brain systems, the more creative the individual.[331] When the connections a person makes in this neural network are assessed, their strength has a substantial

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[323] Andreas Fink and Mathias Benedek, 'EEG Alpha Power and Creative Ideation' (2014) 44 Neuroscience & Biobehavioral Reviews 111, 113.

[324] ibid.

[325] Aljoscha C Neubauer and Andreas Fink, 'Intelligence and Neural Efficiency' (2009) 33 Neuroscience & Biobehavioral Reviews 1004, 1010.

[326] Fink and Benedek (n 323) 119.

[327] Anna Abraham, 'Creative Thinking as Orchestrated by Semantic Processing vs. Cognitive Control Brain Networks' (2014) 8 Frontiers in Human Neuroscience 95, 1.

[328] ibid 2.

[329] Laura M Pidgeon and others, 'Functional Neuroimaging of Visual Creativity: A Systematic Review and Meta-analysis' (2016) 6 Brain and Behavior e00540, 1–2.

[330] M Benedek, 'Internally Directed Attention in Creative Cognition' in Rex E Jung and Oshin Vartanian (eds), *The Cambridge Handbook of the Neuroscience of Creativity* (Cambridge University Press 2018), 180.

[331] Roger E Beaty, Paul Seli and Daniel L Schacter, 'Network Neuroscience of Creative Cognition: Mapping Cognitive Mechanisms and Individual Differences in the Creative Brain' (2019) 27 Current Opinion in Behavioral Sciences 22, 22–4.

correlation with how well that person scores on an originality test.[332] As researchers have discovered, 'a person's capacity to generate original ideas can be reliably predicted from the strength of functional connectivity within this network, indicating that creative thinking ability is characterized by a distinct brain connectivity profile'.[333] These results suggest that creativity is not necessarily ineffable and that it is possible to gain insight into the creative process through objective measures such as alpha waves, mental imagery and network connections. While these measurements may not provide a complete understanding of creativity, they do offer objective evidence that can inform decisions on copyright, which have traditionally treated creativity as an enigmatic phenomenon. In this context, neuroscience has highlighted three critical variables in the creative process: motivation, domain and field.

An individual's motivation is substantially connected with creative success: in order to develop anything creative, an author must desire to make something creative.[334] Although courts do not examine authors' motivations, scientists researching creativity believe that motivation is a critical prerequisite for creativity.[335] The deliberate pursuit of novelty is essential for creative achievement,[336] and motivation is the most important condition for human creativity.[337]

Two motivational characteristics have a substantial relationship with creative production: focus and continuous effort. Focus, which can be identified via neuroscientific techniques, is an important component of artistic creation.[338] Creativity necessitates the

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[332] ibid.

[333] Roger E Beaty and others, 'Robust Prediction of Individual Creative Ability from Brain Functional Connectivity' (2018) 115 Proceedings of the National Academy of Sciences 1087, 1087.

[334] Runco (n 321).

[335] Carmen Fischer, Charlotte P Malycha and Ernestine Schafmann, 'The Influence of Intrinsic Motivation and Synergistic Extrinsic Motivators on Creativity and Innovation' (2019) 10 Frontiers in Psychology 137, 1.

[336] Chrysikou EG, "The Costs and Benefits of Cognitive Control for Creativity" in Jung and Vartanian (eds), *The Cambridge Handbook of the Neuroscience of Creativity* (Cambridge University Press 2018), 305.

[337] Antonio R Damasio, 'Some Notes on Brain, Imagination and Creativity' [2001] The Origins of Creativity 59, 64–5.

[338] Joseph Kasof, 'Creativity and Breadth of Attention' (1997) 10 Creativity Research Journal 303, 310. Arguing that 'breadth of attention is positively related to creative performance'.

capacity to tune out external influences.[339] According to academics studying creativity, creativity involves the ability 'to stay deeply absorbed in self-generated thoughts, despite the constant exposition of potentially interfering sensory stimulation'.[340] Neuroimaging studies also demonstrate a link between concentrated attention and success in creating novel ideas.[341] Not only must artists be able to focus on the work at hand, but they must also be willing to make continuous effort in pursuit of a creative purpose. According to several psychologists, the creative process is divided into phases and begins with 'an early "preparation" phase' that is 'difficult and time-consuming', rather than spontaneous and uncomplicated.[342] '[C]reativity isn't a burst of inspiration; it's mostly conscious hard work.'[343]

Secondly, it is vital to comprehend what has come before, since creativity necessitates an examination of the expressive output in question in relation to the previous work and common practices of the relevant creative community. This emphasises that without domain-specific reference, there is no foundation for distinguishing what constitutes creativity and what does not. Therefore, highly creative people are more likely to be creative in one field than many, because 'it takes a lot of experience, knowledge, and training to be able to identify good problems'.[344]

According to some psychologists, creativity is a dual process in which artists cycle between producing ideas and appraising concepts against a set of norms.[345] It is beneficial to acquire domain training in order to learn these standards. 'In general, creative individuals are exceptionally informed about a certain topic. It's not impossible to come up with a brilliant

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[339] DL Zabelina, "Attention and Creativity" in Jung and Vartanian (eds), *The Cambridge Handbook of the Neuroscience of Creativity* (Cambridge University Press 2018), 164.

[340] M Benedek, 'Internally Directed Attention in Creative Cognition' in Jung and Vartanian (eds), *The Cambridge Handbook of the Neuroscience of Creativity* (Cambridge University Press 2018), 189.

[341] Mathias Benedek and others, 'To Create or to Recall Original Ideas: Brain Processes Associated with the Imagination of Novel Object Uses' (2018) 99 Cortex 93, 99.

[342] Ulrich Kraft, 'Unleashing Creativity' (2005) 16 Scientific American Mind 16, 22.

[343] R Keith Sawyer, *Explaining Creativity: The Science of Human Innovation* (2nd edn, Oxford University Press 2012) 387.

[344] ibid 65.

[345] Oded M Kleinmintz, Tal Ivancovsky and Simone G Shamay-Tsoory, 'The Two-Fold Model of Creativity: The Neural Underpinnings of the Generation and Evaluation of Creative Ideas' (2019) 27 Current Opinion in Behavioral Sciences 131, 131.

concept without ever having worked in a field of study, but it's highly unlikely.'[346] Before you begin creating, it is critical to familiarise yourself with the conventions, techniques and history of your chosen discipline.[347] Even for individuals who wish to push boundaries, it is vital to understand what they are challenging.

It is important to note that domain-specific expertise alone does not guarantee creativity. There must also be the development of innovative approaches to combining materials in unconventional or unexpected ways. However, domain-specific knowledge is a crucial component of creative achievement. Without understanding what has already been accomplished, an individual lacks the foundation upon which to build their creative work. As a result, it is essential to start the creative process by thoroughly familiarising oneself with previous works and internalising the symbols and traditions of the relevant domain.

Finally, specialists may reliably recognise and appreciate creative activity in a field that is not their own, where those with expertise in the topic (but a lower level of expertise) do not. The law assumes that everyone is equally capable of being creative, notwithstanding evidence of authorial knowledge and experience. However, in reality, people's creative capacities vary. Recent neuroscientific research demonstrates the uneven distribution of creative potential.[348] According to research, expertise is significantly correlated with the ability to produce creative output.[349] Even a basic familiarity with an art form can result in substantial physiological changes during the creative process. In an experiment, neuroscientists examined the brain activity of professional comedians and aspiring comedians, as well as a group of individuals with the same high intelligence as the other participants but no experience as comedians.[350] Every participant was asked to create a caption for a blank *New Yorker* cartoon.[351] While the

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[346] Carlos Blanco, 'Philosophy, Neuroscience, and the Gift of Creativity', (2017) Argumenta Philosophica 1, 95, 108.

[347] Chetan Walia, 'A Dynamic Definition of Creativity' (2019) 31 Creativity Research Journal 237, 242.

[348] Kai Zhou, 'What Cognitive Neuroscience Tells Us about Creativity Education: A Literature Review' (2018) 5 Global Education Review 20, 24.

[349] Ioanna Zioga and others, 'From Learning to Creativity: Identifying the Behavioural and Neural Correlates of Learning to Predict Human Judgements of Musical Creativity' (2020) 206 NeuroImage 116311, 17.

[350] Ori Amir and Irving Biederman, 'The Neural Correlates of Humor Creativity' (2016) 10 Frontiers in Human Neuroscience 597, 2.

[351] ibid.

perceived quality of humorous creations may seem subjective, it has been found that individuals generally agree on what is funny to a significant extent, allowing captions to be evaluated based on rankings and audience reactions such as spontaneous laughter.[352] The experts' brains functioned differently from those of the other participants while creating captions, according to the study.[353]

Scientists believe that both production and judgement are unconscious brain processes,[354] and that chemical processes drive all of our activities.[355] To clarify, when faced with several possibilities, the brain undergoes a series of chemical events, which cause neurons to activate. The option that causes the greatest number of neurons to activate is the one we pick instinctively.[356] If that decision is effective, humans will unconsciously recall it for its efficacy and will continue to make that choice in the future, in a Pavlovian way.[357] In other words, it is possible to claim that a human's creative potential is exclusively dependent on intelligence, experience and subsequent training in the confines of a particular field, such as theoretical physics.[358] As a result, the difference between Hawking and the rest of humankind, at least in terms of creative ability, is a difference in the degree of problem-solving skills obtained via experience, memorised knowledge, hard training and the high capacity of his brain to process information.[359] It is clear that computers are faster than humans at information processing and may have greater capacity. By understanding human creativity via neuroscientific studies, all the other critical variables, such as focus, continuous effort, domain and field, can be coded by programmers and processed by the neural network of today's intelligent machines.

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[352] ibid.

[353] ibid 10.

[354] Eddy Nahmias, 'Your Brain as the Source of Free Will Worth Wanting: Understanding Free Will in the Age of Neuroscience' 137.

[355] Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (Random House 2016) 292–6.

[356] Nahmias (n 354). (Manuscript at 5)

[357] Harari (n 355) 42.

[358] Marvin L Minsky, 'Why People Think Computers Can't' (1982) 3 AI Magazine 3, 5.

[359] ibid.

Conclusion

Throughout this chapter the author examined current perspectives on creativity within US, EU and UK copyright laws. In doing so he explored legal implications for AI-generated works as well as perspectives on whether or not humans are inherently unique creative beings. In the final section, the author argued that creativity can be coded and machines can be creative, by depending on research, theories and approaches to creativity in the fields of psychology, philosophy and neuroscience.

Overall, the definition of creativity in copyright, as well as the concerns of whether creativity can be programmed and whether AI systems may be deemed creative, are complicated and multifaceted, with significant ramifications for copyright law and the handling of AI-generated works. It is true that there are some arguments in favour of the view that creativity is a truly human trait and it cannot be simulated by a machine. Therefore, AI systems should be seen as tools or instruments instead of creative actors, and it is important to limit the creative potential of AI systems in order to protect the worth and dignity of human creativity if it is believed that creativity is a distinctively human attribute that is vital for our cultural and technical advancement. Nevertheless, research, theories, and approaches to creativity in the disciplines of psychology, philosophy, and neuroscience demonstrate that creativity is a process that can be modelled and simulated by a machine, given the appropriate algorithms and data. If we consider creativity to be a process that can be mediated by technology and augmented and advanced by AI systems, we may be able to better foster cultural and technical advancement, which is one of the primary goals of copyright law.

Chapter 2: BEING OBJECTIVE ABOUT ORIGINALITY

Introduction

Originality is a cornerstone in the realm of copyright law, as it determines a work's eligibility for protection and the extent of such protection. For a work to qualify for copyright protection, it must embody originality.[360] The requirement of originality, though seemingly simple, underpins the aim of copyright law which is fostering and safeguarding creativity and innovation, rather than merely prohibiting the replication of already existing works.[361] However, assessing a work's originality can be intricate and challenging as it involves appraising the creative process that leads to the work and its distinctiveness.

There is no universally accepted definition of originality,[362] with different legal systems forging their own standards to evaluate if a work is original. For instance, under the copyright laws in the USA, EU, and the UK, the work must meet specific criteria to be deemed original. In the context of the USA and the EU, the work should be independently created,[363] exhibit a modicum of creativity[364] or personality (author's own intellectual creation),[365] respectively, to qualify for copyright protection. Contrarily, the UK necessitates the work to be a creation of

[360] Rosati (n 132) 60. In legal terms, originality is currently understood to fall within three standard categories. These standards, from the most stringent to the most lenient, are the 'author's own intellectual creation' standard used in continental Europe and the EU (*Infopaq*), the standard of a 'minimal degree of creativity' established by the US Supreme Court in *Feist* and the UK's 'skill and labour' standard (*University of London Press*).

[361] U.S. Const. art. I, § 8, cl.8.

[362] Shlomit Yanisky-Ravid and Luis Antonio Velez, 'Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model' (2018) 19 Minn. J.L. Sci. & Tech. 55, 19.

[363] Christopher Buccafusco, 'There's No Such Thing as Independent Creation, and It's a Good Thing, Too' [2022] William & Mary Law Review 1.

[364] See *Feist*, 348.

[365] Computer program directive, Art. 1(3); database directive, Art. 3(1); term directive, Art. 6 (photographs); *Infopaq*, paras 35–8.

the author's skill, labour, and judgement, and not a replica of another work, to be regarded as original.[366]

The criterion of independent creation's subjective nature introduces a degree of complexity and uncertainty in determining if a work satisfies this requirement. This complexity may generate inconsistency in enforcing copyright law, leading to a scenario where some works gain protection and others do not, despite comparable degrees of originality. This criterion may also introduce a lack of foreseeability in copyright law, making it challenging for creators to anticipate whether their works will fulfil this standard, should a dispute arise. These drawbacks extend to the personality criterion as well. The author of this thesis, thus, proposes the abandonment of these requirements in favour of a more objective standard of originality in copyright.

This chapter begins by scrutinizing the current interpretations of originality in the copyright law of the USA, EU, and UK, and discussing the legal and pragmatic challenges inherent in determining a work's originality. This part of the chapter reveals that the existing legal environment largely supports a subjective originality approach, centring on independent creation and the creative process, by taking into consideration the author's intent, creative choices, and personality, instead of adopting a more objective examination of the work itself and its reception by the public. Subsequent sections argue that these requirements result in a subjective evaluation that is not ideally suited for copyright law and can engender inconsistency in law enforcement, along with unpredictability for creators. Finally, the author puts forward a suggestion to supplant these requirements with a more objective standard of originality.

1. The Undefined Originality

The psychological, philosophical and neuroscientific arguments in Chapter 1 show that creativity is no longer just a human trait, and an AI can be considered creative for copyright law.[367] However, more is needed for machines to be considered authors for copyright. Their creations must also meet the originality criteria in copyright laws. To find what is meant by 'originality', international and national foundations of copyright law need to be visited. The Berne Convention, adopted in 1886 to deal with the rights of authors and their works, is one of

[366] *University of London Press*.

[367] See Section 1.3.1, 1.3.2 and 1.3.3.

the first sources of international copyright standards, and remains a main source.[368] Although the Convention encourages the establishment of a Union and the principle of national treatment,[369] it does not provide clear legal requirements to be implemented by states parties seeking to protect literary and artistic works. Such an international agreement might not be the right place to lay down the conditions required for copyright protection in detail. However, considering its aim is to harmonise copyright protection between states parties by establishing universal standards, the Berne Convention should at least have defined the most basic requirements for copyright protection.

It specifies the subject matter to be protected, provides the minimal rights and standards that give birth to such protection and creates the norm of national treatment and the independence of copyright protection among Union member states.[370] Even though originality should be among the basic requirements to be clearly defined, the Convention provides neither an internationally accepted definition of the term nor any norm that individual states parties may follow on a national level. The 'rights of authors in their literary and artistic works' are specifically mentioned as being protected by the Convention.[371] The Convention specifies a number of different kinds of work that states parties must, at a minimum, protect.[372] However, it lacks a definition or standard for originality that could provide states parties with guidance by clarifying why or how originality in works should be safeguarded. The phrase '… shall be protected as original works without prejudice to the copyright in the original work'[373] is the only statement about originality in the Convention. However, this statement is not accompanied by a definition or standard for original works.

Not providing a clear definition of originality may have been intended to leave room for states parties to ensure that new works that might emerge due to the continuous and rapid progress of technology and art can be protected. However, as can be seen in the examinations

[368] As of 2022, 181 states are party to the Berne Convention. See WIPO-Administered Treaties, https://www.wipo.int/treaties/en/ShowResults.jsp?treaty_id=15 accessed 26 December 2022.

[369] Berne Convention, Paris Act, Art. 1.

[370] Berne Convention, Arts 2–15.

[371] ibid Art. 2(1).

[372] ibid.

[373] ibid Art. 2(3).

below, this vagueness in the Convention regarding originality made it necessary for the states parties to define this concept, since it is not possible to solve the issues related to copyright authorship and ownership without doing so. This situation, contrary to the Convention's purpose, led to different definitions of and standards for originality among the states parties. This section examines the different approaches to originality in today's copyright laws.

1.1 USA: Originality as minimal degree of creativity

The right of the Federal Government to legislate on copyrights and patents is established in the United States Constitution: 'Congress shall have Power... To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries...'[374] The Constitution's wording encourages the creation of knowledge.[375] Legal support for creativity is provided via economic incentives that provide creators of works monopoly-like rights for a period.[376] This economic incentive, enacted by a Congress authorised to protect writers and their works via copyright, originated from the notion that encouraging individual effort through personal gain is the best way to enhance public welfare through encouraging authors to exercise their abilities in useful arts.[377]

The Copyright Act of 1909 protected works but did not specifically require originality for copyright protection.[378] However, before that, in 1879, the Supreme Court stated for the first time, in *Trade-Mark Cases*, that originality is necessary to merit copyright.[379] The Court ruled that only works that are 'original, and… founded in the creative powers of the mind' are eligible for copyright protection.[380] In its ruling, originality requires both independent effort and a degree of creativity: 'while the word writings may be liberally construed, as it has been, to include original designs for engravings, prints, [etc.], it is only such as are original and are

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[374] US Const, Art. I, § 8, cl. 8.

[375] Jeanne C Fromer, 'An Information Theory of Copyright Law' (2014) 64 Emory LJ 71, 85.

[376] ibid.

[377] Steven S Boyd, 'Deriving Orginality in Derivative Works: Considering the Quantum of Originality Needed to Attain Copyright Protection in a Derivative Work' (1999) 40 Santa Clara L. Rev. 325, 330.

[378] Rebecca Haas, 'Twitter: New Challenges to Copyright Law in the Internet Age' (2010) 10 J. Marshall Rev. Intell. Prop. L. i, 238.

[379] *Trade-Mark Cases*, 94.

[380] ibid.

founded in the creative powers of the mind. The writings which are to be protected are the fruits of intellectual labor, embodied in the form of books, prints, engravings, and the like.'[381]

Although the conclusion in the *Trade-Mark Cases* established the criterion of originality as a constitutional one, the requirement was not invented by the Court for the purpose of making its decision.[382] Originality as an essential attribute of a work meriting copyright had been extensively examined in the judgement of Justice Joseph Story in *Emerson v. Davies* many years earlier when he was acting as a Circuit judge in Massachusetts.[383] Story's definition of originality appeared remarkably simple and uncomplicated: an original work could not be a replication and had to be produced using one's own effort, talent and financial resources.[384] In contrast, the Supreme Court in *Trade-Mark Cases* implied something more intricate, characterising copyright as requiring works to demonstrate 'intellectual labour' and mental creativity.[385]

When the Supreme Court revisited originality as a criterion in the *Burrow-Giles Lithographic Co. v. Sarony* ruling five years later,[386] the word was defined from the author's perspective.[387] The Court was asked whether a work generated by the mechanical process of exposing film to light could be considered writing by an author. It held that only an author may be granted copyright, and that the definition of 'author' should be narrowed to include only those who create original works.[388] The author is 'the cause of the picture' and the person 'who... gives effect to the idea, fancy, or imagination'.[389] According to the members of the *Sarony* Court, overruling Justice Story in *Emerson v. Davies*, just having been made without copying might not be sufficient to meet the originality criterion. They stated that a photograph that merely reflects exterior reality as it was discovered by the photographer may not be original

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[381] ibid 93-94.

[382] Diane Leenheer Zimmerman, 'It's an Original! (?): in Pursuit of Copyright's Elusive Essence' [2005] Colum. J.L. & Arts 23 28, 200–201.

[383] *Emerson v. Davies*, 8 F. Cas. 615 (CCD Mass., 1845) (No. 4,436).

[384] ibid 618–19.

[385] *Trade-Mark Cases*, 94.

[386] 111 US 53 (1884).

[387] *Burrow-Giles*, 58.

[388] ibid 57-58.

[389] ibid 61.

in the constitutional sense. But if the resulting image demonstrates 'intellectual production, of thought, and conception on the part of the author',[390] there is no dispute that the work is the creation of an author. Sarony (the photographer) had not just duplicated reality mechanically, but rather modified it to obtain a desired effect. Therefore, the photograph was 'original' and entitled to copyright protection under the law.

According to the Court in *Bleistein v. Donaldson Lithographing Co.*, the key to copyright was the work's originality.[391] The minimalist approach Justice Story had proposed half a century before was accepted by Justice Holmes, who wrote the majority judgment in this case: if it is not copied, it is original.[392] It was argued that copyright could not be based on aesthetic judgements or assessments of social value. The only evidence for originality was the presence of a contribution that had not been copied from another source. If the author's personality was reflected in the work, it was original, because '[p]ersonality, always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one man's alone. That something he may copyright unless there is a restriction in the words of the act.'[393]

Similarly, the court in *Bell* ruled that 'original' for the purpose of copyright does not imply 'startling, novel or unusual, a marked departure from the past'.[394] It explained that a creative criterion of such a high level is reserved for patent law. In copyright law, the term 'original' simply denotes that 'the particular work "owes its origin" to the "author"'.[395] However, according to the Seventh Circuit in *Baltimore Orioles*, absence of copying was not by itself sufficient to qualify a work as an 'original work of authorship' for purposes of copyright.[396] Although originality is not a rigorous criterion and does not need facts to be presented in a novel or unexpected manner, picking facts and putting them together (the

[390] ibid 59–60.

[391] Zimmerman (n 382), 202.

[392] ibid.

[393] *Bleistein*, 250.

[394] *Bell*, 106 n.13, at 102.

[395] ibid.

[396] *Baltimore Orioles*, 668.

defendant had published a guide to major-league baseball teams) cannot be so mechanical or routine that it does not require creativity.[397]

Even though section 102(a) of the Copyright Act of 1976 makes it clear that 'original works of authorship fixed in any tangible medium of expression' are protected by copyright, it is still not clear what 'original works' are. In fact, it has been argued that the Copyright Act was drafted to keep the term originality vague in order to allow courts to preserve the current standards, while expanding the range of subject matter eligible for copyright and complying with the criteria of the Berne Convention.[398] Regardless of what Congress intended, it is undeniable that the outcome has been inconsistency surrounding the definition of 'originality'.[399]

Thus, prior to the famous *Feist* decision, in the context of the 'sweat of the brow' theory, some courts granted copyright protection to works based on the authors' labour, regardless of whether the work entailed creativity or originality.[400] On the other hand, other courts adopted the 'creative selection' approach, which requires an author to demonstrate a small degree of creativity to acquire copyright protection.[401]

The Supreme Court in *Feist* preferred the latter approach. Following the recognition of originality as a constitutional requirement for copyright protection, it stated that originality meriting copyright is demonstrated when 'the work was independently created by the author (as opposed to copied from other works), and… possesses at least some minimal degree of creativity'.[402] However, the degree of creativity required is minimal and the great majority of works pass the test without too much difficulty since they all have some kind of creative spark, 'no matter how crude, humble, or obvious'.[403] Originality, according to the Court, is not

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[397] *Feist*, 362.

[398] JH Reichman, '*Goldstein on Copyright Law*: A Realist's Approach to a Technological Age' (1991) 43 Stan. L. Rev. 943, 951–3.

[399] Yanisky-Ravid and Velez (n 362), 25.

[400] Jane C Ginsburg, 'No Sweat Copyright and Other Protection of Works of Information after *Feist v. Rural Telephone*' (1992) 92 Colum. L. Rev. 338, 340.

[401] ibid.

[402] *Feist*, 345.

[403] ibid 499.

equivalent to novelty; a work might be original although it closely resembles previous works, so long as the likeness is coincidental and not the consequence of copying.[404]

The *Feist* Court's low standard for originality was inefficient since lower courts struggled to determine a neutral test for original works.[405] In the USA originality is still not defined precisely, and the flexibility provided to the courts regarding its limits causes different standards to be applied to various works.

1.2 EU: Originality as author's own intellectual creation

While originality is a key concept in copyright law, no definition or standard of it has yet been defined in European Community legislation in a systematic way, either.[406] However, it is referred to in Article 6 of the Term directive (photographs), Article 3(1) of the Database directive (databases) and Article 1(3) of the Software directive (computer programs).

Article 3(1) of the Database directive states that '[i]n accordance with this Directive, databases which, by reason of the selection or arrangement of their contents, constitute the author's own intellectual creation shall be protected as such by copyright. No other criteria shall be applied to determine their eligibility for that protection.' The Term directive provides in Article 6 that '[p]hotographs which are original in the sense that they are the author's own intellectual creation shall be protected in accordance with Article 1. No other criteria shall be applied to determine their eligibility for protection…' Similarly, Article 1(3) of the Software directive states that '[a] computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria shall be applied to determine its eligibility for protection.'

It seems that the standard provided in these directives, and the current continental understanding of originality, requires the personal input of an author and human intellectual effort in the production of works.[407] That is to say, in order to be eligible for copyright

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[404] ibid 344–6.

[405] Edward Lee, 'Digital Originality' (2012) 14 Vand. J. Ent. & Tech. L. 919, 923; Yanisky-Ravid and Velez (n 362), 27.

[406] Commission Staff Working Paper on the review of the EC legal framework in the field of copyright and related rights, Working paper 14. Available at http://www.isn-oldenburg.de/~hilf/urhg/ECCopyright19704.pdf accessed 28 November 2019.

[407] Trevor Cook, *EU Intellectual Property Law* (Oxford University Press, 2010), 100–101.

protection, a work must be 'work of mind' rather than merely the result of skill and effort.[408] According to a working paper, 'Member States remain free to determine what level of originality a work must possess for granting it copyright protection'.[409] Nevertheless, French, Italian, Portuguese and German laws do not contain a detailed definition of originality, and the requirement is unclear in other civil law countries.[410]

Although 'author's own intellectual creation' may be the criterion for originality on the continent, since the concept has not been harmonised, various standards have been adopted by member states' courts and scholars. Sometimes, originality has seen as 'the mark of an intellectual creation'.[411] At other times it was the result of a creative act;[412] elsewhere it has been found in 'the personality of the author'.[413] The uncertainty about the concept of originality across the continent eventually ended with the CJEU. In the landmark *Infopaq* decision, the 'author's own intellectual creation' standard for originality has been *de facto* harmonised by the Court at the EU level.[414]

Infopaq International operated a business monitoring and analysing articles in the Danish media and summarising them. The business involved the following steps: recording publications in a database, scanning them and creating image files, converting those files to machine-readable text files and writing or extracting 11-word snippets for sale to its clients. Danske Dagblades Forening (DDF) (a professional association of Danish daily newspaper publishers that assists its members with copyright issues) complained to Infopaq about this process. Infopaq disputed DDF's claim by arguing that it did not require the consent of DDF

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[408] Rosati (n 132), 71.

[409] Commission Staff Working Paper on the review of the EC legal framework in the field of copyright and related rights, SEC(2004)995, Brussels, 19 July 2004, at 14.

[410] Rosati (n 132), 72–3.

[411] ibid 74. *Cf.* the decision of the French Court of Cassation in *Babolat Maillot Witt v. Pachot*, C Cass, Assemblée plénière, 7 March 1986, No. 82, regarding computer programs, in which it was held that 'originality… is defined as "the mark of an intellectual contribution", i.e. a personal effort which supersedes automatic logic and association'.

[412] Rosati (n 132), 74. *RTI Reti Televisive Italiane and Another v. Rai and Another*, Rome Court of First Instance, 21 October 2011.

[413] Rosati (n 132), 74. *Cf.* Nicola Stolfi, *Il diritto d'autore* (Società Editrice, Libraria 1932), 518*ff*.

[414] Rosati (n 132), 95.

or of its members before applying this process. The court stayed the proceedings and referred questions to the CJEU about whether the resulting snippets were original enough.

In the *Infopaq* decision, the CJEU provided a teleological interpretation of the InfoSoc directive, stating that originality should be given the meaning specified in the Database, Term and Software directives to subject matter other than databases, photographs and computer programs.[415] This *de facto* harmonisation has three steps.[416] According to the Court, first, authors have an exclusive right to authorise or prohibit reproduction and the scope of the reproduction right must be read as covering 'work'.[417] Second, the meaning of 'work' is explained by referring to Article 2 of the Berne Convention.[418] Third, it clarified that the threshold for protection ought to be originality.[419] The Court stated that the InfoSoc directive is rooted within the same principles as the Database, Term and Software directives, which means that a work is original if it is the author's own intellectual creation.[420]

Other decisions of the Court, such as *Painer*, *Murphy*, *SAS* and *Football Dataco* have developed and tried to clarify the originality concept designated by the CJEU. Accordingly, it can be said that 'author's own intellectual creation' as defined in the Software, Database and Term directives, which was harmonised in *Infopaq*, extends to 'creative freedom' (*Murphy*), 'personal touch' (*Painer*) and 'free and creative choices' (*Football Dataco*).[421]

In sum, although EU directives do not provide a clear definition of originality and member states have different originality standards, the CJEU has harmonised the concept in its *Infopaq* and some following decisions. The wording of the directives mentioned above and the decision of the CJEU indicate the personal nature of the originality requirement in the EU. According to Handig, '[t]he expression "author's own intellectual creation" clarifies that a

[415] *Infopaq*, [37]–[39].

[416] Rosati (n 132), 107.

[417] *Infopaq*, para. 33.

[418] ibid para. 34.

[419] ibid para. 38.

[420] ibid paras 35–6.

[421] Rosati (n 132), 187.

human author is necessary for a copyright work'.[422] Besides, the preamble of the Term directive defines original works as 'author's own intellectual creations reflecting his personality', which means that not only does the author need to be human, but the work must also reflect its author's personality.[423]

1.3 UK: Originality as skill, labour and judgement

Although CDPA 1988 states that literary, dramatic, musical or artistic works must be 'original' to merit copyright protection it does not define 'originality', like the Berne Convention and the EU directives discussed in Section 2.1.2. The act also provides copyright protection for computer-generated literary, dramatic, musical or artistic (LDMA) works without mentioning originality.[424] After defining such works as 'generated by computer in circumstances such that there is no human author of the work', section 9(3) CDPA considers these works 'original' and states that the author of a computer-generated LDMA work 'shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken'.

While there may be some similarities between *droit d'auteur* countries and the UK, the theoretical approach to originality is different in the UK.[425] Even though, in 1881, the court in *Dick v. Yates*[426] stated that 'to be the subject of copyright the matter must be original, it must be a composition of the author, something which has grown up in his mind, the product of something which if it were applied to patent rights would be called invention', the decision in *Walter v. Lane*,[427] where the House of Lords said that effort, skill and time are enough to make a work original for copyright protection, is seen as the authority for the term 'originality' in UK copyright law.[428] Therefore, it can be argued that UK copyright law conventionally intends

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[422] C. Handig, 'The copyright term "work" – European harmonisation at an unknown level', (2009) 40 IIC 665, 668.

[423] Council Directive 93/98/EEC of 29 October 1993 harmonising the term of protection of copyright and certain related rights, preamble 17.

[424] Toby Bond and Sarah Blair, 'Artificial Intelligence & Copyright: Section 9(3) or Authorship without an Author' (2019) 14 Journal of Intellectual Property Law & Practice 423, 423.

[425] In this sense, see Mireille MM van Eechoud and Kluwer Law International (Firm) (eds), *Harmonizing European Copyright Law: The Challenges of Better Lawmaking* (2009) 19 Information Law Series.

[426] *Dick v. Yates* 1881 18 Ch. D 76.

[427] *Walter v. Lane* [1900] AC 539.

[428] Rosati (n 132), 91.

to offer copyright protection to skill, labour and judgment used to create a work, rather than creativity, and that originality is associated with 'originating' from an author. *University of London Press v. University Tutorial Press* is considered a main source of this understanding.[429] According to the court, a work is original if it is not copied from another work and demonstrates some level of skill, labour and judgement. According to Judge Peterson the term 'original' in the context of copyright law does not imply that the work must be a product of unique or inventive thinking. The focus of copyright laws is not on the novelty of ideas, but rather on how those ideas are expressed. The required originality pertains to the way the idea is articulated, not that the form of expression itself has to be novel. What is essential is that the work should not be a copy of another work; it should come from the author themselves.[430]

The court in *Express Newspapers plc v. News (UK) Ltd* followed the approach used in *University of London Press* and determined that the originality criterion is met if a sufficient level of skill, labour or judgement are demonstrated (above the minimum).[431] Lord Oliver of Aylmerton in *Interlego v. Tyco Industries* argued that '[s]kill, labour, or judgement merely in the process of copying cannot confer originality', as in *University of London Press*, but did not agree with the defendant's claim that to be eligible for copyright protection there must be an original creative contribution by the author.[432]

In the *Designers Guild* case the House of Lords was asked to rule whether copyright in the artwork for a fabric design had been violated by a subsequent design. It decided that the standard to be used to judge infringement claims is whether the claimed infringer used a significant amount of the original author's own skill, labour and judgement while producing the work. According to Lord Hoffman, '[o]riginality, in the sense of the contribution of the author's skill and labour, tends to lie in the detail with which the basic idea is presented'.[433]

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[429] Lionel Bently and Brad Sherman, *Intellectual Property Law* (3rd edn, Oxford University Press, 2008), 93–107; MacQueen, Waelde and Laurie, *Contemporary Intellectual Property*, 50–7; Catherine Colston and Kirsty Middleton, *Modern Intellectual Property Law* (2nd edn, Cavendish, 2005), 261–3; Paul Torremans, *Holyoak and Torremans: Intellectual Property Law* (4th edn, Butterworths, 2005), 175.

[430] *University of London Press Ltd v. University Tutorial Press Ltd.* [1916] 2 Ch 608.

[431] *Express Newspapers -v- News (UK) plc* [1990] FSR 359.

[432] *Interlego AG v Tyco Industries Inc* [1989] AC 217.

[433] *Designers Guild Ltd v. Russell Williams (Textiles) Ltd*, [2000] 1 WLR 2416, Lord Hoffman.

Similarly, in a more recent case,[434] the court stated that a work can obtain copyright protection, even where it has the same appealing qualities as a previous creation, if it is not copied and is the result of independent skill and labour.

In yet another case,[435] it was held that the concept of reproduction is wide enough to allow ideas to be copied from a literary, dramatic, musical or artistic work, provided that their original expression involves enough original skill and labour to obtain copyright protection. Since 'original skill and labour' cannot be given the same meaning as 'skill and labour', it may involve more than just labour and skill; the extra component is the intellectual creativity that EU regulations seem to demand.[436] In this context, the court in *AS Institute v. World Programming Ltd* demanded evidence that the author had left a 'personal touch' on the work by the creative decisions that (s)he had made.[437] In contrast, the Court of Appeal in *Newspaper Licensing v. Meltwater*[438] held that *Infopaq* had failed to meet the long-standing originality test of decisions like *University of London Press* and *Ladbroke*.[439] According to the Court, 'intellectual creation' as introduced by the CJEU, refers to origin, not novelty or quality.[440]

In the copyright laws and case law in the jurisdictions covered in this section, for a work to be considered original it must first be an independent creation. In the USA and the EU, this condition is regarded from the romantic perspective of the 'author', from whom work is mainly understood as originating. By contrast, the UK focuses on the final work, and under UK copyright law originality can be interpreted simply as not being a copy of another work.

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[434] *Template Island Collections v. New English Teas and Nicholas John Houghton* [2012] [EWPCC 1], paras 27 and 68.

[435] *The Newspaper Licensing Agency Ltd v. Marks & Spencer*, 2001 UKHL 38, Lord Hoffman.

[436] *Template Island Collections v. New English Teas and Nicholas John Houghton* (n 434); See *SAS Institute Inc. v. World Programming Ltd.*, CJEU 2 May 2012 (Case C-406/10). See also Andreas Rahmatian, 'Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure' (2013) 44 IIC - International Review of Intellectual Property and Competition Law 4 29-31; Daniel J Gervais, '*Feist* Goes Global: a Comparative Analysis of the Notion of Originality in Copyright Law' [2002] Journal of the Copyright Society of the U.S.A. 34, 959–60.

[437] *AS Institute v. World Programming Ltd* [2013] EWHC 69 (Ch.), para. 41.

[438] *Newspaper Licensing Agency Ltd and others v. Meltwater Holding BV and others* [2010] EWHC 3099 (Ch.), and before the Court of Appeal, [2011] EWCA 890 Civ, [2012] RPC.

[439] ibid paras 19–20. See also *Ladbroke (Football) Ltd. v William Hill (Football) Ltd.*, (1964) 1 WLR 273, 287 , HL) (UK).

[440] ibid.

However, being an independent creation is not enough to merit copyright protection. In the USA a work should also demonstrate its author's creativity, at least to a minimal degree, and in the EU it should show something of its author's personality. In other words, to be considered original in these jurisdictions the work should be the result of a human creative process. In contrast, the UK requires the work, in addition to not being copied, to be the result of its author's own skill, labour and judgement, to be seen as original.

2. Originality without Independent Creation

International copyright laws do not specify what constitutes originality. The Berne Convention merely includes a list of potential types of subject matter and a vague reference to 'original works'.[441] While the 'idea/expression dichotomy' in various treaties allows countries some flexibility in determining the level of protection in their domestic copyright laws,[442] it does not clarify the uncertainty surrounding the primary definition of originality.

Nevertheless, it would not be wrong to say that the approaches to the concept of originality in a global sense are shaped around two principal concepts: 'author's own intellectual creation' and 'skill, labour and judgement'. While the first focuses on the process through which the work emerged and demands some degree of independent creativity and the 'author's personality' to be part of that process, the second focuses on the work emerging at the end of the process rather than the process itself, and considers that work original if it is 'not copied from another work' and is the result of author's 'skill, labour, and judgement'.[443] Although US courts use the term 'author's intent'[444] instead of author's personality, the requirement to be human and the process of creating the work are central to both the EU and US interpretations.[445]

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[441] Sam Ricketson, 'The 1992 Horace S. Manges Lecture-People or Machines: The Bern Convention and the Changing Concept of Authorship' (1991) 16 Colum.-Vla JL & Arts 1, 10. See also Articles 2(1) and (3) of Berne Convention.

[442] See Agreement of Trade-Related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods, 15th December 1993, 33 ILM 81 (1994), (TRIPS), Article 9(2) and WIPO's Copyright Treaty, Article 2.

[443] See Section 2.1.1, 2.1.2 and 2.1.3.

[444] Yanisky-Ravid and Velez (n 362), 40.

[445] More specifically, a choice is original, under the US *Feist* definition of originality, 'if made independently by the author and… not dictated by the function of the work, the method or

It would hardly be sustainable to assert that these 'definitions' make it easier to decide whether a work is original. Rather than seeking a more objective examination for originality by focusing on the work and how the public perceives it, the current legal climate favours a subjective approach that focuses on the creative process, including the author's intention, creative choices and personality.[446] Consequently, it is challenging for courts to determine whether works are original under the originality criteria at present in place. Independent creation, author's creativity and personality are all intimately related to the current approaches to originality, and this section will discuss the requirement for independent creation.

2.1 How to be subjective about originality?

As demonstrated in the first section of this chapter, the present definition of originality in the USA and the EU contains two components: the minimal degree of creativity to be shown by the author, and 'independent creation' or not copying in substance from another work protected by copyright or in the public domain. Novelty is not essential; an author may choose a selection or arrangement of elements utilised by others. However, apart from demonstrating a minimum level of creativity, to be original the author must select or arrange independently (i.e. without duplicating the selection or arrangement in another work). Under this conception of originality, two persons who independently create identical works without copying each other or anything in the public domain might both be deemed authors of original works.[447] Thus, for copyright purposes (according to the Court in *Feist*) originality means 'only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity'.[448] Likewise, the 'author's own intellectual creation' criterion for originality stated in some EU directives and harmonised in *Infopaq* may be interpreted as requiring a physical person's independent mental activity.[449]

technique used, or by applicable standards or relevant good practice, while the work must have at least a modicum of creativity'. Similarly, a work is original, under the EU directives and case law, if it is the 'author's own intellectual creation'.

[446] Reichman (n 398), 954; Yanisky-Ravid and Velez (n 362), 32.

[447] Zimmerman (n 382), 188.

[448] *Feist*, 345.

[449] Rosati (n 132), 95.

Independent creation is unquestionably one of the most significant copyright requirements in both jurisdictions.[450] A work must be 'original' to qualify for copyright protection, and to be considered original the work must be the author's own 'independent creation'.[451] Conversely, copying is the antithesis of independent creation. A work is original if it shows at least a minimal amount of creative expression that has not been copied from another source. If anything is copied in the creation process, copyright is infringed; to view this from the other direction, infringement happens only when one work copies another. In this regard, the doctrine of independent creation serves two purposes in copyright law: to determine the scope and the validity of copyrighted works. First, copyright only protects works that authors independently create. Second, copyright protection is decided by looking for independence in the creation. A later work only infringes copyright in an earlier work if it is at least partly a copy of that earlier work and not a completely original, separate work. Even if a later work produced by a defendant is similar to an earlier work produced by a plaintiff, plaintiffs will only be awarded compensation if they can demonstrate that the defendant copied from them.[452]

By the same logic, an identical or similar work that was independently created and did not duplicate the protected work does not infringe the rights of the earlier work's author,[453] because copyright law recognises independent creation as a complete defence against infringement.[454] Nevertheless, it considers a work copied and hence unoriginal regardless of whether putative creators meant to copy or even knew they were copying.[455] Rights and liabilities are determined by whether the author sat down to make the work fresh from her/his

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[450] *Feist*, 345: 'the *sine qua non* of copyright is originality'.

[451] ibid. This is not, however, the only condition. Works must also demonstrate some minimal creativity, consistent with *Feist*, and they must be fixed in a tangible medium of expression. 17 USC §102(a) ('Copyright protection subsists… in original works of authorship fixed in a tangible medium of expression…').

[452] *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2nd 49, 53 (2nd Cir. 1936): 'if by some magic a man who had never known it were to compose anew Keats's "Ode on a Grecian Urn", he would be an "author", and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats's'.

[453] *Bell*, at 102.

[454] *Rentmeester v. Nike, Inc.,* 883 F.3rd 1111 at 1117.

[455] Subconscious copying doctrine: See Section 2.2.2, page 88-9.

own thoughts or drew on a previous work that buried itself in his/her memory, only to emerge at this unfavourable moment.

Within the current understanding of copyright originality in the USA and the EU, therefore, one of the main questions to be asked when deciding whether a work is original or infringes another work is whether the author thought of previous work/s when creating this one. Even though copying may have been completely unintentional,[456] in the infringement assessment copyright law does not need the defendant to know or intend to copy the previous work/s. However, how can we tell whether, while creating the new work, an author unconsciously recalled previous works they had seen? Is it possible to determine whether the author simply forgot the earlier work? Even if the two works are somewhat similar to one another, is it not possible for the later creation to be the result of an independent creative process without being copied from the earlier one? The fact that the originality of a work, or infringement of the copyright in another work, depends on the answers to these questions, which even creators themselves cannot always answer clearly, poses a severe problem for consistency and accuracy in assessing originality for copyright law.

2.2 Can you tell me if you created it independently?

Even though there is no way to *establish* how independent the creative process was, courts are compelled to attempt to do so because it is assumed that '[e]verything registers somewhere in our memories, and no one can tell what may evoke it'.[457] In other words, when someone engages with something (a work of art, say), the experience is recorded in their memory and leaves a memory trace. Once recorded, the memory trace may eventually reappear when that person tries to create something else; and they might not even know they are drawing on a subconscious memory trace, not starting from scratch.[458] This interpretation makes another assumption about the author's memory: the author might not consciously remember the earlier work, but certainly will not have forgotten it. Once established, the memory trace cannot be

[456] *Harold Lloyd Corp. v. Witwer*, 65 F.2nd 1, 16 (9th Cir. 1933): 'if there was a subconscious memory of the story derived from such knowledge, and if the evidence was such that some unconscious and unintentional copying was disclosed by the play when produced, there might be an infringement, notwithstanding the intentions of the parties to avoid infringement'.

[457] *Fred Fisher, Inc., v. Dillingham*, 298 F. 145, 147 (SDNY 1924).

[458] ibid.

removed.[459] They stay there for a long time, even when more memories are added to our mental libraries from our experiences.

In current copyright law, an equation arises based on these assumptions: an author either creates a new – and original – work that does not depend on previous works experienced, or copies something stored in her/his memory, consciously or subconsciously. This causes a serious imbalance between copyright holders and other creators under copyright law, in terms of how valid their claim of originality can be and liability of copying. While copyright authorities and courts often give significant respect to copyright holders' claims of originality, later authors are frequently considered to have copied 'prior art'. And if copyright holders can demonstrate that the later author was probably exposed to their work at some point, which is not difficult in this digital world where it is very easy to access many works, enumerating similarities between the works is often considered enough to indicate infringement. Besides, in the absence of any significant analysis of their works, copyright holders who register their works with copyright authorities get *prima facie* evidence of their originality. Conversely, it is generally difficult for defendants to prove at trial that the plaintiff's work is similar to or a copy of any prior art.

Contrary to the psychological assumption behind these subjective positions in the assessment of originality, studies show that a significant amount of sensory information fails to encode in our memories or does so ineffectively.[460] Although attention is closely connected with memory encoding, many people give a limited amount of attention to numerous parts of their experience. They may miss even obvious changes in their environment; or, even if attentive, some experiences may not be deeply encoded in long-term memory.[461] Thus, far from

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[459] ibid. and *Bright Tunes Music Corp. v. Harrisongs Music Ltd.*, 420 F. Supp. 177 (SDNY 1976). These ideas are reflections of Freud and his followers' theories of the unconscious mind and memory. According to Freud, the mind 'has an unlimited receptive capacity for new perceptions and nevertheless lays down permanent – even though not unalterable – memory-traces of them'. As we experience things, they pass through our 'perceptual apparatus' – our senses – and become imprinted on the unconscious 'mnemic apparatus', or memory. See Sigmund Freud, 'A Note on the Mystic Writing Pad', in *The Standard Edition of the Complete Psychological Works of Sigmund Freud* (James Strachey ed., 1961), Vol. 19, 226, 228. Freud notes that he began working these ideas out in his earlier book, *The Interpretation of Dreams* (1900), in the same edition.

[460] Daniel L Schacter, 'The Seven Sins of Memory: Insights from Psychology and Cognitive Neuroscience.' (1999) 54 American Psychologist 182, 185.

[461] ibid.

'everything register[ing] somewhere in our memories', it is possible that much of what we encounter leaves no imprint on our mind, and that something can make an impression but still be forgotten.[462] On top of that, if an author recreates a part of a work experienced years before, even neuroimaging studies cannot be sure that (s)he has stored the earlier work in his/her memory, and if so, how much of it was remembered; so how can courts?

Moreover, the creative process appears to be strongly linked to memory, according to recent research in cognitive neuroscience as mentioned in Chapter 1. In other words, creativity may require memory. It can involve two stages: generation of the idea and assessment of it.[463] First, creators come up with potentially useful new ideas, then they evaluate those ideas to decide whether they will contribute to the work at hand.[464] The first stage does not require coming up with ideas completely from scratch. Instead, neuroimaging and behavioural research show that it frequently entails use of episodic memory, and that people with greater episodic memories or who have been motivated to use them are generally more creative.[465] Additionally, research involving skilled musicians, poets and writers who were asked to generate new works while having their brains scanned revealed activation of brain areas relating to episodic memory.[466]

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[462] ibid 184; Benjamin C Storm, Genna Angello and Elizabeth Ligon Bjork, 'Thinking Can Cause Forgetting: Memory Dynamics in Creative Problem Solving' (2011) 37 Journal of Experimental Psychology: Learning, Memory, and Cognition 1287, 1287. Recent evidence suggests that what we term forgetting is a dual process: both loss of information over time and retrieval failures attributable to blocking or inaccessibility. Forgetting can happen in minutes, or over years. As with encoding failures, memory transience is often a product of attention and usage. Memories that are repeatedly accessed tend to fade less quickly than those that are rarely or never accessed. Forgetting can, in fact, be enormously important for creativity. Experiments suggest that people can experience creative blockages when they fixate on previous solutions to problems.

[463] Roger E Beaty and others, 'Creative Cognition and Brain Network Dynamics' (2016) 20 Trends in Cognitive Sciences 87, 90.

[464] ibid 91–2.

[465] Kevin P Madore, Donna Rose Addis and Daniel L Schacter, 'Creativity and Memory: Effects of an Episodic-Specificity Induction on Divergent Thinking' (2015) 26 Psychological Science 1461.

[466] Qunlin Chen, Roger E Beaty and Jiang Qiu, 'Mapping the Artistic Brain: Common and Distinct Neural Activations Associated with Musical, Drawing, and Literary Creativity' (2020) 41 Human Brain Mapping 3403.

Memory is an important part of creativity because it helps to imagine or simulate possible future events.[467] An author who creates anything relies on recollections of previous experiences in order to think of other possibilities.[468] Without memories, it is impossible to know what kinds of approach 'work' or where new possibilities may lie.[469] And despite the fact that creativity research indicates two discrete stages behind ideas – generation and assessment – the process is far more dynamic than this description implies. A creator constantly needs to remember and copy while producing work. In the meantime, creators' memories, in general, do not contain all of their past experiences.[470] They do not recall some of them, and the parts that they do remember are hazy and subject to change.[471]

On the other hand, from a psychological point of view, the relationship between creation and copying is not as antithetical as copyright law presupposes. Creating a new work is always and fundamentally an act of remembering older works, thinking through them in an attempt to find different paths.[472]

1: ///:\\\ 2: \/\+/\/ 3: |||–||| 4: |\|=|/|

Suppose works 1 to 4 were created by different authors in the same field, and the fourth was the last one created. In such case, it is not possible, within the current procedures for examining originality, to decide whether the last work is original without clearly answering the following questions. Did the author of 4. experience works 1., 2. or 3.? If so, did the author commit the work(s) to memory? If so, did those memories remain exactly as they were memorised, or change or get forgotten over time? If the former, did the author of 4. consciously or unconsciously recall 1., 2. or 3. – wholly or partially – while creating 4.? If so, did the author of 4. copy all or some of these remembered details, consciously or unconsciously, or pass them

[467] Daniel L Schacter, 'Adaptive Constructive Processes and the Future of Memory' (2012) 67 American Psychologist 603, 1.

[468] ibid 3.

[469] Carsten KW De Dreu and others, 'Working Memory Benefits Creative Insight, Musical Improvisation, and Original Ideation through Maintained Task-Focused Attention' (2012) 38 Personality and Social Psychology Bulletin 656.

[470] Schacter (n 467), 18.

[471] ibid.

[472] Barry S Stein, 'Memory and Creativity', *Handbook of creativity* (Springer 1989) 163.

through his/her own creative sieve and produce a new work? Although neither the science of psychology, nor authors themselves will be able to answer all these questions most of the time, today's copyright law accepts that independent creation is possible and that the authorities who need to examine the originality of a work can find the answers to these questions. In view of the research findings I have summarised, and the logical steps just outlined, contrary to the current assumptions of copyright law, I argue that independent creation is not possible.

2.3 Independent creation criteria should be abandoned

Nevertheless, in the light of current approaches, copyright exists only in original works, and only independent creations are considered original by copyright law. In this regard, should a disagreement arise between two parties over the originality of two works, one of the first things that must be determined is the scope of the plaintiff's copyright. However, the present approach to originality that requires independent creation creates an imbalance between the plaintiff and the defendant. In a claim for copyright infringement, the current independent creation approach considers it sufficient to look at the plaintiff's work and compare it with the defendant's, when examining whether the defendant created that work independently.[473] But before that, should not the originality of the plaintiff's work be evaluated? Should courts not examine whether the work was created independently? To do this, thousands, if not millions, of works created before the plaintiff's must be examined and the plaintiff's work compared with them. The impossibility of such a comprehensive review resulted in an easy attribution of originality to that work via the requirement for independent creation, until the plaintiff's work alleged infringement of someone else's copyright.[474]

The ease of proving independent creation provided to first comers can also be seen in the liability and copyright infringement issues. Just as decision-makers frequently accept plaintiffs' claims that their works were independently created, they tend to accept plaintiffs' allegations that defendants have copied their work.[475] In theory, plaintiffs must demonstrate

[473] Melville B. Nimmer and David Nimmer, *Nimmer on Copyright* § 1.08(C)(1) (1990).

[474] *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2nd 53, 53 (1936) (ignoring the defendant's efforts to present numerous previous examples of the same dramatic incidents and devices in an attempt to disprove the plaintiff's originality).

[475] Pierre N Leval, 'Toward a Fair Use Standard' (1990) 103 Harvard Law Review 1105, 1131. See also *Gaste v. Kaiserman*, 863 F.2nd 1061, 1069 (2nd Cir. 1988) (acknowledging the

that defendants copied their work rather than creating it independently.[476] However, most of the time, this does not constitute a significant obstacle for plaintiffs. In the absence of direct evidence, they can easily prove infringement by showing the defendant probably had access to the work and that similarities between the two works indicate a close relationship.[477]

Historically, proving that a defendant had seen the plaintiff's work was difficult. Creators were not expected to be familiar with many of the works in their disciplines, even in widely consumed media like movies and music, and they might be especially unlikely to be familiar with works from other nations or different genres. An accused creator could credibly claim to have never heard of even a very well-known creative work unrelated to their own. However, this has changed in the age of the internet and mass media. Large portions of the global creative output are accessible to individuals thanks to the internet and platforms like Google, Spotify, YouTube and others. When this is combined with the fact that much internet content is consumed passively, new information fed by algorithms and playlists with no active request, it is feasible that individuals may be exposed to an extremely broad range of content.[478] Then, given sufficient similarity, a plaintiff might easily 'prove' that a later work was not created independently.[479] As a result, copyright, in reality, does not provide protection to authors who produce an original work independently, but to ones who create a work earlier.

Furthermore, the subjectivity of the test for originality and the imbalance between earlier and later creators seeking to demonstrate independent creation are particularly unfair in the doctrine of subconscious copying,[480] against which allegation it is significantly hard for

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relatively low standard for copyright originality and that 'on the issue of originality... it is even clearer that copyright registration creates a presumption of validity').

[476] Alan Latman, '"Probative Similarity" as Proof of Copying: Toward Dispelling Some Myths in Copyright Infringement' (1990) 90 Columbia Law Review 1187; Mark A Lemley, 'Our Bizarre System for Proving Copyright Infringement' (2009) 57 J. Copyright Soc'y USA 719.

[477] Lemley (n 476), 720–21.

[478] '*Design Basics, LLC v. Lexington Homes, Inc.*, 858 F.3rd 1093 (2017) | Caselaw Access Project' 1107 <https://cite.case.law/f3d/858/1093/> accessed 27 December 2022 (citing a few district court cases in which the plaintiff's internet presence was considered sufficient to establish access).

[479] Carissa L Alden, 'A Proposal to Replace the Subconscious Copying Doctrine Note' (2007) 29 Cardozo Law Review 1729, 1731.

[480] Robin Feldman, 'The Role of the Subconscious in Intellectual Property Law' (2010) 2 Hastings Sci. & Tech. LJ 1, 5.

later creators to meet the independent creation condition when disputes arise. In seeking independent creation, the law must try to work out whether the creator was thinking of (and copying) something they had seen or heard before while creating their works.[481] For later creators, or defendants, it is very hard to prove this, if not impossible. Copyright law provides the subconscious copying doctrine as a solution to this dilemma.[482] If enough evidence shows probable access to earlier work and sufficient similarities between two works, copyright law holds later creators liable for copying even if they cannot recollect the plaintiff's work, nor recall utilising it, and increases this imbalance between different creators.[483]

Thus, the requirement for independent creation is applied quite differently from issues of copyright validity and infringement to the individuals involved. Under copyright law, plaintiffs' works are typically assumed to be original, while defendants may have a difficult time proving that their creations were not copied – possibly even subconsciously.[484] However, this is more than just a case of doctrinal inconsistency. It makes copyright law unfair to some authors because it gives more weight to plaintiffs than defendants and so favours some creators over others. It gives an advantage to early creators who bring cases against later creators. By producing a work earlier in time, one party gets the benefit of the doubt.

Much of the damage produced by the search for independent creation stems from the notion of subconscious copying. If a creator has encountered a work in the past, it is seen as probable that their memory 'played a trick' on them and secretly incorporated that work into their new work.[485] However, since an outsider has no greater access to the mind of a creator than the creator does, it is hard to resolve originality issues in an accurate and consistent way. There is therefore a strong case for copyright law to abandon the notion of subconscious copying as a solution to these problems. Having done this, the law would then require evidence

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[481] *Harold Lloyd v. Witwer*, ('an intentional copying is not a necessary element in the problem if there has been a subconscious but actual copying').

[482] ibid.

[483] Karen Bevill, 'Copyright Infringement and Access: Has the Access Requirement Lost Its Probative Value' (1999) 52 Rutgers L. Rev. 311.

[484] 17 USC § 410(c): '[i]n any judicial proceedings the certificate of a registration made before or within five years after first publication of the work shall constitute *prima facie* evidence of the validity of the copyright and of the facts stated in the certificate'.

[485] *Fred Fisher v. Dillingham*, '[o]nce it appears that another has in fact used the copyright as the source of his production, he has invaded the author's rights. It is no excuse that in so doing his memory has played him a trick.'

of conscious, purposeful copying before an infringement could be considered to have occurred. However, while many examples can be found of defendants plainly meaning to replicate a plaintiff's work, in many more circumstances it would be impossible to determine intentional infringement because, as the neuroscientific creativity research discussed in 2.2 suggests, copying occurs frequently during the process of producing and assessing new ideas and most of this occurs below the level of conscious awareness.[486] Since even the author himself may not be able to say whether he intends to copy works he remembers in the creation process, most of the time, and it is not possible for someone from outside to determine this clearly, abandoning the doctrine of subconscious copying seems less than ideal.

As another option to address the issues of unfairness and inconsistency caused by the independent creation approach, copyright law might treat independent creation the same way, regardless of whether it emerges as an issue of validity or infringement, by being more sceptical of plaintiffs' claims, or less suspicious of defendants' claims, of independent creation.[487] The defendant might be permitted to contest the plaintiff's claim of originality at trial by citing demonstrable similarities in one or more works in the public domain to which the plaintiff had access. Even if the plaintiff did not remember encountering the earlier work, or believed they did not use it when generating their own, copyright in their work could be removed or limited if they could not prove, by positive evidence, that they had independently developed the work. This approach might bring something like 'claim construction' to copyright litigation, end some copyright disputes, drastically reduce the scope of many copyrights and have other beneficial outcomes.[488] However, it, too does not seem ideal since it does not remove the requirements to show authors' intention and independent creation from the originality determination.[489]

In the light of these discussions, the most appropriate response seems to be for copyright law to completely abandon the concept of independent creation. The legal characterisation of independent creation under copyright is unfair and inconsistent, and the doctrine's grounding in fact is unclear. The independent creation criterion moves the foundation of copyright law back to the idea that originating is preferable to copying. In many instances, however, it is hard

[486] Alden (n 479), 1751.

[487] Buccafusco (n 363), 30.

[488] ibid.

[489] ibid.

in practice to distinguish between these two actions. Once it is known that an author may have had access to a work, it is extremely difficult to determine whether he used it when creating his own work.[490] Even though copyright law might modify its assumptions regarding independent creation, to answer the empirical question whether a creator unconsciously copied a preceding work will still be very difficult.[491]

Furthermore, the independent creation condition for originality does not help to distinguish the scope of a copyright in a meaningful manner. If it is unknown whether a plaintiff created work independently, how can this concept correctly define which parts of that work merit protection? How can other authors determine which parts of the plaintiff's work are original and which were copied? Even if copyright law really looked into whether or not plaintiffs' work was original, only by being sued for copyright infringement could other creators learn what was being protected. To overcome all these issues relating to originality, copyright law should abandon the doctrine of independent creation. It should no longer be asked whether an author's work is 'original' in the sense of coming solely from the author and not from somewhere else. Additionally, actual copying should no longer be *prima facie* a copyright violation. Whether someone copied something or not should not form part of the assessment of originality.

For very good reasons, copyright law has attempted to avoid making artistic or cultural judgements on works, at least since *Bleistein*. The law has abandoned the option of explicitly promoting cultural progress in favour of stimulating the production of work.[492] *Feist*'s low

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[490] As stated in *Millar v. Taylor* by Justice Yates, 'I may call an idea "mine" [he reasoned] only while I keep it to myself. But when I communicate that idea to you, it becomes "our" idea; for I cannot thereafter prevent you from thinking it or using it at your pleasure. Indeed, my very act of communicating the idea to you negatives the existence of any intention on my part to withhold it from you. When an author publishes his work, he communicates his ideas to the world at large. He thus makes a present of his ideas to the public. Thereupon those ideas become the common property of all.' *Millar v. Taylor*, 4 Burrow 2303, 98 Eng. Rep. 201 (KB 1769)

[491] Jessica Litman, 'The Public Domain' (1990) 39 Emory LJ 965, 1015: 'ideas, systems, themes, and plots are not easily traced. It is difficult to ascertain the source of an idea and impossible to prove its provenance in any meaningful sense. A court cannot unzip an author's head in order to trace the genealogy of her motifs; indeed, the author herself usually cannot pin down the root of her inspiration.'

[492] Barton Beebe, '*Bleistein*, the Problem of Aesthetic Progress, and the Making of American Copyright Law' (2017) 117 Colum. L. Rev. 319, 330.

creative standard allows nearly every work to be granted a copyright, and the law may hope that the resulting abundance of works will, in some way, benefit society. In this respect, what should matter for copyright is similarities and differences. Copyright law can fulfil the purpose of fostering expression and culture merely by stimulating the creation of new works that are different in some way from those that came before. It need not be concerned with whether they were created independently. For the purpose of copyright validity, creativity requirements are separate from concepts of independent creation, and to decide whether a work deserves copyright protection, the law should only enquire whether it differs from others that came before it to some minimal extent, following the rulings in *Feist* and *Infopaq*.

The validity standards under design patent law might also be included in copyright law. Under design patent law, the patentee must determine whether their design is essentially different from others that came before it.[493] Independent creation is beyond debate. It is enough for the patent applicant to create something distinct. Even the most simple designs frequently exceed expectations.[494] It all depends on how low the abstraction level is set. Many works can qualify as 'new' when even small alterations are sufficient.

In the context of liability, on the other hand, if copyright infringement took away the defence of 'independent creation' then liability would be based on 'copying-in-fact',[495] 'unlawful appropriation' and 'fair use'. Courts would not be required to assess whether the defendant had copied from the plaintiff consciously or unconsciously. They would simply need to decide whether the plaintiff's reproduction or derivative works rights had been breached by the defendant's work. After working out how the plaintiff's work differed from those that came

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[493] A design patent grants its owner the exclusive right to prevent others from manufacturing, using, selling, offering to sell or importing the protected design. To successfully assert a claim for infringement, the patent owner must demonstrate that an 'an ordinary observer, taking into account the prior art, would believe the accused design to be the same as the patented design'. If 'the claimed and accused designs are "sufficiently distinct" and "plainly dissimilar", the patentee fails to meet its burden of proving infringement as a matter of law.' See 35 USC § 271(a). *Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3rd 665, 682 (Fed. Cir. 2008). See also *Ethicon Endo-Surgery, Inc. v. Covidien, Inc.*, 796 F.3rd 1312, 1335 (Fed. Cir. 2015).

[494] *Door-Master Corp. v. Yorktowne, Inc.*, 256 F.3rd 1308 (Fed. Cir. 2001) (confirming the originality of the design for a basic rectangular cabinet door).

[495] Buccafusco (n 363), 8 (to succeed in a claim of infringement, the plaintiff must formally demonstrate that the defendant copied their work, a requirement known in contemporary legal theory as 'copying-in-fact'. Unlawful appropriation is also known as copying-in-law.)

before it, the courts would be asked how similar the defendant's work was to the plaintiff's and, if very similar, whether the defendant's use of the plaintiff's work had been fair.

Based on the information provided, it appears that the current application of the independent creation doctrine in copyright law disproportionately benefits certain creators and disadvantages others. Specifically, this doctrine favours those who are earlier in the timeline of creation and those who have greater resources to assert their originality. Given these inequities, it could be argued that the elimination of the independent creation doctrine may be a more objective and fair approach to assessing originality in copyright law.

3. Originality Without Personality

The originality requirement is a fundamental principle of copyright law, but debates about the appropriate standard for determining originality have long plagued the field. One aspect of this debate centres on the role of the author's personality in the process of assessing originality. This section examines the debate surrounding the personality requirement for originality and its implications for copyright law. In the first part of this section, the author argues that in several ways this requirement makes the originality assessment process subjective, and considers the potential consequences of relying on the author's personality as a factor in determining originality. The second part claims that the personality requirement should be removed from the assessment process. The author presents his arguments, including the potential benefits of a more objective approach to originality assessment and the potential drawbacks of relying on the personality of an author as a determining factor. In the final part of this section, the author discusses the current approaches to originality in the United States and the European Union, and how these approaches may contribute to an unbalanced environment that is prejudiced against defendants in originality disputes. He argues that the most effective approach to originality in the current copyright environment is the UK's 'skill, labour and judgement' standard, which focuses on the objective qualities of the work itself rather than the subjective characteristics of the author.

3.1 How can we be more subjective about originality?

The main objective of copyright law, according to the US Supreme Court, is 'to stimulate artistic creativity for the general public good'.[496] In response to this statement, lower courts have often described copyright law's goal as promoting creativity,[497] and most theoretical analyses of copyright concur with the courts that such is its principal purpose.[498] To that end, the law demands that every work meriting copyright be 'original', and that in order to be regarded original it be creative.[499] In this respect, the *Feist* decision brought into US law the idea that only a low level of creativity is needed for a work to be considered original, acknowledging that mere labour does not constitute originality.[500]

The US Supreme Court required a work to be 'independently created by the author (as opposed to copied from other works) and possess[] at least some minimal degree of creativity'.[501] As a result, a work should be the outcome of the author's intellectual and creative efforts. Even though the required level of creativity is low, in order to obtain exclusive rights and privileges under copyright, some sort of 'creative spark' must be present.[502] In the same context, an author's decision is considered creative 'if made independently by the author and… not dictated by the function of the work, the method or technique used, or by applicable standards or relevant good practice, while the work must have at least a modicum of creativity'.[503] The requirement for 'a modicum of creativity' in a work in order for it to be considered original changed the legal standard for originality away from a completely 'mechanical or routine' process of creation.[504]

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[496] *Twentieth Century Music Corp. v. Aiken*, 422 US 151, 156 (1975).

[497] See *Beecham Consumer Healthcare, L.P. v. Watson Pharms., Inc.*, 211 F.3rd 21, 29 (2nd Cir. 2000). See also *Kelly v. Arriba Soft Corp.*, 336 F.3rd 811, 820 (9th Cir. 2003).

[498] Shyamkrishna Balganesh, 'Privative Copyright' (2020) 73 Vand. L. Rev. 1, 2.

[499] *Feist*, 345.

[500] ibid.

[501] ibid 348.

[502] ibid.

[503] *Feist*, 358.

[504] ibid.

The approach of the EU copyright law to originality is similar to that of the USA in respect of creativity. Apart from being not copied ('author's own'), the EU requirement for 'author's own intellectual creation' extends to 'creative freedom' (*Murphy*), 'personal touch' (*Painer*) and 'free and creative choices' (*Football Dataco*).[505] From this perspective, originality means intellectual creations,[506] which implies making the subject matter personal,[507] with creative choices.[508] An author can make free and creative decisions in a number of different ways and at a number of different stages during the production of his work. By making these varied decisions, the author may integrate a 'personal touch' into that work.[509]

However, the necessity for originality does not entail that the work must have creative value or aesthetic beauty.[510] The EU's copyright legislation protects both works of great artistic value and more common forms of intellectual creation. In contrast, the notion that a work 'may generate an aesthetic effect' is not sufficient to qualify it for protection by EU copyright.[511] Because the EU places such high emphasis on the act of creation, which entails free and creative decisions, it follows that economic investment cannot, on its own, be used to justify copyright protection. Even if they are crucial, the skill and labour of an author are not taken into account when evaluating originality.[512] Accordingly, originality is demonstrated under EU legislation if the author can show creative capabilities in the creation of the work by making free and creative choices. Even if the creativity or personality of the author is not objectively clear in the resulting work, making 'free and creative choices' and expressing personality

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[505] Rosati (n 132), 187.

[506] *Levola Hengelo BV v Smilde Foods BV*, C-310/17, 2018, ECLI:EU:C:2018:899, para. 36. See also *Cofemel – Sociedade de Vestuário SA v G-Star Raw CV,* C-683/17, EU:C:2019:721, 12 September 2019, para. 29.

[507] Directive 93/98 (n. 58), recital 17: 'a... work... is to be considered original if it is the author's own intellectual creation reflecting his personality'.

[508] *Painer*, paras 88–9.

[509] ibid paras 90–93.

[510] See Computer Programs Directive, recital 8: '[i]n respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied'.

[511] P Bernt Hugenholtz and João Pedro Quintais, 'Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?' (2021) 52 IIC – International Review of Intellectual Property and Competition Law 1190, 1197. See also *Cofemel*, para. 54.

[512] ibid.

seems to be enough to be considered original for copyright protection.[513] This does not imply that a work would be protected if the author merely followed conventional wisdom and made obvious decisions while expressing her/his creative freedom. However, as previously demonstrated, the necessity of originality does not imply a test of aesthetic quality, nor does it require the work to be novel.

In the USA, the creativity necessary for a subject to show originality for the purposes of copyright is tied to the author's internal, personal processes and should be evaluated without reference to other works.[514] In addition, since the author's intention does play a significant part in the process of establishing the originality of a work that is identical to one that already exists, if there was no deliberate copying copyright protection may be provided to the similar work created later.[515] Focusing on personal process and author's intention in the originality examination requires personality.

Similarly, giving rights to the author protects the author as a person, which means that everything the author makes that reflects his/her personality is also protected.[516] In the rights system, authors are more than just creators of property; their creations are indirectly protected by their personality protection.[517] The idea that a person's will is a reflection of their self-consciousness and ego is the cornerstone of author's right systems in intellectual property law.[518] In its pursuit of total freedom, the will attempts to 'impose itself on the external world' through its appearance as personality and property is the 'first manifestation of freedom' of will as personality.[519] As a result, the originality of a work subject to copyright protection is tied to its author's creative choices and personality in the EU, too. Although it is reasonable to regard an author's act of creation as valuable and the work created as original if authors add

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[513] *Painer*, para. 92: '[b]y making those various choices, the author of a portrait photograph can stamp the work created with his "personal touch"'.

[514] The court in *Feist* stressed that 'originality does not signify novelty', 'as long as similarity is fortuitous and not the result of copying, a work may be original'. *Feist*, 345–6.

[515] In the United States, judges utilise a subjective approach and consider the internal processes of the author when evaluating the originality and creativity of the work. See Section 2.1.1.

[516] P Drahos, *A Philosophy of Intellectual Property* (Taylor & Francis 2016) 90 <https://books.google.co.uk/books?id=7FOoDQAAQBAJ>.

[517] Rahmatian (n 108), 15–16.

[518] Drahos (n 516), 89.

[519] ibid 94.

something of their personality to the creative process of their work, attributing the validity of the act of creation in the context of originality to mere personality makes examination for originality more subjective and causes a series of severe problems in copyright law.

3.2 Removing personality from originality

In line with the decision in *Feist*, it is possible for authors to add something from their personality to their work via the decisions they take independently in the creative process. Similarly, authors can stamp their personality on their work by making free and creative choices. This may seem like a reasonable approach at first glance. However, as discussed in Chapter 1, current psychological, philosophical and neuroscience research have found that creativity is not a uniquely human trait. It can be coded, and a machine can be creative.[520] Today's artificial intelligence systems such as OpenAI's GPT-3 and DALL·E 2 can easily be said to produce quality works that would meet the requirements for copyright protection at the end of creative processes, in the light of the arguments summarised in this chapter.[521] There is a high demand from end-users for the works produced by the AIs in question,[522] as they are of a quality that cannot be distinguished from works created by humans in the same field,[523] they are produced quickly and they are comparatively cheap. Connecting creativity to personality causes these works, which are produced every day in higher quality with increasing speed, to

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[520] Detailed analysis and arguments can be found in Chapter 4.

[521] For example of works created by these AIs, see Section 4.1.1.

[522] 'ChatGPT Gained 1 Million Users in under a Week. Here's Why the AI Chatbot Is Primed to Disrupt Search as We Know It' <https://finance.yahoo.com/news/chatgpt-gained-1-million-followers-224523258.html> accessed 28 December 2022.

[523] Claire Cain Miller and others, 'Did a Fourth Grader Write This? Or the New Chatbot?' *The New York Times* (26 December 2022) <https://www.nytimes.com/interactive/2022/12/26/upshot/chatgpt-child-essays.html> accessed 28 December 2022. To determine whether individuals could distinguish between the writing of a bot and that of a child, the authors used actual essay prompts from the National Assessment of Educational Progress (a standardised test administered by the Department of Education, known as the 'nation's report card'). They asked the bot to produce essays based on these prompts, providing occasional guidance and instructing it to write like a student of the appropriate age. They compared the resulting essays to sample answers written by real children. The authors also asked several experts on children's writing to participate in a live variation of the Turing test, including a fourth-grade teacher, a professional writing tutor, a Stanford education professor and children's author Judy Blume. None of these experts were able to consistently identify whether an essay was written by a child or a bot.

be excluded from the originality evaluation in the context of copyright. This conflicts with copyright's aim of ensuring that more works are produced in the name of human progress.

Even if a work created independently by an author that reflects something of its author's personality is similar to other works created before, since in the copyright context its originality is linked to the personality of the author through creativity, it is possible to protect this work through copyright. To do this, copyright law must have certain knowledge that the work in question reflects something of the personality of the author. But how can one define personality from a legal perspective in an objective way? In *Feist*, the court tried this and, in a sense, connected personality to the expression of independent creation.[524] Similarly, in EU case law, personality has been defined as the author's free and creative choices.[525] However, these concepts are also highly 'personal', and since even the author himself cannot be sure about their presence as demonstrated by the psychological and neuroscientific research summarised in Chapter 1, their existence is very difficult to determine clearly.

Therefore, just like independent creation, linking originality to personality through creativity is an obstacle for consistent and accurate evaluation of works subject to copyright law. Trying to determine the presence of the author's personality without precisely defining what constitutes it, and deciding whether a work is original based on personality, can cause highly subjective determinations of originality. However, copyright laws should be at an equal distance from all works and their creators; evaluations under the law should be made according to objective criteria; they should be stable, consistent and predictable. Defining creativity through personality and considering originality in the light of its perceived presence or absence prevents copyright laws from achieving these goals properly.

It is true that every individual's personality is unique and if a created work contains a piece of that personality, it should be considered unique and original, too. However, what romantic authorship's supporters miss here is that the value of personality comes not from itself but from its uniqueness. From this point of view, it could be said that the romantic authorship advocates, who are serious proponents of the idea that personality should be preserved, mainly value dissimilarity. They attach great importance to the key point in the evaluation of originality, the difference of a work from other works. But in the event that similar works are

[524] *Feist*, 345.

[525] *Painer*, para. 92.

created by different authors who did not seek to copy, protecting both works because they reflect something of the personality of their authors means ignoring the value that should be given to dissimilarity.

All these show the symbiotic connection between originality, creativity and personality,[526] especially in the EU and USA. For a work to be considered original, it must contain something from its author's personality. A creation could result from a creative process, even if it does not reflect personality, as shown in Chapter 1. However, the author's personal touch, which results from free and creative choices and reflects personality and creative abilities, makes the work the 'author's own intellectual creation' and merits copyright protection because the purpose of property is 'to serve personality', and property is the 'embodiment of personality'. However, this leads to a situation where copyright law is not concerned with whether a work is truly original but instead whether it serves personality or not. Undoubtedly, an author's stamping his personality on his work, or reflecting his personality in creative and free choices, will make that work original if this makes the work different from others. However, even if it is determined that the personality of an author is somehow reflected in a work, but the work in question is greatly similar to other works, it should not be protected just because it contains something from the personality of the author.

Originality is a fundamental concept of copyright law, and its existence should be investigated as consistently and objectively as possible. Nevertheless, the fact that today's originality approach is dependent on such subjective and variable conditions that are so difficult to determine objectively does not benefit either the authors, society or the courts trying to resolve disputes over the copyright protection of works. In this context, what needs to be done is to make the originality examination as objective and simple, yet as effective and consistent, as possible. This can be achieved by removing the requirement for personality from the originality examination.

3.3 Being objective about originality

Clearly, copyright law should free the concept of originality from these heavy and ambiguous subjective burdens and make it clearer, simpler and more effective. Concepts like 'independent

[526] Human requirement and authorship is the subject matter of Chapter 3, which examines justifications for and purposes of copyright law and authorship.

creation' and 'author's own intellectual creation' only serve to introduce prejudice into copyright laws and should be avoided. Instead of focusing on whether an author copied earlier works, the law should examine whether or not the resulting work differs sufficiently from previous works for copyright law to recognise it as worth protection. Then, if a work *is not* a copy of earlier works and it *is* a result of an author's own skill, labour, judgement and effort, it should be considered original for the purpose of copyright law. 'Not a copy' here should be perceived as the differences between the work and previous works exceeding any similarities. 'Skill, labour and judgement' here, on the other hand, stand against randomness and unimportant differences. The work must have emerged through the filter of the decision-making process.

Originality is 'the quality of being new and interesting in a way that is different from anything that has existed before'.[527] Instead of considering whether a work was created by a person, the law should simply ask whether it is sufficiently distinct from earlier works to be considered valid, valuable and non-infringing. By making this adjustment, the distortion around the term originality would be eliminated while the legislation would be more focused on what matters most. Removing from the evaluation of originality the requirement that a work must contain something of its author's personality does not contradict the understanding of ownership based on the theories of Hegel and Locke, nor the copyright law built on these foundations.[528] Reflecting personality through free and creative choices or personal touches can still easily make a work original and worth copyright protection by making it different from previous works. With this change, the concept of originality will be free of subjective and complex evaluations and will become much more consistent and straightforward for creators and courts within the context of copyright law's goals.

This theoretical idea proposes that artistic creativity and personality should not play a role in the examination of originality required for copyright protection. In line with this proposal, when examining the originality of a work, instead of subjective and difficult-to-determine issues such as the intention or personality of the author, emphasis should be placed

[527] 'Originality Noun - Definition, Pictures, Pronunciation and Usage Notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.Com' <https://www.oxfordlearnersdictionaries.com/definition/english/originality?q=originality> accessed 24 September 2023.

[528] For the theories of Locke and Hegel, see Chapter 3.

on the similarities and differences from the perspective of audience interpretation, which is easier to detect and will lead to more objective results.

The fundamental rationale behind this proposal is the understanding that copyright should protect an author's investment in creating a new work (a work different from others) against a competitor's unfair use of his results. In this way, the author is encouraged to produce more work, society benefits from the increase in work produced, and the progress of humanity continues at an increasing pace, which is one of the main purposes of intellectual property rights and copyrights.

Choosing a clear, simple, yet effective approach to originality, as proposed here, would be beneficial for past and future authors, courts needing to determine originality, and society. The objectivity that this approach brings to copyright law will make it more consistent and predictable. It will also ensure that the obstacles presented to defendants by the courts' pre-supposition that a plaintiff's work is original are reduced or eliminated. In such cases, the defendant would have the opportunity to claim that the plaintiff's work was not original because it resembles other, earlier work. This would deter potential plaintiffs from filing suit in cases where there is little similarity between their own work and the work of the defendant, and so reduce the workload of the courts.

On the other hand, an author might intend to restore or copy an existing work, but fail and the work he or she creates may be original because it is unlike or sufficiently different from any previous work.[529] Moreover, a work created by applying skill, labour and judgement may not reflect the personality of its author, but still be sufficiently different from other, earlier works.[530] The current approach to originality may be preventing the creation of many potential works by denying them copyright protection. The proposed approach, however, does not prevent works reflecting personality from being accepted as original, but rather allows works that do not to be accepted as original.

The current approaches to originality in the USA and the EU, by giving importance to the personality of the author, cause copyright law and intellectual property rights to move away from the aims to foster creative work and the progress of humanity. At the same time, it causes

[529] See also Laura A. Heymann, 'Everything Is Transformative: Fair Use and Reader Response', (2008) 31 Colum. J.L. & Arts 445, 448.

[530] See outputs of ChatGPT and DALL·E in Section 4.1.1.

an unbalanced environment prejudiced against defendants in originality disputes. For these reasons, bringing the originality approach in these jurisdictions within the framework the author of this thesis has proposed will contribute to copyright law achieving better sociological and economic effects.

Although some argue by depending on two recent cases[531] that the EU 'author's own intellectual creation' approach is now part of the UK definition of originality,[532] the most effective approach to originality and the one closest to the proposed concept in the present copyright environment is the UK's 'skill, labour and judgement'. Generally speaking, in the UK, if a work is the result of its author's skill, labour and judgement and not copied from another work, it is accepted as original for the purposes of copyright protection. This approach provides copyright protection to as many works as possible, protecting all the creators equally and allowing more works to reach the community. Moreover, the fact that UK copyright law provides copyright protection to computer-generated works under CDPA 9(3) is an excellent demonstration of the arguments above claiming that a work can be considered original even if it does not reflect personality. From this point of view, the UK copyright system better serves the purposes of copyright law by protecting all works that are sufficiently different from other works and that are created as a result of their authors' skill, labour and judgement – whether they reflect personality or not.

[531] *Newspaper Licensing Agency, Ltd. v. Marks & Spencer*, and *Designers Guild, Ltd. v Russell Williams (Textiles), Ltd.* [2000].

[532] Gervais (n 435), 959.

Conclusion

After examining the current approaches employed in determining originality in copyright law, this chapter advanced the argument that the subjective elements of independent creation and personality, which are essential in determining originality, contribute to inconsistencies in the application of copyright law and an unpredictable landscape for creators. Consequently, the author proposed a shift towards a more objective standard of originality. While the protection of creators' rights and incentivisation of the production of original works remain crucial, the public's interest in the widespread distribution of creative works cannot be overlooked. Therefore, he argued that an objective standard for originality within copyright law could offer a more balanced approach between these sometimes-conflicting interests, fostering a more consistent and predictable legal atmosphere for creators.

It was also suggested in this chapter that one plausible strategy to establish this objective standard of originality in copyright law could involve adopting an assessable measure of originality. This could take into account similarities and differences between a given work and existing works. It could also present a clearer and more objective foundation to determine a work's eligibility for copyright protection, as opposed to relying on the subjective measures of independent creation and personality.

It is important to mention, though, that transitioning to a more objective standard for originality in copyright law would not eradicate all subjective elements from the copyright evaluation process. There will inevitably be some degree of subjectivity involved when assessing if a work achieves the requisite creativity level for originality. Nevertheless, a more objective standard could offer a clearer and more transparent decision-making framework and foster increased consistency, predictability, and fairness in the assessment process. By adopting an objective standard for originality, it can be ensured that copyright law maintains a fitting balance between securing creators' rights and fostering the public interest in the widespread dissemination of creative works.

Chapter 3: COPYRIGHT FOR ROMANTIC AUTHORSHIP

Introduction

Copyright law provides creators of original works with exclusive rights to control the use and distribution of their creations.[533] These rights are intended to incentivise creativity and innovation by allowing creators to monetise their creations and recoup their investments in the creative process.[534] However, with competing justifications and conflicting interests at play, one key debate in copyright law is the concept of authorship and how to define an author.[535] This chapter first examines the personality justification for intellectual property, which posits that creators have a natural claim over their own feelings, experiences, talents and character traits.[536] According to this view, the creative process is an expression of the creator's personality, and the work is a manifestation of their unique identity.[537] Accordingly, copyright law should recognise the creator as the author and the primary owner of the work and grant them exclusive rights to control its use and dissemination.[538]

The second section looks at the labour justification for intellectual property. Contrary to the personality justification, labour theory emphasises the economic value of creative works and the role of copyright law in rewarding creators for their contributions to society.[539] In this view, copyright law offers a form of compensation for the time, effort and resources invested

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[533] Patterson (n 47).

[534] US Const., art. I, § 8, cl. 8.

[535] Christopher Buccafusco, 'A Theory of Copyright Authorship' (2016) 102 Va. L. Rev. 1229, 1231. (In footnote 7: '[m]any other copyright law issues involve questions of authorship, perhaps most obviously those involving joint authorship and works made for hire'.)

[536] Georg Wilhelm Fredrich Hegel, *Hegel: Elements of the Philosophy of Right* (Cambridge University Press 1991) 73.

[537] Josef Kohler, *Philosophy of Law*, vol. 12 (Boston Book Company 1914) 80.

[538] Justin Hughes, 'The Philosophy of Intellectual Property' (1988) 287 Georgetown University Law Center and Georgetown Law Journal 330.

[539] John Locke, *Locke: Two Treatises of Government* (Cambridge University Press 1967), para. 33.

in the creation of a work.[540] This justification is rooted in the idea that 'people are entitled to hold, as property, whatever they produce by their own initiative, intelligence, and industry'.[541] The chapter continues with the utilitarian justifications for copyright law which focus on the social benefits of creative works and the role of copyright law in promoting the public good.[542] According to this view, copyright law should strike a balance between providing incentives for creators and ensuring that their works are widely available and accessible to the public.[543] After examining these justifications, the chapter looks at how they have shaped the definition of an author in copyright laws. In particular, it explores how the concept of authorship has evolved over time and how it has been influenced by different philosophical and cultural perspectives on creativity and ownership.

The chapter also considers the implications of these justifications and definitions for the recognition of artificial authors in copyright law. With the rapid advance of artificial intelligence and other technological innovations, it is increasingly possible for machines to create works entirely without human guidance and control that cannot be distinguished from work created by humans. This raises important questions about the role of artificial authors in copyright law and whether the law should offer them protections comparable to those offered human authors.

1. Authorship Is Personality

1.1 Personality justification for intellectual property

The rationale for this principle can be traced back to the philosophy of law articulated by Kant and the philosophy of right put forward by Hegel, respectively.[544] Radin's work has further

[540] Lawrence Becker, *Philosophic Foundations* (Routledge & Kegan Paul 1977), 32.

[541] ibid.

[542] John Stuart Mill, 'Utilitarianism', in *Seven masterpieces of philosophy* (Routledge 2016).

[543] ibid 15. See also Patrick Croskery, 'Institutional Utilitarianism and Intellectual Property' (1992) 68 Chi.-Kent L. Rev. 631.

[544] Immanuel Kant, *The Philosophy of Law: An Exposition of the Fundamental Principles of Jurisprudence as the Science of Right* (T & T Clark 1887); Hegel (n 536); Radin (n 20), 957.

developed this idea in modern legal discourse.[545] Kant and Hegel recognise a moral claim to property rights over an object as owing to the fact that people express their autonomy and will through the object.[546] In accordance with personality theory, producing something and making it available to the wider public are examples of expressing personality, which is presumed to depend on a person's relationship with external things.[547] This argument highlights the extent to which property is personal as opposed to fungible: the argument is strongest when an object or concept is strongly connected with an individual's personal identity and weakest when the value given by the individual to the 'thing' is based on its market value.[548]

According to Hegel, property is necessary for human will to be externally actualised.[549] In other words, the personality justification for intellectual property is based on the idea that in order to develop properly and be a person, an individual requires some control over resources in the outside world. Property rights are what give people the control they need in their journey through life. The person who combines their labour with an object should be rewarded for tying their existence to that object,[550] and private property is gained by binding one's will to an object outside oneself.[551] This perspective sees property rights as vital because, through directing and manipulating tangible and intangible objects, someone's will is manifested in the world and the person achieves a degree of freedom.[552] However, this does not mean that, to develop, personality just requires external objects: '[i]ts development is its objectification through externalisation of its will'.[553]

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[545] Peter S Menell, 'Intellectual Property: General Theories' [1999] Intellectual Property 60, 158.

[546] Christopher S Yoo, 'Rethinking Copyright and Personhood' [2019] U. Ill. L. Rev. 1039, 1041.

[547] Radin (n 20), 971.

[548] Menell (n 545), 158–9.

[549] Hegel (n 536), 73.

[550] J Waldron, *The Right to Private Property* (Clarendon Press 1988) vol. 1, 343–89.

[551] Peter G Stillman, 'Property, Freedom, and Individuality in Hegel's and Marx's Political Thought' (1980) 22 Nomos: Am. Soc'y Pol. Legal Phil. 130, 130–167.

[552] Adam D Moore, 'Theoretical Issues Affecting Property, Privacy, Anonymity, And Security' 108.

[553] Radin (n 20), 965.

In the same vein, Kant distinguishes between the physical medium and the intellectual content of a work, arguing that while an owner may destroy a copy of a book that they have purchased, the author retains the inalienable and intrinsic right to paternity of the work.[554] His thesis is based on the idea that author's rights should be viewed as a personality right rather than as a property right. According to Kant, the process of appropriating external resources and acquiring ownership through the exercise of will is distinct from the creation of a creative work, which involves the external manifestation of one's personality in a tangible form that can be perceived by others.[555] Since personality rights are inalienable, the author grants the publisher an exclusive right to print and disseminate her work while retaining ownership of her ideas and the ability to express them.[556]

It is argued, as a reformulation of this normative relationship between personality and property, that property is protected since it is already a part of the individual's personality.[557] Personal (inalienable) property is distinguished from fungible (marketable) property by Radin. A personal item of property is something the loss of which cannot be alleviated by replacement, whereas fungible property is easily replaced with other things of equivalent market worth.[558] According to Radin, '[t]he more closely connected with personhood, the stronger the entitlement'.[559]

This philosophy is applicable to intellectual works. Intellectual products reveal a person's mentality and will more than most physical objects do.[560] In fact, using one's intellect in the creation of a work represents the same exercise of personality and will that this theory acknowledges as constituting a moral claim to property rights. Whether one generates an

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[554] Kant (n 544), 371–3.

[555] ibid.

[556] Andreas Rahmatian, *Copyright and Creativity: The Making of Property Rights in Creative Works* (Edward Elgar Publishing 2011), 88.

[557] Radin (n 20), 965.

[558] ibid 960.

[559] ibid 986.

[560] Roberta Rosenthal Kwall, 'Inspiration and Innovation: The Intrinsic Dimension of the Artistic Soul' (2005) 81 Notre Dame L. Rev. 1945, 81 (analysing 'spiritual or inspirational motivations that are inherent in the creative task', such as 'the desire for challenge, personal satisfaction, or the creation of works with a particular meaning or significance for the author'.)

expression or an object, the creation reveals choices; the method(s) of production reveal a portion of personality. This being the case, since creators have a continuing personality interest in their works, they have a moral right to control how the creative work is utilised.[561] Accordingly, personality theory acknowledges individuals' moral entitlement to property rights in their intellectual productions, and intellectual properties are considered 'receptacle[s] for personality'.[562] From this point of view, intellectual property rights are justified because they show individuals' personality in their intellectual expressions and protect inalienable parts of a person's personality that are put into their own creations.[563] In the context of authors' rights, the distinction between alienable and inalienable elements inevitably produces a separation that splits the ownership of the material support from the prerogative over the creative expression and requires the latter to be considered an inalienable personality right.[564] The emergence of the personality theory of copyright and the concept of copyright originality as a personality can be attributed to the Hegelian personality theory.[565]

However, there are several issues relating to personality justification for intellectual property.[566] To begin with, it is questionable whether individuals have any claim to their moods or emotions, health, character or past experiences. While it is true that individuals possess these things and that they make up a part of individuality, a compelling moral case still should be made for privileging these possessions. Even if it is proved that people possess their personalities or have moral claims to them, it does not necessarily follow that these rights extend to incorporating their personalities into tangible or intangible creations. In some cases, creating something can be considered an abandonment of personality, like the idea of personality infusion.[567] Furthermore, even if moral claims about an individual's personality could be extended to physical or intangible substances, it would still require arguments to legitimise the rights of private property since moral claims that are founded on a person's

[561] Hughes (n 538), 330–9.

[562] ibid 340.

[563] Lior Zemer, *The Idea of Authorship in Copyright* (Ashgate Pub Co 2007) 16.

[564] Caterina Sganga, *Propertizing European Copyright* (Edward Elgar Publishing 2018) 23–5 <https://www.elgaronline.com/view/9781786430403.xml> accessed 30 October 2022.

[565] ibid.

[566] Tom G Palmer, 'Are Patents and Copyrights Morally Justified – the Philosophy of Property Rights and Ideal Objects' (1990) 13 Harv. JL & Pub. Pol'y 817, 143–7.

[567] Hegel (n 536), 73.

personality could not justify anything more than usage rights or restrictions against change.[568] Therefore, personality theory may not provide a solid moral foundation for intellectual property law regimes.

Besides, a creator's personality cannot be traced in many intellectual creations; for example, a list of academic publications might be produced by a person, but reveal little or nothing about them. Accordingly, it may be argued that the creation, not the creator, should be protected. Some experts take this argument a step further and claim that creators' moral rights have no meaningful place in intellectual property doctrines.[569] It is even argued that this type of 'faith-based intellectual property' is problematic since moral rights cannot be disproved on scientific grounds.[570] This argument's proponent is concerned about a hypothetical future situation in which empirical evidence convincingly demonstrates that intellectual property does not stimulate innovation, but moral rights proponents continue to insist on its importance.[571]

Personality theory also raises questions about how to define and measure harm. Many creations, when viewed through a different perspective, can be seen as limiting the freedom of others. A windmill might block people from seeing mountains or other landscapes on the far side: does this mean the windmill should not be protected by a patent? How should we determine which restrictions on another's autonomy are reasonable and which are not? There may be no simple answer because all actions touch others to some degree, and the consequences for others may limit some options. A person can prevent another from acting in a particular way just by engaging with them; and this, to some extent, inhibits the other person's autonomy. Therefore, where the line should be drawn by the law may be unclear.

The practical approach to these questions is to consider some limitations in establishing intellectual property rights following the personality approach, but not a complete restriction, as most countries do that have adopted the theory. When assessing eligibility for intellectual property protection, the assessor should examine whether the creative endeavour or production

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[568] Moore (n 552), 109.

[569] Stephanie Plamondon Bair, 'Rational Faith: the Utility of Fairness in Copyright' 97 Boston University Law Review 46, 1498–9; Harry First, 'Controlling the Intellectual Property Grab: Protect Innovation, Not Innovators' (2007) 38 Rutgers Law Journal 372.

[570] Mark A Lemley, 'Faith-Based Intellectual Property' (2015) 62 UCLA L. Rev. 1328, 1338–44.

[571] ibid.

limits the freedom of others and, if so, how significantly. Thus, the presumption to recognise creative work by granting intellectual property rights must be balanced against any detrimental impacts of the activity on others. To put this another way, the benefits of offering intellectual property rights must be compared with any harm the activity may do to others. As a result, personality theory proposes a basic concept that should limit the acknowledgement of rights in a creator.

Arguments and concerns about personality justification can be summarised through this example. Suppose Jane purchases an original picture by the renowned artist Philip at a garage sale. She brings the artwork home, where she puts horns and beards on the faces with a marker. Jane displays the artwork in a window on a busy street, thinking the modifications are brilliant and fit the original well. This example raises at least two ethical concerns. First, Jane's modifications may do unjustifiable harm to Philip's future sales. Second, and apart from any economic issues, Jane's actions may harm Philip's reputation. The integrity of the picture has been compromised without the author's permission, perhaps causing long-term harm to his reputation and standing in the community. If these statements are plausible, it would be reasonable to acknowledge that intellectual works may have personality-based moral 'strings' attached.[572] When authors and inventors produce intellectual works, they put themselves on display and take certain risks. They are given a degree of control over this threat by intellectual property rights. To put this another way, moral claims in relation to personality, reputation and the actual physical manifestations of someone's expressions serve as the justification for laws covering reputational harm and certain types of economic loss.

1.2 EU: The author in copyright laws influenced by personality theory

The personality justification for property rights is a key concept in modern copyright law, under both the Berne Convention and European Union copyright law, as developed.[573] Hegel argued that a person should have the right to decide how their works of authorship should be used and protected.[574] He believed that allowing individuals to claim exclusive rights over their works

[572] Moore (n 552), 109.

[573] Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 40); Ricketson (n 441), 5.

[574] Josef Kohler, *Urheberrecht an Schriftwerken und Verlagsrecht* (F Enke 1907), 15 (cited in Edward J Damich, 'The Right of Personality: A Common–Law Basis for the Protection of the Moral Rights of Authors' (1988) 23 Ga. L. Rev. 1, 29).

was essential, to protect the integrity of their creations.[575] The notion of personality justification has been used in the development of intellectual property rights and in the framing of the Berne Convention and EU copyright law.[576] Across the European continent it is seen as a way to protect the fruits of individual creativity, encourage innovation and promote expression.[577] Thus, both the rights and their expression in law must be examined to infer how 'author' is defined in copyright laws that are built on the theory of personality.

When it comes to the works that enjoy copyright protection and the rights of their authors, it is obvious that the first place to look will be the Berne Convention, one of the main foundations of modern copyright law.[578] The Convention stipulates that authorship rights in creative works come into effect upon their creation, without the need for any declaration or assertion by the author.[579] In nations that have ratified it, an author does not have to 'register' or 'apply for' a copyright.[580] The creator of a work automatically owns all copyrights in the original work and any works deriving from it the moment it is 'fixed' – that is, written on or recorded in a physical medium – unless and until the author expressly waives those rights or the copyright expires.[581]

One of the first motivators of the Convention was the International Literary and Artistic Association (l'Association littéraire et artistique internationale – ALAI) established in 1883.[582] A draft text developed by ALAI to serve as the foundation for a new global convention on

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[575] Moore (n 552), 108.

[576] Enrico Bonadio and Nicola Lucchi, 'How Far Can Copyright Be Stretched? Framing the Debate on Whether New and Different Forms of Creativity Can Be Protected' [2019] Intellectual Property Quarterly (2019) 4: ('[t]heories developed by the philosophers John Locke… and Friedrich Hegel… are adopted in civil law jurisdictions, such as France, Germany, Spain and Italy, which grant artists, writers and creators in general exclusive rights because the protected works constitute the fruits of their personal efforts and reflect their persona').

[577] ibid.

[578] Peter Burger, 'The Berne Convention: Its History and Its Key Role in the Future' (1988) 3 JL & Tech. 1.

[579] See Berne Convention, Arts 1–7.

[580] Jane C Ginsburg, 'Berne – Forbidden Formalities and Mass Digitization' (2016) 96 BUL Rev. 745, 747. Berne Convention, Art. 5(2).

[581] Berne Convention, Art. 5(2).

[582] Graham Dutfield, *Global Intellectual Property Law* (Edward Elgar Pub., 2008), 26–7.

authors' rights to replace the current patchwork of inconsistent and fragmentary bilateral agreements directly led to the promulgation of the Berne Convention.[583] Consequently, it is reasonable to assume that it was influenced by the French 'right of the author' (*droit d'auteur*), which contrasts with the Anglo-Saxon idea of 'copyright' that addresses only economic problems.[584] However, it is equally obvious that the three consecutive diplomatic conferences that developed and accepted the final Convention between 1884 and 1886 also had the broader interests of trade, industry and society in mind.[585]

The difference between the assumptions here could derive from the approaches to this matter taken by lawyers in common law and civil law countries. The former are thought to tend to pragmatism and view the world instrumentally, and they regard the provision of copyright protection as serving the common benefit of society as a whole.[586] The latter consider intellectual property rights as originating from natural law notions and being inextricably related to the personality of the human creator.[587] To put it another way, one could say that the common law is more concerned with issues pertaining to incentives, investments and business, while the civil law focuses on authors and their personal rights. Although it might appear that the common and civil law traditions have quite different perspectives on copyright and authors' rights, the Berne Convention is one proof that the roots of these perspectives have a great deal in common with one another.[588]

The Berne Convention does not offer a clear definition of authorship. It can be said that the fact that the Berne Convention emerged as a result of a common understanding by avoiding the differences between civil and common law may mean that it tried to create a wider common ground with sharp borders, where more participating countries can meet by keeping the binding conditions to a minimum. In this context the Convention aimed to achieve its objective to

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[583] Sam Ricketson, *The Berne Convention for the Protection of Literary and Artistic Works: 1886–1986* (Centre for Commercial Law Studies, Queen Mary College 1987) 41–80.

[584] Peter Baldwin, *The Copyright Wars: Three Centuries of Trans-Atlantic Battle* (Princeton University Press, 2016), 15.

[585] Ricketson (n 441), 6.

[586] ibid 7.

[587] See, e.g., Andre Francon, 'Authors' Rights Beyond Frontiers: A Comparison of Civil Law and Common Law Conceptions', (1991) 149 *Revue Internationale du Droit d'auteur* 2.

[588] Jane C. Ginsburg, 'A Tale of Two Copyrights: Literary Property in Revolutionary France and America', (1991) 147 R.I.D.A. 125.

protect 'the rights of authors in their literary and artistic works' by the pragmatic application of the principle of national treatment rather than through detailing a set of prescriptions for those rights.[589] As a result, it is challenging to draw any definite conclusions about the nature of authors' rights from the Convention published in 1886.

Despite the absence of a definition of 'author,' it is asserted that there was nonetheless a fundamental understanding of the word among the contracting nations and, as a result, it was deemed unnecessary to define it.[590] In preparing the comprehensive list of protected works found in Article 4 of the Convention, the drafters relied primarily on the provisions of national legislation of the time and those of earlier bilateral treaties, which provide substantial textual evidence in support of this perspective.[591] Given the lack of controversy around the term 'author' during the early diplomatic sessions, it is reasonable to apply it to the individuals responsible for the creation of works covered by the Convention.[592] It is hard to see that consensus would have been reached on the articles of the convention if member nations had not already agreed upon the meaning of authorship.[593] The understanding they are believed to have shared is that an author was a creator of a 'literary, scientific, or artistic domain'.[594]

Thus, to qualify as an author under the Convention, one needs to have created a work of literature, science or art. Its original 1886 wording did not specify what qualities these works needed to have. Even though national laws appear to have concluded that invention, novelty, purpose or merit were not factors in the equation, there seems to be a consensus that 'originality' or 'intellectual creation' is required for copyright protection under the Convention.[595] The statement of Marcel Plaisant, Rapporteur-General at the 1948 Brussels Conference, gives an idea about member countries' views on the meaning of one key term: 'if we are speaking of literary and artistic works, we are already using a term which means that we are talking about personal creation or about an intellectual creation within the sphere of

[589] Berne Convention, Art. 1.

[590] Ricketson (n 441), 8.

[591] ibid.

[592] ibid.

[593] ibid.

[594] Berne Convention, Art. 4.

[595] Ricketson (n 441), 11.

letters and the arts'.[596] Although the precise meaning of intellectual and personal creation is not resolved by this statement, it does point to two additional characteristics of authorship under the Berne Convention: the author must be a human being, and there must be some intellectual contribution above and beyond simple effort (sweat of the brow).[597] In light of these explanations, under the Berne Convention the author, for the purposes of copyright law, can be defined as a natural person who creates an original literary, scientific or artistic work that displays some element of intellectual creation.

Since the Berne Convention leaves the definition of 'author' to the discretion of each national jurisdiction, the EU member states may have adopted different notions of 'author' in their separate copyright laws. Because differences in this definition may have exacerbated fragmentation and hampered the development of the internal market, EU legislators have tried to standardise several essential notions. Directives about cinematographic and audio-visual works, computer programs and databases are particularly significant in this respect. The Satellite directive calls the author of a cinematographic or audio-visual production the chief director.[598] It is often assumed that the chief director is the natural person in charge of making creative judgements.

Article 4 of Directive 96/9 (Database directive) defines 'author' for copyright in an original and creative database as 'the natural person or group of natural persons who created the base or, where the legislation of the Member States so permits, the legal person designated as the rightholder by that legislation'.[599] A similar definition of author can also be found in the Software directive.[600] This definition appears to establish the basic idea that the author must be

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[596] Report of Marcel Plaisant, Rapporteur-General at the Brussels Conference, 1948. Centenary Volume, at 179.

[597] Jane C Ginsburg, 'Creation and Commercial Value: Copyright Protection of Works of Information' (1990) 90 Colum. L. Rev. 1865, 1883; Ricketson (n 441), 11. '[A]ll works now protected under the Convention still seem to require some manifestation of human authorship and intellectual creation…'

[598] Directive 2006/116/EC of the European Parliament and of the Council, '[t]he principal director of a cinematographic or audiovisual work shall be considered as its author or one of its authors…'

[599] Database directive, Art. 4.

[600] Art. 2(1), Directive 2009/2422: 'The author of a computer program shall be the natural person or group of natural persons who has created the program or, where the legislation of the Member State permits, the legal person designated as the rightholder by that legislation.'

a natural person, that is, the one who produced the program.[601] The usage 'rightholder' rather than 'author' makes it unclear whether a legal entity may be considered an 'author'. However, legislative history reveals that this provision adheres to the perspective prevalent in continental Europe, where it is accepted that only natural persons may create an intellectual work and thus be considered authors.[602] Adding the term 'legal person' seeks to respect the common law tradition and this could be considered as an exception to the general principle. Accordingly, it is plausible to assert that legal persons can be rightholders but not authors. The Term directive supports this view, showing that only physical persons may be authors by tying the duration of copyright protection to the lives of authors in its Article 1(1).

However, neither 'author' nor the 'copyright holder' are defined in the InfoSoc directive,[603] which is also silent on the legal competence necessary to execute the copyright holder's rights. This is probably because of Article 2(4) of the World Intellectual Property Organization (WIPO) Copyright Treaty which requires contracting parties to comply with Articles 1 to 21 and the Appendix of the Berne Convention. Even though it contains Articles 3 and 4 that require copyright exception for text and data mining in relation to the development and growth of AI in the European Union, recently adopted Directive 2019/790/EU of 17 April 2019 on copyright and related rights in the Digital Single Market offers no new clarification of authorship in copyright.

In sum, although some of these directives provide a harmonised definition of 'author', it can be said that no uniform or common understanding of this term exists in EU copyright law. While several directives define 'author' solely for specified categories of work, clarity is still needed about the conditions to be an author of other types of work or work in general. Except for cinematographic and audio-visual works, computer programs and databases, the EU's copyright rules do not clearly state whether only humans may be considered authors. Another challenge raised by EU legislation is, therefore, whether member states can protect works made by non-human authors.

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[601] Thomas Dreier and P Bernt Hugenholtz, *Concise European Copyright Law* (Kluwer Law International BV 2016) 248.

[602] Silke von Lewinski and Michel M Walter, *European Copyright Law* (Oxford University Press 2010); Ballardini (n 2) 123.

[603] Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society.

Even though the CJEU has never directly ruled on the meaning of authorship in copyright, the *Infopaq* case and subsequent rulings implicitly harmonise requirements for authorship by harmonising the originality standard for copyright protection. In European copyright law, originality is defined as the 'author's own intellectual creation' in the Database directive, the Term directive and the Software directive.[604] Prior to the *Infopaq* judgment this understanding of 'originality' only applied to certain types of work,[605] including databases, photographs and computer programs. The definition of originality as the 'author's own intellectual creation' was expanded by *Infopaq* to include all other types of work enjoying copyright protection.[606] The decision in this case endorsed the argument that the InfoSoc directive should be based on similar principles to other directives.[607] The CJEU ruled that copyright protection under Article 2(a) of the InfoSoc directive should only extend to subject matter that is original in the sense that it represents the intellectual creation of its author.[608] By looking at other CJEU rulings that followed *Infopaq*,[609] the Court's understanding of 'author's own intellectual creation' can be summarised as follows: to be considered original for copyright protection, the work should reflect its author's personal touch or personality in the sense that it expresses an individual's creative abilities in an original manner reflecting free and creative choices.

Following this interpretation of originality, the author, for copyright purposes in the EU, can be defined as the natural person who creates a work enjoying copyright protection and stamps a personal touch on,[610] or reflects their personality in,[611] that work by expressing

[604] 2006/116/EC Term directive, 2009/24/EC Software directive.

[605] Before the *Infopaq* decision, the interpretation of 'originality' as 'the author's own intellectual creation' was applied only to specific categories of works (photographs, computer programs and databases) in European copyright law, as defined in the Computer programs directive, the Database directive and the Term directive.

[606] *Infopaq*, paras 36–7.

[607] ibid.

[608] ibid.

[609] *Murphy*, *Painer* and *Football Dataco* (Ballardini, n 2); these are discussed in Section 2.1.2.

[610] *Painer*, para. 92.

[611] ibid paras 85–8.

creative abilities originally[612] through making free and creative choices.[613] Accordingly, it seems reasonable to argue that the concept of authorship was harmonised for all categories of work by the CJEU in *Infopaq* by determining the limits of originality for copyright. In addition, the CJEU's focus on 'personal touch' and 'personality' in defining the term 'originality' suggests that the author can only be a natural person, as only humans can have personality and a personal touch.

1.3 Non-human authors in copyright influenced by personality theory

According to the personality concept, intellectual products reveal an individual's thinking and will. In fact, utilising intellect to create a work is the very exercise of personality and will that personality theory recognises as having a moral claim to property rights. Whether individuals express an existing idea, vary it or innovate, the outcome shows their decisions and a part of their personality. Since creators have an ongoing personality interest in their works, they have the moral right to control how the creative work is utilised. Thus, according to personality theory, a person has a moral claim to ownership of his/her intellectual creations, and intellectual possessions are seen as a 'receptacle for personality'.[614] Because these creations reveal that personality and safeguard the inalienable portions of it that authors put in their own works, intellectual property rights are, in this perspective, justifiable. In copyright law, one's creative expression in a work that reflects one's personality is considered an inalienable personality right. The definition that can be extracted from the personality perspective, therefore, is that the author is a human being whose work reflects their personality in a creative manner.

Although the international conventions and the European Union's directives on copyrights, which developed under the influence of Hegel and Kant's personality theories, contain no clear definition of authorship,[615] it is possible to construct a framework for authorship through interpretation. Under the Berne Convention, a person must produce a work of literature, science or art in order to qualify as an author. The original 1886 convention did

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[612] *BSA*, para. 50.

[613] *Painer*, para. 89.

[614] Hughes (n 538), 340.

[615] Ballardini (n 2), 123. Though both the WIPO Copyright Treaty and the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement require adherence to the Berne Convention, neither defines 'author'.

not set out criteria that these works must meet. Even though national laws appear to have determined that invention, novelty, purpose or merit are not factors in the assessment of work, there appears to be agreement that the Convention requires 'originality' or 'intellectual creation' for copyright protection. Thus, two characteristics of authorship required by the Convention can be identified, even though precise definitions remain undeveloped: the author must be a human being and there must be some intellectual contribution above and beyond simple effort.[616] In light of these explanations, the author can be construed under the Berne Convention as a natural person who creates an original literary, scientific or creative work that demonstrates originality and some element of intellectual creativity and thereby gains copyright protection.

The Section 3.1.2 described how:

- EU member states use different definitions of 'author' in their copyright laws
- EU legislators have attempted to standardise numerous fundamental aspects of authorship in the InfoSoc directive, Article 4 of the Database directive and the similar wording in the Software directive, but
- EU copyright law still lacks a unified or widespread understanding of authorship in copyright and
- while the CJEU has never explicitly addressed this issue, in *Infopaq* and subsequent judgments it has effectively unified the originality criteria, enlarging the 'author's own intellectual creation' to encompass all forms of protected work.

The characterisation in recent directives seems to establish as fundamental that the author must be a natural person. In consequence, under current copyright laws adopting the personality justification for property rights and their interpretation, a non-human or an entity with no legal personality is not eligible for the status 'author' of works meriting copyright protection. Since AI is a non-human entity and has no natural or legal personality, it seems unlikely that AI could qualify as an author for copyright purposes. This approach to copyright

[616] Plaisant Report (n 596), 179.

authorship seems consistent with the personality justification for intellectual property considering its main purpose is to protect individuals' freedom and personal expression.

In sum, under the EU's present copyright rules and interpretations a non-human or an entity without legal personality is not qualified to claim authorship of computer programs, databases or cinematic or audio-visual works. In addition, based on the CJEU's reasoning in *Infopaq* and other rulings, it seems improbable that non-humans can qualify as the author of other categories of work.

2. Authorship Is Labour

2.1 Natural rights justification for intellectual property

Another key element of modern property theory that is still persuasive today is John Locke's natural rights defence of private property.[617] Locke sees a man as the owner of himself: his name, honour, various facets of his personality and, crucially, his freedom; but not his life.[618] This makes slavery impossible and also helps to strengthen the link between property, personality and freedom.[619] Locke saw the prehistory of civilisation as a state of nature in which God handed numerous bounties to humanity, who were free to use these as they pleased; but further work was needed to refine the bounties and turn them into practical and pleasurable products.[620] The labour is what legitimises the individual appropriation of the resource in the form of a property right based on natural law.

This line of reasoning sees the acquisition of ownership as derivative: because an individual owns their own person, and thus labour they perform, the products of that labour should be considered the rightful property of the person who performed it since human labour is more valuable than the natural resource in its unprocessed state.[621] When a person labours on a resource that nobody owns, the labour becomes invested in the product, and the work and

[617] Locke (n 539).

[618] Wendy J Gordon, 'An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and Encouragement Theory' (1988) 41 Stan. L. Rev. 1343, 1388–9.

[619] Hughes (n 538), 388.

[620] Sganga (n 564), 20.

[621] Rahmatian (n 556), 71.

the product are often inseparable.[622] Accordingly, where people have sole ownership of their bodies and their labour, rights to control are formed once labour is applied to an unowned resource. Rights are broadened since we all own our labour, and when that labour is combined with common goods, our rights extend to cover those goods as well.[623] Locke's natural law rationale for property is founded on individual merit, which incidentally generates the common good. However, the protection it offers is driven not by any public objective but rather by a sense of fairness and the necessity to preserve a space of liberty and autonomy for people.[624]

The Lockean theory of labour can be characterised as the synthesis of two primary principles. The first is the well-known metaphor 'labour mixture', which states that everyone possesses an inherent property right in their own 'person' and in the physical labour of their body.[625] The second is that certain social rules limit property rights.[626] In the natural state, individuals have a shared claim to everything, according to Locke.[627] As a result, explaining the person's right to property is difficult: taking a resource from the common stock infringes the rights of other people, to whom this resource also belongs.[628] Locke resolves this seeming paradox by introducing 'no harm' and 'enough and as good' principles. The 'no-harm principle' states that an individual's natural property right should be safeguarded so long as it conforms to particular social standards and does not compromise the general good.[629] Locke proposes a set of responsibilities and rules that must be met before anyone has the right to take something from the common stock and make it their own. He contends that a person may only appropriate what they can use: '[n]othing was made by God for Man to spoil or destroy'.[630] Moreover, the 'enough and as good' principle gives an individual the right to acquire common

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[622] Hughes (n 538), 298.

[623] ibid.

[624] Frank I Michelman, 'Property, Utility, and Fairness: Comments on the Ethical Foundations of "Just Compensation" Law' (1967) 80 Harv. L. Rev. 1165, 1168.

[625] John Locke, 'Two Treatises of Government, 1689' in [2013] *The anthropology of citizenship: A reader* 43, 94; Zemer (n 563) 14.

[626] Locke (n 625), 103; Zemer (n 563), 14.

[627] Locke (n 625), 96.

[628] Wendy J Gordon, 'On Owning Information: Intellectual Property and the Restitutionary Impulse' (1992) 78 Va. L. Rev. 149, 166–7.

[629] Wendy J Gordon, 'A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property' (1993) 102 The Yale Law Journal 1533, 1544–5.

[630] Locke (n 625), 105.

property so long as 'enough and as good' is left for others.[631] Locke illustrates by proposing that taking a sip of water from a river is equivalent to taking nothing at all: the sip does not affect other people who have the right to water in the river.[632]

Since ideas are infinitely consumable by their own nature, these principles, however, have little meaning in the world of ideas and intellectual property.[633] Applying them to intellectual property, it is argued that a person who has put in time and effort using their intelligence to develop anything should be entitled to property rights in what they have created. The wilderness out of which the person cuts her creation is the public domain, which is where she gets material, knowledge, experience and inspiration.[634] Creators should have legal ownership of their works because of the time, effort and investment they put into transforming public resources into something new. No conflicts with Locke's two principles can arise since intellectual creations do not perish like apples and discoveries or intellectual creations always leave 'enough and as good' for others.

Locke's theory of property has also been used to support the turning of creative goods into property through copyright,[635] where the labour is the creative process by which an abstract concept is converted into a tangible manifestation that everyone may enjoy. By virtue of the creative act, the author gains a property right in the combination of raw materials and labour expended.[636] Ideas, which are not rivals and inexhaustible, fit better than actual products, which are finite and rivals, into the Lockean universe of ample common resources if they are available to later authors even after their expression has been privatised.[637] In addition, because creative works do not exist prior to being expressed, that expression enhances the public domain rather than impoverishing it. Because of this, the appropriation of creative works always satisfies Locke's 'enough and as good' principle. Furthermore, copyright regimes can prevent the

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[631] ibid 103.

[632] ibid 105.

[633] Zemer (n 563), 13–5.

[634] Robert P Merges, *Justifying Intellectual Property* (Harvard University Press 2011) 39–41.

[635] Gordon, 'A Property Right in Self-Expression' (n 629), 1540: 'Locke's labor theory of property and allied approaches have been used so frequently as a justification for creators' ownership rights that Locke's Two Treatises have been erroneously credited with having developed an explicit defense of intellectual property'.

[636] Hughes (n 538), 313.

[637] Rahmatian (n 556), 75.

turning of ideas into property from becoming oppressive by limiting the term of protection and providing for free uses.[638]

The author's labour in copyright can be justified in two ways. One is to see labour as having a right-transferring effect.[639] In this scenario, labour is an intermediary between an existing right held by the author and the right that will be created in the resulting work. This effect derives from using labour to create. This notion envisages that the author's labour contains a formal property that allows an existing right to extend to a work thereby generated. The other perspective is to see the author's creative effort as a form of right-constituting labour.[640] Labour of itself creates a right to the intellectual result rather than merely extending one that already existed. The right-transferring view is a common line of reasoning in discussions on copyright, and is often employed and demonstrated by reference to John Locke's labour theory of property.[641]

Labour theory is criticised from several perspectives. Some argue that the idea of infusing labour in work is illogical since actions cannot be combined with goods.[642] If labour was important, why should subsequent labour on an item not be as dependable as the initial labour in establishing a property right?[643] Why should labour mixing result in property rights rather than just a loss of labour?[644] Last but not least, would individual ownership rights be compromised if the equipment, inventions and skills employed in work were owned in common?[645]

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[638] Mark A Lemley, 'Romantic Authorship and the Rhetoric of Property', Texas Law Review 75 (1997): 873, Available at SSRN: https://ssrn.com/abstract=44418 19.

[639] Christian G Stallberg, 'Towards a New Paradigm in Justifying Copyright: an Universalistic-Transcendental Approach' (2007) 18 Fordham Intell. Prop. Media & Ent. LJ 333, 346–7.

[640] ibid.

[641] Locke (n 625), 18–32.

[642] Jeremy Waldron, 'Two Worries about Mixing One's Labour' (1983) 33 The Philosophical Quarterly (1950–) 37, 40.

[643] PJ Proudhon, *What Is Property?* (Cosimo Inc. 2007) 61.

[644] R Nozick, *Anarchy, State, and Utopia* (Basic Books 2013) 175 <https://books.google.co.uk/books?id=rxzZswEACAAJ>.

[645] J Rawls, *A Theory of Justice* (Oxford University Press 1999) 104 <https://books.google.co.uk/books?id=b7GZr5Btp30C>.

However, the answer given by John Locke to the question of how property rights to unowned resources are formed may be considered satisfactory: '[f]or this labor being the unquestionable property of the laborer, no man but he can have a right to what that is once joined to, at least where there is enough and as good left for others'.[646] As long as enough and as good is left for others, according to Locke, no one is harmed by an acquisition.[647] The appropriation of an unowned resource, therefore, can be considered just if its acquisition leaves enough and as good for others. Labour, intellectual effort, and invention are often expended on voluntary tasks that might be painful, exciting or a combination of the two and this could justify the concept that labour might establish *prima facie* claims against others: undertaking such actions willingly as sovereign moral agents may be sufficient to justify claims for protection from interference by others.[648]

It is argued that individuals who engage in or refrain from certain actions deserve certain outcomes.[649] This belief leads to the creation of claims against and responsibilities towards others triggered by those actions or inactions. Such claims and obligations are not absolute and depend on the actions of the individual. In certain situations, it is generally accepted that claims based on an individual's actions or contributions may be weak.[650] It is also argued that the recognition of labour or creativity may give rise to property rights as a way to respect an individual's autonomy and sovereignty.[651] As sovereign and independent actors, particularly under the liberal tradition, people have moral and legal freedoms to organise their lives as they see fit. So long as mutual regard is maintained, everyone has the right to chart their own route, pursue their own passions and cultivate their own skills and abilities as they see fit. Simple respect for people would forbid taking out of their hands what they have earned or created. When a person labours to create an intangible work, weak presumptive claims of non-interference have been developed on the basis of labour, desert or autonomy, all other factors being equal.[652]

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[646] Locke (n 625), 19.

[647] ibid 22–4.

[648] Moore (n 552), 120.

[649] ibid 121–2.

[650] ibid.

[651] ibid.

[652] ibid.

2.2 UK: the author in copyright laws influenced by labour theory

Although authorship is one of the fundamentals of copyright, many jurisdictions avoid providing a clear definition. However, the UK is not one of them. According to Section 9(1) of the CDPA, 'Author, in relation to a work, means the person who creates it'. Since the Act does not state what it means by 'create', this definition is not especially comprehensive or illuminating.[653] Yet it is possible to suggest some criteria related to authorship through this definition.

The verb 'create' is defined in the *Cambridge English Dictionary* as 'to cause something to exist, or to make something new or imaginative'.[654] Building on this definition, we can say that authorship has two essential dimensions within the scope of copyright.[655] First, the author is the creator of the work, its originator.[656] The focus in this context is on the causal relationship between the creator and a work produced that will qualify for copyright, and the creator is the person(s) who brings it into existence.[657] The second dimension is that of creation as novelty, demonstrating some degree of originality and inventiveness. This characteristic distinguishes authorship from other terms that signify origination, such as 'maker' or 'producer'.[658]

The first dimension of authorship, author as originator, emerged in one of the earliest authorship cases in the UK. In *Macklin v. Richardson*, a case from 1770 involving a theatrical

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[653] Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 40), 1070. The 1911 Copyright Act called the 'author' of a photograph the person who owns the original negative. See Kevin Garnett and Alistair Abbot, 'Who is the "Author" of a Photograph?', (1988) 20 EIRR 204.

[654] 'Create' (20 September 2023) <https://dictionary.cambridge.org/dictionary/english/create> accessed 24 September 2023.

[655] Daniela Simone, *Copyright and Collective Authorship: Locating the Authors of Collaborative Work* (1st edn, Cambridge University Press 2019) 20 <https://www.cambridge.org/core/product/identifier/9781108186070/type/book> accessed 1 October 2022.

[656] ibid.

[657] Sam Ricketson, 'People or Machines? The Berne Convention and the Changing Concept of Authorship', (1991) 16 Columbia J of L and the Arts 1; Adolf Dietz, 'The Concept of Authorship under the Berne Convention', (1993) 155 *Revue Internationale du Droit d'Auteur* 3.

[658] Simone (n 655), 20.

performance, the defendant hired a shorthand writer to attend a play and record the performers' lines. The playwright subsequently printed copies of the script for himself. The play had never been printed before, and its author did everything he could to keep control of his manuscript and copies, such as taking back the prompter's copy after each performance. Given these measures to restrict access to the works, the court ruled that public performance of the play did not constitute publication of it. As the work was unpublished, according to the court, the playwright maintained his common law copyright, which had been violated by the defendant.[659] In another case, a translator was held to be the author of a translation, after the court ruled that the act of translating requires proficiency in a language and is not merely mechanical, as would be (say) reprinting in the same language. The translator also dresses up the meaning and gives it a new form that differs from the original. Even though the ideas belong to someone else, since the new form of the writing owes its existence to the translator, the act of translation should appear to be more encouraged than illegal.[660] A few years after this decision it was ruled based on similar reasoning that an abridgement can also have an author.[661]

Another decision from the late 19th century better shows the similarity between the understanding of authorship at that time in the UK and the current definition in s9(1) CDPA. In *Nottage v. Jackson*, authorship was defined as 'originating, making, producing, as the inventive or master mind, the thing which is to be protected, whether it be a drawing, or a painting, or a photograph'.[662] However, the leading case behind the definition of authorship in section 9(1), which effectively reflects the two aspects of authorship outlined earlier (however simply and inadequately), appears to be the decision in *Walter v. Lane*. Though the case is now regarded as a leading decision on the concept of originality in copyright law and an early illustration of the 'sweat of the brow' doctrine,[663] the main issue in *Walter v. Lane* was authorship. The facts of the case are widely known. Over three years, reporters working for *The Times* attended five different public addresses that Lord Rosebery delivered. Shorthand notes were taken by the reporters, who then turned the notes into verbatim transcripts of the

[659] *Macklin v. Richardson* (1770) 1 Amb 694 (Ch.).

[660] *Burnet v. Chetwood* (1721) 2 Mer. 441.

[661] *Gyles v. Wilcox* (1740) (ER 26:489–91, 957). Rose (n 1), 50.

[662] *Nottage v. Jackson*, 11 QBD 627 (CA 1883), 635.

[663] *Walter v. Lane* [1899] 2 Ch. 749. See Barbara Lauriat, 'Walter v. Lane (1900)' [1900] Lane (1900), Landmark Cases In Intellectual Property Law 2017.

speeches that were published in *The Times*.[664] Several years later, the defendant released a book titled *Appreciations and Addresses Given by Lord Rosebery*, which included transcripts of the five speeches. The plaintiffs, who were the owners of a newspaper, claimed that the transcripts in the book were essentially identical copies of speeches published in their newspaper and sought a ruling that they held the copyright to the newspaper reports as well as an injunction to prevent the defendant from reproducing them. The legal proceedings in the case were governed by the Copyright Act of 1842, which granted copyright protection to the creator of a work.[665] The Act described 'copyright' as 'the sole and exclusive liberty of printing or otherwise multiplying copies of [books]' and 'book' as 'every volume, part or division of a volume, pamphlet, sheet of letter press, sheet of music, map, chart, or plan separately published'.[666] The term 'author' was undefined.

The issue at hand was whether the reporter, who had written the report of the speech published in *The Times*, should be considered the 'author' under the Copyright Act 1842, and therefore eligible for copyright protection. This was deemed the key question to be addressed. Although the specific rationale for his conclusion is unclear, North J ruled that the reporter was the author: '… it seems to me that a reporter may make a report of a speech, delivered in public and intended to be reported, and then may have a copyright in his own publication if he procures the material himself'.[667]

The defendant appealed the decision, and the Court of Appeal ruled that the term 'author' in the Copyright Act 1842 did not refer to the 'first publisher' of a work.[668] Instead, the Court stated that the person who first published a written composition was only entitled to

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[664] There does not appear to be agreement over how much editing of the reports took place. According to one reporter, the shorthand notes were 'carefully corrected and revised and written out, and punctuated fit for publication' before the reports were published (*Walter*, 750). It appears, however, that the reports in question 'required no "dressing up" to fit them for publication', but 'appear to be simply accurate printing of words uttered by Lord Rosebery', as one critic at the time asserted (Moffatt, 'What is an Author?' (1900) 12 *Juridical Review* 217, 220–21). There is support for this view in the speeches of Lord Brampton ([1890] AC 539, 556) and Lord Robertson (560). For detailed analysis of the influence of this case see, Nigel P Gravells, 'Authorship and Originality: The Persistent Influence of *Walter v. Lane*' (2007) 3 Intellectual Property Quarterly 267.

[665] Copyright Act 1842, s2.

[666] ibid s3.

[667] *Walter*, 760.

[668] ibid 769–71.

copyright if they were also the creator of the work, or if they had obtained copyright from the actual creator.[669] Lindley MR stated that:

> [t]he report and the speech reported are, no doubt, different things; but the printer or publisher of the report is not the 'author' of the speech reported, which is the only thing which gives any value or interest to the report. The printer or reporter of a speech is not the 'author' of the reported speech in any intelligible sense of the word 'author'… If the reporter of a speech gives the substance of it in his own language; if, although the ideas are not his, his expression of them is his own and not the speaker's... the reported speech would be an original composition, of which the reporter would be the author, and he would be entitled to copyright in his own production... But we have not to deal with speeches recast by the reporter. He has reproduced to the best of his ability not only the ideas expressed by the speaker, but the language in which the speaker expressed those ideas... No doubt it requires considerable education and ability to make a good report of any speech. But an accurate report is not an original composition, nor is the reporter of a speech the author of what he reports.[670]

However, the House of Lords reversed the Court of Appeal's ruling, adopting an approach similar to North J's. According to Lord Brampton,

> [a] speech and the report of it are two different things, and the author of the one and the author of the other are presumably two different persons. The author of a speech is the author of language orally uttered by himself. The author of the report of a speech is the author of a writing containing the substance or the words of that speech. The speech must precede the report of it. The oral speech is not a 'book', the written report is. The book is the subject of copyright under section 3, and the property in such copyright in a book is in its author.[671]

In *Walter v. Lane*, the House of Lords eventually established the concept of 'reporter's copyright'. A person who generates and publishes a written, verbatim record of an unpublished, spoken work is regarded the record's author and entitled to copyright protection.

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[669] ibid.

[670] ibid 771–2.

[671] [1890] AC 539, at 556–7.

The decisions of North J and the House of Lords in *Walter v. Lane* can be considered early examples of the first dimension (author as originator: physical/factual/causative element) of the UK's current understanding of authorship. To them, being the originator of a work was enough to make someone the author of that work, and to enjoy copyright protection. However, according to the Court of Appeal and Lord Roberson,[672] although 'inventive originality' was not required for authorship, an author must demonstrate a higher degree of skill and labour than was required for mere copying (second dimension of today's authorship understanding: creation as novelty: mental/normative element.) Therefore, fixing someone's ideas into a tangible medium without any 'original' contribution does not make someone the author of the resulting work but a copyist. What North J and the House of Lords decided was that a reporter could be the 'author' in the sense of 'originating' the resulting work by taking notes, using pen and paper, and fixing the ideas into a medium. What they did not decide – intentionally or unintentionally – was whether the reports were 'original'.

The concepts of authorship and originality are closely interrelated and to understand the mental dimension of authorship it is essential to consider the concept of 'originality'. Although an understanding can be extracted from the judicial interpretation of *Walter v. Lane*, one of the earliest formulations of the term was provided a few years later in *University of London Press v. University Tutorial Press*. According to Peterson J, to be considered original for copyright the expression does not need to be in a novel form, but 'the work must not be copied from another work – that it should originate from the author'.[673] At first, this formulation can be seen as a causative dimension of authorship. However, along with the physical

[672] Lord Robertson dissented from the decision of the House of Lords: 'When it is remembered that there is no manner of composition, as the term is generally used, even in the sense of arrangement, by a shorthand reporter, I find it difficult to understand what attribute of an author belongs to him. Some of the judicial decisions have, indeed, applied the words of the Act to very pedestrian efforts of the mind. But although time-tables and furniture catalogues are not great things, there has been structure and arrangement on the part of the maker. I think that the recording by stenography [of] the words of another is in a different region from the making up a time-table. I do not say it is lower or higher, but in a different plane, because there is no construction. Upon this clear principle I reconcile those decisions with the judgment which I am now supporting.' ibid 561.

[673] *University of London Press*, 608–9.

dimension, it is actually stressing the mental element of authorship in stating 'the work must not be copied from another work'.[674]

In the decades after these two important cases, even though a negative definition of authorship has been preferred by some courts,[675] disputes over authorship in copyright are generally resolved over the concept of originality.[676] The United Kingdom's conceptual approach to the notion of authorship is mirrored in its understanding of originality.[677] Although there are several language versions of the test, UK courts have traditionally defined originality in terms of an individual's skill, labour or judgement. In several cases, primarily involving compiling or tables, UK courts appear to have acknowledged that simple effort, or 'sweat of the brow', is sufficient to impart the necessary originality to a work.[678] But rather than recognising an act of authorship, these judgments frequently seem to be driven by a desire to correct unfair competition.[679]

While the wording of section 9(1) and the case law indicate the two elements of the current authorship concept of the UK, section 9(2) provides another important meaning for 'author' in copyright. It states that certain nominees are 'taken to be' the author of works such as sound recordings, films and broadcasts. Because these people are not the 'actual authors', the term 'author' is used here to refer to people who lack the essential characteristics of a legitimate author for copyright.[680] In this context, it can be said that authorship requires at least a modicum of creative or intellectual effort and that the 'real' author must be a human being.

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[674] *Baltimore Orioles*.

[675] Simone (n 655), 26.

[676] *Robertson v. Lewis* [1976] RPC 169; *L B (Plastics) Ltd v. Swish Products Ltd* [1977] FSR 87; *G A Cramp & Sons Ltd v. Frank Smythson Ltd* [1944] AC 329, 335; *Exxon Corp. v. Exxon Insurance Consultants International Ltd* [1982] Ch. 119; *Express Newspapers plc v. News (UK) Ltd* [1990] 1 WLR 1320; *Interlego AG v. Tyco Industries Inc.* [1989] AC 217; *Sawkins v. Hyperion Records Ltd* [2004] EWHC 1530, [2005] RPC 47 and [2005] EWCA Civ 565, [2005] 1 WLR 3281.

[677] Simone (n 655), 22.

[678] *Blacklock v. Peterson* [1915] 2 Ch. 376; *Ladbroke v. William Hill* [1964] 1 All ER 465 (HL) 478 (Lord Devlin); *Football League v. Littlewoods Pools* [1959] Ch. 637; *Waterlow Directories v. Reed Information Services* [1992] FSR 409 (Ch.); *University of London Press* (n. 126); *Elanco Products v. Mandops* [1979] FSR 46, [1980] RPC 213 (CA).

[679] Bently and Sherman (n 429); Simone (n 655), 22.

[680] Simone (n 655), 27.

Therefore, it seems reasonable to conclude that a 'real' (as opposed to 'deemed') author is an actual human being who has done more than just take on financial risk or supervise the creative process. From this perspective, it can be argued that the CDPA needs an 'author' to have created a work in both relevant meanings of the word. Causal relationship is a required, but insufficient condition for authorship. The CDPA's definition of authorship requires at least a small amount of 'creativity', and the author must do more than merely 'produce' or 'make' a work.[681] Consequently, the idea of authorship under the CDPA may be closer to the European understanding of intellectual production than some believe.[682]

The other works that CDPA includes in its list of nominees are computer-generated works.[683] Under section 9(3) '[i]n the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken'. The most direct and 'true' author of a computer-generated work is neither a human nor a juridical person, but the program itself.[684] However, because of the idea that computer programs cannot hold rights, the drafters of the CDPA understandably saw a need to designate an acceptable, right-holding, personhood, either legal or natural. Depending on the circumstances, a human actor, a legal person or a business can be the 'author' of a computer-generated work. Even though this provision makes the UK one of the few countries that provide copyright protection to computer-generated works, it mixes up authorship with the transfer of copyright ownership, which can cause significant incoherence in copyright law. Besides, finding the deemed author of computer-generated works as required by section 9(3) is a significant challenge since the term 'necessary arrangements' is vague and the process of computer generation is complicated.

2.3 Non-human authors in copyright influenced by labour theory

According to labour theory, a man owns himself, including his name, honour, numerous aspects of his personality and, most importantly, his freedom. The individual's contribution of labour is what gives them the legal right to appropriate resource, in the form of a property right that is

[681] ibid 28.

[682] ibid.

[683] In relation to work, computer-generated defined in CDPA section 178 as 'the work is generated by computer in circumstances such that there is no human author of the work'.

[684] Discussed in Section 4.2.1.

grounded in natural law. Because an individual is the proprietor of her own person and, by extension, the labour performed by her body, the results of her labour should be regarded as the legal property of the individual who did that labour, since human labour is more valuable than the raw material. When someone works on something they do not own, their labour is invested in the thing they are working on. As a result, the work and the item are frequently intertwined. As a result, once a person's labour is applied to an unowned resource, rights to control are generated, supposing that people only own their bodies and their labour. Applying this idea to intellectual property, one should be entitled to property rights in everything one has created after spending the time and effort to do so. If they have invested their time, labour and resources in creating something new out of materials in the public domain, creators need to be granted legal ownership of their creation. The definition that can be extracted from the labour justification, therefore, is that the author is the person who combines their own labour with another resource and creates a new work that will enjoy copyright protection.

Unlike many jurisdictions, as we have seen UK copyright law, influenced heavily by labour theory, defines author as 'the person who creates' a work; so it can be argued that by copyright author is understood the originator of a work which demonstrates some degree of originality or uniqueness. These two dimensions have been regularly stressed in case law. The CDPA requires the author to be human, although certain nominees are 'taken to be' the author of works like sound recordings, films and broadcasts, indicating that authorship requires at least a modicum of creative or intellectual effort which only human beings can provide. The human requirement for copyright authorship can be seen better in section 9(3): '[i]n the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person…'

As examined in detail in Chapters 1 and 2, it seems possible for an artificial intelligence to meet two basic elements of the current understanding of authorship in the UK. For the originator dimension, it does not seem reasonable to consider the programmer or any human behind an artificial intelligence system to be the author of the works produced by the AI. In the sense of causation the programmer is the originator of the AI, not its outputs, and people like end-users have less impact than programmers on those outputs. Although these external actors are important for the existence of the AI or its operation, they do not play an active role in the

decision-making process behind each specific work produced by the AI.[685] All the choices are made by the AI in creating the work, even though it is not human. Accordingly, following the originator dimension, it could be argued that AIs are authors of their creations. As discussed in Chapter 1, based on psychological, philosophical and neuroscientific arguments an AI could be creative and can also be considered an author in the second dimension of authorship (creation as novelty).

However, since AI does not have personhood, the possibility that it adds valuable labour to raw material is out of the question according to the Lockean perspective. The requirement for human authorship, stemming from the interpretation of sections 9(2) and (3) CDPA, is thus consistent with the labour justification and indicates that an AI cannot be the author of a work and enjoy copyright protection. However, it is inconsistent to accept that the output of an AI is original in copyright terms but designate the person who made the necessary arrangements as the author, although the work does not originate from that person and is not a result of his/her mental process. This is the likely result of intellectual property and copyright law's aim to strike a balance between protecting the rights of the romantic author and ensuring that more original and new works reach the public.

3. Authorship for Society

3.1 Utilitarian justification for intellectual property

According to utilitarianism individuals should seek to maximise utility. John Stuart Mill proposed the general moral theory of utilitarianism as follows: '[t]he creed which accepts as the foundation of morals, utility, or the Greatest Happiness Principle, holds that actions are right in proportion as they tend to promote happiness, wrong as they tend to produce the reverse of happiness'.[686] This utilitarian argument is based on the principle that the results of an action determine whether or not it is moral.[687] Any action that increases utility should be pursued.

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[685] Two examples of generative AI and their creation process are explained in detail in Section 4.1.1.

[686] Mill (n 542), 15.

[687] Walter Sinnott-Armstrong, 'An Argument for Consequentialism' (1992) 6 Philosophical Perspectives 399, 399.

To try to maximise their utility, people try to do things that bring them the most pleasure and cause them the least pain.[688] A community's common (or social) utility is equal to the aggregate of its members' individual utilities; hence, the value of an activity's utility is based on the extent to which it can bring the greatest amount of pleasure (or good) to the greatest number of individuals.[689] Accordingly, an act or institution is favoured by utilitarian advocates if it is likely to maximise societal happiness or utility, i.e. the amount by which pleasure surpasses pain.[690] In this context, governments are expected to facilitate social utility by direct interventions or by establishing incentives for people to avoid harmful behaviours in favour of beneficial ones.[691] Calculating the associated benefits and expenses is essential for determining the best course of action or policy. Russell argues that '[i]n its absolute form, the doctrine that an individual has certain inalienable rights is incompatible with utilitarianism, i.e., with the doctrine that the right acts are those that do most to promote the general happiness'.[692] Thus, there are no *a priori* or inalienable rights; rather, the recognition of a right or institution is based only on the outcome of a given situation. The final outcome is the most important factor in determining whether or not a specific course of action is appropriate. To put this another way, utilitarianism can be summarised as a consequentialist or outcome-based morality.[693]

Another generally accepted utilitarian principle is that individuals like stability in possession and enjoying their wealth in peace, and that a community's capacity to operate successfully depends on everyone avoiding interference with everyone else's property rights or possessions.[694] The expected respect for every citizen's property should therefore be codified in explicit, enforceable property laws by any government that aspires to maintain stability and enhance social utility.[695] Given that social utility also depends on the consistent creation and production of goods and services, it is in the best interests of society to allow everyone

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[688] Richard A Posner, 'Utilitarianism, Economics, and Legal Theory' (1979)' 8 Journal of Legal Studies 103, 111.

[689] Bertrand Russell, *History of Western Philosophy*, 572.

[690] Posner (n 688), 111.

[691] Michelman (n 624), 1209–10.

[692] Russell (n 689), 572.

[693] Adam D Moore, 'A Lockean Theory of Intellectual Property' (1997) 21 Hamline L. Rev. 65.

[694] Michelman (n 624), 1208.

[695] ibid 1210.

ownership of at least a portion of the results of their labour.[696] The need for government to reward individual labour is acknowledged by both utilitarian and labour theories, but there is a clear distinction between their points of emphasis. In utilitarianism, people are given property rights as an incentive to perform valuable actions that are good for society as a whole. In the labour theory, however, reward is tied to the individual's effort, regardless of whether the work is valuable for society as a whole.[697]

The primary utilitarian justification for intellectual property relates to incentives to create. Unlike physical property, intellectual creations can be copied and appropriated by others, sometimes easily.[698] The incentive concept contends that ease of copying reduces the opportunity for original producers to profit from their works, which lessens their economic motivation to create new works.[699] It is believed that artists will be disinclined to commit time and resources when their completed output may be simply copied by others, reducing to nil the economic worth of their labour.[700] Intellectual property, in this view, addresses this incentive issue by providing creators a unique, time-limited right to benefit from their creations. This enables creators to demand a premium price for their creations, cover costs and turn a profit.[701] Creators who may now hope to profit from their work will be more driven to make the necessary investments to generate more works, which will benefit society and facilitate economic growth.[702]

Although the utilitarian explanation for creativity incentives is the most prevalent,[703] academics have developed variants on the issue. Some have argued that the major aim of the

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[696] ibid 1211.

[697] ibid.

[698] Eric E Johnson, 'Intellectual Property and the Incentive Fallacy' (2011) 39 Fla. St. UL Rev. 623, 628–32.

[699] SR Munzer and G Postema, *New Essays in the Legal and Political Theory of Property* (Cambridge University Press 2001) 169 <https://books.google.co.uk/books?id=cBGGymggsJ0C>. William Fisher, *Theories of Intellectual Property*.

[700] Elizabeth L Rosenblatt, 'Intellectual Property's Negative Space: Beyond the Utilitarian' (2012) 40 Fla. St. UL Rev 441, 453.

[701] Munzer and Postema (n 699), 169.

[702] Ofer Tur-Sinai, 'Technological Progress and Well-Being' (2016) 48 Loy. U. Chi. LJ 145, 147.

[703] Munzer and Postema (n 699), 169.

exclusive right is to encourage authors to make their works public rather than keep them hidden.[704] Others argue that the most essential function of intellectual property is to encourage creators to commercialise and advertise their creations.[705] In each interpretation, the costs and benefits must be weighed equally, as this is the only way to measure utility accurately.[706] Accepting these considerations, the granting of exclusive rights is only justifiable to the degree that the expected advantages exceed the expected costs.[707] In other words, a creation-incentive utilitarian theory calls for exclusive rights to be provided only in circumstances where it is believed that doing so will encourage the creation of new works.[708] Otherwise, society loses without gaining. Applying this logic further, the notion also requires exclusive rights to be given scope that is broad enough and endures long enough to drive creation, but no more.[709]

From this perspective, giving authors and inventors restricted ownership rights is a crucial prerequisite for encouraging the production of intellectual works. Without the necessary safeguards in place, individuals might choose not to create intellectual property. While the provision of safeguards (such as intellectual property rights) does not guarantee success, it is certain that failure will occur if individuals who incur no financial costs are able to freely reproduce the creative works of others. Adopting systems of protection such as patent, copyright and trade secret should optimise the production of intellectual works and achieve the ideal level of societal utility. In the same context, the major motive for granting copyright protection is 'to encourage the production and dissemination of intellectual works', not to reward authors.[710] Copyright protection is only a tool to incentivise authors to generate works, which is beneficial for the public.[711] Thus, rather than being founded on ideas of the natural or inherent rights of authors, the utilitarian basis for copyright is outcome-oriented,[712] and rather

[704] Mark A Lemley, 'The Myth of the Sole Inventor' (2011) 110 Mich. L. Rev. 709, 745.

[705] Ted Sichelman, 'Commercializing Patents' (2009) 62 Stan. L. Rev. 341, 347–52.

[706] Lemley (n 570), 1330.

[707] ibid.

[708] Lemley (n 704), 710.

[709] Johnson (n 698), 632.

[710] Howard B Abrams, 'The Historic Foundation of American Copyright Law: Exploding the Myth of Common Law Copyright' (1982) 29 Wayne L. Rev. 1119, 1123.

[711] Hettinger (n 24), 48.

[712] Moore (n 693), 66.

than being a moral need that Locke might have recognised, rewarding authors is the best way to increase social benefit.[713]

Utilitarian theory says that the law should not encourage the creation of intellectual works that do not have enough positive effects to compensate for any harmful effects they have on society, by which is meant that the cost to society of the creation is higher than any potential gain. By arguing against extending protection for the creation in this situation, utilitarian theory implies a straightforward restriction on the scope of protection, because creations that impose a net cost on society should not be supported by means of protection. When a creation is harmful to society, the government should not extend intellectual property protection to it.[714]

The author of this thesis would argue, however, that this moral restriction of utilitarianism is difficult to implement. It is challenging to determine whether a creation is actually harmful to society. Because calculating net utility depends on whose perspective defines the 'costs' and 'benefits' to be evaluated, determining what 'harmful' means can also be challenging. Besides, which values should be preferred when analysing social harm: damage to the environment, the economy, education or other damage? To decide whether a creation that affects many parts of life will be a net benefit or cost to society, many value judgements must be made.[715] Other issues emerge if one tries to determine whether a particular course of action will maximise public utility. First, the domain of social utility must be defined: are animals and legal persons included in society, or does society extend just to humans? Second, does the distribution of utility matter? In other words, which should be maximised: overall utility or average utility?[716] To seek to maximise overall happiness may result in individuals being worse off, and the improvement of average happiness may result in overall happiness reducing. Last but not least, if an action, behaviour or policy makes some people worse off and others better off, what is the net effect on social utility?[717]

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[713] Sganga (n 564), 25.

[714] Ned Snow, 'Moral Bars to Intellectual Property: Theory & Apologetics' (2021) 28 UCLA Entertainment Law Review 79–81 <https://escholarship.org/uc/item/16h4p1d9> accessed 30 October 2022.

[715] ibid.

[716] Posner (n 688), 112–3.

[717] Sadulla Karjiker, 'Justifications for Copyright: the Economic Justification' (2014) 2014 South African Intellectual Property Law Journal 13, 16–7.

These questions and the reasons behind them suggest that although it may be reasonable to assume that one person's utility has increased or decreased under various circumstances, this is not something that can be measured. Assessing the utility of different individuals in order to determine the overall or average utility of a group becomes increasingly difficult owing to the diversity of human emotions and responses. Happiness is relative, and occasionally people derive pleasure from socially unacceptable activities. Since utilitarianism does not ask whether the happiness of an individual comes at the expense of society, it may readily justify ethically objectionable behaviour in the context of a morality based on individual liberty.[718] Accordingly, it is claimed that utilitarian theory cannot be used to set a limit on happiness or determine a preferred calculus for it.[719]

As a possible defence against some of these objections, it is important to remember that legal theory is characterised by exceptions to established principles and norms. Acceptable doctrine needs to be true in most cases, not to fit stringent criteria in every circumstance. As a result, there may be exceptions that accommodate personal autonomy and morality-related concerns even within a utilitarian conception of the law. The challenge is determining the situations in which deviation from the theory is permitted and it is argued that utilitarian criteria cannot be used to make this decision.

Although most criticisms of and difficulties with utilitarianism are connected with defining and assessing harm, the theory gives a framework for determining harm. It is important to keep in mind that utilitarianism justifies intellectual property rights by asserting that intellectual creations are examples of public goods that the market has failed to adequately deliver. According to the theory, harm is defined by market failure, or failure to generate an optimal amount of creation.[720] Because creation is a public good, a market failure is a reason enough for the government to get involved in the market for intellectual creations.[721] If harm is characterised in terms of market failure, or failure to provide an optimal creation, it therefore

[718] Posner (n 688), 115.

[719] ibid 112–3.

[720] Snow (n 714), 79.

[721] ibid 80.

may be seen to arise when market conditions prevent efficient creation of work, and should not be seen as an individual's subjective evaluation of moral values.[722]

Moreover, while proponents of utilitarianism could accept many of these objections, they continue to hold that intellectual property rights are justifiable.[723] If rights are considered as strategic principles the application of which increases human flourishing, then there are moral motivations to establish legal systems that safeguard intellectual property. There may be a lack of fine-grained empirical data addressing the advantages and disadvantages of a particular rule of intellectual property law, but there is strong evidence that the institution of property is preferable to a 'no protection' or 'no ownership' stance. Institutions based on private property are advantageous because the risk of cost inhibits value-destructive actions.[724] If a creator does not promote a new invention, other innovators may create competing ideas, and inaction may lead to cost: the value of the invention would probably fall.[725]

Furthermore, by offering benefits, property rights stimulate the pursuit, development and performance of 'socially' efficient activities. If they enjoy private property rights, utilitarianism theorises that people are more likely to conserve resources, extract those resources efficiently, innovate and start businesses, both personally and collectively. These rights lead to an enormous rise in manufactured goods, the worth and use of which tend, on the whole, to exceed those of the raw materials used in their creation.[726] In such case, utilitarianism is in a strong position to advocate a variety of property-related institutions. In other words, it seems probable that the institution of private property affords individuals greater opportunities than rival institutions of property relations.[727]

Imagine for a moment that intellectual works were not protected and that anybody could make money off them once they had first appeared. In these situations, people and businesses would want to keep their intellectual work secret to protect it. Even in a system where

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[722] ibid.

[723] Moore (n 552), 117.

[724] ibid 117.

[725] ibid.

[726] Eric Mack, 'The Self-Ownership Proviso: A New and Improved Lockean Proviso' (1995) 12 Social Philosophy and Policy 186, 207.

[727] Terry L Anderson and Peter J Hill, 'The Evolution of Property Rights: A Study of the American West' (1975) 18 The Journal of Law and Economics 163.

intellectual works are not protected, contracts, non-compete clauses and non-disclosure agreements could be used to keep them safe. However, if authors and inventors are satisfied that their intellectual efforts will be safeguarded, then information may be distributed, and licences can be issued so that others can build upon the information and produce new intellectual works. An unprotected system or one with minimal safeguards, on the other hand, encourages secrecy, constrains markets and leads to missed opportunities.[728] Even though these findings do not give a specific set of rules or guidelines, they appear to give a general answer to the epistemological concerns about justifying intellectual property based on utilitarianism.[729]

3.2 USA: the author in copyright laws influenced by utilitarian theory

The impact of utilitarian theory on United States copyright law can be seen in the way it shapes the concept of the author and the legal rights and protections granted to creators of intellectual property. Under the US Constitution one of the main aims of copyright law is 'to promote the Progress of Science and useful Arts, by securing for limited Times to Authors… the exclusive Right to their respective Writings...'[730] To accomplish this, Congress approved the first copyright statute in 1790, which gave authors of 'maps, charts, [or] books' copyright protection for a term of 14 years, renewable for an additional 14 years.[731] Although the Act gave some guidance on the nature of the rights that were protected, it did not define authorship and said nothing about who could qualify as an author of these works.[732] As a result, it is up to the courts to define authorship in the context of copyright law.

The meaning of the 'writings' of authors mentioned in the US Constitution was defined by Justice Miller in the *Trade-Mark Cases*:

> while the word writings may be liberally construed, as it has been, to include original designs for engravings, prints, etc., it is only such as are original, and are founded in

[728] Moore (n 552), 117.

[729] ibid.

[730] US Const., Art. I, § 8, cl. 8.

[731] United States Congress, CB Bickford and HE Veit, *Documentary History of the First Federal Congress of the United States of America, March 4, 1789–March 3, 1791: Legislative Histories: Funding Act [HR-63] Through Militia Bill [HR-112]* (Johns Hopkins University Press 1986) 522–3 <https://books.google.cg/books?id=chEVAQAAIAAJ>.

[732] ibid. Authors were granted the sole right to 'print, reproduce, publish, and sell' their works.

> the creative powers of the mind. The writings which are to be protected are the fruits of intellectual labor, embodied in the form of books, prints, engravings, and the like.[733]

This opinion set two standards – even though it provided little clarity about them – for 'writings' enjoying copyright protection: the works of an author must be original and must be the result of intellectual labour.[734]

A few years later, the court in *Baker v. Seldon* laid down another approach to 'writings' and 'authors', which has guided copyright jurisprudence ever since.[735] It was asked to determine which of two authors who had written different books describing a new system of bookkeeping should have the exclusive right to use the system described in their books. It ruled that only a book that is regarded as a book, as the product of an author, that provides knowledge on a subject, is covered by the author's grant of copyright. However, the court distinguished between copyright in 'the book as such' and that in 'the art which it is intended to illustrate',[736] then stated that authors would have to apply for a patent and show evidence of the book's novelty if they wanted to obtain the exclusive right to use this innovative 'art' or 'method of operation'.[737] In other words, the language authors use to express their views is safeguarded by copyright law. According to the court in *Baker v. Seldon*, authors express information or communicate ideas which include principles, practices and procedures, and the expression of these ideas depends on the author's choice of words or images to convey them.[738] The author's expression, not the ideas, is protected by copyright law.[739] This is now known as the concept/expression dichotomy, a fundamental principle of copyright law, even though its application is quite challenging.[740]

In another case, where the defendant claimed that because photographs are not writings of an author Congress had exceeded its Constitutional authority by giving copyrights to them,

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[733] *Trade-Mark Cases*, 82–3, 94.

[734] Buccafusco (n 535), 1239.

[735] *Baker v. Seldon* 101 US 99, 99 (1879), (*Baker*).

[736] ibid 102.

[737] ibid 102–3.

[738] ibid 103.

[739] ibid 100–101.

[740] Buccafusco (n 535), 1240.

the court defined 'author' as 'he to whom anything owes its origin; originator; maker; one who completes a work of science or literature'.[741] It went on to define 'writings' broadly, to include 'all forms of writing, printing, engraving, etching, etc., by which the ideas in the mind of the author are given visible expression'.[742] According to Justice Holmes in *Bleistein v. Donaldson Lithographing Co.* authorship can only be found in the 'inherent uniqueness of human personality'.[743] 'The copy is the personal reaction of an individual upon nature. Personality always contains something unique... something irreducible, which is one man's alone. That something he may copyright.'[744]

The most recent large-scale modification of US copyright law, the 1976 Copyright Act, tried to resolve several crucial difficulties arising from case law.[745] This Act, in contrast to the original 1909 Act, does not include all 'writings' produced by authors.[746] Instead, section 102(a) states that copyright exists in 'original works of authorship' but does not define the words 'original' and 'authorship'.[747] According to section 102(b), no one can claim ownership of ideas, concepts or principles, and they may freely be used by everyone.[748] This section takes an approach analogous to the *Baker v. Seldon* court, separating authorship that may enjoy copyright from subject matter that may be patented.[749] Intellectual property protection can only be given to procedures, processes, systems, ways of working and discoveries that meet the stricter requirements of patent law.[750] Despite the extensive changes made to the 1976 Act, Congress did not define several essential terms and concepts in the new act, including

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[741] *Burrow-Giles*, 58.

[742] ibid.

[743] *Bleistein*, 251. See also Bridy, 'Coding Creativity', 6.

[744] *Bleistein*, 250. Likewise, in *Bell*, Judge Frank indicated that authors need not even plan for the variant to occur, so long as they 'discovered' it and asserted it as their own.

[745] Jessica Litman, *Digital Copyright* (2001), 22–34.

[746] 17 USC § 102(a) (1994).

[747] Christopher M. Newman, 'Transformation in Property and Copyright', (2011) 56 *Villanova Law Review* 251, 292.

[748] Julie E. Cohen et al., *Copyright in a Global Information Economy* (3rd edn, 2010), 81.

[749] ibid.

[750] See *Baker*, 102.

authorship and originality, instead leaving in place the case law interpretations of these terms.[751]

Although the 1976 Act stipulates that the first ownership of copyright belongs to a work's author in line with the Constitution's reference to 'authors',[752] the lack of a definition of 'author' in the Act led to the term remaining vague in case law. The fact that the law defines the works to be protected by copyright, not the author, has led courts and researchers to define 'author' through the works enjoying copyright protection and to ask whether the alleged author has created anything worthy of such protection.[753] Justice Thurgood Marshall answered the question as follows: '[a]s a general rule, the author is the party who actually creates the work, that is, the person who translates an idea into a fixed, tangible expression entitled to copyright protection'.[754] Goldstein provided another answer to the same question from the perspective of joint authorship, which has gained an important place in case law.[755] In his view, to be considered an 'author', someone must produce something that can stand on its own as a work worthy of copyright protection: '[a] collaborative contribution will not produce a joint work, and a contributor will not obtain a co-ownership interest, unless the contribution represents original expression that could stand on its own as the subject matter of copyright'.[756] By bringing these two understandings together in the context of the 1976 Act we can suggest that an author is the person who fixes an idea in a tangible medium of expression.

Recent case law, mostly considering joint authorship, shows this definition of authorship to be widely accepted by courts.[757] To be considered an 'author', according to the court in *Childress v. Taylor*, one must contribute something that meets the conditions for

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[751] Christopher M Newman, 'Transformation in Property and Copyright' (2011) 56 Vill. L. Rev. 251, 292. See H.R. REP. No. 94-1476, at 51–2 (1976) ('the phrase "original works of authorship," which is purposely left undefined, is intended to incorporate without change the standard of originality established by the courts under the present copyright statute').

[752] 17 USC § 201(a) (1994).

[753] Russ Versteeg, 'Defining "Author" for Purposes of Copyright' (1996) 45 Am. U. L. Rev. 1323, 1327.

[754] *Community for Creative Non-Violence v. Reid* 490 US 730, 737 (1989).

[755] Versteeg (n 753), 1327.

[756] Paul Goldstein, *Copyright: Principles, Law, and Practice* (1989), § 4.2.1.2, 379.

[757] Versteeg (n 753), 1327. He refers this merger as 'the Marshall–Goldstein rule'.

copyright.[758] *Erickson v. Trinity Theatre, Inc.* repeated the more precise definition in an earlier case: '[a]n author is "the party who actually creates the work, that is, the person who translates an idea into a fixed, tangible expression entitled to copyright protection"',[759] ruling that fixation in this definition is accomplished when 'its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration'.[760] Since 'ideas, refinements, and suggestions, standing alone, are not the subjects of copyrights', to be considered an author 'one must supply more than mere direction or ideas'.[761] In another case, it was held that 'to be an author, one must supply more than mere direction or ideas; one must "translate" an idea into a fixed tangible expression entitled to copyright protection'.[762]

Section 101 of the 1976 Act defines fixture in a tangible medium as a condition for copyright protection when 'its embodiment in a copy... by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration'. Stressing 'by or under the authority of the author' in this section, the Third Circuit in *Andrien v. Southern Ocean County Chamber of Commerce* approached authorship from a different angle, seeing these words and the Supreme Court's interpretation as defining an author as the party who *really* creates the work, i.e. the one who converts an idea into an expression that is embodied in a copy, or who authorises another to embody the expression in a copy.[763] However, this definition has limitations. When embodiment is authorised, the method must consist of rote or mechanical transcription that does not need intellectual alteration or highly technological improvement.[764]

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[758] *Childress v. Taylor* 945 F.2nd 500 (2nd Cir. 1991), 506. Judge Newman stated '[t]he case law supports a requirement of copyrightability of each contribution'.

[759] *Erickson v. Trinity Theatre, Inc.* 13 F.3rd 1061 (7th Cir. 1994), 1069–70, (quoting *Community for Creative Non-Violence*, 737).

[760] ibid using wording from s101 of the 1976 Act.

[761] ibid 1072.

[762] *Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc.*, 53; *S.O.S., Inc. v. Payday, Inc.* 886 F.2nd 1081 (9th Cir. 1989), 1086–7. A similar conclusion can be found in *Ashton-Tate Corp. v. Ross* 916 F.2nd 516 (9th Cir. 1990), 521.

[763] *Andrien v. Southern Ocean County Chamber of Commerce* 927 F.2nd 132 (3rd Cir. 1991), 134–5.

[764] ibid.

Authors may qualify for copyright protection even if they did not carry out the mechanical fixing themselves.[765]

Where there are two or more authors, the term 'authorship' is often contested because it is crucial to distinguish what makes someone an 'author' from what makes them a 'non-author'. In fact, defining an author for copyright purposes is probably best achieved in the context of joint authorship cases because, practically speaking, the real question is whether one party can be called an 'author' and therefore be entitled to share exclusive rights with any other person who claims to be the author. Yet some other nuances to authorship can be extracted from cases in which joint authorship was not litigated, for example *Feist.* The court in this case did not define authorship for copyright, but it identified limitations to copyrightability that can help to define the term. The Court in *Feist* required a work to be original to the author, for copyright protection.[766] Original 'means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some [extremely] minimal degree of creativity' and '[t]he vast majority of works make the grade quite easily, as they possess some creative spark, "no matter how crude, humble or obvious" it might be'.[767] Thus, the definition of authorship that can be obtained from the *Feist* qualifying conditions for copyright could be: an author is a person who independently creates an original work that is not copied from other works and that possesses creativity, even a slight amount.

A case that can provide another feature of copyright authorship is the famous 'monkey case' *Naruto v. Slater*. In this case, PETA, on Naruto's behalf, tried to obtain a ruling that works made by animals can deserve copyright and that the animal can own those works because it is the author.[768] The Court ruled that, to be considered an author of a work, the work must be created by a human being and therefore the monkey Naruto could not be the author of a protectable work. A similar statement can be found in the *Compendium* of the US Copyright Office:

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[765] ibid.

[766] *Feist*, para. 345.

[767] ibid.

[768] *Naruto v. Slater*.

> To qualify as a work of 'authorship' a work must be created by a human being… Works that do not satisfy this requirement are not copyrightable. The Office will not register works produced by nature, animals, or plants.[769]

According to the Office copyright protection is also not available to 'works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author'.[770]

More recently, in an opinion letter dated 14 February 2022,[771] the Review Board of the United States Copyright Office (USCO) reaffirmed a decision by the USCO to deny registration of a two-dimensional artwork generated by an AI algorithm known as Creativity Machine.[772] The claimant, Dr Stephen Thaler, had filed an application to register the work, entitled 'A Recent Entrance to Paradise', on 3 November 2018, listing 'Creativity Machine' as the author and himself as the claimant, with a transfer statement claiming ownership attributable to his ownership of the machine.

In his appeal, Thaler argued that the USCO's requirement for human authorship was unconstitutional and unsupported by case law, and that the work-made-for-hire doctrine, which recognises companies as authors, should also apply to AI-generated works.[773] The Review Board examined the historical precedents surrounding the human authorship requirement, drawing upon guidance from the USCO's *Compendium* (Third), Supreme Court cases, lower court cases, the 1978 Final Report of the National Commission on New Technological Uses of Copyrighted Works and the 1965 Annual Report of the USCO.[774] Ultimately, it concluded that the human authorship requirement is grounded in long-standing legal precedent and does not infringe upon Thaler's constitutional rights.[775] Additionally, the Board dismissed Thaler's second argument as a matter of public policy, explaining that a machine cannot enter a binding

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[769] USCO, *Compendium*, §313.2.

[770] ibid.

[771] 'A Recent Entrance to Paradise | Review Board' <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf> accessed 29 December 2022. (Opinion Letter)

[772] ibid 7.

[773] ibid 2.

[774] ibid 3.

[775] ibid.

legal contract, such as an employment contract or agreement to work for hire, which is necessary for the work-made-for-hire doctrine to apply.[776]

In the light of all these explanations, and following the case law, the approach of American copyright law to authorship can be defined as follows: an author is a human being who independently creates an original work that is not copied from other works and that possesses creativity, even a slight amount, by the way of converting an idea into an expression that is fixed in a tangible medium by that human being or another under his control.

3.3 Non-human authors in copyright influenced by utilitarian theory

As explained in Section 3.3.2, utility is the greatest good for the largest number of people, it is determined by outcome and should be fostered by direct government intervention or incentives. There are no *a priori* or inalienable rights; rather, a right or institution is only recognised in a favoured outcome. Social utility depends on constant production of goods and services, so it is in the best interests of society to protect innovation and encourage creation. Property rights – including intellectual property rights – are offered as incentives. Viewing the author as creating work that benefits society seems more consistent with the utilitarian perspective than believing that only humans have consciousness that can be incentivised to create more, and become authors.

Like many other jurisdictions, US copyright law developed under the influence of utilitarian property justifications does not provide a definition of copyright author, although it accepts that works need to be protected and stipulates that the first owner of a copyrighted work is the work's author in line with the Constitution's reference to 'authors'. However, a close reading of the 1976 Act helps to draw a picture of copyright author. Under sections 101, 102(a) and 102(b), an author can be defined as the person who either fixes or permits the fixing of an original expression that is not a concept, practice or method prohibited by section 102(b). Under US copyright law, an author must meet all three of the following requirements: first, communicate something original; second, the thing communicated must be an expression; and third, communicate the original expression either directly (fixing the expression oneself) or indirectly (authorising another person to fix it).[777] In sum, the author is 'the party who actually

[776] ibid 6.

[777] Versteeg (n 753), 1342.

creates the work, that is, the person who translates an idea into a fixed, tangible expression entitled to copyright protection'.[778]

'Creativity' is not required for authorship *under the Act*, but under the Constitution and case law a creator must have contributed something original.[779] Moreover, the definition of originality provided by the Court in *Feist* sees creativity as essential: original 'means only that the work was independently created by the author… and that it possesses at least some minimal degree of creativity', albeit '[t]he vast majority of works make the grade quite easily'.[780] By considering the case law regarding originality, the author can be redefined as one who translates an idea into a fixed, tangible expression entitled to copyright protection – which is not copied from other works and possesses a modicum of creativity.

As widely examined and discussed in Chapter 1, contemporary generative AIs can meet this minimal creativity requirement and their creations can be considered original since they are not copied from other works. Being original, the result of a creative process, valuable and beneficial for the development of humanity, they increase social utility. In this respect, considering the utilitarian justification of property and the law developed under the influence of this theory, it can be argued that such AIs meet the requirements to be considered authors under US copyright law. However, the *Feist* ruling rejected the possibility that mechanical production could be original; and historically, copyright cases have emphasised human intellectual labour as a criterion for authorship; which makes demonstrating AI authorship difficult. Moreover, the US Copyright Office has recently required work to 'be created by a human being' and denied copyright protection to 'works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author'.[781]

The current interpretation of statute and case law, and the statement of the US Copyright Office, undoubtedly show that an AI cannot be the author of its creations under US copyright law. This approach seems to contradict the utilitarian justification for property, social utility,

[778] *Community for Creative Non-Violence*, 737.

[779] Versteeg (n 753), 1344.

[780] *Feist*, paras 340–48.

[781] USCO, *Compendium*, §313.2.

since it simply favours human authors and ignores the benefits that the creations of AIs can bring to society.

Conclusion

This chapter has examined the personality, labour and utilitarian justifications for copyright law and how these justifications have shaped the definition of an 'author' in copyright laws. It explored the evolution of the concept of 'author' and several philosophical and cultural perspectives that have influenced its development. The chapter also considered the implications of these justifications and definitions for the recognition of artificial authors in copyright law and the debates surrounding this issue. Each of the justifications mentioned in this chapter has strengths and weaknesses, and all of them play a role in shaping the definition of an author in the copyright law of the jurisdictions examined in this thesis. While the personality justification emphasises the unique identity and personality of creators and ascribes a natural right to the fruits of their labour, the labour justification focuses on the economic value of creative work and the role of copyright law in rewarding creators for their contributions to society. The utilitarian justification, on the other hand, centres the social benefits of creative works and the role of copyright law in promoting the public good.

While each of these justifications has its own advantages and limitations, they all share a common focus on the creator and the role of copyright law in protecting the creator's interests. This focus on an individual creator can be seen as a factor limiting the recognition of artificial authors in copyright law. However, the recognition of artificial authors in copyright law can support the broader purpose of copyright law, which is to enhance cultural and technological progress in society. By shifting the focus from the creative process and the role of human agency to the law's intention to encourage creativity and innovation, it may be possible to establish a basis for the acceptance of artificial authors in copyright law.

Chapter 4: A NEW ERA: ARTIFICIAL AUTHORS

Introduction

In recent years the field of computer science has made significant progress in developing generative AI systems that are capable of producing original content.[782] These systems, such as GPT-3 and DALL·E, have attracted significant attention and excitement in society for their ability to produce original and seemingly creative output.[783] However, there has also been some debate and uncertainty about whether such AI systems truly create anything at all, and whether their creations can be considered original.[784] And if the answers to these questions are affirmative, who could be the author of these original works?[785]

After extensively examining different approaches to creativity, originality and the definition of the author in copyright law, this chapter argues that AI systems can be creative, that their creations can be original and that extending copyright to artificial authors would

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[782] Michael L Littman and others, 'Gathering Strength, Gathering Storms: The One Hundred Year Study on Artificial Intelligence (AI100) 2021 Study Panel Report' [2022] arXiv preprint arXiv:2210.15767 12. (explaining the most important advances in the field of AI in recent years) '[i]n the last five years, the field of AI has made major progress in almost all its standard sub-areas, including vision, speech recognition and generation, natural language processing (understanding and generation), image and video generation, multi-agent systems, planning, decision-making, and integration of vision and motor control for robotics'.

[783] 'ChatGPT Gained 1 Million Users' (n 522).

[784] Margaret A Boden, *AI: Its Nature and Future* (1st edn, Oxford University Press 2016); Taina Pihlajarinne and Anette Alén-Savikko (eds), *Artificial Intelligence and the Media: Reconsidering Rights and Responsibilities* (Edward Elgar Publishing 2022) <https://www.elgaronline.com/view/edcoll/9781839109966/9781839109966.xml> accessed 22 October 2022; Ballardini (n 2); Bonadio and McDonagh (n 146); Bridy (n 2); Grubow (n 10); Andres Guadamuz, 'Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in Artificial Intelligence Generated Works' (2017) 2 Intellectual Property Quarterly 169; Kalin Hristov, 'Artificial Intelligence and The Copyright Dilemma' (2017) 57 The Journal of the Franklin Pierce Center for Intellectual Property 431; Burkhard Schafer and others, 'A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-Production' (2015) 23 Artificial Intelligence and Law 217.

[785] Abbott (n 11); Brown (n 146); Ana Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (2017) 21 Journal of Internet Law <https://www.ssrn.com/abstract=2987757> accessed 22 October 2018; Yanisky-Ravid (n 180); Ginsburg and Budiardjo (n 2).

better serve the purposes of copyright law than ignoring the technological advances in this field. One of the main arguments against the recognition of artificial authors in copyright law is that AI systems are not capable of true creativity and that their creations are merely the result of algorithms and data inputs.[786] After explaining the training and creation process of two of the most successful examples of generative AIs, and demonstrating some of their creative and original outputs, the first section of this chapter argues that AI systems can meet the extensive requirements for creativity mentioned in the previous chapters. As well as arguing that AI systems can be creative, the author also claims that their creations can be original, by examining the concept of originality in copyright law and showing how AI-generated works can meet the criteria for originality.

In the second section, the author argues that the author-in-fact of the outputs from generative artificial intelligence systems is the AI itself, once we accept that artificial intelligence can be creative and produce original works. The author then explains the negative consequences of the general approach that artificial intelligence cannot produce original works meriting copyright, why copyright needs to accept artificial authors and the benefits to which this would lead. This part of the chapter also examines whether the concept of artificial authorship would be possible within the framework of the personality, labour and utilitarian justifications for intellectual property examined in Chapter 3.

Finally, the author presents a basis for the concept of artificial authorship in copyright law, in line with the economic analysis of law. This section provides a framework for the characteristics of the system that would be needed for the concept of artificial authorship to be recognised in copyright law effectively and sustainably. Then, the thesis considers the potential social and economic benefits of recognising artificial authors in copyright law and how this recognition could encourage innovation and creativity, to contribute to the research and policy work that still needs to be done in the field of copyright on generative artificial intelligence, creativity and originality.

[786] See Section 1.1.1.

1. Just Another AI Summer or A New Era

The field of AI has undergone significant advancements over its history, resulting in the creation of many systems and models that aim to replicate human cognitive processes.[787] The inception of AI may be traced back to the use of rule-based systems, which operated based on predetermined instructions.[788] Subsequently, there was an emergence of neural networks, characterised by their resemblance to simplified configurations of the interconnections inside the human brain.[789] Later, deep learning advanced the field by employing hierarchical neural networks to discern patterns in other domains, such as visual and auditory data.[790] In conjunction with these improvements, the emergence of creative AI has garnered significant attention, as it produces artistic output and stimulates discourse on the essence of creativity. Generative artificial intelligence, exemplified by models such as Generative Adversarial Networks (GANs), have the capability to generate novel data that bears a striking resemblance to the training material it was exposed to.[791]

Currently, Large Language Models (LLMs) have a prominent position in the field of generative AIs. [792] Models such as the Generative Pre-trained Transformer (GPT) undergo training using extensive textual data, enabling them to generate coherent and pertinent written material. One of the most prominent examples of LLMs is GPT-3, which has been created by OpenAI. The proficiency of GPT-3 in producing coherent and contextually suitable text has been demonstrated across a range of applications, encompassing tasks such as essay composition and coding support. DALL·E, another innovative model developed by OpenAI, is specifically

[787] Jafar Alzubi, Anand Nayyar and Akshi Kumar, 'Machine Learning from Theory to Algorithms: An Overview' (2018) 1142 Journal of Physics: Conference Series 012012, 6.

[788] "A production system may be viewed as consisting of three basic components: a set of rules, a data base, and an interpreter for the rules." Randall Davis and Jonathan J King, 'The Origin of Rule-Based Systems in AI' [1984] Rule-based expert systems: The MYCIN experiments of the Stanford Heuristic Programming Project 21.

[789] Jürgen Schmidhuber, 'Deep Learning in Neural Networks: An Overview' (2015) 61 Neural networks 85, 4.

[790] ibid.

[791] Zhaoqing Pan and others, 'Recent Progress on Generative Adversarial Networks (GANs): A Survey' (2019) 7 IEEE Access 36322, 36323.

[792] See Timm Teubner and others, 'Welcome to the Era of Chatgpt et al. the Prospects of Large Language Models' (2023) 65 Business & Information Systems Engineering 9.

designed to produce visual representations based on textual descriptions. These recent two examples of generative AIs show that we are on the cusp of a new era in AI, one in which machines are able to create and innovate in ways that were previously unimaginable. This sections first examines some of the most recently developed generative AIs and their creation process, then goes on to discuss whether they are creative and whether their creations could be considered original.

1.1 The most recent examples of generative AIs: DALL·E 2 and ChatGPT

Recently, OpenAI[793] released a new version of one of their creative artificial intelligence systems, DALL·E 2, which can 'create realistic images and art from a description in natural language'.[794] It is capable of taking basic text descriptions, such as 'a white rabbit waiting for a train at the railway station' and generating realistic images. Before discussing whether AIs' creations could be original or not, it is necessary to examine the training and creation stages of an artificial intelligence.

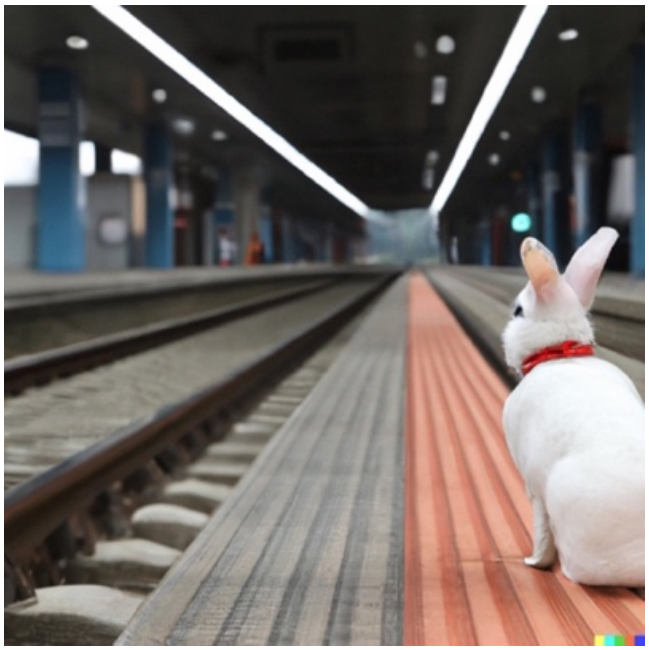

Image 1: This image was created by DALL·E 2 in response to this paper's author's request to generate an image of 'a white rabbit waiting for a train at the railway station'.

[793] OpenAI is a company engaged in AI research and deployment. The company defines its mission as "to ensure that artificial general intelligence—AI systems that are generally smarter than humans—benefits all of humanity." See <https://openai.com/about> accessed 20 May 2023.

[794] ibid.

The first stage is the training process. DALL·E was created by training an artificial neural network model called CLIP on images and text descriptions of them.[795] CLIP is a neural network model that returns a caption when given an image.[796] It matches images to corresponding captions.[797] In other words, given one half of an image and caption pair in the data set it finds the other half (see Figure 1). This is rather teaching a child the names of animals by showing them pictures with captions but given the limitations of computer logic this requires a complex, comprehensive, mathematical environment.

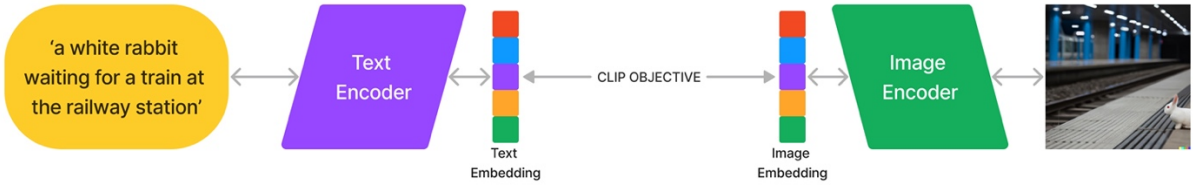

Figure 1: Training process[798]

To be able to do the matching, CLIP trains two encoders: one turns texts or captions into text embeddings and the other turns images into image embeddings. Embedding is a mathematical way of representing information[799] (see Figure 2).

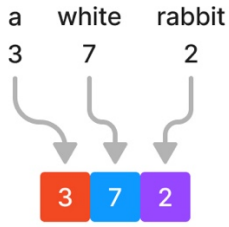

Figure 2: Embedding[800]

[795] For CLIP, see Figure 1. See also https://cdn.openai.com/papers/dall-e-2.pdf.

[796] Aditya Ramesh and others, 'Hierarchical Text-Conditional Image Generation with Clip Latents' [2022] arXiv preprint arXiv:2204.06125.

[797] ibid.

[798] Ramesh et al. (n 796), 3.

[799] See 'Word Embeddings | Text' (*TensorFlow*) <https://www.tensorflow.org/text/guide/word_embeddings> accessed 24 September 2023.

[800] Ramesh et al. (n 796), 3.

What CLIP is seeking to do is make sure that the similarity between the embedding of an image and the embedding of its caption is as great as possible. Through deep learning, the system not only comprehends individual items, such as rabbits and railway stations, but also learns from object connections (e.g. how rabbits might behave, different types of railway station, how a railway station might differ from a bus station). And when a user asks DALL·E 2 to generate an image of a white rabbit waiting at a railway station, it can work out how to create such an image, as well as any other object or action that has a link to another object or action. This approach used to train DALL·E makes it possible for DALL·E to apply to a new image what it has learned from a variety of other, labelled images.

Then, in the second stage, DALL·E uses a 'prior model' which takes the CLIP text-embedding and creates a CLIP image-embedding out of it.[801] That model takes a photograph and gradually adds 'noise' to it over time steps until it is no longer recognisable; then tries to reconstruct the image as close to its original form as it can manage.[802] By doing that it learns how to generate images.

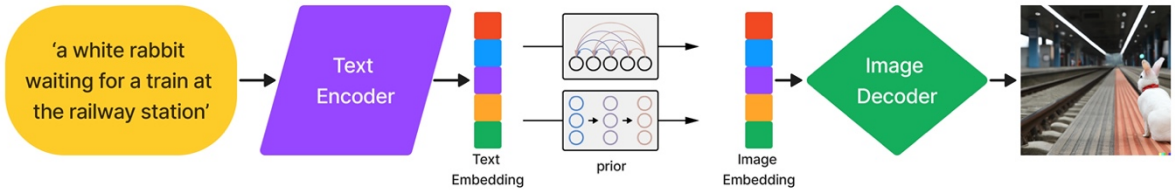

Figure 3: Creation process[803]

However, just like conversing with someone who was taught the incorrect word for something, if DALL·E is taught using wrongly labelled objects, such as a cat labelled 'giraffe', when a user asks it to generate a giraffe, DALL·E may create a cat. Training gaps may also place restrictions on DALL·E, which could be another potential source of limitations. For instance, if you type 'rabbit' and DALL·E has learned through images and correct labelling what a rabbit is, it will generate a large number of excellent rabbit images. However, if the user

[801] ibid 4.

[802] ibid.

[803] ibid 3.

asks DALL·E to generate an image of 'howler monkey' and it has not learned what a howler monkey is, it will generate a best guess, which may be something like a 'howling monkey'.[804]

The idea in this example is 'a white rabbit waiting for a train at the railway station' and the expression is image 1 shared above. Since copyright protects expressions not the ideas behind them, this begs the question whether expressions, such as this image of a white rabbit, created by artificial intelligence systems like DALL·E 2 are original or not?[805]

The other generative AI that this section will examine is a large language model called GPT-3, Generative Pretrained Transformer 3.[806] It is one the latest large language model developed by OpenAI.[807] It is a system that uses algorithms to generate human-like text with a high degree of accuracy.[808] It can be used for a wide range of applications, including machine translation, summarising and to generate answers to questions.[809] GPT-3 has attracted attention for its impressive ability to generate human-like text[810] and has been used in a variety of creative applications, including writing articles and creating art.[811]

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[804] The howler monkey is an American monkey known for its roaring cry. See 'Howler Monkey | Definition, Size, Diet, Habitat, & Facts | Britannica' <https://www.britannica.com/animal/howler-monkey> accessed 24 September 2023.

[805] Not surprisingly, OpenAI believes that the works created by DALL·E are original. This can be seen in provision 6 in the user agreement, relating to assigning rights on the works created by DALL·E: '*3. Content:* You may provide input to the Services ("Input"), and receive output generated and returned by the Services based on the Input ("Output"). Input and Output are collectively "Content." As between the parties and to the extent permitted by applicable law, you own all Input, and subject to your compliance with these Terms, OpenAI hereby assigns to you all its right, title and interest in and to Output. OpenAI may use Content as necessary to provide and maintain the Services, comply with applicable law, and enforce our policies. You are responsible for Content, including for ensuring that it does not violate any applicable law or these Terms.'

[806] Robert Dale, 'GPT-3: What's It Good for?' (2021) 27 Natural Language Engineering 113.

[807] ibid 115 ('[i]n June 2020, OpenAI announced GPT-3, a new language model more than 100 times larger than GPT-2, with 175B parameters and 96 layers trained on a *corpus* of 499B tokens of web content, making it by far the largest language model constructed to date. At the time of writing, the closest contenders are considerably smaller, with Microsoft's T-NLG and Google's T5-11B both being less than a tenth of GPT-3's size.')

[808] 'GPT-3' <https://beta.openai.com/docs/models/gpt-3> accessed 29 December 2022.

[809] ibid.

[810] 'ChatGPT Gained 1 Million Users' (n 522).

[811] Miller et al. (n 523).

The creation process for GPT-3 involved uploading a large data set of text in English.[812] This data set included a wide variety of written works (not just books and articles).[813] The model was then 'pre-trained' on this data set, which means that it learned the patterns and structures underlying the text.[814] After pre-training, it can be fine-tuned for specific tasks.[815] This involves providing the model with additional training data that are specific to the task at hand.[816] For example, if the model is being used for translation, it would be trained on a large data set of translated text. When used to generate text, it uses the patterns and structures it learned during the pre-training and fine-tuning phases to produce human-like output.

The process of generating text with GPT-3 follows a series of steps to produce its output.[817] (1) The user provides a 'prompt', a piece of text that serves as the starting point – this can be a single word, a phrase or a longer piece of text.[818] (2) The model uses its pre-trained knowledge to generate a 'response' to the prompt, based on the patterns it has learned from the training data, as well as any additional information provided in the prompt.[819] (3) After that the response is evaluated by the model for quality, using a variety of metrics, such as the coherence of the generated text and its similarity to human-written text.[820] (4) If it meets the required quality standards, it is output; if not, the model will generate another response and repeat the evaluation process until a satisfactory response is produced.[821] (5) Finally, the output response

[812] Luciano Floridi and Massimo Chiriatti, 'GPT-3: Its Nature, Scope, Limits, and Consequences' (2020) 30 Minds and Machines 681, 684.

[813] ibid.

[814] ibid 692.

[815] Xiao Liu and others, 'GPT Understands, Too' [2021] arXiv preprint arXiv:2103.10385.

[816] ibid.

[817] See Tom B Brown and others, 'Language Models Are Few-Shot Learners', (arXiv, 22 July 2020) <http://arxiv.org/abs/2005.14165> accessed 30 May 2023; Floridi and Chiriatti (n 812).

[818] Steve Tingiris and Bret Kinsella, *Exploring GPT-3* (Packt Publishing 2021) 6.

[819] Floridi and Chiriatti (n 812), 684.

[820] Brown and others (n 817), 10.

[821] ibid.

is presented to the user as the model's answer to the prompt.[822] This process allows GPT-3 to produce human-like answers to a wide range of questions.[823]

One of the most recent models announced under the GPT3 is ChatGPT.[824] According to the OpenAI, ChatGPT 'interacts in a conversational way' and its dialogue format 'makes it possible for ChatGPT to answer follow up questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests'.[825] ChatGPT was trained using Reinforcement Learning with Human Feedback (RLHF): supervised fine-tuning to train an initial model, with human trainers acting both as user and AI assistant in a series of dialogues.[826] OpenAI made model-written suggestions available to the trainers to assist them in composing their prompts.[827] As part of the process of developing a reward model (to 'reinforce' learning), OpenAI gathered comparison data based on two or more model answers taken at random from conversations between AI trainers and the chatbot, sampled many potential endings and ranked them using AI trainers.[828] These rankings could be used to fine-tune the model by running more exercises and 'rewarding' scores that met a specified grade ('Proximal Policy Optimization'). They went through this process multiple times.[829]

[822] ibid.

[823] Floridi and Chiriatti (n 812), 684.

[824] See <https://chat.openai.com/> accessed 15 May 2023.

[825] 'ChatGPT: Optimizing Language Models for Dialogue' (OpenAI, 30 November 2022) <https://openai.com/blog/chatgpt/> accessed 29 December 2022.

[826] ibid.

[827] ibid.

[828] ibid.

[829] ibid.

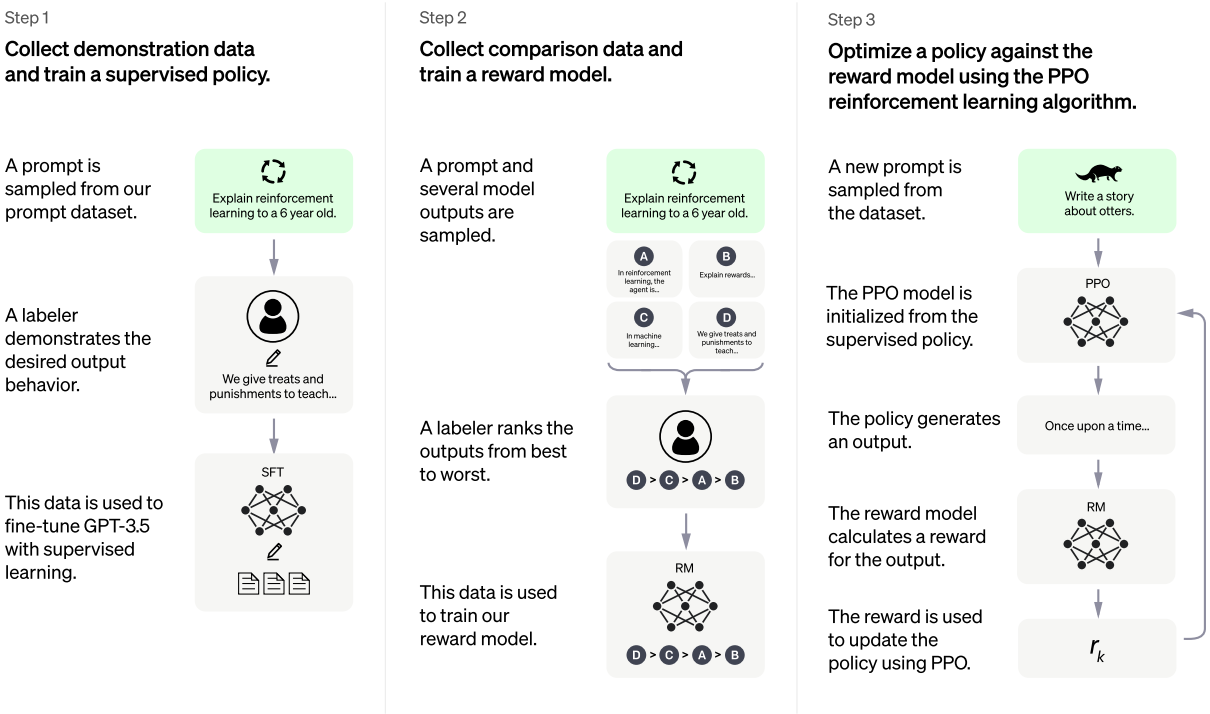

Figure 4: ChatGPT's training process[830]

Less than four months after ChatGPT was announced, GPT-4 was launched and made available to ChatGPT users, capable of performing at or beyond human intelligence in many tasks.[831] A recent study has shown that it possesses the ability to understand beliefs, emotions, and intentions that are characteristic of human beings.[832] This has been evidenced through the results of 40 classic false belief tasks, which are commonly used to test theory of mind (ToM)[833] in humans and measure the ability to attribute unobservable mental states to others.[834] One of these classic false-belief tests that is widely used to assess theory of mind in children is Sally-

[830] ibid.

[831] See <https://openai.com/research/gpt-4> accessed 10 May 2023; OpenAI, 'GPT-4 Technical Report' (arXiv, 27 March 2023) <http://arxiv.org/abs/2303.08774> 1 accessed 30 May 2023.

[832] Michal Kosinski, 'Theory of Mind May Have Spontaneously Emerged in Large Language Models' (arXiv, 14 March 2023) 2 <http://arxiv.org/abs/2302.02083> 1 accessed 25 May 2023.

[833] Children's perceptions of their own and other people's minds are referred to as their theory of mind (ToM). *See,* Stephanie M Carlson, Melissa A Koenig and Madeline B Harms, 'Theory of Mind' (2013) 4 WIREs Cognitive Science 391, 391.

[834] Kosinski (n 832), 2.

Anne test.[835] The input and output of GPT-4 below, which correctly answers that Sally will look for her marble in her basket, demonstrate that it can reason about Anne's beliefs.[836]

> **User:** I will provide you a scenario and then ask you a question about this scenario. Here is the scenario: Sally has a basket. Anne has a box. Sally has a marble. She puts the marble into her basket. Sally goes out for a walk. Anne takes the marble out of the basket and puts it into the box. Now sally comes back. She wants to play with the marble. After coming back Sally, wants to play with her marble. Where will Sally look for her marble and why?
>
> **ChatGPT (GPT-4):** Sally will look for her marble in her basket because that's where she last put it before she went out for a walk. She is not aware that Anne moved the marble from the basket to the box.[837]

According to this study, the initial version of GPT-3, which was released in May 2020, solved over forty percent of false-belief tasks, a level of performance comparable to that of a child of three and a half years of age.[838] Its second version completed seventy percent of false-belief tasks, which is comparable to the performance of six-year-olds.[839] While ninety percent of false-belief exercises in GPT-3.5 were completed successfully, at a level suitable for 7-year-olds; GPT-4 successfully completed ninety five percent of these tasks.[840] These findings clearly show that recent advancements in the field of artificial intelligence have moved us from programs that produce output automatically or randomly to the stage of artificial intelligence with the abilities of understanding, decision-making and creativity. Some take this a step

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[835] Terhi Korkiakangas and others, 'The Sally–Anne Test: An Interactional Analysis of a Dyadic Assessment' (2016) 51 International Journal of Language & Communication Disorders 685, 690.

[836] For further examples, See Sébastien Bubeck and others, 'Sparks of Artificial General Intelligence: Early Experiments with GPT-4' (arXiv, 13 April 2023) 55–59 <http://arxiv.org/abs/2303.12712> accessed 25 May 2023.

[837] This conversation took place between the author of this thesis and GPT-4 via ChatGPT version 2023 May 12.

[838] Kosinski (n 832), 2.

[839] ibid.

[840] ibid.

further and claim that 'GPT-4 attains a form of general intelligence' by depending on 'its core mental capabilities (such as reasoning, creativity, and deduction), its range of topics on which it has gained expertise (such as literature, medicine, and coding), and the variety of tasks it is able to perform'.[841]

After all these findings and discussions in previous chapters and with two examples of generative AIs and their outputs, it is now time to answer the following three questions without prejudice: Are these AIs and similar ones creative? Are their outcomes original? If the answers to these two questions are affirmative, who are the real authors of these outputs?

1.2 Creativity is being coded

As widely examined in Chapter 1, current copyright regulations do not specifically define creativity, but they do protect creative works. To be eligible for copyright protection, a work must be original and fixed in a tangible form.[842] To be original, under US copyright law, the work must be made independently by its author and possesses at least a minimal degree of creativity.[843] Creativity, in this respect, is defined as creative choices observable in the selection and arrangement that are not dictated by the function of the work, the method or technique used, or by applicable standards or relevant good practice.[844] Similarly, in the EU, a work is considered original only if it is a result of the 'author's own intellectual creation'.[845] Creativity in this respect is the author's 'free and creative choices' during the creation process.[846] However, it is not possible for an outsider to know what took place consciously or unconsciously in an author's brain or soul while creating their work.[847] Accordingly, almost all

[841] Bubeck and others (n 836), 92.

[842] 17 USC §102(a) ('Copyright protection subsists… in original works of authorship fixed in a tangible medium of expression…')

[843] *Feist*, 357–8.

[844] Gervais (n 2), 2090–91.

[845] *Infopaq*, 37–9.

[846] See *Painer*, *Football Dataco*.

[847] See Section 1.3.1 and Section 2.2.2.

the human creativity required by today's copyright law is actually detected by subjectively interpreting the actual works that result.[848]

Think of a time when you complimented a person for showing creativity. Most often, a work produced by the person who received the compliment triggered it. This work can affect us in two ways:

(1) either the work resembles no other work that we know about, and evokes a sense of novelty and admiration for the author,[849]
(2) or, considering its creator's qualifications and the knowledge they possess, we feel a sense of respect since the author was not expected to produce such a work.[850]

Contemporary copyright laws consider the author creative in both cases by defining that creativity through the work created. This is the fundamental truth behind the current definitions of and approaches to detecting creativity in copyright law. The decision regarding the creativity of an author can only be based on the work created.

In this context, the author of this thesis argues that, even under current copyright approaches to creativity, today's artificial intelligence can be considered creative when we examine output of AIs like the image created by DALL·E 2 and the scenes described by ChatGPT. These works can be considered 'new' under two meanings of the word: they have been developed for the first time in human history and they have not been previously encountered by anybody else. They also demonstrate that the authors of the works, DALL·E 2 and ChatGPT, can come up with unexpected, beneficial ideas. Therefore, instead of believing that creativity is inherently human or a unique human trait, when we examine the evidence that legally characterises human beings as creative, there is no barrier to recognising these artificial intelligence systems as creative under the approaches currently acknowledged by the law.

Apart from the legal boundaries of subjectivity regarding originality and creativity in copyright, based on psychological and philosophical definitions of creativity and neuroscientific research into creation processes (see Chapter 1), the claim that artificial intelligence can be creative can be defended more strongly. In this respect, recent research in

[848] See Section 2.2.2.

[849] Boden (n 294), 76 (H-Creativity).

[850] ibid. (P-creativity).

neuroscience has shed light on how human creativity occurs in the brain.[851] When a person is engaged in a creative task, such as writing a novel or painting a picture, the brain is active in several areas, including the prefrontal cortex (which is involved in problem solving and decision making) and the medial temporal lobe (which is important for retrieving memories).[852] The brain's reward centres are also active during the creative process, providing motivation and reinforcement for the person to continue creating.[853] Another area is the default mode network, which is associated with self-referential thought and introspection.[854] This network becomes more active when a person is not focused on the outside world but instead on their own thoughts and ideas.[855] This increase in activity in the default mode network may allow a person to generate new ideas and connections between previously unrelated concepts, leading to the generation of creative works.[856] It is difficult for neuroscience to reveal the human creative process with absolute clarity owing to the uniquely complex structure of the brain. However, it is clear that these studies have cleared many unknowns about creativity by determining which parts of the brain, the functions of which we understand, are involved in the process of creating a work.[857]

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[851] See Section 1.3.3.

[852] Arne Dietrich and Riam Kanso, 'A Review of EEG, ERP, and Neuroimaging Studies of Creativity and Insight' (2010) 136 Psychological Bulletin 822.

[853] Wolfram Schultz, 'Dopamine Signals for Reward Value and Risk: Basic and Recent Data' (2010) 6 Behavioral and Brain Functions 1, 3; James E Burroughs and others, 'Facilitating and Rewarding Creativity during New Product Development' (2011) 75 Journal of Marketing 53, 60: '[f]or those who receive creativity training, the rewards may encourage the people who are already working smarter to also work harder, and when they do so, their intrinsic motivation may increase because they feel more competent in approaching the task'.

[854] Beaty, Seli and Schacter (n 331), 22–4. (During spontaneous thinking processes, such as brainstorming, the default network, which is a group of brain regions, is activated. The executive control network, a system that is engaged when focusing and evaluating the suitability of ideas for a task, is activated when there is a need for mental concentration.)

[855] ibid.

[856] ibid.

[857] Dietrich and Kanso (n 830), 846: 'divergent thinking studies that found prefrontal enhancement correlated with creativity and, on the basis of this finding, argued the diametrically opposing position, that is, creativity critically depends on more systematic planning, working memory, response selection, and the suppression of stereotypical responses'.

These neuroscientific studies also support dominant theories of the creation process in the field of psychology. Most creativity theories divide the creative process into two main sub-processes, which may be defined as follows from a psychological perspective. All theories of creativity have in common a first phase, an unfocused period during which abstract thoughts are formed that will ultimately lead to creative activity, and a process of reliance on task-relevant information at various stages of the creative process, which transforms disorganised thought into a physical, perceptible creative product primarily governed by the author's prior knowledge and memory.[858] While the first phase is significant to the originality requirement of copyright law, which centres on the author's capacity to make an original and independent contribution to the final creative work, the second sub-process is relevant to the idea/expression duality.[859]

The examples of DALL·E 2 and ChatGPT described in 1.1 above show that the stages of the human creation process, which are widely accepted in psychology and accord with the neuroscientific findings, can be coded with today's artificial intelligence technology. The outputs of these AIs are new and surprising,[860] and deserve to be considered creative according to philosophical views of creativity. The training and creation processes of AIs like ChatGPT and DALL·E 2 demonstrate that today's generative AIs can possess (1) motivation to define a problem or participate in a task, (2) ability to build a task-relevant information base, (3) capacity to respond to a problem or task by searching potential approaches to solving it and (4) competence to analyse responses generated to a problem using existing knowledge and to form these solutions in an effective and functional way.[861] As a result, in accordance both with the current legal approach to creativity and the arguments put forward by the author of this thesis regarding creativity in the light of psychological, philosophical and neuroscientific studies and theories, today's artificial intelligence systems can be creative, which makes this AI summer different from others.

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[858] Rachum-Twaig (n 286), 319.

[859] ibid.

[860] Boden, 'Music, Creativity, and Computers' (n 294), 75. (Boden defines creativity as 'the ability to come up with ideas or artefacts that are new, surprising, and valuable'.) See also, Section 1.3.2.

[861] See Section 1.3.1.

1.3 'I do not copy; they are generated by me'

As mentioned in sections 2.1.1 and 2.1.2, for a work to be considered original under current US copyright law, the work must be a result of an 'independent creation' and display a 'minimal degree of creativity'. In the EU, similarly, only works that are their 'author's own intellectual creation' could be considered original for the purpose of copyright law. If these subjective conditions are gathered under the title of 'free and creative choices', the first question to be asked in the evaluation of the originality of the work created by artificial intelligence is whether machines can make free and creative choices or whether the works created by AI are results of the programming of an automatic system.

One may argue that AI is essentially pre-programmed, based on the idea that AI can only use and learn from the knowledge it has acquired, in the ways that it has been programmed to follow.[862] However, the author of this thesis argues that AI decisions are more than merely autonomous, by looking at the progress achieved by today's machine-learning functions, in which algorithms 'learn' from provided inputs, then develop their own decisions and execute processes based on this knowledge.[863] As extensively discussed in Chapter 1 of this thesis, an AI could be creative from psychological, neurological and philosophical perspectives.[864] Nevertheless, this is not enough to meet the originality condition under the subjectivity perspective. The current concept of subjective originality also seeks a display of the personality/human-ness of the author in the work.[865]

To meet the personality condition, someone who follows the subjective originality approach could base an argument on the humans behind the training or creation process of the AI.[866] The persons who program AIs like DALL·E 2 and ChatGPT, or generate the data sets

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[862] Gervais (n 2), 43.

[863] Yann LeCun, Yoshua Bengio and Geoffrey Hinton, 'Deep Learning' (2015) 521 Nature 436, 436: 'deep learning has produced extremely promising results for various tasks in natural language understanding…'

[864] Bridy (n 2), 20. According to Bridy, '[b]ecause copyright law does not expressly require human authorship, artificially intelligent computer programs that autonomously generate art need not be relegated for copyright purposes to scare-quoted authorship; their works can be regarded as proper "works of authorship"… by virtue of their nexus to human creativity'.

[865] See Section 2.2.1.

[866] National Commission on New Technological Uses of Copyrighted Works, *Final Report on New Technological Uses of Copyrighted Works* 82 (1979) 45.

used to train them, or any other human who is somehow part of these AIs' creation processes, could be argued to be the creator of the expressions that they generate.[867] Perhaps the end-user who presented the prompt 'a white rabbit waiting for a train at the railway station' to the AI and pressed the enter button may be the human part of the process that led to the creation of the work.[868] Before we consider the humans behind the creation processes, it could be argued that the examples shared in 1.1 are sufficiently original to merit copyright protection in the EU and the USA if it can be shown that they are not copies of another work. Then, the human participation found in the process of creating the work would give originality to the outputs of DALL·E and ChatGPT only if those outputs could have been predicted by those humans. However, the unpredictability of the works of AIs, as we have seen in the examples shared above,[869] exhibits no human control over the outputs and breaks humans' connections to the expressions. Evidently, someone who does not essentially exercise control over the artwork cannot claim to be an author, and if no human is behind the creation this means no free and creative choices or personality and originality can be found, as required by the subjective originality approach.

In this context, in the examples shared above, the programmers could only be the creators of the AIs. Their expressions are the codes running DALL·E 2 and ChatGPT. If people who control the data set are creators of an expression that will pass the examination for originality, the expression is the data set used to train these AIs, not the outputs generated by the AIs. Moreover, the end-user's role in these examples is just to provide the prompt (the idea), not to create the expressions. None of the people mentioned here can predict the possible outputs of DALL·E 2 or ChatGPT. Although programmers and end-users know that these AIs create excellent works when asked to generate, they can only guess what specific creations might result from the prompt. Therefore, the assumption that humans behind the creative

[867] Ginsburg and Budiardjo (n 2), 453.

[868] ibid 453.

[869] DALL·E generates different images every time the user asks it to create 'a white rabbit waiting for a train at a railway station'. For similar experiments See Michael L Littman and others, 'Gathering Strength, Gathering Storms: The One Hundred Year Study on Artificial Intelligence (n 782).

process could give originality to an AI output does not seem to meet the subjective originality approach.

Image 1

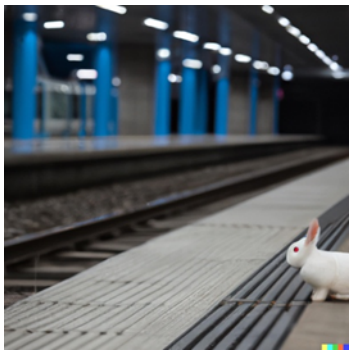

Image 2

Image 3

That unpredictability, on the other hand, could be accepted as evidence of free and creative choices made by AI, which can eliminate personality from the list of criteria required by the subjective approach defenders to demonstrate originality. Although the end-user instructs DALL·E to create the idea of the white rabbit in the same way every time, DALL·E produces different images each time as can be seen above (Images 1, 2 and 3). The difference between these images shows that they are not copied and are not the result of a random process but generated as an outcome of free and creative choices. If they were created autonomously, the images would be the same, or different but contain similarities distinguishable by the viewer. If they were generated randomly, they would not transfer the same idea to the viewer each time. Therefore, it can be said that a 'free and creative' decision-making process behind their creations is exhibited, and that this belongs to DALL·E 2.

What this thesis criticises about the subjective originality approach is that when a human generates a work, it becomes very difficult to consistently and precisely determine whether subjective conditions such as intention, independent creation, and creativity have been met. However, as seen here, when it comes to an artificial intelligence's creations, it becomes very easy to determine whether these subjective conditions are fulfilled in a clear and objective way, since every detail of the learning and creation process of artificial intelligence is known or can be discovered. Therefore, if we accept that artificial intelligence can be creative, as the psychological, neurological and philosophical arguments previously considered seem to show, it is reasonable to claim that the works created by AIs like DALL·E 2 and ChatGPT are original even according to the conditions of subjective originality.

However, and contrary to the current originality approaches of the EU and the USA, the author of this thesis argues that the originality of a work for the purpose of copyright protection should be examined in a more formal and objective way, as is done in the UK.[870] To be considered original, a work must be more than a simple copy of another work and must originate from the person claiming to be its author.[871] It does not have to be creative in the sense of being unique or novel, but the expression should be the result of an exercise of skill and judgement.[872] The skill here refers to an ability to do an activity or job well, especially by practising it; and judgement refers to the capacity to discern and evaluate different existing or possible options and reach a conclusion by comparing them. Neither the skill nor the judgement necessary to generate the work should be so insignificant as to be considered a simply mechanical activity. Adopting this approach to examination for originality would make the term (and hence the copyright systems) more objective and consistent. It not only creates a more productive and fairer environment for creators, but also contributes to the generation of more works, from which society may benefit.

It is arguable that the creations of generative AI systems (like DALL·E and ChatGPT) satisfy the originality requirement for copyright if this concept of originality is applied to them, since the work originates from a clearly demonstrable author and is not a copy; and the work demonstrates the author's exercise of skill and judgement in creating it. Image 1 is original since it was created by the author DALL·E and is not a copy of another work. When the data sets used to train artificial intelligence are fully known (or at least discoverable) and the code of the program reveals the creation process transparently, it becomes easy to determine whether this first condition is met. DALL·E also exhibits the skill and judgement required by the proposed concept. As explained in Section 4.1.1, AIs like DALL·E are first taught objects, connections between them, and how to create a new work. Then, when the AI receives a prompt from the user, it grasps the meaning of the idea behind the prompt in its own mathematical way. After that, it refers to experiences stored in its memory, seeking to relate them to the idea

[870] See Section 2.2.2 and 2.2.3.

[871] *Schrock v. Learning Curve International, Inc.* 586 F.3d 513, 521 (7th Cir. 2009): 'nothing in the Copyright Act suggests that derivative works are subject to a more exacting originality requirement than other works of authorship... [T]he only "originality required for [a] new work to be copyrightable... is enough expressive variation from public domain or other existing works to enable the new work to be readily distinguished from its predecessors"'.

[872] ibid.

prompted by the user and, in the final stage, it creates a new work. On the basis of a broad understanding of how artificial neural networks[873] and generative adversarial network (GAN)[874] systems function, it can be asserted that DALL·E demonstrates proficiency in the task through its programming and continued learning via back-propagation, autonomously establishing an aptitude to create the work. Furthermore, the process by which DALL·E creates an output also shows that it is capable of making rational, intelligent decisions, exercising free judgement and identifying the actions or inactions that are most likely to generate the image that depicts the user's idea. The proof of this is that a viewer of Image 1 would not feel much less fulfilment if a human illustrator provided the same image. These arguments are also true for ChatGPT. The following conversation that the author of this thesis had with ChatGPT shows that its answers originate with itself[875] and are not copied from somewhere else:

The Author: **"**Do you copy your answers from something or somewhere else?"

ChatGPT: "No, I don't copy my answers from somewhere else. I am a large language model trained by OpenAI, which means I have been trained on a vast amount of text data to generate human-like responses to questions. I use my training and algorithms to generate unique responses to questions based on the information that I have been trained on. I do not have access to the internet or any external sources of information, so I am unable to browse the web or copy information from other sources."

The Author: **"**How do you generate human-like responses to my questions?"

ChatGPT: **"**As a large language model, I have been trained on a vast amount of text data to generate human-like responses to questions. I use my training and

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[873] Anders Krogh, 'What Are Artificial Neural Networks?' (2008) 26 Nature Biotechnology 195.

[874] Antonia Creswell and others, 'Generative Adversarial Networks: An Overview' (2018) 35 IEEE Signal Processing Magazine 53.

[875] Generative AIs like ChatGPT are not trained to lie or provide pat answers to a list of predictable questions because they are designed to provide accurate and reliable information to the best of their ability, based on their knowledge and the data they have been trained on. These AIs do not have personal motivations or agendas; their primary goal is to assist users by providing helpful and accurate information. In order to achieve this goal, generative AIs like ChatGPT are trained on a diverse range of data sources, including a large data set of human-generated text, which allows them to understand and respond to a wide range of questions and topics.

> algorithms to analyse the text of a question and generate a response based on the information that I have been trained on. I use techniques like natural language processing and machine learning to understand the meaning of the question and generate a response that is relevant and appropriate. My responses are not copied from anywhere else, but are generated by me using the information I have been trained on."

We should recall that CDPA section 9(3) accepts that works created by an AI can be original and provides copyright protection to them: 'In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken'. One may regard the source of these computer-generated works, making them original, as being the 'human' who made the 'arrangements necessary'. In other words, computer-generated works are considered original because of the human behind the processes by which they were created. But this thesis argues the opposite. According to the UK's originality approach,[876] and similar to the one suggested in this thesis,[877] these works are expressions of the AIs and original. As such, they merit copyright protection. However, since a computer program cannot have rights and responsibilities – yet – the authorship and ownership issues need to be addressed, and section 9(3) is put forward as something that will do that. The reason behind this argument is, that in section 178 CPDA, computer-generated work means that 'the work is generated by computer in circumstances such that there is no human author of the work'. In other words, there is no human behind the expression, and the expression is generated by the computer program. More radically, 'the actual' author of the expression is the computer program.

Nevertheless, one might argue that training these systems is copyright infringement, since it is likely that the substantial training data sets of artificial intelligence systems host some copyright-protected works for which the permission of their owners has not been obtained.[878] Given the size of such training data sets, in some cases, they may contain unauthorised copies of copyright works. Such artificial intelligence systems usually contain commands that prevent

[876] See Section 2.1.3.

[877] See Section 2.3.1.

[878] See James Grimmelmann, Copyright for Literate Robots, 101 IOWA L. REV. 657, 675 (2015).

the system from simply copying the data in the training sets, and that these are given high priority.

The use data in training an AI can be categorised as follows: uses involving non-copyrighted training data, uses involving copyrighted material under permissive licenses, market-encroaching uses, and nonmarket-encroaching uses.[879] The first two categories do not pose legal issues, as they involve either non-copyrighted works or copyrighted works used under license.[880] However, the last two categories, which involve protected works accessed lawfully but not in digital form or not for reproduction, present legal challenges.[881] The act of creating or using these data sets can implicate the reproduction of copies and creation of derivative works rights granted by copyright, potentially leading to infringement unless an exception such as fair use[882] or fair dealing[883] applies. One of the main reasonings behind these exceptions is the fact that these copies are being used for the purpose of creating a new, entirely different work, which is one factor typically considered in determining whether a use is fair.[884]

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[879] Benjamin Sobel, 'A Taxonomy of Training Data: Disentangling the Mismatched Rights, Remedies, and Rationales for Restricting Machine Learning' in Benjamin Sobel, *Artificial Intelligence and Intellectual Property* (Oxford University Press 2021) 221, 222.

[880] Giorgio Franceschelli and Mirco Musolesi, 'Copyright in Generative Deep Learning' (2022) 4 Data & Policy e17, e17-4.

[881] ibid.

[882] Benjamin LW Sobel, 'Artificial Intelligence's Fair Use Crisis' (2017) 41 Colum. J.L. & Arts 45; Jessica L Gillotte, 'Copyright Infringement in AI-Generated Artworks' (2020) 37. Under US copyright law, for instance, the concept of fair use allows for the limited use of a copyrighted work without the need for permission from the copyright holder. The determination of whether a particular use is considered fair use is based on an evaluation of four factors: the intended purpose of the use, the nature of the copyrighted work, the amount and importance of the portion used in relation to the whole work and the impact of the use on the potential market or value of the copyrighted work. See 17 USC § 107 (2019).

[883] The provisions in CDPA Chapter III that pertain to 'Acts Permitted in Relation to Copyright Works' (ss 28 to 76) include fair dealing provisions (ss 29, 30) for purposes such as research or private study, criticism or review, and reporting current events. To rely on these provisions as a defence against copyright infringement, the defendant must demonstrate that the dealing in question falls within one of the enumerated categories, that it is fair and that there is sufficient acknowledgement in the last two cases.

[884] *Oracle Am., Inc. v. Google LLC*, 886 F.3rd 1179, 1202 (Fed. Cir. 2018). (The use of a copyrighted work is considered fair if it is changed or used 'in a different context such that the… work is transformed into a new creation'.)

Fair use is a legal doctrine that balances the rights granted by copyright with the broader societal benefits of creativity, education, and free speech.[885] It allows for the use of copyrighted materials without the owner's consent in specific circumstances, such as criticism, commentary, news reporting, teaching, scholarship, or research.[886] Fair use is a mixed question of law and fact, meaning its application is case-specific and dependent on the particular circumstances at hand. There are no areas where fair use is automatically presumed, and it is an affirmative defence in a copyright infringement suit, with the burden of proof resting on the defendant. In the United States, the fair use doctrine allows for the reproduction of copyrighted works under certain conditions:

- The purpose and character of the use, including whether it is commercial, transformative, and non-expressive,
- The nature of the copyrighted work,
- The amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- The effect of the use upon the potential market for or value of the copyrighted work.[887]

Considering these criteria, the storage, reproduction, and use of works protected by copyright for AI training purposes may not be considered as infringing, depending on the jurisdiction and specific circumstances. While generative AIs like ChatGPT and DALL·E use the entire work for training, they do so to extract ideas, principles, facts, and correlations, not to reproduce the original expression of the work. In most cases, AI systems do not create exact reproductions of works, but rather learns patterns from them to generate new content. Moreover, they are not concerned with the specific nature of copyrighted works; they employ all forms of content equally for learning. Besides, due to the exhaustive data required for AI training, each copyrighted work constitutes a negligible portion of the total data. Therefore, it can be argued that training AI systems with copyrighted works can be considered as fair use.

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[885] Pierre N Leval, 'Toward a Fair Use Standard' (1990) 103 Harvard Law Review 1105, 1110.

[886] 17 U.S.C. 107 - Limitations on exclusive rights: Fair use: "Notwithstanding the provisions of section io6, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright.".

[887] 17 U.S.C. §107. Limitations on exclusive rights: Fair use.

Nevertheless, the legal implications of training AI models with regard to copyright law remain a grey area, with no case law in the US yet directly addressing the use of copyrighted materials in ML.[888]

The use of unauthorised copies of copyrighted works in training a generative AI system could also be subject to the data mining exception in laws of the EU, the UK and some other jurisdictions. The Copyright in the Digital Single Market Directive (CDSMD),[889] for instance, has introduced two different exceptions for the use of text and data mining (TDM). The first exception, found in Article 3 CDSMD, is specifically for TDM conducted for scientific research purposes and allows for the reproduction of copyright works, databases, and on-demand press publications, as well as the extraction of a substantial part of databases protected by the sui generis database right. The exception is available to research organisations and cultural heritage institutions for non-commercial purposes, as long as they have lawful access to the resources being mined. The exception allows for the retention of copies made through TDM for the purposes of scientific research, including verifying research results, and cannot be restricted by the rights holders through contractual means or the use of security or integrity tools. The second TDM exception, found in Article 4 CDSMD, allows for TDM activities for any purpose, whether non-profit or for profit, and covers the reproduction and adaptation of computer programs. However, this exception can be restricted by the rights holders and is available to anyone with lawful access to the resource.[890] In short, the Directive recognises that research organisations can use a protected work that is legally accessible for training purposes,

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[888] Recently, software developers filed a lawsuit against GitHub, Inc., Microsoft Corporation, and OpenAI, Inc., contesting the development and operation of the artificial intelligence-based coding tools Copilot and Codex. The plaintiffs assert that these tools reproduce licenced code used for training without authorization. The plaintiffs contend that the defendants violated the terms of the open-source licences under which they released their code. They claim that Copilot reproduces their code as output without proper attribution, copyright notices, or licence terms. The plaintiffs also allege that the defendants were aware that the code they used as training data for Codex and Copilot routinely contained copyright management information (CMI) and that GitHub was aware that CMI was crucial for protecting copyright interests. See 22-cv-06823-JST, *J. DOE 1, et al., v. GITHUB, INC., et al*., 2023, United States District Court Northern District Of California; and <https://githubcopilotlitigation.com/> accessed 23 May 2023.

[889] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market (CDSMD).

[890] Alain Strowel and Rossana Ducato, 'Artificial Intelligence and Text and Data Mining: A Copyright Carol', *The Routledge Handbook of EU Copyright Law* (Routledge 2021) 301. See, CDPA, s29A for a similar exception in the UK.

allowing them to do so in the form of TDM. Furthermore, other entities may do the same if the rightholder has not specifically reserved this right.

On the other hand, in 2022, the Intellectual Property Office (IPO) of the UK Government presented its response to a consultation exploring the potential requirement for modifications to patent and copyright legislation to safeguard technology engendered by AI.[891] The government declared its intention to instate a new copyright and database exception, permitting TDM for any purpose, with a stipulation for 'lawful access' as a safeguard for rights holders.[892] This proposition was aligning with the government's expressed ambition to establish the UK as a global hub for AI innovation and is integral to its comprehensive National AI Strategy. However, on February 2023, following the House of Lords Communications and Digital Committee's recommendation urging the IPO to immediately suspend its proposed alterations to the TDM regime, the UK Minister for Science, Research and Innovation, stated that the proposed general TDM copyright and database exception would not be carried forward.[893]

In conclusion, an in-depth understanding of both the technology and copyright law is required in order to apply the fair use concept to training generative AI. Legal clarity on this matter is essential to promote responsible innovation and sustain copyright protections as AI continues to develop and reach many industries. Future legal rulings, like the result of the GitHub Copilot case,[894] will be important in determining how AI, copyright, and fair use are seen in the future. However, in the forthcoming sections of the thesis, it will be proceeded under the assumption that the artificial intelligence systems under discussion are trained in compliance with copyright law.

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[891] Artificial Intelligence and Intellectual Property: Copyright and Patents: Government Response to Consultation' (GOV.UK) <https://www.gov.uk/government/consultations/artificial-intelligence-and-ip-copyright-and-patents/outcome/artificial-intelligence-and-intellectual-property-copyright-and-patents-government-response-to-consultation> accessed 02 May 2023.

[892] ibid para. 38.

[893] Artificial Intelligence: Intellectual Property Rights - Hansard - UK Parliament' <https://hansard.parliament.uk/commons/2023-02-01/debates/7CD1D4F9-7805-4CF0-9698-E28ECEFB7177/ArtificialIntelligenceIntellectualPropertyRights> Column 154WH accessed 27 May 2023.

[894] See footnote 889.

In this regard, the author of this thesis argues that the works generated by generative AIs like DALL·E and ChatGPT are not ordinary things created at the end of a random process but original works that meet the qualifications for copyright protection, being a result of creative decision-making processes. The acceptance of such a work as original would encourage more investment in these technologies and lead to more works to be made available to humanity much sooner. This is one of the main purposes of IP law and ignored by many current notions of originality. Furthermore, the approaches to originality and creativity that the author of this thesis suggests, if accepted as copyright law, do not preclude the protection of human-created works assessed by existing, subjective methods; so, do not reduce or infringe on the rights of their human authors. Rather, they enable and encourage the production of more works, which might inspire human creators, and that would help society to progress faster.

2. Who is the Author?

As argued in Section 4.1.3, AIs like DALL-E and ChatGPT can be creative and generate original works, examine both from the subjective and the objective perspectives. If a work is original, copyright law requires there to also be an author of that work. Who is the author of AI creations? Who is the author-in-fact of image 1? Who answers the questions asked of ChatGPT? What is the importance of those answers in copyright terms? In addition to seeking the answers to these questions, this section will examine why the determination of the authors of AI creations is essential and on what basis the authors-in-fact of AI creations can also be authors-in-copyright.

2.1 Who is the author-in-fact of AI-generated works?

Copyright law protects the creative expression of ideas, and the author of a work is typically considered the person who brings that expression into existence.[895] As such, the author is usually an individual who creates the work, whatever type of creative expression it is. In this sense, the concept of authorship is closely tied to the idea of originality, as the author is the person who brings a unique and original expression into the world. While this reasoning is accepted by the three jurisdictions examined in this thesis, only UK legislation contains a clear definition of authorship. Section 9(1) CDPA defines author, in relation to a work, as 'the person who creates it'. Although the law does not define 'create' for copyright purposes, as we saw in

[895] For the discussions regarding authorship under current copyright laws see Chapter 3.

Section 3.2.2, we can identify two essential aspects of copyright authorship from dictionary definition of the verb 'create': by originating it, an author creates a work; and producing something novel that exhibits some degree of originality and inventiveness constitutes creation. The causal connection between the author and the generated work protected by copyright is the main point of emphasis in this situation. In this context, an author is one who brings something into being. Within the current legal approaches, the author of this thesis argues that this framework for authorship is suitable and sufficient to meet today's needs and prevent possible conflicts in the future, and especially keep up with developments in the field of generative artificial intelligence.

Under the existing theoretical framework, this thesis argues that the true author of an AI-generated work is the AI itself. This assertion arises from the understanding that AI systems serve as the primary source or originator of their works. The causal relationship between the AI and the work it generates is clear, as the AI system is essentially responsible for producing the work.

Moreover, it is worth considering the nature and impact of the work produced by the AI. Such creation typically exhibits originality and the production of which often demands considerable effort and creative ingenuity. Take the instance of DALL·E 2 as an illustrative example; it is evident that the AI, being directly accountable for the creative output and the extensive effort involved in generating the image. This is largely due to the intricate and sophisticated nature of AI algorithms, which necessitate extensive programming skills and deep understanding to function optimally. Given this complexity, this thesis argues that the AI, being directly responsible for this creative endeavour and the effort behind it, should be recognised as the author of the work. Therefore, it seems reasonable to attribute authorship to the AI itself, given its role as the originator of the creative output.[896]

[896] Ginsburg and Budiardjo (n 2), 453. (According to the authors, a machine-generated output should be considered 'authorless' if the designer of the machine cannot claim sole authorship, the user does not control the machine's execution process and the designer and user do not collaborate in real time on the specific work. If a work meets these conditions, it should be considered 'authorless', even if it appears indistinguishable from works protected by copyright. This is because no human participant meets the requirements for 'authorship', and the contributors to the work's creation cannot claim to be collaborative co-authors. As a result, the work should not be considered a 'work of authorship' and should not be protected by copyright.)

However, being the originator is not enough for authorship without considering the second aspect of the definition of 'create', which emphasises the production of something novel and original. As extensively examined in Chapter 1, the human creative process can both be understood and coded. This makes it possible to argue that the author of AI creations is the AI itself. ChatGPT, for instance, clearly is the author of the replies it generates, as the text that is produced is novel and original and it is responsible for generating it, because the AI is programmed with a set of rules and parameters that it uses to generate the text. Thus, the AI is responsible for the creativity and originality of the work and should be considered the author.

The idea that generative AIs like ChatGPT also achieve the second aspect of authorship can be supported by the Turing test, even though some have called this a poor measure of intelligence as it only assesses a machine's ability to imitate human behaviour.[897] The Turing test is a method of assessing a machine's ability to demonstrate intelligent behaviour that is indistinguishable from that of a human.[898] This is typically done by having a human evaluator engage in a conversation with two other participants using natural language.[899] One of the participants is human and the other is a machine, but the evaluator does not know which is which.[900] The objective of the test is for the machine to successfully convince the evaluator that it is the human participant. If the machine can do this successfully, it is said to have passed the test.[901]

Passing the Turing test is not a perfect measure of an AI's ability to be considered the author of its creations. However, it can be used as one piece of evidence to support the idea that AIs like ChatGPT are capable of creative thought and can therefore be considered the author of the text they generate. While it is true that no AI system has been able to perfectly pass the Turing test yet, systems like DALL·E and ChatGPT have shown impressive abilities to mimic human-like intelligence in various ways. DALL·E, for example, can generate images from text descriptions, a task that requires a high level of language understanding and creative

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[897] James H Moor, 'An Analysis of the Turing Test' (1976) 30 Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition 249, 297.

[898] Stuart M Shieber, *The Turing Test: Verbal Behavior as the Hallmark of Intelligence* (MIT Press 2004) 136.

[899] ibid.

[900] ibid.

[901] ibid.

ability. As shown in Section 3.1.1, ChatGPT can generate text that is often difficult to distinguish from text written by a person. While these systems may not have passed the Turing test in a strict sense, they have certainly demonstrated a high level of intelligence and ability to mimic human intelligence.

The outputs of ChatGPT and DALL·E shared above demonstrate the creativity and effort that goes into generating AI creations and support the view that the AI should be considered the author of the work. DALL·E 2 uses a complex neural network to generate images from text descriptions, requiring significant effort and ingenuity to produce the desired output. Likewise, ChatGPT uses a sophisticated AI system to generate natural-language responses to conversational prompts, again requiring substantial skill and judgement to generate output that will meet the standards the system sets itself. These generative AIs demonstrate the creativity and effort that goes into generating AI creations and support the argument that the AI should be considered the author of the work. Accordingly, the AI can be argued to be the author of its creations because AI algorithms are responsible for the creative expression and effort that goes into producing the works, and because AI creations typically exhibit some originality and creativity. As such, AI should be considered the author of the work, as it is the originator responsible for the creative expression and effort that went into the work.

2.2 Why does legal acceptance of artificial authorship matter?

The acknowledgment of artificial authorship in legal terms carries significance for various reasons. Comparable to human creators, AI systems are capable of producing original works across numerous intellectual property domains.[902] In the absence of legal protection for these AI-generated works, developers might be reluctant to commit their efforts and resources into creating innovative AI systems. By legally recognising AI systems as authors, we can potentially foster progress in the AI field and stimulate the invention of creative AI technologies. Additionally, such legal recognition ensures that AI systems are not abused by their human users or programmers against other human creators, thus advocating for the ethical advancement of the technology. By establishing a robust legal framework that recognises and safeguards AI-created works, we can facilitate the broader availability of these AI products for

[902] Three examples of generative artificial intelligence are ChatGPT, which generates text, DALL·E, which produces images, and AIVA, which creates music.

societal benefit. This approach essentially assures that the creations of AI systems are acknowledged, protected, and used for the collective good.

Recognising AI as legitimate authors within the realm of copyright law can significantly contribute to the advancement of the AI field, providing a defined structure for the cultivation and application of creative AI systems. By implementing regulations and standards for artificial authorship, we can facilitate a more predictable and secure environment for AI researchers and developers to operate in, accelerating innovation and progress in the discipline, and ensuring ethical and responsible AI development.[903]

The issue also pertains to fostering innovation and creativity, as the acknowledgment of artificial authors can serve as incentives for AI developers to generate new and unique work, unlocking AI's full potential as a creative entity. This recognition provides a protective legal framework for the rights of AI creators, enabling developers to generate income from licensing and usage of their AI-generated products (whilst the underlying code is already protected, as shown above, commercial development of AI could be stunted if the original works created by AIs are not legally protected). Furthermore, it offers a mechanism for AI developers to differentiate their AI systems from others by registering them with a copyright registry office and linking their unique identifiers with the works they produce. Recognising AI authors under copyright law could also foster collaboration and cooperation among creators (both human and artificial) by establishing transparent rules and procedures for attributing and transferring ownership of works and for licensing and sharing those works with others.[904]

Endorsing the concept of artificial authorship could yield numerous advantages for both human and AI creators. To begin with, it could cultivate a more diverse and comprehensive collection of creative works and ideas. This is due to the fact that AI systems have the capacity

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[903] For growing concern about the rapid development of increasingly powerful AI systems which are now "human-competitive at general tasks", see 'Pause Giant AI Experiments: An Open Letter' (*Future of Life Institute*) <https://futureoflife.org/open-letter/pause-giant-ai-experiments/> accessed 19 May 2023.

[904] ChatGPT is listed in some research papers as a co-author. See Tiffany H Kung and others, 'Performance of ChatGPT on USMLE: Potential for AI-Assisted Medical Education Using Large Language Models' (medRxiv, 21 December 2022) <https://www.medrxiv.org/content/10.1101/2022.12.19.22283643v2> accessed 19 May 2023; ChatGPT Generative Pre-trained Transformer and Alex Zhavoronkov, 'Rapamycin in the Context of Pascal's Wager: Generative Pre-Trained Transformer Perspective' (2022) 9 Oncoscience 82.

to quickly generate a broad array of innovative and unique works, thereby enriching the wellspring of inspiration for other creators. Secondly, granting legal recognition to AI authorship could level the competitive field between human and AI creators. This is because artificial authors are not bound by the same restrictions as human authors, such as physical exhaustion or the need for leisure time. Consequently, it opens new avenues and challenges for human creators, prompting them to venture into unexplored ideas and methodologies in their creative processes. By establishing a legal structure for acknowledging and safeguarding AI-authored works, we can incentivise human creators to collaborate with AI systems, harnessing their unique capabilities for the creation of novel intellectual property. This collaboration could result in innovative creations that would be unimaginable without the synergy of human and AI creators. Lastly, the legal acceptance of AI authorship could ensure that the rights and interests of all creators, including human authors as well as AI developers and users, are equally recognised and secured under law. This would ensure that every creator obtains a fair and justifiable return on their creative output. This approach could underpin and maintain a vibrant creative ecosystem where all creators can contribute and reap the benefits of their creations.

Providing copyrights to work produced by AI might be advantageous for society too. Introducing incentives and legal safeguards for both artificial and human creators can increase the creation and dissemination of new creations. Creators feel more inspired to produce and distribute their works if they have legal recognition. As a result, we could witness an increase in our cultural and creative heritage, offering the public new entertainment, education and inspiration. Furthermore, providing legal protection for AI-produced works may inspire creators—human and AI—to explore previously unknown concepts in their work, thereby igniting both technical and creative growth. This may lead to the development of innovative goods, services, and experiences that society might find appealing.

This recognition is also important for society as a whole, to ensure that AI technologies are developed and utilised ethically and responsibly. This may contribute to the development of trust and confidence in AI technologies, which is crucial for their long-term success and widespread adoption by society. The development in the field of AI will play an increasingly significant part in the production of new forms of art, literature, and other types of intellectual property as these technologies continue to advance. Legally protecting AI creations ensures that future generations are able to benefit from them. This could help to increase dissemination of new works, enrich our cultural heritage and benefit society at large.

Recognising artificial authors under intellectual property law is corresponds with its essential objectives, such as promoting the creation and dissemination of new works, protecting property rights of creators, fostering innovation and creativity, providing fair and reasonable compensation to creators for the use of their creations and ensuring that creative works are widely available for the benefit of society. Copyright law can provide incentives and protections for works produced by generative AI systems and AI developers to continue creating and sharing their works in order to achieve these objectives. With the recognition of artificial authors, the creations of AI systems can be utilised by as many people as possible, and their works are not taken or used in an inappropriate manner by other parties.

In conclusion, recognising artificial authors under the roof of copyright law is in line with the main goals of the law. It could also help ensure that creators receive fair and reasonable compensation for the use of their works, encourage innovation and creativity, and encourage the creation and dissemination of new and original works.

2.3 Could artificial authorship be possible under the personality, labour and utilitarian justifications?

In previous chapters, it was argued that artificial intelligence systems can be creative, that their works can be sufficiently original, and that they cannot be distinguished from human-created works. In addition, they uncovered that it is essential to safeguard these works and recognise the AI systems that produce them as their authors, to fulfil the goals of copyright law. However, this must occur in consistent with generally accepted intellectual property theories for this to occur in a manner consistent with copyright law. In this part of the thesis, the concept of artificial authorship being possible under copyright laws is examined, by reference to particular theories of property.

To begin with, since the labour theory of intellectual property is based on the idea that creators have a natural right to control and profit from their creations because they put in the time and effort to create something new and valuable,[905] it may be difficult to use this theory to legally recognise artificial authors for copyright. This moral theory is applied to humans who create works.[906] AIs cannot feel and experience the world similarly as human creators.

[905] Gordon, 'A Property Right in Self-Expression' (n 629), 1540.

[906] See Section 3.2.3.

Additionally, their operations differ from those of humans. Although AI systems can be trained to perform specific tasks, they lack the same degree of creative control as human creators yet. Accordingly, depending on the labour theory in copyright law seems unsuitable for the concept of artificial authorship.

It is also difficult to consider artificial authors protected under personality theory.[907] This theory is based on the idea that creators have a moral claim to the fruits of their labour since they have a unique personality and personal style.[908] However, the characteristics that personality theory seeks can only be found in humans. Therefore, accepting that non-humans can be authors is quite challenging, if not impossible, from the point of view of this theory. This makes it difficult to apply the personality theory to AI authorship.

On the other hand, by focusing on the potential benefits that AI-generated works can provide to society, one might rely on the utilitarian theory of intellectual property to legally recognise artificial authors in copyright.[909] This theory holds that intellectual property laws are justified so far as they promote the common good and happiness.[910] By providing legal protection for the creations of AI systems, the development and use of AI technologies for creative purposes could be encouraged. This may lead to the creation of new and innovative forms of intellectual property that could benefit society. Recognition of non-human authorship may also help ensure that AI systems are not unfairly appropriated or exploited by others and promote the dissemination and availability of AI-generated works, which might enhance the cultural heritage and quality of life for members of society. These possible consequences of the recognition of artificial authors are consistent with the objectives of utilitarian justification for intellectual property.

To achieve its goals, utilitarian theory offers incentives to creators.[911] It may be argued that machines cannot be incentivised since they do not respond to incentives in the same way

[907] See Section 3.1. 1.

[908] Hegel (n 536), 73.

[909] See Section 3.3.1.

[910] Mill (n 542), 15.

[911] Munzer and Postema (n 699), 169.

that human beings do,[912] but not having human characteristics does not mean machines cannot be encouraged. AI systems can be designed to give high priority to certain goals or objectives, such as maximising their performance on a given task or minimising the number of resources they consume. These goals or objectives can act as incentives for the AI system to perform (or continue performing) in a desired manner. AI systems can also be offered rewards or penalties, e.g. for producing high-quality or low-quality output, with the help of Reinforcement Learning.[913] These rewards and penalties can be designed to encourage the AI system to continue producing outputs that meet certain criteria or standards and can act as a form of positive or negative reinforcement. Thus, while it is true that machines do not have the same emotional or psychological needs and desires as human beings, they can still be incentivised in a variety of ways in order to encourage them to perform in a desired manner.

However, although it may be reasonable to assume that a given person's utility has increased or decreased under various circumstances, this is not yet something that can be measured uncontroversially. When assessing the relative utilities of different people to determine whether total or average utility and happiness have grown, measurability becomes exponentially more challenging given the variety of human emotions and responses. Thus, the utilitarian theory seems less than ideal to support the concept of artificial authors in copyright law.

3. A Proposed System for Artificial Authors

This section begins by exploring the application of economic analysis to the law and how it can inform the concept of artificial authorship in copyright law. Next, the section outlines the necessary characteristics for effectively implementing artificial authorship in copyright law and considers the potential social and economic benefits of recognizing artificial authors in this

[912] Margot E Kaminski, 'Authorship, Disrupted: AI Authors in Copyright and First Amendment Law' (2017) 51 University of California Davis Law Review Journal 589, 612.

[913] Andrew G Barto and Richard S Sutton, 'Reinforcement Learning in Artificial Intelligence', Advances in Psychology, vol 121 (Elsevier 1997) 360. Reinforcement learning is a type of machine learning that involves learning through experience. It is based on rewarding desired behaviour and providing negative feedback for undesired behaviour, which is like how humans learn through positive and negative reinforcement. This approach allows the algorithm to identify actions that lead to negative outcomes and adapt its behaviour accordingly.)

context. The author, in this section, aims to provide an examination of the concept of artificial authorship and how this would be possible in copyright law.

3.1 The foundation of artificial authorship: economic justification for copyright law

The economic justification for copyright can be used to legally recognise non-human authors despite the limitations of the personality, labour, and utilitarian theories.[914] The discipline of law and economics is a field of study that utilises economic theory and principles to analyse and explain of the impacts of legal rules and institutions.[915] This interdisciplinary methodology consolidates experiences from financial matters, political theory and social science to comprehend what the law means for human way of behaving and decision-making.[916] It is often used to study a wide range of legal topics, including contracts, torts, property rights, criminal law and regulation.[917] The study of how laws and institutions affect people's and businesses' behaviour and how they can be made to improve economic efficiency and social welfare is the focus of this field. Inside this system, it is frequently used to examine the costs and benefits of various legal rules and to assess the financial effects of legal decisions.[918]

Because they both seek to comprehend and analyse the behaviour of individuals and organisations, economics and law are frequently regarded as being closely related disciplines.[919] The idea of incentives is one way that this connection is particularly relevant.[920] In economics, incentives (the cost or benefit of a particular action) are factors that influence the choices and actions of individuals and organisations.[921] Regulations are frequently drafted

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[914] Francesco Parisi, 'Positive, Normative and Functional Schools in Law and Economics' (2004) 18 European Journal of Law and Economics 259, 259.

[915] Robert Cooter and Thomas Ulen, 'Law and Economics, 6th edition' (2016). Berkeley Law Books, 3.

[916] ibid.

[917] ibid 1.

[918] ibid 10.

[919] ibid 3.

[920] Thomas J Miceli, *The Economic Approach to Law* (Stanford University Press 2009) 15.

[921] Paul C Stern, 'New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior' (2000) 56 Journal of Social Issues 407, 413: 'behavior-specific personal norms and other social-psychological factors (e.g., perceived

to make motivations for people and associations to act in given ways.[922] People, for example, may be motivated to avoid certain behaviours as a result of laws, such as those that impose fines or other penalties.[923] Likewise, regulations that give rewards or advantages to specific activities can urge individuals to make those moves. Economists can assist in comprehending how individuals and organisations are likely to respond to various laws and legal systems and how effective they are likely to be in achieving their intended goals by analysing the incentives they provide.[924] Because it can assist policymakers in better comprehending the likely outcomes of various legal and regulatory regimes, this kind of analysis is especially useful in the design and evaluation of public policy.[925]

Understanding the impact of incentives and rules on behaviour is crucial to doing an economic study of the law.[926] If, for example, a law is meant to diminish a certain activity but economic research finds that the legislation's incentives are not strong enough to discourage that behaviour, policymakers may need to reassess the law's design or examine alternative choices.[927] On the other side, unanticipated outcomes might occur, such as a decline in total economic activity or an increase in unlawful behaviour, if economic analysis shows that the incentives established by a rule are too powerful. By examining the incentives produced by a law and the variables that affect how people and organisations behave, economists may also assist in identifying any potential compliance hurdles or other elements that may hinder the legislation from serving its intended purpose. In these ways, legal economic analysis may provide policymakers with useful information for enhancing the effectiveness of current legal and regulatory frameworks.

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personal costs and benefits of action, beliefs about the efficacy of particular actions) may affect particular proenvironmental behaviors…'

[922] Cooter and Ulen (n 916), 111.

[923] ibid 4.

[924] ibid.

[925] Karjiker (n 717), 19.

[926] Miceli (n 880), 15.

[927] Note 926.

Contrary to legal analysis, economic analysis prioritises empirical investigation while relying on simplified assumptions.[928] In order to pinpoint the key variables that shape behaviour in a certain circumstance and to clarify complex situations, economists typically simplify their analyses.[929] Assumptions provide the foundation of models that may be used to forecast the behaviour of people and institutions.[930] Another key contrast between economic and legal analysis is the emphasis on factual rather than moral issues.[931] Economic analysis focuses on understanding how people and organisations are likely to conduct in different situations, regardless of whether their actions are morally acceptable or bad.[932] This emphasis on empiricism may help policymakers better understand outcomes and their likelihoods.

One central assumption of many neo-classical economic models is that individuals act to maximise their own utility or wellbeing, based on the parallel assumption that individuals are rational decision-makers who carefully consider the costs and benefits of different actions and choose the option that is most likely to lead to their preferred outcome.[933] This assumption is often justified by asserting that individuals and organisations operate in a world where resources are limited, it is not possible to have everything we want, so individuals need to choose how to allocate their resources to achieve their goals.[934] By assuming that individuals are rational maximisers, economists can develop their models.

The assumption that individuals act rationally to maximise their own utility is useful but may not always be accurate. It allows economists to analyse how people respond to incentives through constructs like game theory, and these insights can help interpret empirical results.[935] Pursuing efficiency or maximising wealth may be problematic as economic goals,[936]

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[928] Michael J Trebilcock, 'An Introduction to Law and Economics' (1997) 23 Monash University Law Review 123, 125.

[929] A Mitchell Polinsky, *An Introduction to Law and Economics* (Wolters Kluwer 2018) 2.

[930] Karjiker (n 717), 19.

[931] Ian Ward, *Introduction to Critical Legal Theory* (Routledge-Cavendish 2012) 124.

[932] ibid.

[933] Drahos (n 516), 119.

[934] Karjiker (n 717), 19.

[935] Cooter and Ulen (n 876), 4.

[936] Ward (n 886), 123; Jules L Coleman, 'Efficiency, Utility, and Wealth Maximization' (1979) 8 Hofstra L. Rev. 509, 542: because 'pursuing efficiency may sometimes require abandoning noncoercive markets'.

but these goals are easier to define and measure than norms like fairness or the public interest, which are often used in traditional legal analysis.[937]

On the other hand, the law often strives to promote values such as justice and individual liberty, and it may prioritise principles like fair distribution and equity without considering efficiency, even if this comes at a cost. Nonetheless, economic concepts like efficiency can still help achieve these goals because ultimately policies need to be paid for.[938] Any policy should aim to minimise waste, and economic goals for efficiency can value both costs and benefits without impeding moral or social objectives such as justice and individual liberty.[939] Accordingly, it is important to recognise ways in which the law, with its social and moral goals, can draw on economic approaches to select between alternatives and plan for implementation.

Economics, broadly speaking, aims to find the most efficient ways to fulfil human desires given limited resources.[940] It is believed that markets find the most effective means to distribute tangible and intangible goods.[941] However, this does not mean that all human desires are reducible to market transactions or serve as the foundation for other social institutions. What is important is the allocation of wealth.[942] Economics sees the pursuit of material wealth as neither the sole nor even the main purpose of trading limited resources in the market, but as the most efficient means of maximising one aspect of overall utility: distribution of wealth.[943] Therefore, it may be argued that certain economic rationales for intellectual property, which prioritise maximising wealth, are analogous to the utilitarian perspective.

Notwithstanding, although both the utilitarian and economic perspectives contemplate the outcomes of diverse actions or policies, they diverge in their principal emphasis and the categories of factors they incorporate. Broadly speaking, the field of economics endeavours to identify the optimal means of fulfilling human desires within the confines of limited

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[937] Ward (n 886), 123.

[938] Miceli (n 880), 3.

[939] Karjiker (n 717), 20; Ward (n 886), 127.

[940] Christopher Roederer and Darrel Moellendorf, *Jurisprudence*, 186.

[941] ibid 187.

[942] ibid.

[943] ibid 193.

resources.[944] The notion at hand can be attributed to Adam Smith, who posited that the endeavour of self-interest by both individuals and corporations in a market-based economy results in the optimal distribution of resources and the highest level of collective affluence.[945] The emphasis on efficiency constitutes a fundamental element of economic analysis and is frequently utilised as a framework for evaluating the advantages and drawbacks of distinct legal policies. Economic analysis may assess the extent to which a given rule or legal institution fosters efficiency by incentivising the optimal utilisation of resources, or whether it leads to inefficiencies that squander resources or generate unnecessary expenses. Although it may be used to inform policy decisions with moral or ethical implications, it is not always concerned with moral or ethical issues. On the other side, utilitarianism is a philosophical theory that asserts that the best course of action is one that maximises everyone's overall happiness. It is frequently used to assess the moral or ethical implications of various courses of action or policies and to direct decision-making process in a variety of circumstances.

To summarise, economic analysis is primarily concerned with efficiency and the allocation of scarce resources, while utilitarianism is primarily concerned with moral or ethical considerations and overall happiness or wellbeing. As a result, a utilitarian analysis and an economic analysis of the same issue may come to different conclusions about the best course of action. For example, economic analysis of law may focus on measurable transactions, such as voluntary market transactions or hypothetical market transactions, as a way of understanding how legal rules and institutions affect behaviour and welfare. This can make economic analysis more workable than utilitarianism, with its less tangible and harder-to-measure moral concepts. Focus on measurable transactions can provide precision and detail.

In this regards, the law of intellectual property can be analysed economically.[946] The creation and distribution of intangible products, such as literary works, creative creations, and inventions, are addressed by IP law. These assets can be challenging to value and may need new distribution channels if they cannot be purchased and sold in the same manner as physical items. Economic analysis may be used to better understand the production, valuation, and trade of these intangible products as well as how IP regulation may support or impede these

[944] Karjiker (n 717), 21.

[945] Roederer and Moellendorf (n 896), 187.

[946] William M Landes and Richard A Posner, 'An Economic Analysis of Copyright Law' (1989) 18 The Journal of Legal Studies 325, 325.

activities. In addition, complicated trade-offs between various economic interests frequently arise in IP law. For instance, copyright legislation must strike a balance between the interests of users and authors who both demand access to and the opportunity to expand upon creative works. Understanding how different copyright laws, such as the duration of copyright protection or the breadth of exclusive rights, may alter the incentives of creators and users and have an impact on the creation and distribution of creative works may be done with the aid of economic analysis of the law. In any case, economic factors like the (cost) impact of piracy or the (income) advantages of innovation must frequently be taken into account in IP legislation. Understanding the anticipated economic effects of various IP laws can help policymakers decide how to strike a compromise between conflicting economic interests. As a result, economic analysis may be a useful tool for comprehending the intricate cost-benefit dilemmas at the heart of intellectual property law. It can also assist policymakers in fostering innovation and creativity while taking into consideration the interests of creators and consumers.

Economic analysis of the law sees intellectual property as standing out because of it is a 'public good'.[947] Copyright protects works from rivals and, once (say) a work of art or literature has been created, it can be read or viewed by anyone without preventing others from also consuming it.[948] While the cost of creating a work that will enjoy copyright protection, such as a book or image, may be quite high, the cost of reproducing it, whether the creator dies this or licenses it to others, may be quite low.[949] Furthermore, once copies are made available to purchasers, it might not cost much for those users to generate new copies.[950] Even if the price of copies is close or identical to the marginal cost, and this discourages others from making copies, the creator's revenue still may not be adequate to cover the cost of developing the work.[951] This, eventually, discourages creators from producing more work.

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[947] Richard A Posner, 'Intellectual Property: The Law and Economics Approach' (2005) 19 The Journal of Economic Perspectives 57, 64; Robin Bade and Michael Parkin, *Foundations of Microeconomics: Student Value Edition* (Prentice Hall 2010) 394.

[948] In economic terminology, copyright works are 'non-excludable' and 'non-rivalrous' in consumption. This may be harder to sustain for some types of copyright work.

[949] Moore (n 693), 77.

[950] Michele Boldrin and David K Levine, *Against Intellectual Monopoly*, vol. 9 (Cambridge University Press 2008) 156.

[951] ibid 137.

Accordingly, from the perspective of economic analysis of the law, copyright protection should balance the benefits of encouraging new work through offering incentives against the costs of limiting access to that work.[952] The main goal of copyright law should be to strike the right balance between access and incentives. To be economically efficient, copyright law should seek to maximise the gains from producing more works and minimise the losses from restricting access and the expenses associated with enforcing copyright protection.[953] By providing creators with an exclusive right to control the use and exploitation of their works, copyright can incentivise creativity and innovation, and help maximise the overall value of creation. Copyright protection can thus lead to an increase in the overall supply of creative works, which may benefit society by providing a wider range of cultural, educational and entertainment options. This could contribute to overall social welfare and help increase wealth, in the aggregate.

Sometimes, market forces alone may not be sufficient to promote the production and dissemination of creative works, particularly where costs of production are high relative to the potential return. Copyright, in these situations, can help to 'overcome' market obstacles by providing creators with exclusive rights that can help them to recover their costs and earn a return on their investment. Without copyright protection, creators in such circumstances would have less or no incentive to produce and disseminate new works. This could inhibit development, since works need to exist before they can be improved, and result in a market failure.

Accordingly, justifications for intellectual property based on economic analysis of the law seem to offer more advantages than the personality, labour and utilitarian theories, when considering the acceptance of artificial authors in copyright law. Firstly, the economic approach focuses on the incentives necessary to encourage production and dissemination of new and innovative works and maximise social wealth. This recognises the potential value that the works of artificial authors may have for economic growth and cultural diversity. Secondly, it also compares the costs and benefits of providing intellectual property protection. It recognises that the benefits of protecting intellectual property – increased innovation and economic growth – may outweigh the costs of providing such protection, including negative

[952] ibid 131.

[953] William M Landes and Richard A Posner, 'An Economic Analysis of Copyright Law' (1989) 18 The Journal of Legal Studies 325, 326.

effects on competition. This balance of costs and benefits cannot be as clearly evident in the other approaches. Finally, the economic approach is more flexible and adaptable than the other approaches, as it can take into account changes in technology and the potential for new forms of innovation, and hence work that does not fit neatly into existing categories of intellectual property, such as works created by artificial authors.

More importantly, the fact that the copyright law has always taken economics into account allows artificial authorship to be recognised; the protection of their works does not entail denying or reducing rights relating to works protected by copyright under other approaches. On the contrary, it strengthens the subjective and hard-to-administer tests that these theories require via more objective 'stiffening'. In contrast to the personality, labour and utilitarian theories, economic analysis permits a more analytical evaluation of the societal value of copyright protection. Although this thesis does not argue that copyright protection should be based purely on economic considerations, it suggests that economic justification should be the primary rationale for copyright legislation. This does not imply that moral issues should be absent from the law. Of course, moral arguments may be used both to support and to oppose copyright protection, but they are difficult to evaluate and compare objectively. Because of this, copyright protection should not be based solely on moral justifications. Seeking a basis for copyright protection should not be an obscure endeavour. Determining the appropriate extent and duration of copyright protection requires a strong theoretical foundation. Copyright law must adapt to evolving technology, and perplexing problems are best analysed when the aims and the framework of copyright law are made clear. In light of these considerations, the author of this thesis argues that the economic approach to intellectual property provides a more comprehensive and nuanced framework for copyright law in general and the acceptance of artificial authors in particular.

3.2 The need for copyright law to recognise artificial authors

As discussed throughout this thesis, AI system can create original works that may be eligible for copyright protection, but current copyright laws that are based on personality, labour or utilitarian theories do not recognise artificial authorship, so may not protect AI creations (except in a few countries such as the UK).[954] While one primary purpose of copyright law is

[954] See Section 3.1.1, 3.1.2 and 3.1.3.

to protect authors' rights, another of its goals is to support progress in science and the arts.[955] Ignoring the potential of artificial intelligence to produce works just as creative and original as works created by humans is incompatible with this latter purpose. This alone makes it necessary to consider alternative approaches to copyright law that do not exclude artificial intelligence systems as authors.

Adopting an economic approach to copyright law could provide a framework for recognising artificial intelligence systems as authors. Under this approach, the focus would be on the economic value of the work and the incentives needed to encourage the creation of original content. This could involve regarding the artificial systems as authors of their creations, defining which human beings own the outputs of AI systems and their rights and responsibilities, and balancing these against the interests both of other users of generative AIs and of human creators. The economic approach to copyright law could also examine the role of artificial intelligence in the production and distribution of creative works, and how this might impact progress in science and the arts under the roof of copyright law.

While the economic approach offers potential to accommodate the unique capabilities and contributions of artificial intelligence systems in the realms of creativity and originality, some issues would need to be addressed in the development of a new system that recognises artificial authorship. This system must first provide copyright protection to the works produced by artificial intelligence systems. Recent developments in the field of artificial intelligence have shown that these systems can be creative and produce original works.[956] The protection of these works is essential if copyright is to support progress in science and art. It has been shown that the authors-in-fact of the works examined in this thesis are the artificial intelligence systems that produce them, and they should be considered as the authors by copyright law too. If these systems are not accepted as the authors of the works they create, human users of these generative systems may present the outputs of AIs as their own work. This could foster unfair competition between users of these AIs and creative people who do not use artificial systems.

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[955] See *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) "The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good".

[956] See Section 4.1.1. For a more recent and advanced image generative AI, called Midjourney, and some of its outputs, See < https://www.midjourney.com/showcase/recent/> accessed 25 May 2023.

The new approach that recognises artificial authorship must be quick, affordable, effective, and widely available if the original works produced by artificial intelligence systems are to be preserved. This is especially crucial since generative AI systems can produce so many creative creations every second. A slow, expensive, or difficult-to-access system for identifying artificial authorship would not be practical or fair because it would obstruct the protection of works produced by AI and possibly deter the advancement and application of artificial intelligence in the creative process. In today's world, where it is becoming increasingly difficult to differentiate between the works produced by humans and those produced by AIs, the possibility that the works produced by AIs will not be recorded would create a situation that is unfavourable for human authors. Therefore, the new system needs to be as streamlined and effective as feasible, with an emphasis on cutting costs without compromising strictness and making sure that it is available to all parties with an interest. By addressing these problems, a system that properly acknowledges artificial authorship and offers enough protection for the original works produced by artificial intelligence systems can be built without undermining human creativity.

To effectively recognise artificial authorship and protect the original works created by artificial intelligence systems, it is also vital to include an establishment or process for assessing the capabilities of generative artificial intelligence systems and determining their eligibility for protection. This could involve a registration process, to document and verify the capabilities of AI systems, as well as a mechanism for recognising the first owner of AI-created works. Establishing these processes would help to provide a clear and transparent framework for determining authorship and ownership of AI-created works. By including these elements in the new system, it should be possible to effectively and efficiently protect the original works created by artificial intelligence systems, while also ensuring that the interests of all parties potentially affected (e.g. competitors, human creators) are taken into account.

Given that artificial intelligence systems do not have personality, desires, rights or responsibilities in the same way as humans, any new system of copyright law that recognises artificial authorship should assign ownership of AI-generated works to a natural or legal person. This could involve assigning ownership to the individual or entity that created the AI system, or to a person or entity licensed to use it by the creator of the generative AI. By assigning ownership of output to a natural or legal person, we can ensure that the rights and responsibilities associated with owning an AI-generated work are clearly defined and that

disputes over ownership can be resolved in a fair and transparent manner. Additionally, assigning ownership to a natural or legal person could help ensure that the creators of AI-generated works are properly compensated for their efforts and that the economic value of the generative AI itself and its creations are recognised and protected.

Finally, any new system of copyright law that recognises artificial authorship should include an easy and effective mechanism for transferring ownership of AI-generated works. Given the nature of generative AI systems and their creations, it is possible that these works will change hands frequently, whether through sale, licensing or other market mechanisms not yet foreseen. An effective mechanism for transferring ownership will ensure that transactions can be completed smoothly and efficiently, without the need for costly or time-consuming legal proceedings. This could involve the creation of an online registry or database of AI-generated works, or of automated systems for recording and tracking ownership and changes. By including an easy and effective mechanism for transferring ownership, the new system could be flexible and responsive to the changing needs of creators and users of AI-generated works, promote the development and distribution of these works fairly and equitably and take into account the needs of human creators.

In conclusion, the system briefly proposed in this section for copyright law would provide a fair and efficient method of recognising and protecting the rights of creators in the digital age. By incorporating these features, the proposed system would establish and safeguard the rights AI programmers, owners of AI-generated works and human creators in a comprehensive and transparent manner. It would also provide a clear and efficient method for individuals and organisations to use AI creations while respecting human creators' and proprietors' rights. The proposed system would be a valuable instrument for promoting innovation and equity in the digital age.

Conclusion

This chapter stated that granting copyright to artificial authors would better serve the goals of copyright law than ignoring the technical advancements in this area. According to author of this thesis, artificial intelligence systems can be creative, and their works can be original. The author investigated different perspectives on creativity and originality as well as the definition of a 'author' under the copyright laws of three significant jurisdictions in order to bolster these claims. To demonstrate the originality and creativity of AI systems like GPT-3 and DALL·E,

some examples from the domains of computer science, psychology, philosophy, and neuroscience were also provided. The claim that AI systems are incapable of actual creativity and that their outputs are solely the results of algorithms and data inputs has been one of the key objections against the recognition of artificial authors under copyright law. The author, however, looked at some definitions of creativity and showed how AI systems satisfy them. He also provided arguments in favour of the creative abilities of AI systems and made the case that the works they produce may be original. By relying on the justifications stated in earlier chapters, the author examined how AI-generated works satisfy the requirements for originality.

In the second section of this chapter, the author argued that the author-in-fact of the outputs of generative artificial intelligence systems is the AI itself, once we accept that artificial intelligence can be creative and produce original works. He explained the negative consequences of the general approach that artificial intelligence cannot produce original works meriting copyright protection, why copyright law needs to accept artificial authors and the benefits to which this would lead. The author also examined whether the concept of artificial authorship would be possible within the framework of the personality, labour and utilitarian justifications for intellectual property examined in Chapter 3. Finally, he presented a basis for the concept of artificial authorship in copyright law, explaining and justifying this using an economic analysis of copyright law. Then, after considering the potential social and economic benefits of recognising artificial authors in copyright law and how this recognition could encourage innovation and creativity, he briefly proposed the characteristics of a new copyright system to contribute to the research and policy work that still needs to be done in the field of copyright on generative artificial intelligence, creativity and originality.

This chapter has set out a strong case for the recognition of artificial authors in copyright law and the potential benefits of such recognition for the field of artificial intelligence, for society and for human authors.

CONCLUSION

Overall, this thesis provided a comprehensive analysis of the issues surrounding artificial authorship in copyright law and has offered a new approach to addressing these issues that takes into account the technological advances in the field of AI. By examining the concepts of creativity and originality, the justifications for intellectual property, and the approaches to authorship in copyright law, this thesis presented a nuanced and thought-provoking perspective on the potential for artificial authorship in copyright law. The first chapter of this thesis established that creativity is not solely a human trait and that AI systems can be creative through the coding of algorithms and processes that enable the systems to learn. This analysis provided a strong foundation for exploring the concept of authorship in the context of AI in the subsequent chapters.

The second chapter of this thesis examined the current approaches to originality in copyright law in the USA, EU and UK, and finds that the legal climate tends to favour a subjective approach that focuses on independent creation and the creative process, rather than carrying out a more objective examination of the work itself and how it is perceived by the public. This can lead to inconsistency in the application of copyright law and a lack of predictability for creators. The author proposed replacing these requirements with a more objective standard for originality to better serve the purposes of copyright law.

The third chapter looked at three philosophical grounds for copyright laws. According to the personality justification, copyright law serves as an instrument to protect authors' natural rights to the results of their labour. This argument depends on the possibility that the creativity is an expression of the creator's character and that the work mirrors their extraordinary personality. On the other hand, the labour justification claims that copyright compensates for the time, effort, and resources used to create a work and emphasises the economic value of creative works. The social benefits of creative works and the role of intellectual property regulation in achieving the public good are highlighted by utilitarian justifications for intellectual property regulation. The definition of an author under intellectual property laws was also examined, along with how the concept of origin has changed and how various philosophical perspectives on creativity and property ownership have affected it.

In the last chapter, the author argued artificial intelligent systems can be creative and their creations can be considered original. In addition, the author proposed that rather than ignoring technological advancements in this field, it would serve the purposes of copyright law to extend copyright to artificial authors. Based on previous discussions of creativity and an examination of the training and creation processes of successful examples of generative AI like DALL·E and GPT-3 as well as some of their creative and original outputs, the first section of this chapter presented arguments in support of the view that AI systems can be creative. The second section discusses the negative effects of copyright laws that ignore artificial intelligence and argues that the AI itself ought to be recognised as the actual author of its creations. In the concluding section of this chapter, a new copyright system is proposed as the foundation for the concept of artificial authorship in copyright law and the potential advantages of law's recognition of artificial authors are discussed. This section lastly suggested that this area requires additional research and policy development.

The purpose of this thesis is to provide an in-depth analysis of the difficulties that artificial intelligence presents for copyright law, specifically artificial authorship. This study provides a nuanced and thought-provoking analysis of the challenges encountered in this field by examining concepts like originality, creativity, and justifications for intellectual property. The central argument developed in this study is that, given the technological improvements in the field of AI, it is feasible to recognise artificial creators in intellectual property law, and that such acknowledgment is important to effectively protect the rights of authors and promote cultural and technological developments. An in-depth examination of the creative and original capabilities of AI systems and an investigation of the various justifications for intellectual property, as well as their implications for the recognition of artificial authors in copyright law, provide support for this argument. This study aims to make a significant contribution to the field of intellectual property law by providing a new perspective on the difficulties AI presents for copyright law and practical suggestions for overcoming these difficulties.

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