



I, Author – Authorship and Copyright in the Age of Artificial Intelligence

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Abstract: Copyright has always had troubles accommodating new technologies. Artificial Intelligence, however, might prove out to be particularly difficult as it challenges the core concept of copyright: authorship. Artificial Intelligence is used increasingly to produce works that may qualify for copyright protection. Poems, novels, newspaper articles, and songs are only the surface of what kind of content can be generated by an Artificial Intelligence. The question is, who owns copyright in works created using an AI. Even though authorship is a key concept in copyright, it is not properly defined. In this research I argue that the question of copyright ownership cannot be satisfactorily answered unless we first define authorship. I argue that legal dogmatics is insufficient in conceptual work and apply legal semiotics to deconstruct the concept of authorship. I claim that authorship cannot be understood as a separate legal term because the concept has developed simultaneously in both legal and cultural discourse. Therefore, there are several attributes that are constantly attached to authorship. For copyright to function properly as an incentive it must be able to adapt to new technologies. In order to do that we need a better understanding of what authorship really is.	
Keywords: copyright, authorship, Artificial Intelligence, semiotics, originality, personhood	

CONTENTS

1. INTRODUCTION.....	1
2. RESEARCH METHODOLOGY	10
2.1 BRIEF INTRODUCTION TO SEMIOTICS	13
2.2 SEMIOTICS AND LEGAL RESEARCH	14
3. CURRENT LEGISLATION	18
3.1 EUROPEAN UNION	19
3.2 FINLAND.....	20
3.3 UNITED STATES	21
3.4 UNITED KINGDOM	22
4. HISTORY OF AUTHORSHIP	25
4.1 THE ROMANTIC AUTHOR.....	28
4.2 POSTMODERNISM AND THE DEATH OF THE AUTHOR.....	30
5. THE SIX SIGNIFIERS OF AUTHORSHIP	34
5.1 AUTHORSHIP AND ORIGINALITY	35
5.2 AUTHORSHIP AND PERSONALITY.....	36
5.3 AUTHORSHIP AND LABOUR	39
5.4 AUTHORSHIP AND INTENT	40
5.5 AUTHORSHIP AND OWNERSHIP	41
5.6 AUTHORSHIP AND INVESTMENT.....	42
6. WHO OWNS COPYRIGHT IN WORKS CREATED USING ARTIFICIAL INTELLIGENCE?	45
6.1 THE PROGRAMMER	45
6.2 THE USER.....	48
6.3 THE ARTIFICIAL INTELLIGENCE	50
6.4 JOINT AUTHORSHIP	52
6.5 NOBODY.....	54
6.6 FICTIONAL HUMAN AUTHOR	55
7. CONCLUSIONS	56
REFERENCES	61

1. INTRODUCTION

“I smiled at him. Like most other writers and poets, he had spent so long sitting in front of his VT set that he had forgotten the period when poetry was actually handspun.”¹

“Studio 5, The Stars” is a short story by British author J.G. Ballard. The story takes place in an imaginary Californiesque vacation resort called Vermilion Sands, a familiar setting of many of Ballard’s short stories. Vermilion Sands is populated by disillusioned people, many of whom are either artists, and characterised by weird technology. The first-person narrator of the story is an editor of Wave IX, an avant-garde poetry magazine. In Vermilion Sands, poets have long since abandoned their pens and typewriters and rely upon automated Verse-Transcribers to generate their poems for them².

This setting functions as the starting point of this thesis. Who holds copyright to the poems created using a Verse-Transcriber? Or, more specifically, who is the author and who is the owner of works created using Artificial Intelligence? I argue that these questions cannot be answered independently.

Seventeenth century philosopher René Descartes claimed that machines could never imitate how humans use words or other signs to declare their thoughts to others.³ Well, Descartes was wrong on that. To an increasing degree, creative machines and computer-generated works of authorship are no longer confined to the realms of

¹ J.G. Ballard, ‘Studio 5, The Stars’ (1971) in *The Complete Short Stories Volume 1* (HarperCollins 2014) 281, 290

² Machines that produce literature are a common science fiction trope. And there are several examples: Philip K. Dick’s novel *The Penultimate Truth* features a machine which writes political speeches. In Stanislaw Lem’s short story “The First Sally (A) or Trurl’s Electronic Bard” Trurl builds an electronic bard which generates such beautiful poetry that it causes poets of the world to desperately seek its removal. In George Orwell’s *1984* one of the main characters works in the Fiction Department where she maintains the novel-writing machines. Roald Dahl’s short story “The Great Automatic Grammatizator” features a novel-writing machine that is responsible for over half of all the novels and stories published in the English language. Finally, in Jonathan Swift’s *Gulliver’s Travels* Gulliver encounters a writing machine that generates creative new phrases.

³ René Descartes, *Discourse on Method. Vol. XXXIV, Part 1.* (1637) The Harvard Classics. New York: P.F. Collier & Son, 1909–14

science fiction. From Racter⁴ to Ray Kurzweil’s Cybernetic Poet⁵, there is an increasing amount of poems⁶, novels⁷, and movie scripts⁸ written using Artificial Intelligence, and cases involving claims of non-human authorship.⁹ Already, robot reporters are penning news articles¹⁰ and computers are composing music¹¹.

The digital age has put copyright under the microscope. There are a lot of questions. What is the role and function of copyright in the era of Artificial Intelligence? How should lawyers and lawmakers respond to the challenges imposed on copyright law by new technologies? Are the existing conceptual tools sufficient? Is legal interpretation sufficient or do we need a new kind of terminology and a new approach to copyright altogether – a posthuman copyright law?

In order to determine who is the owner of the poems created using the Verse-Transcriber, one has to first define several concepts. To illustrate the complexity of related concepts, one only has to look at one definition of copyright law: “Copyright law creates an intellectual property object out of a thought that is fixed in an ‘original’ manner in a tangible form (e.g. written down or recorded) by a creator known as an ‘author’.”¹²

Already we get three other concepts than require a closer look: ‘object’, ‘original’ thought, and ‘author’. These are the conceptual constituents of a system of copyright. As I will point out in more detail later in this study, all those concepts are in constant interplay, and in the centre lies authorship.

Law is no longer simply made by humans for humans. Machinic decision-making and computer-aided creativity are supplementing the traditional operations of society and

⁴ <http://www.ubu.com/historical/racter/>

⁵ http://www.kurzweilcyberart.com/poetry/rkcp_overview.php

⁶ <https://rpi.ai.wordpress.com/2015/01/24/turing-test-passed-using-computer-generated-poetry/>

⁷ ‘AI-written novel passes literary prize screening’ The Japan Times (March 22, 2016) <http://the-japan-news.com/news/article/0002826970>; <http://natematias.com/portfolio/DesignArt/Swift-SpeareStatisticalP.html>

⁸ ‘Movie written by algorithm turns out to be hilarious and intense’ ArsTechnica (June 9, 2016) <http://arstechnica.com/the-multiverse/2016/06/an-ai-wrote-this-movie-and-its-strangely-moving/>

⁹ Annemarie Bridy, ‘Coding Creativity: Copyright and the Artificially Intelligent Author’ (2012) STAN. TECH. L. REV. 5

¹⁰ Steven Levy, ‘Can an Algorithm Write a Better News Story Than a Human Reporter?’ WIRED (April 24, 2012) <http://www.wired.com/2012/04/can-an-algorithm-write-a-better-news-story-than-a-human-reporter/>

¹¹ William Hochberg, ‘When Robots Write Songs’ The Atlantic (August 7, 2014) <http://www.theatlantic.com/entertainment/archive/2014/08/computers-that-compose/374916/>

¹² Alexandra George, *Constructing Intellectual Property* (Cambridge UP 2012), 144

culture. The legal system is under a constant pressure to change, and one might begin to question whether the current laws are sufficient or are we entering a period of posthuman law.¹³ The pace of change is not likely to slow down anytime soon, and the fusion of the information infrastructure or the infobahn with the material environment is imminent. Should the Singularity¹⁴ ever happen, we will be forced to rethink the distinction between human and machine, but even though we are not quite at that stage yet, we need to make sure that our legal tools are up for the task ahead.

Digital technologies challenge copyright in two ways: qualitatively, they make it possible to use works in new ways; Quantitatively, they make it possible to use works on a much greater scale.¹⁵ Already in 1949 Warren Weaver, one of the pioneers of machine translation, claimed that computers might be useful for “the solution of worldwide translation problems”¹⁶, and Erik Ketzan argues that viable online machine translation may soon be reality, which might lead to massive copyright infringement on a global scale.¹⁷

Copyright law has been effective for many years, but the on-going technological advances and social change have disrupted its original rationale. The main reason for disruption is copyright’s inefficiency in maintaining proper balance between the elements of the copyright ecosystem.¹⁸

¹³ As information has become an entity separate from material forms and the subject of information policy is increasingly the information flow between machines, the assumption that the law is made by humans for humans no longer holds. For further information see, for example, N. Katherine Hayles, *How We Became Posthuman – Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago UP 1999); Rosi Braidotti, *The Posthuman* (Polity 2013)

¹⁴ The Singularity is a term used to describe a hypothetical moment in time when artificial intelligence surpasses human intelligence. For more information, see Ray Kurzweil, *The Singularity is Near* (Viking 2005)

¹⁵ James Grimmelman, ‘Copyright for Literate Robots’ (2015) *Iowa Law Review*, Forthcoming; U of Maryland Legal Studies Research Paper No. 2015-16, 5–6

¹⁶ Avron Barr and Edward A. Feigenbaum, *The Handbook of Artificial Intelligence Volume I*. (Pitman 1981)

¹⁷ Erik Ketzan, ‘Rebuilding Babel: Copyright and the Future of Machine Translation Online’ (2007) *Tulane Journal of Technology & Intellectual Property*, Spring. Available online: <http://ssrn.com/abstract=940041>

¹⁸ Katarzyna Gracz and Primavera De Filippi, ‘Regulatory Failure of Copyright Law Through the Lenses of Autopoietic Systems Theory’ (2014) 22 *International Journal of Law And Information Technology* 334, 364–5

The source of creativity has always been assumed to be human.¹⁹ Most discussions of copyright doctrine tend to assume the importance of ‘authorship’ as a privileged category of human enterprise.²⁰ The situation, however, is unclear.

Computer-generated works can be defined as those works that are created in total absence of any human intervention at the time of the creation of the work. We need to distinguish between two potentially confusing types: works that are created through the assistance of a computer, and works that are computer-generated.²¹ At a glance, the first category seems of little interest. A computer is a tool just like any other. A closer look, however, reveals that it might not be so simple. Copyright scholars have discussed these matters almost since the first computers were introduced. The question of machine authorship is, therefore, an old one.

In the 1990s copyright law was seen to be at a very critical stage in its development.²² In 1993 Arthur R. Miller asked: “have we entered a brave new world of copyright in which works of expression should be denied copyright protection because it may be difficult to identify a human author?”²³ Miller observes that even then the question was not a new one, but it has been with us since the 1960s. As early as 1965 the United States Register of Copyrights expressed concern about whether a computer could own rights in computer-generated works.²⁴ In 1969 the issue was deemed urgent.²⁵

Writing in 1993, Miller did not believe that there would be a world of copyright without human authors anytime soon. He further stated that should technology advance to that level, there would probably not be insoluble legal problems.²⁶

Determining who is the owner means that we need to first establish who is the author. This requires successive analyses of copyright law. There is no single theory of

¹⁹ Ralph D. Clifford, ‘Intellectual Property in the Era of the Creative Computer Program: Will the True Creator Please Stand Up?’ (1997) 71 *Tulane Law Review* 1675, 1676

²⁰ Peter Jaszi, ‘Toward a Theory of Copyright: The Metamorphoses of “Authorship”’ (1991) *Duke L.J.* 455, 455

²¹ Mark Perry and Thomas Margoni, ‘From Music Tracks to Google Maps: Who Owns Computer-Generated Works?’ (2010) *CLSR* 26, 621

²² Sam Ricketson, ‘People or Machines: The Berne Convention and the Changing Concept of Authorship’ (1991) 16 *Colum.-VLA J.L. & Arts* 1, 1

²³ Arthur R. Miller, ‘Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is anything New Since CONTU?’ (1993) 106 *Harv. L. Rev.* 977, 1043

²⁴ U.S. Copyright Office, *Sixty-Eight Annual Report of the Register of Copyrights* (1965) (as cited in Pamela Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (1985) 47 *U. Pitt. L. Rev.* 1185, 1192

²⁵ Karl F. Milde Jr., ‘Can a Computer Be an “Author” or an “Inventor”?’ (1969) 51 *J. Pat. Off. Soc’y* 378, 404

²⁶ Miller (n 23), 1043

authorship, but thinking about authorship has developed differently within the sub-domains of copyright doctrine. There can be wildly differing attitudes towards authorship in copyright theory.

Despite the differences between the civil law and common law copyright doctrines, discussions of the copyrightability of computer-generated works have followed the same trajectory. The Anglo-American tradition emphasises the economic aspects of copyright and does not dwell on the metaphysical notions of personality.²⁷ Both civil law and common law notions of authorship will be discussed.

Considering the fact that copyright is essentially built around authorship, copyright doctrine on authorship is very limited. Few laws or judicial decisions attempt to answer the question “Who is an author?”²⁸ Maybe the relationship between authors and writings has not been properly understood.²⁹ The author is also overlooked by the popular press which tends to portray copyright as a battle between economic interests and the public domain, between industry exploiters and free-speaking users.³⁰

Authorship is of great interest, and recently the ownership of copyright works has become a matter of dispute. Not all works are easily defined as copyrightable works. Some articles combine utilitarian features with authorship, and whether those works should receive protection must also be decided. In order to do that we need to first understand what authorship is and what it is not.³¹

Authorship is by far not the only hard-to-define concept in intellectual property. Even intellectual property itself is difficult to capture. Much like authorship as a legal concept, intellectual property provides a pyramid of interdependent concepts, each definition is composed of other legal definitions. Difficult abstract concepts become even more difficult when they can be defined only by reference to other concepts or definitions.³²

²⁷ *ibid*, 1050–2

²⁸ Jane C. Ginsburg, ‘The Concept of Authorship in Comparative Copyright Law’ (2003) Columbia Law School, Pub. Law Research Paper No. 03-51, 5;

²⁹ Christopher Buccafusco, ‘A Theory of Copyright Authorship’ (2016) *Virginia Law Review* (forthcoming)

³⁰ Jane C. Ginsburg, ‘The Author's Place in the Future of Copyright’ in Ruth Okediji (ed) *Copyright in an Age of Exceptions and Limitations* (Cambridge UP 2015); Columbia Law and Economics Working Paper No. 512, 2

³¹ Buccafusco (n 29)

³² George (n 12) 61.

Authorship has been – and will continue to be – under attack. From the death of the Romantic Author, or what Ginsburg calls “Romantic Author-bashing” of the 1990s³³ to co-creation, crowdsourcing and other forms of diluted authorship. Technology does not only change authorship but readership as well. This study, however, focuses solely on authorship.³⁴

Theory of authorship is important for several reasons. It enables us to establish the boundaries of copyright protection granted to new media and to determine which aspects of a work are potentially copyrightable.³⁵ As new technology continues to push the limits of copyright, we need to be able to respond. Simply expanding copyright to fit whatever new medium technology makes possible is not feasible. Throughout its relatively short history, copyright has expanded from books to sculptures, paintings, photographs, architecture, and computer programs among others. As copyright protects original works of authorship it means that new technologies “must be represented as the work of authors in order to be brought under its umbrella.”³⁶ Copyright has expanded not only in what is capable of being protected, but also in what is in fact protected. The duration of copyright has also expanded.³⁷

Copyright’s expansionist drive can be seen as another reason for re-configuring the ideology of authorship. Bently argues that a new ideology could be used to narrow down the scope of copyright protection.³⁸ A new ideology of copyright is not possible without a solid theoretical framework. In order to do that we need to understand both the history of copyright as well as its original mission.

As Gracz and De Filippi observe: “In order to restore its original rationale, the copyright regime needs to be re-evaluated for it to properly and effectively regulate social dynamics as regards the production, dissemination and access to creative works.”³⁹

³³ Jane C. Ginsburg, ‘Copyright 1992–2012: The Most Significant Development?’ (2013) 23 *Fordham Intell. Prop. Media & Ent. L.J.* 465, 499–500

³⁴ For a discussion on how robotic readership challenges copyright, see Grimmelman, ‘Copyright for Literate Robots’ (n 15)

³⁵ Buccafusco (n 29)

³⁶ Mark Rose, *Authors and Owners: The Invention of Copyright* (Harvard UP 1993), 136

³⁷ On the expansion of copyright, see Lionel Bently, ‘R. v The Author: From Death Penalty to Community Service’ (2008) 32 *Colum. J.L. & Arts* 1, 10–13

³⁸ Bently, ‘R. v The Author: From Death Penalty to Community Service’ (n 37), 92

³⁹ Gracz and De Filippi (n 18)

Understanding the different notions of authorship and its constituents, originality in particular, is relevant also in relations to plans for a harmonisation of EU copyright.⁴⁰ Originality is one aspect of copyright, but it is one where the differences between common law countries and author's rights systems is easily visible. An understanding of the semiotics of copyright has, therefore, practical applications.

The author has played a central role in the development of both literary and legal culture, and authorship is a key concept for both literary theory and copyright theory. By the mid-seventeenth century, writers began to assert claims to special status by designating themselves as authors. The structure of copyright law was formed during the eighteenth and nineteenth century. The process was shaped by emerging economic changes, e.g. the commodification of the publishing industry and the rise of the media industries and other copyright-related industries such as advertising.⁴¹ As copyright began to slowly take form, so did the concept of authorship. Primarily, the purpose of authorship was purely functional – to protect the interests of booksellers, and for more or less throughout the eighteenth century it continued to do so, but at the same time as the concept began to gather momentum it also began to absorb various notions of originality, creativity, and ownership. Authorship developed on two tracks at the same time: the author as a cultural concept and the author as a legal entity. This history of authorship in culture and copyright law is discussed further in chapter four. The point of discussing the history of authorship here is not only to serve as a background for further analysis. Legal concepts have their own histories, and the point of historical inquiry is to see the ways we remain bound to structures of belief.⁴² The figure of the Romantic author-genius is a structure of belief which continues to infect copyright law in several ways.

Copyright theory contains a wide spectrum of approaches, and there are numerous ways to group and categorize those. Categorizing theoretical approaches by grounds for the justification of intellectual property, Lior Zemer distinguishes six approaches: the utilitarian approach; the labour theory of property; the personhood theory; social-institutional-planning; traditional proprietarianism; and authorial constructionism.⁴³

⁴⁰ 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 1, 4

⁴¹ Oren Bracha, 'The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright' (2008) 118 Yale L. J. 186, 239

⁴² Paul W. Kahn, 'Freedom, Autonomy, and the Cultural Study of Law' in Austin Sarat and Jonathan Simon (eds) *Cultural Analysis, Cultural Studies, and the Law* (Duke UP 2003), 178

⁴³ Lior Zemer, 'On the Value of Copyright Theory' (2006) *Intellectual Property Quarterly* 1, 55–71

This is, of course, not a definite systematization. The theories share common elements and their boundaries are blurred, but these approaches will be referred to and summed up in a few broad strokes later in this paper in chapter five where I will focus on the six signifiers of authorship.

The starting point of this research is fiction, a dystopian short story by J. G. Ballard. There is a reason for this. Dystopian texts widen the scope of the legal imagination. Through their storytelling form the texts challenge not only the present but the imagined future as well.⁴⁴ This is not a doctrinal study of copyright, but I will use cultural analysis and semiotics to explore authorship. From a cultural studies perspective an imagined future of copyright adds another level to the discussion on copyright. Legislation needs to be able to adapt to the breakneck pace of technological change. The imagined future of copyright can be bright, but it can also be Ballardian.⁴⁵

Throughout its relatively short history, copyright law has struggled with technological change. Although the purpose of legislators has been to adapt to new technology and prepare for the future, the resulting drafts have done rather poorly.⁴⁶ In the future copyright's problems will not go away, they will only get more complex. Therefore, copyright theory is crucial. As Halbert points out, "[c]opyright is not simply important because of its impact on contemporary creativity, but is also increasingly important as a symbol of the type of future we are creating."⁴⁷

The following chapter will describe the research methodology used in this study. I will briefly explain why I have chosen a cultural approach to copyright over other methodologies and summarize semiotic legal research. In chapter three I will explain the basics of current legislation on authorship and artificial intelligence. I will summarily introduce legislation on authorship in three jurisdictions: Finland, the United Kingdom, and the United States. I have chosen Finland and the United States to represent Civil law and Common law countries. The United Kingdom is of particular interest as it is a jurisdiction where computer authorship might be statutorily possible.

⁴⁴ Shulamit Almog, 'Dystopian Narratives and Legal Imagination: Tales of Noir Cities and Dark Law' in Austin Sarat, Lawrence Douglas, and Martha Merrill Umphrey (eds) *Law and the Utopian Imagination* (Stanford UP 2014)

⁴⁵ Ballardian is a term used to describe a setting resembling the conditions described in Ballard's stories, especially bleak landscapes and the psychological effects of technological, social or environmental developments.

⁴⁶ Jessica D. Litman, 'Copyright Legislation and Technological Change' (1989) *Or. L. Rev.* 68, 275, 277

⁴⁷ Debora J. Halbert, *The State of Copyright: The Complex Relationship of Cultural Creation in a Globalized World* (Routledge 2014), 19

As this is not a study in comparative law, the point is not to compare legislation in different jurisdictions but point out that theory of authorship and the conceptual tools derived through semiotic research are applicable regardless of the legal system. Some cases will be referred to later on this research.

Chapter four focuses on the history of authorship as a legal and cultural concept. I argue that the two cannot be considered independent, as they have developed in parallel. Some concepts from literary research have seeped into legal studies, and I believe that multi-disciplinary research may provide new insights.

The different conceptual components of authorship will be examined in chapter five. Originality, personality, labour, intent, ownership, and investment are what I call the six signifiers of authorship, concepts that constitute our understanding of authorship. Majority of the theories of authorship circulate around these concepts in one way or another, and these theories and arguments will then be examined in chapter six against the possible copyright owners of works created using Artificial Intelligence. Concluding remarks and suggestions for further research will then be offered in the final chapter.

2. RESEARCH METHODOLOGY

So who is the owner of machine-created works? One might try to answer the question by applying legal doctrine.⁴⁸ Terminology is not uniform. Legal doctrine may be called legal-dogmatic research, doctrinal study of law, or any of several names for the research method. Jan M. Smits defines legal doctrine as “research that aims to give a systematic exposition of the principles, rules and concepts governing a particular legal field or institution and analyses the relationship between these principles, rules and concepts with a view to solving unclarities and gaps in the existing law.”⁴⁹

Some argue that legal research labelled as doctrinal research is itself in a period of change. Because the scope of the doctrinal method is too constricting, legal scholars are increasingly implementing methods from other disciplines into their research.⁵⁰

Nevertheless, it seems to be indisputable that in some cases the solutions offered by the legal system fall short of goal, and these shortcomings are most visible in areas undergoing quick change, copyright for example. What this means is that the traditional legal dogmatic method should in many cases be supplemented.⁵¹

Pamela Samuelson observes that analysing the issue within the existing doctrinal framework is insufficient and may be inconclusive.⁵² Therefore, any ownership allocation cannot be made based on purely doctrinal reasoning, but we should also consider the realities of the world.

Throughout this study I will make use of a critical cultural studies approach to law. This approach borrows methods from the humanities and establishes a social-constructionist framework where law does not simply apply to a pre-existing social

⁴⁸ Legal-dogmatic research into this subject has been carried out extensively elsewhere. See, for example, Anniina Huttunen, 'Älykkäät järjestelmät ja luovuus – tekijänoikeudelliset reunaehdot älykkäiden järjestelmien kehittämisessä ja toiminnassa' in *Tekijän oikeudet? Viestintäoikeuden vuosikirja 2010* (University of Helsinki 2011); Emily Dorotheou, 'Reap the benefits and avoid the legal uncertainty: who owns the creations of artificial intelligence?' 2015, *Computer and Telecommunications Law Review* 21(4)

⁴⁹ Jan M. Smits, 'What is Legal Doctrine? On the Aims and Methods of Legal-Dogmatic Research' (2015) Maastricht European Private Law Institute Working Paper No. 2015/06, 5

⁵⁰ Terry Christine M. Hutchinson, 'The Doctrinal Method: Incorporating Interdisciplinary Methods in Reforming the Law' (2015) *Erasmus Law Review*, Vol. 8, No. 3, 137–8

⁵¹ Peter Wahlgren, 'On the Future of Legal Science' (2000) 40 *Scandinavian Studies in Law*, 515, 520–1

⁵² Pamela Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (1985) 47 *U. Pitt. L. Rev.* 1185, 1192

world but actively creates it.⁵³ Coombe observes that “[c]ritical cultural legal studies recognizes culture as signification, but also addresses the materiality of signification by recognizing the symbolic power of law and law's power over signification.”⁵⁴ This approach supplements doctrinal analysis by including cultural realities and semiotic analysis of key concepts.

Whereas the starting point of positivist legal studies is that law is a set of rules that can be fine-tuned and then applied to a society that exists outside of law, the starting point of cultural studies of law is that law is fractured and often contradictory. Law does not operate independently of society; it is constructed by and operates within society. Law is a historically and culturally specific system, i.e. it is sustained by social processes, yet it is a system which regulates human behaviour. The various departments of law (such as intellectual property law) are established by the legal system. The rules governed by the legal system regulate our behaviour. Law is, therefore, a mechanism of social control.⁵⁵

I believe that a strictly formalist approach to copyright law is overly monolithic and does not fully acknowledge copyright law’s multivocality nor its history. Therefore, a postmodernist view of the collapse of the grand narrative⁵⁶ of copyright is required.

It is important to understand the possibilities of this approach. Semiotic analysis combined with a cultural approach can reveal something other methods might fail to bring to surface. Copyright is often limited to an economic right, the balance between private reward and public needs. The normalization of intellectual property rights in law and economics misses their fundamentally political nature.⁵⁷ Copyright is by definition political, and copyright law makes control over expression possible.⁵⁸ Furthermore, cultural studies goes beyond methodological innovation, as it can

⁵³ Rosemary J. Coombe, 'Is There a Cultural Studies of Law?' in Toby Miller (ed.) *A Companion to Cultural Studies* (Blackwell 2001), 36

⁵⁴ Rosemary J. Coombe 'Critical Cultural Legal Studies' (1998) 10 *Yale Journal of Law & the Humanities* 463, 483

⁵⁵ George (n 12) 86–87

⁵⁶ Jean-François Lyotard argues that the postmodern is characterised by incredulity towards grand narratives, large-scale theories of the world. Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge* (Geoff Bennington and Brian Massumi tr, Minnesota UP 1983)

⁵⁷ Christopher May and Susan K. Sell, *Intellectual Property Rights: A Critical History* (Lynne Rienner Publishers 2006), 16

⁵⁸ Halbert (n 46), 11

“promote change in legal studies by widening the moments of subjectivity that are even considered in the analysis of law and legality.”⁵⁹

Copyright law is complex, and cultural interpretation is equally complex. It may at first seem difficult to combine these two. Cultural study of law does not simplify law. It complicates it, but the virtue of cultural interpretation lies in its complexity, and it should not be shirked in favour of other methodologies.⁶⁰

Even though this study is heavily influenced by critical cultural studies, my main methodological tool in this paper is semiotics. Critical cultural studies has very intimate ties with semiotics, and it is not necessary, perhaps often not even possible, to draw a clear line between the two. I will use a semiotic approach and consider ‘authorship’ as a Saussurean⁶¹ sign. Applying the semiotic and conceptual tools necessary for a cultural study of law, the purpose of this study is to analyse the concept of authorship through its different constituents, the range of connotations that together compose the meaning(s) of ‘authorship’. Whereas legal-dogmatic research aims at filling in the gaps in the existing law, my research here aims at filling in the gaps in the conceptual building blocks of the law.

Literary theory is interested in literary interpretation. When we analyse a literary text, we study the different aspects of the novel in relation to the whole. We also study the whole text from the perspective of a particular aspect. As an observer we are not wholly inside the text nor are we wholly outside of it, and by analogy that approach can be applied to the study of copyright law as an interplay of cultural production and cultural regulation. In addition, literary theory and copyright theory share the same focal point: authorship.

Schafer et al distinguish between “upstream” and “downstream” problems, the former covering legal issues that deal with the input that an Artificial Intelligence requires to produce new works, and the latter covering issues that arise from the output of robot

⁵⁹ Austin Sarat and Jonathan Simon, ‘Cultural Analysis, Cultural Studies, and the Situation of Legal Scholarship’ in Austin Sarat and Jonathan Simon (eds) *Cultural Analysis, Cultural Studies, and the Law* (Duke UP 2003), 9

⁶⁰ Naomi Mezey, ‘Law as Culture’ in Austin Sarat and Jonathan Simon (eds) *Cultural Analysis, Cultural Studies, and the Law* (Duke UP 2003), 61

⁶¹ According to Ferdinand de Saussure the sign relation is dyadic. A sign consists only of a form of the sign (the signifier) and its meaning (the signified). In Saussure’s theory this relation is essentially arbitrary.

creativity.⁶² In this study I will not be covering the “upstream” problems but shall focus solely on the “downward” issues, the results of robot creativity.

My approach to copyright law in this study is, therefore, interdisciplinary. I approach law as a regime for constructing cultural meaning. Law has always played a large role in regulating the terms of cultural production.⁶³ Peter Jaszi argues that there is a tendency to mythologize ‘authorship’, leading legal scholars to fail to recognize the foundational concept for what it is: “a culturally, politically, economically, and socially constructed category rather than a real or natural one.”⁶⁴

Copyright regulates the creation, dissemination and use of cultural products, but it also creates the conditions of culture. Copyright law is not an independent set of rules to be applied to the social world. Law is always “thoroughly and irreversibly infected by the (often dated) cultural content of its own objects.”⁶⁵ Much like the author and the work, as I will point out later in this paper, law and the social world are like two stars orbiting the same barycenter.

Copyright law is to a large extent a reflection of the culture in which it is embedded. It simultaneously represents cultural processes and shapes them. It is impossible to separate law from culture. As Rosen points out, “law is so deeply embedded in the particularities of each culture that carving it out as a separate domain and only later making note of its cultural connections distorts the nature of both law and culture.”⁶⁶

2.1 Brief Introduction to Semiotics

Semiotics is the study of signs. More specifically, it is the study of communication and signification. It is a study of the systems of signs which create meaning within a culture. The exchange of information takes place by means of signs. Signs are indirect and

⁶² Burkhard Schafer, David Komuves, Jesus Manuel Niebla Zatarain, and Laurence Diver, ‘A fourth law of robotics? Copyright and the law and ethics of machine co-production’ (2015) 23 *Artif. Intell. Law* 217, 219

⁶³ Jane Gaines, *Contested Culture: The Image, The Voice, and The Law* (North Carolina UP 1991); Austin Sarat and Jonathan Simon, ‘Cultural Analysis, Cultural Studies, and the Situation of Legal Scholarship’ in Austin Sarat and Jonathan Simon (eds) *Cultural Analysis, Cultural Studies, and the Law* (Duke UP 2003), 15

⁶⁴ Jaszi, ‘Toward a Theory of Copyright: The Metamorphoses of “Authorship”’ (n 20), 459

⁶⁵ Austin Sarat and Jonathan Simon (eds) *Cultural Analysis, Cultural Studies, and the Law* (Duke UP 2003), 20

⁶⁶ Lawrence Rosen, *Law as Culture: An Invitation* (Princeton UP 2006), xii

intermediary and, therefore, language is fraught with ambiguity and uncertainty. With roots in linguistics, theory of knowledge, and interpretative techniques, semiotics can help discover more defensible interpretations.⁶⁷

Legal concepts have also their historical and cultural background. They have been developed under certain circumstances within a certain kind of society. Semiotics can be used to make visible the historical and cultural connections and underpinnings of legal concepts.

Semiotics is by far not the only cultural studies approach that can be used to study copyright law. Law is a highly verbal field. It provides an open opportunity for discourse analysis.⁶⁸ If semiotics is mainly concerned with systems of signs, discourse analysis is an approach used to study semiotic events such as language use. In this paper I will occasionally use the tools provided by discourse analysis as well.

2.2 Semiotics and Legal Research

Lawyers think, quite naturally, like lawyers. They are trained to apply a set of norms to existing facts. For a lawyer, facts exist independently of any legal text or discourse, and law is applied to the facts. These facts are organized in a certain way, independently of the normative world. Legal texts and legal discourse, however, construct what is factual and what is conceptual.

All language is symbolic, and legal language is no exception. Law and semiotics shows that there is no strictly 'legal' meaning, as law cannot be understood by reference only to itself. If anything, law is social. It does not exist by itself, but in relation to something or someone else. On top of everything, 'law' itself is a symbol enmeshed in a miasma of meanings.

Legal semiotics is not based on the traditional forms of legal interpretation. While semiotics can be used to reveal contradictory discourses, it does not directly contribute to doctrinal studies of law. The purpose is to analyse and reveal the underlying concepts and taken-for-granted assumptions in law and, when possible, challenge generally

⁶⁷ Susan Tiefenbrun, *Decoding International Law: Semiotics and the Humanities* (OUP 2010), 23–4

⁶⁸ Roger W. Shuy, 'Discourse Analysis in the Legal Context' in Deborah Schiffrin, Deborah Tannen, and Heidi E. Hamilton (eds), *The Handbook of Discourse Analysis* (Blackwell 2001), 437

accepted interpretations of law.⁶⁹ One must be aware of the logic of copyright and understand its fundamental concepts in order to be able to propose legislation. A theoretical approach to copyright, therefore, can help explain copyright's social and cultural considerations. Furthermore, copyright theories are designed to "criticise the moral and ethical flaws inherent in present copyright legislation."⁷⁰ A semiotic study of copyright is, therefore, useful not only in understanding how authorship is constructed but in pointing out the underlying difficulties in assigning ownership for works created using Artificial Intelligence.

Legal semiotics is a study of legal discourse in an attempt to identify and describe modes of signification that give rise to interpretation. Although semiotics has been a prominent research method in literature and linguistics, it has not been as actively used in legal research. Legal semiotics is said to be "at the infant stage in its adoption by the legal community as a workable theory and method."⁷¹ Furthermore, as Coombe observes, legal scholars have largely ignored the cultural nature of the object of protection and the social and historical context of cultural proprietorship.⁷²

However, lawyers constantly use semiotics in their work. They read, write, and interpret documents. A legal code is a language composed of signs, and lawyers attempt to understand, to decipher, to give meaning to those codes. Legal practice is interpretation, and lawyers participate in an exchange that takes place through the medium of coded language. Even if the use of semiotics were not conscious but indirect, sign theory is an important factor in the everyday practice of law. The semiotics of law can be described as "a specialized study of sign systems underlying legal informational exchanges."⁷³

It is at times very difficult to provide semiotic readings of legal texts. Partly, the problem is that it is difficult to change the mode of reading: to read legal texts as descriptive or constructive instead of defining. Legal texts are almost always written from a position of authority or expert that masks their discursive nature. Also, the

⁶⁹ *ibid*, 82

⁷⁰ Zemer, 'On the Value of Copyright Theory' (n 43), 55

⁷¹ Tiefenbrun (n 66), 23

⁷² Coombe 'Critical Cultural Legal Studies' (n 54), 470

⁷³ Tiefenbrun (n 66), 20, 24–25

technical nature of many legal texts masks their embeddedness in discourse.⁷⁴ This mode of reading can affect the expected conclusions of legal research. Some readers may find it difficult to accept that there will be no definite recommendations for legislation, but the point of a cultural studies approach is not to provide definite answers.

Jeremy Paul points out three aspects of contemporary legal argument: Firstly, law is self-referential, and many legal concepts cannot be defined without using other legal concepts. Secondly, many legal arguments are coherent largely in terms of their opposing arguments. Thirdly, particular legal debates may be linked to more general political debates.⁷⁵

Based on the above one can argue that many of the legal concepts in copyright law do not exist independently. They are constructed socially in the legal discourse. Signification is a politics of power. Meanings are socially produced and constantly evolving. Different social groups try to give different signs different meanings. Law “freezes the play of signification by legitimizing authorship.”⁷⁶ In the context of intellectual property law, law gives owners of intellectual property cultural authority in fixing social meaning. This is where we return to language use, the use of signs, and give a slight nod to discourse analysis. Legal semiotics is interested in legal ideology. For the legal semiotician, ideology is constituted within the legal culture – in the patterns of argument and factual characterization. Legal semiotics debunks any claims of political neutrality the legal system may have. It systematizes and organizes the process of discovery in legal analysis. Most importantly, legal semiotics “teaches that the meaning (and thus the merit) of any legal argument cannot be determined without understanding the context in which the argument is made.”⁷⁷ To sum up in brief, legal semiotics can be described as the study of the legal system of signs, or, as J. M. Balkin observes, “the acceptable moves available in the language game of legal discourse”.⁷⁸

So why embark upon an endeavour like this? What is the purpose of semiotic legal research? I believe that something as complex as copyright regime cannot be fully

⁷⁴ Johanna Niemi-Kiesiläinen, Päivi Honkatukia, and Minna Ruuskanen, ‘Legal Texts as Discourse’ in Åsa Gunnarsson, Eva-Maria Svensson, and Margaret Davies (eds) *Exploiting the Limits of Law – Swedish Feminism and the Challenge to Pessimism* (Ashgate 2007) 80–1

⁷⁵ Jeremy Paul, ‘The Politics of Legal Semiotics’ (1990) 69 *Tex. L. Rev.* 1779, 1786–7

⁷⁶ Rosemary J. Coombe, *The Cultural Life of Intellectual Properties: Authorship, Appropriation, and the Law* (Duke UP 1998), 8, 26

⁷⁷ Paul (n 74), 1828

⁷⁸ Jack M. Balkin, ‘The Promise of Legal Semiotics’ (1991) 69 *U. Texas L. Rev.* 1831

understood without contemplating the social dynamics included in regulating the creation, distribution and access to creative works. Critics argue that mainstream copyright scholarship has attempted to build a grand copyright narrative grounded either on a theory of rights or economic analysis, ignoring humanities and social science methodologies in the process, and resulting in an approach that is too narrow both descriptively and normatively.⁷⁹ Law is steeped in the metaphors we use to understand human behaviour and interaction.⁸⁰ It is simply not possible to leave out cultural considerations. Authorship is a central concept in copyright law, but ‘authorship’ is also a sign. It is a sign that is continuously constructed and re-constructed in the Derridian game of *différance*.⁸¹ ‘Authorship’ is a sign ripe for deconstruction.

⁷⁹ Julie E. Cohen, ‘Creativity and Culture in Copyright Theory’ (2007) UC Davis Law Review Vol. 40, 1151, 1157–1158

⁸⁰ Rosen (n 65), 131

⁸¹ In Jacques Derrida’s philosophy *différance* refers to the impossibility of any sign to have a fixed meaning. In a system of signs meaning is endlessly deferred from one sign to another. In a Saussurean system the meaning of any sign derives from its place in a within a network of possible choices (contrasts and differences). Derrida, however, argues that any sign can only refer to other signs. Meaning is thus indefinitely deferred in an endless sequence.

3. CURRENT LEGISLATION

The Berne Convention does not provide an unequivocal answer on authorship and copyright ownership in works created by an Artificial Intelligence. Some copyright scholars argue that the Berne Convention does not require human authorship⁸² while others claim that to qualify for protection under the Berne Convention, the author needs to be human.⁸³ The Guide to Berne Convention states that the author is not specified.⁸⁴ The question is whether we should now adopt a new paradigm for copyright and move away from the Berne Convention guidelines on the concept of authorship as something to be recognised and protected.⁸⁵

The issue of computer-related copyright problems was briefly mentioned in the 1982 recommendation by WIPO and UNESCO. The recommendation assigns copyright ownership on the person or persons without whose creative efforts the work would not have been created. As a main rule, the recommendation assigns copyright ownership on the user of the program, and the programmer can be considered an author or co-author only if their contribution is a creative one.⁸⁶

The originality criterion is considered an integral part of the concept of work in several legislations. Originality is a prerequisite for copyrightability. However, like authorship, the concept itself is not defined or analysed. Originality is also important as a constituent of authorship, as I will argue later on in this thesis. In the following sub-chapters, the concept of originality will be discussed in relation to the corresponding legislation, as standards of originality differ between jurisdictions. However, the concept of originality as such is a very broad topic which cannot be analysed at length here.

⁸² Anniina Huttunen and Anna Ronkainen, 'Translation Technology and Copyright' (2012) 3 Nordic Intellectual Property Review 330

⁸³ Ricketson (n 22), 21–22

⁸⁴ World Intellectual Property Organization 'Guide to the Berne Convention for the Protection of Literary and Artistic Works' (1978)

⁸⁵ Ricketson (n 22), 3

⁸⁶ UNESCO and WIPO 'Recommendations for Settlement of Copyright Problems Arising from the Use of Computer Systems for Access to or the Creation of Works' (13 August 1982)

3.1 European Union

The Commission of the European Union addressed the challenges posed by computer creation in the 1988 Green Paper on copyright. The Commission argues that the basis of all copyright protection is the exercise of sufficient skill and labour, and, therefore, the Commission inclines to the view that it is the user who is entitled to protection while the programmed computer is essentially a tool.⁸⁷

The European Union Computer Programs Directive does not explicitly address the issue of protection of computer-created works. However, Article 1(3) of the Directive establishes 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.”⁸⁸

There is no EU-Directive or Regulation law that defines originality for copyright in general, but the European Court of Justice has issued some pronouncements on originality in particular cases. First important decision on originality was *Infopaq*.⁸⁹ The case concerned the interpretation of the concepts “reproduction in part” and “transient” in Articles 2 and 5, respectively in the Infosoc Directive (2001/29/EC). The court found that a work as referred to in this Directive is protected if it is original in the sense that it is the author’s own intellectual creation. For a work to be protected it, therefore, needs to have an author first, but in the case of works created using Artificial Intelligence the first problem is, as we have already discussed, determining who the author is.

In *Painer*⁹⁰ the CJEU had to decide whether a portrait photograph can obtain copyright protection under Art. 6 of the Term Directive. The Court found that in the context of a photograph, an intellectual creation is the author’s own if it reflects the author’s personality.

In *Football Dataco*⁹¹ the CJEU continued on the same trajectory established in *Infopaq* and *Painer*. The case focused on the notion of the “author’s own intellectual creation”

⁸⁷ Commission (EC) ‘Copyright and the Challenge of Technology – Copyright Issues Requiring Immediate Action’ (Green Paper) CoM (88) 172 final, 7 June 1988, 196–7

⁸⁸ European Parliament and Council Directive 2009/24/EC of 23 April 2009 on the legal protection of computer programs OJ L111/16

⁸⁹ Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* [2009] ECR I-6569

⁹⁰ Case C-145/10 *Eva-Maria Painer v Standard Verlags GmbH and others* [2011]

⁹¹ Case C-604/10 *Football Dataco Ltd and others v. Yahoo! UK Ltd and others* [2012]

in Article 3 of the Database Directive, whether it requires more than significant labour and skill from the author, and if so, what is required. The case concerned the creation of the annual fixture lists of the football leagues in England and Scotland. The Court held that such fixture lists fulfil the definition of a database protected under the Directive. The Court also found that even if such fixture lists did not fulfil the definition of a database under the Database Directive, they would be copyrightable because, by virtue of the selection and arrangement of the content, they constitute the author's own intellectual creation. This refers to the criterion of originality, which is satisfied when, the author expresses his creative ability in an original manner by making free and creative choice and thus stamps his 'personal touch' on the work.

3.2 Finland

Under Finnish copyright law the author is always human.⁹² A Copyright Committee Report on copyright for computer programs found that copyright protects independent and original works that express the author's creative efforts, and a computer program cannot independently create a copyrightable work. Creative efforts always originate from a human, and a computer is merely a tool. According to the Committee Report, the programmer is not a copyright owner. If the user makes all creative decisions, he or she alone is the sole copyright owner.⁹³

Under Section 6 of the Finnish Copyright Act, copyright shall belong to the authors jointly if a work has two or more authors whose contributions do not constitute independent works.⁹⁴

The Finnish Copyright Act does not define originality. A work must be independently created, i.e. not copied, and it must be a result of the creative expression of the author.⁹⁵ Based on the preparatory works one can find that internationally accepted requirements are to be followed in evaluating originality. Legal theory and case law reveal that the originality threshold is passed when no one else but the author could be

⁹² Kristiina Harenko, Valtteri Niiranen, and Pekka Tarkela, *Tekijänoikeus* (Talentum 2016), 16
Human authorship is not, however, explicitly stated in the Act, but interpreted from the wording, where the verb 'to create' is understood as requiring a human creator. Whether a machine can be considered a creator is an interesting philosophical debate, but will not be discussed at length in this paper.

⁹³ Copyright Committee Report KM 1987:8 (Finland) Tietotekniikka ja tekijänoikeus.
Tekijänoikeuskomitean IV osamietintö, 65–7

⁹⁴ Copyright Act 1961 (Finland), s 6

⁹⁵ Harenko, Niiranen, and Tarkela (n 91), 17

assumed to have ended up with the same result, were someone else to independently undertake similar work.⁹⁶

3.3 United States

The U.S. Constitution authorizes Congress to grant "Authors" the exclusive right to their "Writings."⁹⁷ Under US copyright law, "[c]opyright in a work protected under this title vests initially in the author or authors of the work."⁹⁸ Authorship is an essential condition for copyright, but despite its importance the term 'author' is not defined in the Copyright Code.⁹⁹ However, although 'author' is not specifically defined, the usage of the term implies that it refers to a human author and, therefore, US copyright law does not recognise nonhuman authors.¹⁰⁰

In 1974 the US Congress established the National Commission on New Technological Uses of Copyrighted Works (CONTU). It was set the task of studying, among other topical technology issues such as photocopying, the issue of authorship of computer-generated works. In its final report, CONTU opined that a computer could not be the author of works created through its use, and that the user of the program is the author.¹⁰¹

In *Feist*¹⁰² the United States Supreme Court addressed the issue of the degree of creativity necessary to sustain a copyright in a telephone directory. The Court found that a telephone directory failed to satisfy the constitutional standard of originality necessary for copyright protection. In its assessment the Court examined the concept of originality applicable to all works of authorship. Justice O'Connor noted that "Originality remains the sine qua non of copyright; accordingly, copyright protection may extend only to those components of a work that are original to the author."¹⁰³

⁹⁶ Harenko, Niiranen, and Tarkela (n 91), 17; for case law see also, for example, KKO:2005:43

⁹⁷ U.S. Const. art. I, sec. 8, cl. 8

⁹⁸ 17 U.S.C §201(a) (US)

⁹⁹ Clifford (n 19), 1682; Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1189

¹⁰⁰ Clifford (n 19), 1684

¹⁰¹ Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1193–4

¹⁰² *Feist Publications, Inc. v. Rural Telephone Service Co.*, 499 U.S. 340 (1991)

¹⁰³ *Ibid*, 17

The *Feist* decision reformulated the originality requirement to explicitly include two distinct elements: originality requires independent creation plus a modicum of creativity. The decision not only introduced the requirement of creativity into US copyright law but also affirmed originality as a constitutional requirement for copyright.

The *Feist* decision has been criticized a lot. Some critics argue that it fails to give any real content to the creativity requirement.¹⁰⁴ Others state that *Feist* not only diminishes the importance of authorship but the opinion blurs the concept of originality in relation to authorship.¹⁰⁵ In other words, the criterion of originality, at least as expressed in the *Feist* opinion, incorporates the conception of authorship. Michael Madison argues that after *Feist* copyright's creativity standard has become so irrelevant that we should not anchor copyright in creativity but focus on copyright as a mechanism for producing and disseminating knowledge.¹⁰⁶

3.4 United Kingdom

The UK Copyright, Designs and Patents Act 1988 contains a specific provision on computer-generated works. Under Section 9(3) of the Act, the author of a computer-generated work “shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”¹⁰⁷

The term ‘computer-generated’, in relation to a work, is further defined in the UK act to mean that “the work is generated by computer in circumstances such that there is no human author of the work”.¹⁰⁸

To determine, who is the author of an AI-created work, one has to consider the statutory definition of ‘author’ as well as the threshold for originality. The threshold is very low, as originality in the UK Act simply means that it is not a copy, that some work or effort has gone into the creation of the work.¹⁰⁹ Therefore, the test will be easily

¹⁰⁴ Bridy (n 9)

¹⁰⁵ Leo J. Raskind, ‘Assessing the Impact of *Feist*’ (1992) 17 U. Dayton L. Rev. 331, 334–5

¹⁰⁶ Michael J. Madison, ‘Beyond Creativity: Copyright as Knowledge Law’ (2010), 12 Vand. J. Ent. & Tech. L. 817

¹⁰⁷ Copyright, Designs and Patents Act 1988 (UK), s 9(3)

¹⁰⁸ *Ibid*, s 178

¹⁰⁹ Gerald Dworkin and Richard D. Taylor, *Blackstone’s Guide to the Copyright, Designs & Patents Act 1988* (Blackstone 1989), 6

satisfied for AI-created work, as the programmer, user, or Artificial Intelligence device is unlikely to have copied the work. However, as Dorotheou observes, “the extent to which the work originates from any one of them is arguable.”¹¹⁰

The UK position is somewhat unclear, and the line between computer-aided works and computer-generated works may become difficult to draw. In addition, the ownership-issue is ambiguous: who is the first owner, the person undertaking the necessary arrangements for the creation of the work?¹¹¹

Until the CJEU rulings in *Infopaq*, *Painer*, and possibly even until *Dataco* consensus in the UK was that a work is considered original and therefore copyrightable if it is the result of its author’s own skill, labour, judgment and effort. This approach has been confirmed for example in *University of London Press v. University Tutorial Press*, *Ladbroke v. William Hill* and *Independent Television Publications Ltd. v. Time Out Ltd.*¹¹²

To sum up, as a general rule legislation on whether robots can produce copyrightable works is unclear. It appears that that the Verse-Transcriber would certainly not be an author under US or Finnish copyright law but might be so under UK law. The complexity of the situation was confirmed in a European Commission study which found that “[i]ssues that need clarification in legal research and practice are, for example, what exactly is a computer-generated work, who is the initial rights holder of such a work, and how the criterion of an “own intellectual creation” can be applied to computer-generated works.”¹¹³

Semiotically, the shift in the balance between originality and authorship is interesting. Gervais argues that post-*Feist* there is an emerging international consensus that originality is not copyright’s defining standard, but copyrightability is determined by the presence of creative choices.¹¹⁴

The standard of originality differs by legislation, but the differences might not be as great as it first seems. Rahmatian argues that the originality concepts of both the skill

¹¹⁰ Dorotheou (n 48)

¹¹¹ Dworkin and Taylor (n 108), 186

¹¹² Rahmatian (n 40)

¹¹³ Erica Palmerini et al. ‘Regulating Emerging Robotic Technologies in Europe: Robotics facing Law and Ethics’ (22 September 2014)

¹¹⁴ 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.*, Vol. 49, p. 949

and labour based system of the UK and the author's rights systems are too complex to pinpoint. The CJEU rulings will slightly reshape the classical originality definition of the UK. The "skill, labour, and judgment" doctrine will mean that the author must apply her judgment in making selections and choices, which will stamp the author's personal touch on the work. This is an adjustment towards the *droit d'auteur* countries but not a seismic shift.¹¹⁵

Whereas originality as a standard of copyrightability concentrates on the work in question, creativity focuses on the author and his or her creative choices. Both concepts are important for understanding authorship and will be discussed later in this study, but, as I have already argued, copyright and authorship are cultural concepts and in order to understand their characteristics we need to consider the context in which they originate and are used.

¹¹⁵ Rahmatian (n 40), 6

4. HISTORY OF AUTHORSHIP

Literary theory and copyright theory share several fundamental concepts. The focal point of copyright is authorship and, as Bennet observes, literary theory is largely a question of author theory.¹¹⁶

Intellectual property is the result of developments in technology, politics, law, and philosophy.¹¹⁷ The history of copyright is very much the history of technology. The early history of copyright, if one can even speak of copyright as we understand it, was very much concerned with material artefacts. After the fall of Rome, little that would resemble copyright, was recognised until the Renaissance, when the invention of the printing press paved way for bookselling and publishing to emerge as independent industries.¹¹⁸

The conceptual building blocks of copyright developed together with technological progress, and an individualized notion of authorship began to emerge in the early sixteenth century.¹¹⁹ In the seventeenth century, Venetian books had been exported throughout Europe, and the idea of printing privileges as a means of protecting books from unauthorized copying had travelled with the books. However, the idea of an individual author was still far from what we now consider as authorship. As late as the 1750s in Germany, an author was considered just one of several craftsmen involved in the production of a book. The idea of an author being somehow superior to the other craftsmen in the process developed much later.¹²⁰

Even though it mentions neither ‘copyright’ nor ‘authors’¹²¹, the English Statute of Anne of 1709, was the first formalized copyright statute.¹²² The purpose of the Statute of Anne

¹¹⁶ Andrew Bennet, *The Author* (Routledge 2005) 4

¹¹⁷ May and Sell, (n 57), 73

¹¹⁸ *Ibid*, 56

¹¹⁹ *Ibid*, 78

¹²⁰ Martha Woodmansee, ‘On the Author Effect: Recovering Collectivity’ in M. Woodmansee and Peter Jaszi (eds.) *The Construction of Authorship* (Duke UP, 1994) 15–16

¹²¹ John Feather, ‘From Rights in Copies to Copyright: The Recognition of Authors’ Rights in English Law and Practice in the Sixteenth and Seventeenth Centuries’ in Martha Woodmansee and Peter Jaszi (eds.) *The Construction of Authorship* (Duke UP, 1994) 289

¹²² One may, of course, argue that it is difficult to describe the 1710 Act as inaugurating “copyright” in the modern meaning of the word as it was not until the mid-nineteenth century that copyright could be said to constitute a body of law bestowing proprietary rights to control the copying and distribution of culture in general. However, that is not important here because regardless of the name we give to the body of law, it can be seen as the birthplace of authorship. For similar reasoning, see Bently, ‘R. v The Author: From Death Penalty to Community Service’ (n 37), 5

was to encourage the writing of books that would be useful to society and to prevent unauthorized copying. The Statute thus reflected the Lockean idea of individualized property rights and the birth of the two-fold role of copyright as both an incentive for creativity and access to free works. The arguments for common law copyright therefore fused Lockean discourse on property with the aesthetic discourse of originality.¹²³ Although the potential common law copyright for authors was a by-product of regulating the printing trade, the Statute distinguished between the rights to the work and its reproduction. It included a recognition of the possibility of authors as copyright owners, and literary property was commodified.¹²⁴

Before professional authorship, the Statute of Anne bestowed legal power on the author. Literary property was not, at first, an important question for authors. It was a dispute between two groups of rivalling booksellers: those of London and those of the provinces and Scotland. The London booksellers sought to establish that, despite the Statute of Anne, copyright was perpetual. The London booksellers argued that their rights did not originate from the monopoly rights granted in the Statute of Anne, but from the common-law rights of property of the authors who had transferred those rights to the booksellers. The publishers based their arguments on the authors' moral claims and on Lockean ideas of labour.¹²⁵ Even though the dispute was between booksellers, its outcome of the court cases may have had the most effect on authors. Copyright was no longer a publisher's right but a right of authors.¹²⁶

Although the statute was primarily a booksellers' bill and only secondarily an authors' bill, vesting copyright in authors was thus an innovation in the 18th century. The discourses of possessive individualism and original genius fused together, and as a result the idea of the romantic author was born. Slowly but surely authorship became the functional and moral centre of the system of copyright.

The discourse of proprietary authorship began prior to the Statute of Anne. Two metaphors emerged in the discussion about an author's relationship to their writings. Firstly, there was paternity, but to compare a text to an author's child that could sold on the marketplace was rhetorically difficult. Secondly, literary property as a landed

¹²³ Bently, 'R. v The Author: From Death Penalty to Community Service' (n 37), 16

¹²⁴ May and Sell, (n 57), 87–93

¹²⁵ Rose (n 36), 4; Paul Goldstein, 'The History of an Idea' in Robert P. Merges and Jane C. Ginsburg (eds), *Foundations of Intellectual Property* (LexisNexis 2006)

¹²⁶ May and Sell, (n 57), 95

estate was a long-established rhetoric. The Statute of Anne did not solve the problems of ownership in literary property, but it signified a cultural turning point. In the sixteenth and seventeenth centuries, a notion of authors' interests based on honor and reputation had developed. The Statute of Anne "marked the divorce of copyright from censorship and the reestablishment of copyright under the rubric of property rather than regulation."¹²⁷

The new term 'copyright' marked a shift from the feeling of manuscript as the material basis of property to that of viewing the literary-property through the metaphor of paternity. In other words, the point of view shifted from the work as object to that of the author's creative labour.¹²⁸

May and Sell argue that early English copyright regulated the production of copies of literary works and was not designed to confer property rights on an author.¹²⁹ Rose, however, claims that in the eighteenth century 'propriety' was still interchangeable with 'property'. The prepublication right was based on two things: the author deserving a just reward for his labours, and the authors right in controlling the use of his name and the release of his work. To deny the author post-publication right would be to deprive him of his profit and to take away his right in his name and text. The concepts of propriety and property were linked together.¹³⁰

Rose summarizes the arguments used in the eighteenth century English booksellers' feuds over copyright. The proponents of perpetual copyright argued for the author's natural right of ownership while their opponents replied by asserting that ideas could not be owned and that copyright should be considered a limited privilege akin to patent. The proponents then argued that the property in question was not the book as a physical object nor the ideas communicated by it but a combination of style and sentiment. Two important and intertwined concepts had thus entered legal discourse: the proprietary author and the literary work.¹³¹ These two concepts would eventually prove out to be inseparable, bound together like a binary star.

¹²⁷ Rose (n 36), 48

¹²⁸ Ibid, 58

¹²⁹ May and Sell, (n 57), 97

¹³⁰ Rose (n 36), 82

¹³¹ Rose (n 36), 91

Thus the literary-property struggle, the battle over perpetual copyright resulted in the blending of literary and legal discourses and the notion of author as a creator entitled to profit from his or her intellectual labour.¹³²

The Statute of Anne marked the appearance of the author as a rights-bearing individual in whom rights were originally vested. The Romantic figure of author-genius became a central idea in copyright law not only in England but elsewhere in Europe and beyond as well.¹³³

4.1 The Romantic Author

In the 1802 Preface to *Lyrical Ballads*, William Wordsworth emphasised “vivid sensation” and the “spontaneous overflow of powerful feelings” as elements of creativity. He described a poet as someone who “has acquired a greater readiness and power in expressing what he thinks and feels”.¹³⁴ Wordsworth and other Romantic poets questioned the nature of authorship, thus marking a turning point in the history of literature, a turn away from a focus on the work towards the author.¹³⁵ The Romantic poets celebrated the individuality of the author-genius, but for them genius was the ability to go beyond the self. This is, as Bennett observes, the paradox of Romantic authorship: while focusing on authorship the poets evacuated authorship of subjectivity. The Romantic author is always a fiction and it involves an impossible ideal of autonomy.¹³⁶

Wordsworth was not only interested in the poet as a creator-genius but also as a proprietor. Jacqueline Rhodes comments that “Wordsworth’s continuing interest in copyright legislation suggests that the ‘Romantic author’ has been marked by the intersections of art and law from its conception.”¹³⁷ An author has, therefore, several functions. He or she is a creator but he or she is also a property title holder.

¹³² Ibid, 6

¹³³ Peter Jaszi, ‘Is There Such a Thing as Postmodern Copyright?’ (2009) 12 Tul. J. Tech. & Intell. Prop. 105, 107

¹³⁴ William Wordsworth, *Preface to Lyrical Ballads* (first published 1802, Cambridge UP 1968) 241–272

¹³⁵ Bennet (n 115), 3

¹³⁶ Ibid, 65, 71

¹³⁷ Jacqueline Rhodes, ‘Copyright, Authorship, and the Professional Writer: The Case of William Wordsworth’ (2002) Cardiff Corvey: Reading the Romantic Text 8

Rose observes that an author's interest in controlling the publication of their work is not necessarily the same as a property right, and the author "was recognized as an individual with an interest in the status of his name and reputation before he was recognized as a fully empowered figure in the marketplace."¹³⁸

Jaszi claims that romantic authorship is deeply embedded in legal consciousness. Authorship is "simultaneously an artefact of the marketplace in commodity art and a throwback to early, pre-industrial ideas of the artist's relation to society. Thus regarded, 'authorship' contains within itself the contradiction at the base of all copyright doctrine."¹³⁹

According to Boyle, romantic authorship influences copyright law in three ways. First, it emphasises unique genius and as a result downplays the importance of external sources. Second, it favours the sympathetic figure of the author in the debate in copyright cases. Third, it mediates our views of information and the idea-expression dichotomy in copyright law.¹⁴⁰

Romantic authorship is unable to solve many of the issues relevant to intellectual property law, for example it is unable to explain the expansion of intellectual property rights.¹⁴¹

Boyle claims that the socially constructed and historically contingent figure of the romantic author has had a powerful influence in the development of copyright. For Boyle, the figure of the romantic author leads to too many and too wide intellectual property rights conferred on the wrong people. Boyle argues that placing too much emphasis on the romantic author leads to too many intellectual property rights bestowed on the wrong people.¹⁴²

Criticizing Boyle, Bently gives corporate actors and interest groups; the ideology of property; regional harmonization; national trade interests and neoclassical economic

¹³⁸ Rose (n 36), 18

¹³⁹ Jaszi, 'Toward a Theory of Copyright: The Metamorphoses of "Authorship"' (n 20), 501–2

¹⁴⁰ James Boyle, *Shamans, Software, and Spleens – Law and the Construction of the Information Society* (Harvard UP 1996), 114–7

¹⁴¹ Mark A. Lemley, 'Romantic Authorship and the Rhetoric of Property' (1996) 75 Tex. L. Rev. 873, 887–8

¹⁴² Boyle (n 139), x

ideology as more plausible suspects for the expansion of copyright. Bently believes that the concept of authorship may provide its own limits to copyright's expansion.¹⁴³

4.2 Postmodernism and the Death of the Author

Creatorship is essential to the operation of intellectual property law. However, creatorship is a highly artificial concept, and the idea of a solitary creator such as the author in copyright law creating an original work has been heavily criticized in literary studies.¹⁴⁴ Jaszi suggests that postmodern cultural elements such as the end of grand narratives, rejection of claims of authority, and scepticism of hierarchical claims about art and culture, are beginning to seep into copyright theory.¹⁴⁵

Foucault claimed that the notion of the 'author' is socially constructed. The author-function, as Foucault calls it, is historically and culturally specific, and the author is constructed in relation to the text and its position in a particular culture.¹⁴⁶

Roland Barthes displaced meaning from author to text and even declared the "death of the author"¹⁴⁷. According to Barthes, a text is an intertextual product of other texts and can only be understood through them. Individual authorship no longer mattered. One can see a discrepancy between copyright law's notion of authorship and that of critical literary studies, which suggests that there is no author responsible for a particular work, but rather a group of inter-texts, the meaning of which is not derived from the author but the reader.

Actually, intertextuality is not a particularly postmodernist development in the philosophy of authorship. From the Middle Ages to the Renaissance new texts derived their value from the texts that preceded them. Authors transcribed, compiled, and commented on previous works.¹⁴⁸ Whereas Barthes focused on the reader and interpretation, Boyle pinpoints the role of external sources in the actual creation of a

¹⁴³ Bently, 'R. v The Author: From Death Penalty to Community Service' (n 37), 2, 26

¹⁴⁴ George (n 12), 163

¹⁴⁵ Jaszi, 'Is There Such a Thing as Postmodern Copyright?' (n 132), 106

¹⁴⁶ Michel Foucault, 'What is an Author?' (1969) in *Language, Counter-Memory, Practice: Selected Essays and Interviews* (Donald F Bouchard ed, Donald F. Bouchard and Sherry Simon tr. Blackwell 1977)

¹⁴⁷ Barthes Roland, *Image – Music – Text* (Stephen Heath tr, Hill and Wang 1977)

¹⁴⁸ Woodmansee, 'On the Author Effect: Recovering Collectivity' (n 119), 17

work. Collaborative authorship and the idea of *auteur* in film further challenge the Romantic notion of author.¹⁴⁹

Cultural studies killed the author decades ago, but in legal studies the author is very much alive – or at least reanimated. Intellectual properties depend on an unquestioned author while the postmodern text is not dependant on the unique personality of an author. Romantic ideologies of authorship are used to legitimize the rights of investors and corporate hegemony.¹⁵⁰

The critique of authorship in literature raises an important question: what is the relevance of the literary author (author-creator) to the author function in law (author-proprietor)? It might be tempting to keep these concepts separate, but as I have already explained above, the modern conception of authorship is intimately linked with claims to literary proprietorship. Therefore, it may be surprising that copyright law has largely remained immune to the poststructuralist critique of authorship, as it has continued to foster romantic images of authorship.¹⁵¹

As Alexandra George observes, the identity of a literary author may be irrelevant, and the literary author may very well be dead in the Barthesian sense, but the creator of an intellectual property object serves a different purpose and is very much alive. The literary author has two tasks: to put the idea in a documented form and to imbue that documented form with meaning. The intellectual property creator, however, is primarily a physical creator. Therefore, the important question here is not whether intellectual property law recognizes a creator but who that creator is.¹⁵²

Saunders points out that even if the literary author were dead, law does not have to accept it. The goals and functions of copyright law are different from those of literary theory.¹⁵³ Copyright law is indeed very much alive, of which the history of copyright's expansion into photographs, sound recordings, films, and computer programs is a good proof.¹⁵⁴

¹⁴⁹ Bennet (n 115), 94, 103

¹⁵⁰ Coombe, *The Cultural Life of Intellectual Properties: Authorship, Appropriation, and the Law* (n 75), 283–4

¹⁵¹ Lionel Bently, 'Copyright and the Death of the Author in Literature and Law' (1994) 57 *Mod. L. Rev.* 973, 976; see also Woodmansee, 'On the Author Effect: Recovering Collectivity' (n 119), 28

¹⁵² George (n 12), 169

¹⁵³ David Saunders, *Authorship and Copyright* (Routledge 1992) 223

¹⁵⁴ Bently, 'Copyright and the Death of the Author in Literature and Law' (n 149), 976

Some critics argue that authorship in literature and law should be considered separate concepts. Bently states that while the emergence of the proprietary author at the end of the eighteenth century may represent the growth of the romantic authorship, it only serves to prove that authorship in law and literature have developed in parallel and there is no conclusive evidence of any causative link between the two.¹⁵⁵

Keith Aoki observes that “[a] spectre is haunting the Infobahn. The spectre is a romantic vision of original authorship that is deeply embedded in the national intellectual property regimes of Western Europe and North America.”¹⁵⁶ The spectre is an amalgam of beliefs and assumptions surrounding the fundamental concepts of authorship – identity, propriety, property, territoriality etc. In other words, modern copyright is a mixture of conceptual structures built around a framework inherited from the nineteenth century. As a result, its elements are in contradiction with one another. However, this structure and its history is the key for understanding the ongoing ideological role of authorship as embedded in copyright law.¹⁵⁷

Copyright theory has tended to marginalize the postmodernist critique of authorship instead of treating it as an invitation to look into the cultural production of knowledge. Postmodernism is often equated with postmodernist literary criticism, simplified as holding that texts have no authors and no meaning. The problem with this stance is that it is applied to the postmodernist critique of copyright as well.¹⁵⁸ This pitfall can just easily be avoided. There is no ‘postmodernist criticism’ that can be singled out as a monolithic concept, and postmodernism is more than ‘deconstruction’ or an endless cycle of intertextual references that will only lead to nihilism if anything. Postmodernist criticism is a mixed bunch of theories and theorists and a useful source for copyright theory. Indeed, copyright theorists should be concerned with probing the processes of cultural production and cultural change from a variety of empirical and theoretical angles.¹⁵⁹

Jaszi claims that copyright may be moving away from the “Modernist author-worship”. The grand narrative of authorship is giving way to an approach that concerns all

¹⁵⁵ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 149), 978

¹⁵⁶ Keith Aoki, ‘(Intellectual) Property and Sovereignty: Notes Toward a Cultural Geography of Authorship’ (1995) 48 *Stan. L. Rev.* 1293, 1295–6

¹⁵⁷ Bracha (n 41), 265–6

¹⁵⁸ Julie E. Cohen, ‘Creativity and Culture in Copyright Theory’ (2007) *UC Davis Law Review*, Vol. 40, 1151, 1164

¹⁵⁹ *Ibid*, 1170

participants of cultural production and undermining the stability of the core concepts of copyright. Essentially, law may be learning from aesthetic theory and “absorbing an attitude of scepticism about fixed identity and stable point of view”.¹⁶⁰ Authorship is a core concept of copyright and it is indeed far from stable, as the following chapter will exemplify.

¹⁶⁰ Jaszi, 'Is There Such a Thing as Postmodern Copyright?' (n 132), 113–4

5. THE SIX SIGNIFIERS OF AUTHORSHIP

Authorship is a repository of meanings. Numerous attributes are associated with the idea of an individual author: proprietorship, autonomy, originality, and morality, for example. Although these attributes have come to be regarded as facts about authorship, they are not so. They are cultural arbitraries, echoing the technological and economic conditions of the societies that gave birth to them.¹⁶¹ These are the economic, political, and cultural images of the author.

On the surface level, a computer-created work often appears no different from a human-created work, but copyrightability is not only about the surface.¹⁶² Copyright is heavily based on authorship, on there being a human author to grant copyright to. But what is an author? In the following sub-chapters I will examine the various attributes of authorship. What we talk about when we talk about authorship. My purpose here is not to encompass the entire range of meanings associated with the word but to show the connotations that may affect our judgement when we attempt to assign authorship of machine-created works. The attributes are by no means clearly defined and specific themselves. They are largely cross-referential, empty or floating signifiers.¹⁶³ That which we call an author, by any other name would be as complex. As already explained above, authorship is at the very centre of copyright. It is a concept that has developed simultaneously on two tracks: the author-creator and the author-proprietor. While the former is mostly a cultural concept and the latter a legal concept, from a point of view of legal semiotics they are intertwined. The author in copyright law does not exist independently of the author in literary theory. They are constructed socially drawing in meanings from the various concepts discussed below.

¹⁶¹ Rebecca Moore Howard, 'Plagiarisms, Authorships, and the Academic Death Penalty' (1995) *College English* 57, 788, 791

¹⁶² Evan H. Farr, 'Copyrightability of Computer-Generated Works' (1989) 15 *Rutgers Computer & Tech. L.J.* 63, 65

¹⁶³ The terms 'empty signifier' and 'floating signifier' refer to signifiers without referents, signifiers that only point to other signifiers.

5.1 Authorship and Originality

From the point of view of originality, author is someone who creates an original work. To define authorship this way is like reverse-engineering the whole concept by approaching it through the result of authorship.

All that was required for authorship under the Berne Convention was some kind of literary, scientific or artistic creation, but the text of the agreement did not specify any criteria for such creations. The most general requirement under national laws was one of "originality".¹⁶⁴

Originality is hard to define. Rose observes that “[m]uch of the notorious difficulty of applying copyright doctrine to concrete cases can be related to the persistence of the discourse of original genius and to the problems inherent in the reifications of author and work.”¹⁶⁵

Dan L. Burk points out that when we attempt to define the concept of authorship by discovering what is included in it, a by-product of the process is that it also necessarily defines that which is excluded from copyright. Originality as ideas originating in the author-genius, defines that which is unoriginal. If an authored work is created by a romantic genius, then all other methods which are excluded from copyright must be mechanic. If the eighteenth and nineteenth century ideas of authorship define the scope of copyright protection, then it also defines that which is excluded from copyright.¹⁶⁶

The concept of originality as a criterion for copyrightability has already been discussed in chapter three. Originality does not signify novelty, and one can ask if anything can ever be truly original. If the criterion of originality is too difficult to attain, it may be detrimental to the incentive purpose of copyright, as people may be dissuaded from creative efforts because their work might not pass the threshold of originality. This line of reasoning raises a cluster of issues beyond the scope of this paper, but highlights the referential nature of the concepts.

Originality is concerned with the relationship of the author and the work. Originality is perhaps the most important requirement for copyright protection, but it is very difficult

¹⁶⁴ Ricketson (n 22), 10

¹⁶⁵ Rose (n 36), 141

¹⁶⁶ Dan L. Burk, ‘Method and Madness in Copyright Law’ (2006) *Utah Law Review* 3, 587, 605

to state with any precision what originality means in copyright law. If we consider the threshold of originality in copyright law and argue that purely mechanical labour is *per se* not creative, we need to consider the difference between mechanical labour and creativity. To an extent, all creativity can be considered algorithmic. Slavish copying is not originality, but creativity can also manifest in a creator's selection of the rules they will follow.¹⁶⁷

Different countries have developed different standards as to what makes a work original. In France and Belgium, courts regularly consider a work original when it bears the imprint of its author's personality. In the United States an author creates instead of merely gathering and setting forth information. When the work that is the result of intellectual creation is considered original and copyrightable, originality and authorship then may be coming to mean the same thing.¹⁶⁸

From a utilitarian perspective, originality is closely linked to labour. From a natural rights perspective, the requirement of originality reflects the idea that copyright protects the author's personality which is expressed in the work. These two concepts will be examined in the next two sub-chapters.

5.2 Authorship and Personality

The romantic definition of author is this: author is a lone, romantic genius whose personality is expressed in his or her work. In Roald Dahl's "The Great Automatic Grammatizator" personality, or "passion", is the final question and most important that needs to be resolved before the novel-writing machine can be built. Personality is a key concept in defining who is an author and the basis for the romantic idea of authorship.

The romantic author still remains influential in our legal imagination.¹⁶⁹ The unique individual is a concept on which the whole of copyright is founded. The unique

¹⁶⁷ James Grimmelmann, 'There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too' (2016) *Columbia Journal of Law and the Arts* (forthcoming), 8–9

¹⁶⁸ Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 28), 16–18

¹⁶⁹ Jaszi, 'Toward a Theory of Copyright: The Metamorphoses of "Authorship"' (n 20), 463. Jaszi gives computer software copyright as an example, pointing out how copyright for programs is often justified by comparing the imaginative processes of the programmer to those of the literary author.

individual creates something original and is entitled to reap profit from those labours.¹⁷⁰

The history of the idea of the romantic author was discussed in chapter four. The romantic author is a result of eighteenth century philosophical and economic reasoning. It is a philosophical construct, almost mythical in its idealized form. Theories that draw justification for copyright from the idea of personhood derive from Kantian and Hegelian philosophies. The prevalent understanding is that an author's personality is somehow embedded in the original work, or at least the work reflects its creator's choices in the selection or arrangement of material.¹⁷¹

Jaszi and Woodmansee question the wisdom behind the idea of a romantic author-genius by arguing that even though we hold on to the idea of a solitary individual creator, most writing is actually collaborative.¹⁷² Zemer points out that although Jaszi and Woodmansee approach authorship as a collaborative activity, their approach is, nevertheless, individualistic, as they treat authors as a group of individual authors who interact with other authors rather than with the society at large. Zemer claims that the personality theory might not be strong enough on its own to justify our copyright regime.¹⁷³ He presents a model of public authorship in which a copyright work is a joint enterprise of the public and the author, and copyright works should not be regarded as exclusive private property. Zemer argues that authors and copyrighted works are social constructs, and since copyright works profit from a significant public contribution, copyright should be owned jointly by both public and authors.¹⁷⁴ This is a problematic suggestion on several levels. Firstly, there is no legal framework sufficient to handle such joint authorship, and, secondly, more theoretically and perhaps more importantly, the public makes no authorial decisions with respect to any particular work.¹⁷⁵

Traditionally copyright is understood to protect humans writing for humans.¹⁷⁶ With the emergence of technology, this has come under scrutiny. However, there remains an

¹⁷⁰ Rose (n 36), 2

¹⁷¹ Jane C. Ginsburg, 'Creation and Commercial Value: Copyright Protection of Works of Information' (1990) 90 Colum. L. Rev. 1865, 1867

¹⁷² Martha Woodmansee and Peter Jaszi, 'Introduction' in M. Woodmansee and P. Jaszi (eds.) *The Construction of Authorship* (Duke UP, 1994) 9

¹⁷³ Zemer, 'On the Value of Copyright Theory' (n 43), 55

¹⁷⁴ Lior Zemer, 'The Idea of Public Joint-Authorship in Copyright' (2005) 43 Osgoode Hall L.J. 508

¹⁷⁵ Roberta Rosenthal Kwall, 'The Author as Steward 'For Limited Times': A Review of 'The Idea of Authorship in Copyright' (2008) Boston University Law Review, Vol. 88

¹⁷⁶ Grimmelman, 'Copyright for Literate Robots' (note 15), 5

understanding of authorship as a profoundly human attribute. The participation of a machine in the creation of a work does not disqualify the human creator from authorship, but the greater the machine's role, the more challenging the situation becomes. The copyrightability of photographs was one of the early challenges to authorship that courts had to consider. The implementation of mechanical means of production is not sufficient, and to be considered an author one has to impose their own intellectual creation upon the work. That is another way of saying that for a creator to be considered an author, the work created has to be original.¹⁷⁷

Personhood as a defining concept in literary authorship is challenged by the use of pseudonyms and ghost-writing. Women writers used male pen-names in the 19th century when writing was a male-dominated profession. Collective pseudonyms occasionally represent a whole team of writers. Nevertheless, we are happy to acknowledge George Eliot, not Mary Ann Evans, as the author of *Middlemarch* and 'Carolyn Keene' as the (fictional) author of the Nancy Drew Mysteries. Where is the author's personality in these cases? Statements of authorship tell very little about the personality of the author.¹⁷⁸

The idea of romantic authorship does not tell us very much about legal rules, and numerous areas of intellectual property law are at odds with the idea of romantic authorship which cannot explain the changes that are taking place in intellectual property law in the modern world.¹⁷⁹

Critics argue that a problem with current copyright is that it gives initial authors too much control over derivative works. The idea of romantic authorship favours neither the original author nor the creator of the derivative work, although its rhetoric could be invoked to defend either one.¹⁸⁰ In addition, the interests of the sources and audiences of commodified information are undervalued.¹⁸¹

¹⁷⁷ Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 28), 13–16

¹⁷⁸ For a discussion on the author-function as a branding tool akin to a trademark, see Laura A. Heymann, 'The Birth of the Authornym: Authorship, Pseudonymity, and Trademark Law' (2004) GWU Law School Public Law Research Paper No. 101.

¹⁷⁹ Lemley, 'Romantic Authorship and the Rhetoric of Property' (n 140), 879

¹⁸⁰ *Ibid*, 885–6

¹⁸¹ Boyle (n 139), 59–60, 114

The author in *droit d'auteur* systems is indirectly protected through the author's personality protection, whereas in the UK the work protected by copyright indirectly protects its author.¹⁸²

In *Painer*, the CJEU considered a photograph and found that an intellectual creation is deemed to be the author's own if it reflects his or her personality and the author has been able to express his or her creative ability by making free and creative choices, to stamp the work with their 'personal touch'.¹⁸³ The author's personality is a defining factor in establishing copyright protection, it is a part of the test of originality, which has already been discussed in this study.

5.3 Authorship and Labour

The Lockean labour theory is a union of two basic theses of ownership. Firstly, everyone has a natural property right in his or her own person. Secondly, everyone has a property right in the labour of his or her body. Critics of the labour theory point out that it fails to properly accommodate the social and cultural aspects of copyright, and it may be difficult to establish, how much of the final product can be attributed to the labourer.¹⁸⁴

"In most jurisdictions and intellectual property doctrines, the legally recognized creator may be an individual human or a corporate identity. The creator is the person whose labour led to the formation of the documented form of the object."¹⁸⁵

Courts have held that slavish copies do not qualify as protected works of authorship, but reproductions that require a great deal of skill and talent may very well do so. However, if we grant authorship to creators of skilled reproductions, some limitations need to be considered. The more technology makes copying possible, the less the copyist's skill should be equated with authorship.¹⁸⁶ Reproduction that might be impossible for a human to carry out might very well be possible for a sophisticated

¹⁸² Rahmatian (n 40), 16

¹⁸³ Case C-145/10 *Eva-Maria Painer v Standard VerlagsGmbH and others* [2011]

¹⁸⁴ Carys J. Craig, 'Locke, Labour, and Limiting the Author's Right: A Warning Against a Lockean Approach to Copyright Law' (2002). 28 *Queen's Law Journal*, 32–34

¹⁸⁵ George (n 12), 162

¹⁸⁶ Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 28), 21–23

artificial intelligence. It can be questioned, whether even highly skilled reproductions have authors.

Labour is very much involved in copyright law through the sweat of the brow doctrine, under which the author of a copyrightable work is entitled to protection regardless of the originality of the work. As explained in section three, this doctrine was abandoned in the United States in *Feist*.

5.4 Authorship and Intent

One argument on whether authorship should be recognized in reproductions has been to consider the author's intent to create a work of their own. Christopher Buccafusco argues that "authorship involves the intentional creation of mental effects in an audience."¹⁸⁷ Buccafusco uses philosopher Jerrold Levinson's two categories of intentions: semantic intentions and categorical intentions.¹⁸⁸ For purposes of copyright law, an author is someone who has the categorical intention to produce mental effects in an audience.

Critics argue that intent is difficult to measure. Intent and authorship cannot be conflated, but perhaps intent can be used to establish ownership in cases of joint authorship. If we wish to keep authorship and ownership separate, intent obscures more than it enlightens.¹⁸⁹

However, in addition to using intent to determine, who can be an author, it can be used to determine who cannot be considered an author. It has already been established that incentive is an important aspect of copyright, and as Buccafusco points out, if a work is not intended to be considered as a work of authorship, incentive obviously does not matter and extending authorial rights to those creations and creators does not make sense.¹⁹⁰

¹⁸⁷ Buccafusco (n 29)

¹⁸⁸ As explained by Buccafusco, in Levinson's reasoning semantic intentions refer to the interpretation of the work, while categorial intentions are about what the creator has intended to create and for which audience.

¹⁸⁹ Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 28), 24–26

¹⁹⁰ Buccafusco (n 29)

5.5 Authorship and Ownership

It is difficult to define authorship by property theory alone. It has even been suggested that intellectual property possesses such unique characteristics that make traditional property theory ill-suited for it.¹⁹¹

The semantic umbrella term ‘intellectual property’ has saturated copyright law with ideas we have about the ownership of physical items in the material world. When we speak of property, we expect that somewhere there must be an owner of said property. To label copyright as a form of intellectual property is to assume that there is an owner who controls copyright. The problem is, of course, that the conflation of authorship with the vesting of copyright ownership leads to considerable incoherence.¹⁹²

Author is the owner of a work of copyright. That is occasionally true. Sometimes the author and the owner of a work of copyright are the same person. Often, in strictly legal terms, they are not, but that does not stop us from conflating authorship with ownership.

Rose points out that the practice of treating texts as commodities is a modern institution. He asserts proprietorship as the distinguishing characteristic of modern authorship. The author is the originator and therefore the owner of the work.¹⁹³ Traditionally, copyright did not protect a work itself. It merely provided a stationer permission to publish a particular work and means of protection from other stationers who might attempt to publish the same work. The stationers thus were not owners in a strictly Lockean sense. When copyright was born, the discourse of originality blended with the discourse of property. These discourses connected through other similarly joint terms such as value and personality. As explained above, a writer’s work was no longer separate from the writer’s self. Categories became blurred, as a text as a commodity embodied the author’s personality.¹⁹⁴

¹⁹¹ Mark A. Lemley, ‘Property, Intellectual Property, and Free Riding’ (2005) *Texas Law Review*, Vol. 83, 1031, 1074–5. Lemley argues that the term ‘intellectual property’ is slightly misleading as it associates too heavily with traditional property. Instead of using a misleading analogy of land ownership, intellectual property law should focus on the particular economic characteristics of intellectual property rights.

¹⁹² Ginsburg, ‘The Concept of Authorship in Comparative Copyright Law’ (n 28), 9

¹⁹³ Rose (n 36), 1–3

¹⁹⁴ *Ibid*, 121–2

Lemley argues that the rules regarding the ownership of intellectual property rights favour the interests of corporations over individual authors and inventors, the work-for-hire doctrine being the most obvious example in copyright.¹⁹⁵ Even apart from work-for-hire, majority of intellectual property rights do not end up with authors or investors but in the hands of corporate interests. It is customary to assign copyright to the book publisher or movie producer, for example. As a result, the corporation, not the individual author, is often the primary beneficiary of copyright.¹⁹⁶

Although ownership is an important factor in authorship, the two must be understood to be separate concepts. Even if an Artificial Intelligence were a good candidate for authorship, assigning ownership in them would be difficult. This is a problem for copyright which traditionally assigns first ownership in the author.

5.6 Authorship and Investment

The history of authorship and its connection to the technological developments of the era was discussed in chapter four. However, authorship in the modern sense of the term is firmly rooted to questions of not only technology but also of economics. When authorship was freed from the shackles of patronage, it could become a profession.¹⁹⁷

Utilitarian theorists usually justify the creation of intellectual property rights by claiming that it induces innovation and intellectual productivity. From another angle this means that without exclusive rights, innovators would have too little incentive to invest in socially beneficial innovations. In the scenario discussed in this paper, utilitarian theories would place emphasis on rewarding the programmer, the creator of the artificial intelligence.

Here the difference between a tool-maker and a tool-user is of great importance. Where there is no human intervention, there is no incentive for giving authorship to one who has accidentally pressed a button.¹⁹⁸

In some jurisdictions, it is possible to vest authorship in employers and juridical persons through the work for hire doctrine. The rationale behind this is to facilitate the

¹⁹⁵ Lemley, 'Romantic Authorship and the Rhetoric of Property' (n 140), 882

¹⁹⁶ Ibid, 883–4

¹⁹⁷ Bennet (n 115), 40

¹⁹⁸ Perry and Margoni (n 21)

commercial exploitation of works. In some jurisdictions a decidedly more creator-centric approach to authorship has been adopted, specifically establishing that employment does not detract from authorship.¹⁹⁹

Utilitarian arguments focus on promoting the general public good, not on the rights of the individual creator. From a utilitarian perspective, copyright is an opportunity to gain a reward in the marketplace. This view raises questions about the efficiency of utilitarianism in fostering the social goals – creativity, social exchange, and cultural interaction, that lie at the heart of utilitarian claims.²⁰⁰

There is nothing particularly new about the idea that law is affected by culture. However, to view intellectual property, and copyright in particular, as a lawyer-operated machine that creates innovation through economic incentives is an overly economic and mechanistic perspective. To some extent this view has recently been challenged by rhetorics of authorship, piracy, and property.²⁰¹

Copyright is not dependent on literary quality – a fact known to both eighteenth century and modern lawyers. However, this does not mean that all works are necessarily equal. Establishing employer as author in the case of work-for-hire is a useful legal fiction, but there will still be original authors producing original works. The system rests upon this conviction about ourselves as individuals.²⁰²

For the humanistically-inclined, to promote the idea of commercial value over that of human authorship is to question if there is anything left of the “soul of copyright” worth protecting.²⁰³ According to Jane C. Ginsburg, “[c]opyright is not just about money; it is also about artistic integrity. The author’s place in the future of copyright (assuming copyright has a future) will not be assured until the full range of her interests, monetary and moral, receive both recognition and enforcement.”²⁰⁴ A purely economic consideration of copyright threatens to overlook its cultural, social, and political implications.

¹⁹⁹ Ginsburg, ‘The Concept of Authorship in Comparative Copyright Law’ (n 28), 27–28

²⁰⁰ Zemer, ‘On the Value of Copyright Theory’ (n 43), 55

²⁰¹ Jaszi, ‘Is There Such a Thing as Postmodern Copyright?’ (n 132), 109. See also Lemley, ‘Romantic Authorship and the Rhetoric of Property’ (n 140), 894-904

²⁰² Rose (n 36), 138 –9

²⁰³ Ricketson (n 22), 33

²⁰⁴ Ginsburg, ‘The Author's Place in the Future of Copyright’ (n 30), 18–23

There is an abundance of economic justifications for intellectual property statutes, but if we are only trying to protect investment in creativity, copyright is a tremendously complex system for that with all of its abstract concepts of expression, originality, authorship and so on. For pure economic incentive we could use a much simpler device.²⁰⁵ The original rationale of copyright law is not to protect investment and it should not be used to do that.

The theory of propertization suggests that strong pressure exists to make sure that all valuable information is owned by someone, simply because it is valuable.²⁰⁶ Property theory is not without its limits, and reliance on the romantic author distorts economic analysis.²⁰⁷ Critics argue that although authors are lauded as rightsholders, the true beneficiaries of rights are publishers and other corporations. In other words, the romantic author has long served the interests of the copyright industry, and its modern counterpart, what Ginsburg calls “the techno postmodernist participant”, still does the same.²⁰⁸

Furthermore, purely economic arguments fall into a circular trap: if legal protection is based upon economic value, the value of the object of protection depends on the extent of legal protection.

²⁰⁵ Burk (n 164), 616; see also Jessica Litman, ‘Revising Copyright for the Information Age’ (1996) 75 OR. L. REV.

19, 47–48; Ricketson (n 22), 36

²⁰⁶ Lemley, ‘Romantic Authorship and the Rhetoric of Property’ (n 140), 906

²⁰⁷ Boyle (n 139), 42

²⁰⁸ Jane C. Ginsburg, ‘Exceptional Authorship: The Role of Copyright Exceptions in Promoting Creativity’ in Susy Frankel and Daniel Gervais (eds.) *Evolution and Equilibrium: Copyright this Century* (Cambridge UP 2015)

6. WHO OWNS COPYRIGHT IN WORKS CREATED USING ARTIFICIAL INTELLIGENCE?

Coming back to the question of copyright ownership in poems created using the fictional Verse-Transcriber, as presented in the introduction to this study, there are five possible answers. Although the premise is fictional, the same arguments hold for any situation where a copyrightable work is created using Artificial Intelligence. The possible copyright owners are the programmer of the AI, its user, the AI itself, some kind of a combination of the above, and nobody. Each of the possible alternatives also has its champion in copyright theory. This chapter focuses on these five alternatives of copyright ownership.

From a purely doctrinal point of view it may be possible to keep authorship and ownership totally separate, but for semiotic research the case is not as straightforward. The general rule of copyright is that the author is the first owner, but as I have explained above about the history of authorship, it developed on parallel tracks which both influenced one another. The change of copyright ownership from printer to writer occurred when authorship took its baby steps as a cultural and a legal concept. As Samuelson argues: “Within the framework of the copyright law, intellectual property ownership rights depend initially on authorship. To ask who is the author of a computer-generated work is to ask who has ownership rights in it.”²⁰⁹ Turning that argument around: to ask who is the owner of works created using Artificial Intelligence is to ask who can be considered an author. As I have explained in the previous section, authorship is notoriously difficult to define, but a semiotic reading of authorship can be used to examine whether the five possible copyright owners fit the definition of authorship as seen from the point of view of its six signifiers.

6.1 The Programmer

One argument that supports the programmer’s claim to copyright goes as follows: by creating the artificial intelligence device the programmer undertakes the real creative work, thereby making the creation of the final work possible.²¹⁰ Without the programmer’s creativity, the work might never have existed. Programming may be

²⁰⁹ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 52), 1190

²¹⁰ Dorotheou (n 48)

intellectually and creatively much more demanding than the user's input, which may be limited to pressing a button or typing a command. Copyright could be assigned to the programmer if the output created by the program is repeatable and user input is limited.²¹¹

Farr claims that Copyright should be given to the programmer for several reasons: it is his or her idea being expressed, the programmer is the only individual who contributes sufficient creative intellectual effort, and vesting ownership in the programmer provides incentive and thus encourages and promotes the continued existence of computer-created works.²¹²

The issue of authorship was considered in UK High Court in *Nova Productions Ltd v Mazooma Games Ltd*. The case involved electronic pool games in which the individual frames displayed on screen when the game was played were considered computer-generated artistic works. The court found that the author of the works was the programmer who “devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and [who] wrote the relevant computer program.”²¹³

Awarding copyright ownership to the programmer is not without some practical problems. One such problem is enforceability. Does the user notify the programmer and pay royalties every time he or she uses the program to generate another work? However, this problem is not so different from the problem of enforcing any software license.²¹⁴

Annemarie Bridy points out that even though vesting rights in the programmer may seem intuitively or conceptually simple, there are doctrinal issues that need to be considered. She warns against ignoring “both the machinic origin of procedurally generated works and their radically mediated relationship to human authorship and creativity.”²¹⁵ Bridy suggests expanding the existing legal tools and using the legal fiction of the work-for-hire doctrine to avoid doctrinal issues. This would avoid the problem of conflating the programmer with the program.

²¹¹ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 52), 1205; Andrew J. Wu, ‘From Video Games to Artificial Intelligence: Assigning Copyright Ownership to Works Generated by Increasingly Sophisticated Computer Programs’ (1997) 25 AIPLA Q. J. 131, 174–5

²¹² Farr (n 160), 80

²¹³ *Nova Productions Ltd v Mazooma Games Ltd & Ors* [2007] EWCA Civ 219, [2007] ECDR 6, [105]

²¹⁴ Wu (n 209), 173–4

²¹⁵ Bridy (n 9)

The work-for-hire doctrine is not, however, a simple solution. Sam Ricketson argues that work-for-hire is against the basic premises of authorship under the Berne Convention.²¹⁶ Furthermore, romantic authorship is central to the conceptualization of the work-for-hire doctrine. The person on whose behalf the work was created takes the role of author over the creator of the work. Authorship is fully alienated from the work. While Romantic authorship focused on the inspired individual, the work-for-hire doctrine focuses on inspiration itself. Authorship may have originated as a result of philosophical ideas of possessive individualism, but in the work-for-hire case authorship only serves to rationalize possession.²¹⁷

It can be argued that an AI would not exist without its foundation algorithm, and any creation made by an AI may be seen as a derivation of its underlying algorithm. However, with AI the machine is thinking by itself, and there can no longer be a link to the programmer. Therefore, the programmer cannot claim to be the author through the principle of derivative works.²¹⁸ Based on the discussion of the semiotics of authorship in the previous chapter, it is also difficult to consider the programmer as an author and, therefore, as a copyright holder. The programmer does not intentionally create the exact work and it is questionable whether the programmer's personal touch is stamped on the work.

The programmer does not know what the AI is capable of creating. The AI determines the form of the final output. In addition, although the programmer will have invested labour and other resources in creating the AI, the extent to which these investments are contained in the final output is questionable.²¹⁹ The programmer creates the possibility of creation but not the actual work. The distinction is between a tool-maker and a tool-user. If the artificial intelligence is considered to be a tool which the user operates, the program could be compared to a word processing program or a camera. It is highly unlikely that anyone would argue that the programmer of a word processing program or a camera manufacturer should be given copyright to works created using the tool.

To treat the programmer as author extends the concept of authorship to the protection of intellectual creation in general, which would be a significant expansion of copyright,

²¹⁶ Sam Ricketson 'People or Machines: The Berne Convention and the Changing Concept of Authorship' (1991) 16 Colum.-VLA J.L. & Arts 1, 28

²¹⁷ Jaszi, 'Toward a Theory of Copyright: The Metamorphoses of "Authorship"' (n 20), 485-491

²¹⁸ Dorotheou (n 48); Glasser, "Copyrights in Computer Generated Works" [2001] Duke L. & Tech Rev. 0024; Perry and Margoni (n 21); Bridy (n 9)

²¹⁹ Dorotheou (n 48)

and in order to narrow down the scope of protection there would have to be some kind of limiting criteria.

Creating an AI requires substantial investment, and, therefore, the programmer should be rewarded for creating the device. Incentive is, perhaps, the most obvious argument supporting the programmer's claim for copyright. Giving copyright protection to the programmer encourages the continued existence of computer-created works.²²⁰ Samuelson has argued, however, that programmers have other means of obtaining reward for their work. They can decide not to sell the program in the first place and copyright all created works themselves or, alternatively, they can sell the artificial intelligence device. To allocate ownership in machine-created works with the programmer might, therefore, mean that the programmer would be rewarded twice.²²¹

6.2 The User

There are plenty of arguments supporting the user's claim for copyright. The user might be the sole owner of the copyright in a case where the program is simply a tool used to express the user's creativity. The user executing the program obviously intends to create a finished work through application of the programmer's program, thereby satisfying the requirement for intent. The user provides the device with the initial instructions. The user has caused the work to be brought into being and helped shape it into a commercially valuable form. The user may also have used the program in creative ways unforeseen by the programmer.²²² In this line of reasoning, the programmer only provides tools which the user operates in expressing his or her creativity. The programmer made the decision whether or not to create the program, and as a result holds copyright for the program itself, but the user makes the decision to create the work and it is the user's personality which is involved.

The person who conceives the work and exercises control over its execution is the author rather than one who merely follows orders. The intellectual labour required of authorship has a degree of autonomy in creating, selecting or gathering material. These criteria are used to determine whether to attribute copyright in a machine-assisted

²²⁰ Farr (n 160), 80

²²¹ Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1207

²²² Wu (n 209), 175; Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1200-4; Dorotheou (n 48)

work to a human author.²²³ However, the user's role may be trivial or insignificant. The user may merely press a button. The user may even be a monkey taking a selfie.²²⁴ If the user's contribution is minimal, similar to that of pressing a button, it may be difficult to justify bestowing legal rights upon the user.²²⁵

This kind of reasoning was used in *Nova Productions Ltd v Mazooma Games*. The court considered the user's contribution, but found that “[h]is input is not artistic in nature and he has contributed no skill or labour of an artistic kind. Nor has he undertaken any of the arrangements necessary for the creation of the frame images. All he has done is to play the game.”²²⁶

The user provides the initial instruction, but if the AI autonomously generates the details, can the user still be considered the author?²²⁷ Samuelson argues that there are doctrinal and policy reasons for allocating ownership rights to the user even if the user's contribution has been minimal.²²⁸ Considering intention as one of the conceptual building blocks of authorship one could argue that assigning rights to the user will give him or her more incentive to operate the program and produce new works.

Some early critics found computer authorship too speculative.²²⁹ However, even though computer authorship was seen doctrinally feasible, it was denied on economic grounds. Several early commentators held that copyright should be assigned to the user primarily because it would not make sense to assign right to machines which do not need to be given incentives to generate output.²³⁰ As Wu points out, these views stem from principles that were established when technology was simply a tool comparable to

²²³ Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (n 28), 11–12

²²⁴ The monkey selfies are a series of photographs taken by a macaque using equipment set up in 2011 by David Slater, a nature photographer. Slater set up the camera on a tripod and adjusted lighting and all relevant camera settings, but the monkey pressed the button. In 2014, Slater's copyright claim in the photos was challenged by Wikimedia Commons which hosted one of the photos on the web in the public domain, arguing that since Slater did not press the shutter he did not own copyright either. The U.S. Copyright Office later updated its policies, stating that copyrights extended only to works produced by humans and listing photographs taken by a monkey as an example of a work that would not be registered by the Office. In 2015, the People for the Ethical Treatment of Animals (PETA) filed suit in the US, claiming that copyright in the photos belong to the monkey. The case was dismissed in January 2016.

²²⁵ Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1201; Dorotheou, (n 48), 85–93

²²⁶ *Nova Productions Ltd v Mazooma Games Ltd & Ors* [2007] EWCA Civ 219, [2007] ECDR 6, [106]

²²⁷ Dorotheou (n 48)

²²⁸ Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1204

²²⁹ Timothy L. Butler, 'Can a Computer Be an Author? Copyright Aspects of Artificial Intelligence' (1982) 4 *CommEnt L.S.* 707, 729

²³⁰ Miller (n 23); Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52)

a camera or typewriter. As computer programs become more sophisticated, and more creative, more sophisticated analysis is needed.²³¹

Grimmelman points out that the problem of distinguishing users who could be considered authors from users who only push a button, is not unique to computers. One is a thing-maker and the other a thing-user. Allocating copyright between the programmer and the user is difficult, but the problem is only a special case of a very familiar problem. There are no conceptual problems distinguishing computer-generated works, because all works might have been computer-generated.²³² Going to the problem's source, it is not Artificial Intelligence and possible computer-authorship, but the very concept of authorship is the problem.

One economic argument against awarding copyright ownership with the user is that rewarding the user at the expense of the programmer would encourage free-riding. Users would benefit from the programmer's and the AI's work without supplying similar levels of effort themselves. As a result, this would disincentivize investment in the technology industry.²³³

The programmer and user might have the strongest claims for ownership. To settle the case, perhaps they will have to prove that they alone expended the necessary skill and labour and should, therefore, be deemed the author of the work in question. Artificial intelligence and its creations can be unpredictable, and some argue that this may be the most appropriate and fair resolution to the problem.²³⁴

6.3 The Artificial Intelligence

Wu argues that the AI can be assigned authorship when it meets certain requirements: the AI produces works that are original as in not repeatable or predictable; the AI operates independently, i.e. there is no user; the AI possesses the discretion over

²³¹ Wu (n 209), 134

²³² Grimmelmann, 'There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too' (n 165), 15–17

²³³ Dorotheou (n 48); Perry and Margoni (n 21)

²³⁴ Dorotheou (n 48)

whether to produce future works.²³⁵ Currently, scholarly consensus is that computers cannot be authors.²³⁶

Granting authorship and ownership to an Artificial Intelligence would, however, mean providing legal rights and obligations to an entity which has no legal personality. The AI would not be seen as a product but as a human agent or employee. Naturally, this would be a huge legal and philosophical question.²³⁷

To counter any argument that an AI could not be an author because it lacks a necessary personality one only has to consider the use of pen names discussed in chapter 5.2. Personhood is a dynamic process, not a state of being. If we are so easily able to let go of the personality requirement for human authorship, should we do the same for computer authorship?

Even if machines are capable of qualifying for copyright by expressing a necessary amount of creativity, there is one argument to consider: while the purpose of granting rights to creators in an intellectual property system is to induce them to innovate, machines do not need to be incentivized to generate output.²³⁸ The Artificial Intelligence is, therefore, lacking in one essential element of copyright. It does not require economic incentive nor does it have any of the other incentives that a human author might have (whether it is recognition among peers or any other urge to create usually categorized under the idea of original genius).

Furthermore, vesting ownership in the Artificial Intelligence would leave the programmer without reward. As with vesting ownership in the user, this might disincentivize investment in AI technology, thereby failing to perform one of the basic functions of any copyright system.

Grimmelman points out that the argument that computer programs do not need copyright because they do not need incentive can be turned upside down. In a world of Artificial Intelligence, robots that “can act indistinguishably from humans can also be expected to respond indistinguishably from them in response to legal pressures.”²³⁹

²³⁵ Wu (n 209), 175–6

²³⁶ James Grimmelman ‘Copyright for Literate Robots’ (2015) Iowa Law Review, Forthcoming; U of Maryland Legal Studies Research Paper No. 2015-16, 21

²³⁷ Dorotheou (n 48)

²³⁸ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 52), 1199

²³⁹ Grimmelman, ‘Copyright for Literate Robots’ (note 15), 30

Extending copyright protection to the Artificial Intelligence would lack any utilitarian justification. Even though the idea of a creative computer is a fairly regular science fiction trope, it is perhaps best to consider it primarily as such – a thought experiment, an extrapolation not necessarily requiring thorough analysis. Even though it may be that what began as a question of whether machines can ever be creative will eventually morph into a debate on posthuman personhood, that is a matter of a different study. Regardless of how interesting the topic might be, if Artificial Intelligence were to achieve such levels of sophistication that we would have to seriously consider assigning them personhood and a status of a legal subject, surely copyright ownership will be the least of our worries.²⁴⁰

6.4 Joint Authorship

Authorship is a mystification. The creative process has, to a varying degree depending on context, always been collaborative and cumulative. It is far removed from the idea of the romantic author.²⁴¹ It might be tempting to consider joint authorship as a useful tool for overcoming the problems of assigning authorship. However, as I have already explained, the case at hand is not quite as straightforward as that.

Given the complications described in the previous paragraphs, joint authorship may seem like a sensible solution.²⁴² When both programmer and user intend their contributions to be parts of a unitary whole and realize that the other has some stake in the output of the program, copyright could be awarded to them both in joint authorship.²⁴³ However, traditionally copyright laws have had difficulty in accepting collective creatorship. Individual creators and their contributions usually need to be identified, which, given the collaborative nature of many types of creative work, is not

²⁴⁰ See Clifford (n 19), 1703; Grimmelmann, 'There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too' (n 165)

On the discussion, whether Artificial Intelligences should be granted legal personhood see Samir Chopra and Laurence F. White, *A Legal Theory for Autonomous Artificial Agents* (Michigan UP 2011); David J. Gunkel, *The Machine Question – Critical Perspectives on AI, Robots, and Ethics* (MIT 2012); Lawrence B. Solum, 'Legal Personhood for Artificial Intelligences' (1992) *North Carolina Law Review*, Vol. 70, 1231

²⁴¹ Bracha (n 41), 193

²⁴² Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1221; Dorotheou (n 48)

²⁴³ Wu (n 209), 175

always realistic. While the scope of intellectual property laws have been expanding, creatorship is restricted by abstract limits based on a romantic idea of creatorship.²⁴⁴

Can the AI be considered a joint author? The problem here is ‘intention’. Intention is an essential element in authorship.²⁴⁵ To be considered a joint author, an AI should have the ability to intend to contribute to a whole.²⁴⁶ However, joint authorship already exists in several forms where the contributions of the joint authors could be either impossible to distinguish from one another or intention is impossible to measure. What Ginsburg calls the “techno postmodernist participant” challenges proprietary authorship in two ways. First, it becomes impossible to lay claim of authorship on works if creativity is dispersed. When you cannot pinpoint a creator, perhaps no one can own a copyright either. Second, co-creation undermines the incentive rationale for copyright.²⁴⁷

Samuelson points out some practical considerations. Rather than consolidating ownership rights, joint authorship fractionates them. If the programmer is rewarded, should the creator of the hardware used to create the code be rewarded as well? This line of reasoning is a never-ending spiral.²⁴⁸

Joint authorship also has its champion. Zemer argues that “the public is a plural subject capable of intentional states and shows a collective intention to participate in the creative process and to author.”²⁴⁹ Zemer thus re-defines authorship as a joint effort by the colloquial author or authors and the public. This is a brave but problematic suggestion. How do we define “the public”? And more importantly, Zemer fails to establish the basis for the public’s intention to author something.²⁵⁰

²⁴⁴ George (n 12), 174–5

²⁴⁵ Lawrence C. Becker, ‘Deserving to Own Intellectual Property’ (1992) 68 Chi.-Kent. L. Rev. 609, 613. See also David Nimmer, ‘Copyright in the Dead Sea Scrolls: Authorship and Originality’ (2001) 38 Hous. L.Rev. 1

²⁴⁶ Wu (n 209), 175–6

²⁴⁷ Ginsburg, ‘The Author's Place in the Future of Copyright’ (n 30), 7

²⁴⁸ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 52), 1222

²⁴⁹ Lior Zemer, ‘“We-Intention” and the Limits of Copyright’ (2006) 24 Cardozo Arts & Ent. L.J. 99, 102

²⁵⁰ Kwall (n 173)

6.5 Nobody

Majority of copyright theory is founded on the assumption that ideas must spring from a human mind. Throughout history, the human being has been seen as the source of creativity. This is why most intellectual property laws assume that the author of a work is human.²⁵¹ Some have questioned whether computer-generated productions should be entitled to any protection at all.²⁵²

If it is so difficult so allocate copyright ownership, why not forget about it altogether? Should we not simply put the work in the public domain and not give anyone rights to it? This would be in line with the implied anthropocentric assumption that authors are human.²⁵³ Placing computer-created works automatically in the public domain might sound like an easy answer, but it is not.

Owners are not necessarily authors, and the lack of a human author does not necessarily mean that there is no author at all. Even if an Artificial Intelligence could be considered an author or a creator, it would not be economically or practically feasible to vest copyright ownership in the AI. If the AI cannot be considered an owner and the human programmer and user cannot be considered as author, copyright ownership becomes an orphan. Indeed, some critics argue that the user cannot be an author because he or she did not exert specific creative effort. The Artificial Intelligence itself cannot claim copyright because current legislation limits such claims only to humans. As there are no claimants, the best solution is that a work authored by an Artificial Intelligence presumably enters the public domain.²⁵⁴

The key issue here is motivation. The copyright system is based on the assumption that exclusive rights should be granted to authors in order to motivate them to create works of authorship that will then be beneficial to the society. Arguing in very practical terms, If nobody is incentivized to create the work or at least to bring it into public circulation, the society is worse off as a result.²⁵⁵

²⁵¹ Clifford (n 19), 1676

²⁵² Ricketson (n 22), 29

²⁵³ Butler (n 227), 734

²⁵⁴ Clifford (n 19), 1695; Rex Shoyama, 'Intelligent Agents: Authors, Makers, and Owners of Computer-Generated Works in Canadian Copyright Law' (2005) *Canadian Journal of Law and Technology*, Vol. 4, No. 2, 136

²⁵⁵ Samuelson, 'Allocating Ownership Rights in Computer-Generated Works' (n 52), 1225

6.6 Fictional Human Author

The Fictional Human Author Theory is originally developed by Timothy Butler. According to Butler, when a court finds a product “authored” by a machine, it should presume the existence of a fictional human author. Copyright should then be assigned to the owner of the AI software, the computer owner or the user who has specified the problem at hand. Copyright could be assigned either individually, jointly or in part.²⁵⁶

Butler’s theory has been criticized for necessitating litigation over each individual work. Furthermore, the theory does not specify who will initiate the necessary litigation.²⁵⁷ Copyright is not only about ownership, and ownership is not only about having a right, it is also about exercising that right. Enforcement is a fundamental aspect of any intellectual property right.

Andrew J. Wu’s variation of the theory attempts to overcome these problems by simplifying the theory. Wu assigns copyright to the work in question to whoever owns the copyright to the AI, on the assumption that this will usually be the person who decides whether the AI should generate future works.²⁵⁸

The Fictional Human Author Theory has the advantage that by assigning authorship with a human user, programmer or computer owner, it recognizes the importance of incentive in copyright. Another advantage is that since copyright is never assigned to a machine, the philosophical and moral disputes over personhood for AI can be avoided. The primary disadvantage of this theory is that there is no statutory justification for creating such a “fictional human author.”²⁵⁹

²⁵⁶ Butler (n 227), 744–7

²⁵⁷ Farr (n 160), 79

²⁵⁸ Wu (n 209), 177

²⁵⁹ Ibid, 160

7. CONCLUSIONS

“But on the whole, it was a satisfactory beginning. This last year – the first full year of the machine’s operation – it was estimated that at least one half of all the novels and stories published in the English language were produced by Adolph Knipe upon the Great Automatic Grammatizator.”²⁶⁰

Unlike in Roald Dahl’s satirical short story, half of all published stories will probably never be written by an Artificial Intelligence. However, computers are used more and more to create works of authorship, which force lawyers, lawmakers, and legal scholars to ask the question, who owns copyright in works created by an artificial intelligence. New forms of creation brought forth by new technology threaten traditional revenue models. In other words, new kinds of cultural creation and creativity question the economic aspects of copyright. This also calls into question whatever artistic control the author has, or should have, over his or her work.²⁶¹

Various assumptions about authorship often stand in tension with the legal doctrines of copyright. The copyright system is built on the notion of authorship which is a notoriously difficult concept to work with. Depending on the point of view taken, authorship can have various interpretations. Current copyright laws are to a large extent dependant on the idea of the romantic author. The romantic notion of authorship, although pronounced dead in literary studies, lives on in copyright, and as a result a copyrightable work is something that almost mystically arises out of human creativity. When the romantic idea of authorship confronts modern technology, copyright faces a dilemma: how far should we push its boundaries?

Artificial Intelligence forces us to question the very nature of authorship, human creativity. In a sense, to ask who is the author of a AI-created work is to ask what is human. However, currently technology is not yet at the stage where we have to seriously consider evaluating the personhood of computers. Nevertheless, authorship as a pivotal concept in copyright law should be re-configured to fit the current cultural landscape.

²⁶⁰ Roald Dahl, ‘The Great Automatic Grammatizator’ (first published 1948) in *The Umbrella Man and Other Stories* (Penguin 1996), 26

²⁶¹ Ginsburg, ‘The Author’s Place in the Future of Copyright’ (n 30), 3

A common argument is that modern copyright has a strong expansionist drive, that the creator is entitled to control an ever-growing sphere of derivative markets, resulting in restrictions upon the access of others to information.²⁶² The relationship between copyrighted works and new technologies that interact with those works and use them in new ways will continue to cause friction.

The problems copyright is facing will not be resolved by more legislation when the anomalies are inextricably intertwined with the very heart of copyright. In the words of Frank H. Easterbrook: "Error in legislation is common, and never more so than when the technology is galloping forward."²⁶³

Copyright law cannot be seen as an autonomous system of rules. It is instead both a reflection of our culture and a force that regulates cultural creation. Copyright law should be responsive to new methods of creation. Law has become infected by culture. The ambiguity of the concept of authorship has spread from the field of culture to legal thinking. Bently points out that even accepting the difficulty of the concept, authorship is at the very heart of what copyright is about. By accepting romantic authorship instead of a broad definition of the concept we could use authorship to fight copyright's expansionist drive.²⁶⁴

Copyright is a specifically modern institution produced by printing technology, marketplace economics, and the classical liberal culture of possessive individualism. It is built on originality, the notion that authors somehow create works out of nothing. But copyright cannot be simply abandoned, as it is so deeply rooted in our economic system and in our conception of personality.²⁶⁵

Taking into account copyright's primary role of incentivising the production and dissemination of creative works, it may not be feasible to leave materials created using artificial intelligence outside of the copyright system. If we agree that the purpose of copyright is to foster creation and incentivise the production of new works it must be able to respond to the challenges set upon it by new technologies and adapt to new means of cultural production. As computer creatorship becomes more commonplace

²⁶² Bracha (n 41), 266

²⁶³ Frank H. Easterbrook, "Cyberspace and the Law of the Horse," (1996) University of Chicago Legal Forum 207, 215–6

²⁶⁴ Bently, 'R. v The Author: From Death Penalty to Community Service' (n 37), 93–8

²⁶⁵ Rose (n 36) 142

and blends into human creatorship, the distinction between a tool-maker and a tool-user will be more difficult to make.

There are plenty of arguments on where to allocate rights in computer-generated works. I have pointed out that it is possible to argue on behalf of allocating ownership with the programmer, user, or the Artificial Intelligence. It is possible to allocate joint ownership to some combination of the above or to assign no owner at all. In addition, there are constructs such as the Fictional Human Author theory that could be used. All of the options above have their champions, as I have shown, but most authorship theories only approach authorship through one its many constituent signifiers and, therefore, there is a rebuttal for every argument.

There are some theories that take into consideration several different aspects of authorship. Wu, for example, suggests that a court follows a multi-step analysis in determining who the copyright owner is. The test should take into consideration the requirements of fixation, creativity, and intent.²⁶⁶ Of all the concepts surrounding the idea of authorship – the concepts which I call the six signifiers of authorship – originality and personhood have perhaps been discussed the most but the others cannot be overlooked. More research on the other concepts is needed. The intention to create a copyrightable work is one of the concepts that should be factored into determining who the copyright owner is, and this has been a topic of recent research.²⁶⁷

Based on real-world statutes and doctrines, the author of the poems in Ballard’s “Studio 5, The Stars” would most likely be the user of the Verse-Transcriber. As already explained, legislation in several jurisdictions would make computer-creatorship impossible, narrowing down the choice of potential title holders. Unlike in *Nova Productions Ltd v Mazooma Games Ltd*, in “Studio 5, The Stars” the user does not merely push buttons, but selects the poem’s style and tone. In addition, the user intends to create an original work and makes artistic choices that could be understood as stamping the work in question with his or her personal touch. However, Ballard’s fictional example is somewhat naive and the real scenarios of the future will most likely not be so simple.

In this study I have discussed both statutes and copyright theory which reject the possibility of computer-creatorship. In Ballard’s story the situation is the opposite:

²⁶⁶ Wu (n 209), 173–4

²⁶⁷ Buccafusco, ‘A Theory of Copyright Authorship’ (n 29)

human creativity has become almost impossible to fathom. The protagonist does not believe that a human could write a poem without the help of a machine. Eventually, a mysterious character called Aurora Day arrives, making the inhabitants of Vermilion Sands destroy the Verse-Transcribers and return to writing poetry themselves. Science fiction uses the literary device of extrapolation to create an alternative reality, and in Ballard's story the answer to the problem of computer-creatorship is total abandonment of technology and a triumphant return of the romantic author. While this is not likely or even possible outside the realm of fiction, perhaps the origin of copyright should be kept in mind, lest we forget its purpose.

Ricketson claims that “[t]o reserve authorship to humans is an affirmation of basic human values, where people are given precedence over machines. In a mass age, this personal conception of authorship stands as a welcome reminder of human individuality and uniqueness.”²⁶⁸ This is a humanistically-inclined argument which can be used to address the issue at stake.

Through one fictional example this study has highlighted several attempts to answer the question: who is the copyright owner of works created using Artificial Intelligence. I have argued that legislation cannot provide a definite answer, but that is essentially not a new problem. Artificial Intelligence *per se* is not the reason why computer-creatorship has proved out to be so difficult for copyright doctrine. As I have explained above, due to the uncertainty of copyright theory and lack of firm definitions in statutes and case law, copyright has always struggled with its basic concepts: originality and, particularly, authorship.

In this study I have argued that authorship as a legal concept and authorship as a cultural concept have developed in unison. I have pointed out how concepts drawn from cultural discourse have entered copyright law and how those concepts operate in law. There is a historical connection between copyright and literary authorship: the author-function has operated in different contexts at different times and in different ways, all of which have been layered on top of one another.²⁶⁹ Partially because of the history of the concept, authorship has become a floating signifier. It absorbs rather than emits meaning. It is susceptible to multiple and sometimes even contradictory interpretations that proponents want to impose upon it. A semiotic study of authorship can be used to clarify the concept or at least make visible the overlapping network of

²⁶⁸ Ricketson (n 22), 34–5

²⁶⁹ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 149), 978

signifiers associated with authorship, which will in turn help in deciding where to vest copyright ownership. This is not an all-encompassing research on the subject, and more in-depth inter-disciplinary research on authorship is needed. Law can be systematized only when its basic concepts are sufficiently clear.

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