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EU Copyright Law and Machine Learning: A Net of Authorship Claims

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Table of Abbreviations

General

AG	Advocate General
AI	Artificial Intelligence
AOIC	Author's own intellectual creation
CEIPI	Center for International Intellectual Property Studies
IP	Intellectual Property
IPR	Intellectual Property Rights
ML	Machine Learning
MPI	Max Planck Institute (for the purpose of this work, the abbreviation refers to the MPI of Innovation & Competition)
MS	Member State
NN	Neural Networks

Legislation

International

Berne Convention Berne Convention for the Protection of Literary and Artistic Works, Paris Act of 24 July 1971, as amended on 28 September 1979

European Union

CJEU Court of Justice of the European Union

CRMD Parliament and Council Directive 2014/26/EU of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market [2014] OJ L 84/72

Database Directive Parliament and Council Directive 96/9/EC of 11 March 1996 on the legal protection of databases [1998] OJ L 77/20

DSM Directive Parliament and Council Directive 2019/790 of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC [2019] OJ L 130/19

Information Society

Directive Parliament and Council Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ L167/10

Software Directive Parliament and Council Directive 2009/24/EC of 23 April 2009 on the legal protection of computer programs [2009] OJ L 111/16

Term Directive Parliament and Council Directive 2006/116/EC of 12 December 2006 on the term of protection of copyright and certain related rights [2006] OJ L 372/12

TEU Treaty on European Union OJ C 326

TFEU Treaty on the Functioning of the European Union OJ C 326

Chapter I – Introduction

Problem review

Back in 2011, Ryan Calo noted that not enough academics studied Artificial Intelligence ('AI') and robotics from a legal perspective.¹ Well, in 2020, this is certainly not the case as the terms 'AI' and Machine Learning ('ML') have found their way in nearly every single discussion of every single industry and field of law. Finance,² healthcare,³ manufacturing⁴ have all seen transformation of the way systems operate, which has naturally led to higher efficiency and efficacy. AI is now entering our homes to solve well-known practical problems faster and better, but it also uses solutions we could never have come up with.⁵ Many fields of law had to also tackle the challenge of AI and as a result, either change respective laws in order to accommodate various concerns, or even introduce new ones.⁶

¹ Ryan Calo, 'The Sorcerer's Apprentice, Or: Why Weak AI Is Interesting Enough' (*Center for Internet and Society Blog*, 30 August 2011) <<http://cyberlaw.stanford.edu/blog/2011/08/sorcerers-apprentice-or-why-weak-ai-interesting-enough>> accessed 2 February 2020.

² Tom CW Lin, 'Artificial Intelligence, Finance, and the Law' (2019) 88 *Fordham Law Review* 531.

³ Kun-Hsing Yu, Andrew L Beam and Isaac S Kohane, 'Artificial Intelligence in Healthcare' (2018) 2 *Nature Biomedical Engineering* 719; Giuseppe Aceto, Valerio Persico and Antonio Pescapé, 'Industry 4.0 and Health: Internet of Things, Big Data, and Cloud Computing for Healthcare 4.0' (2020) 18 *Journal of Industrial Information Integration* 100129; Christoph Thuemmler and Chunxue Bai, *Health 4.0: How Virtualization and Big Data Are Revolutionizing Healthcare* (Springer Berlin Heidelberg 2016).

⁴ Oxford Economics, 'How Robots Change the World - What Automation Really Means for Jobs, Productivity and Regions' (2019) <<https://www.oxfordeconomics.com/recent-releases/how-robots-change-the-world>> accessed 5 February 2020.

⁵ Andrew Moore, 'When AI Becomes an Everyday Technology' [2019] *Harvard Business Review* <<https://hbr.org/2019/06/when-ai-becomes-an-everyday-technology>> accessed 5 February 2020.

⁶ Burton Ong, 'The Applicability of Art. 101 TFEU to Horizontal Algorithmic Pricing Practices: Two Conceptual Frontiers' (2021) 52 *IIC - International Review of Intellectual Property and Competition Law* 189; Nathalie A Smuha, 'Beyond a Human Rights-Based Approach to AI Governance: Promise,

Talks about the potential and threats of AI have taken place internationally, on an EU,⁷ as well as on a national level. Yet, the general feeling is that the EU can do better in terms of developing the AI industry. This is inevitably tied to the need for accommodating its regulatory framework and devising ethical guidelines.⁸ This need becomes even more pressing when comparing the EU framework to other world leaders such as the US, China and Japan.⁹ These developments have culminated in various policy papers, research centres, guidelines, strategies and most importantly (for this thesis) – investment.¹⁰

An important remark is required at the outset of any work that deals with AI. The term ‘Artificial Intelligence’ is highly inappropriate and well exaggerated.¹¹ Definitions of AI are ubiquitous and there is no consensus regarding its precise meaning.¹² In fact, so much has been said and written on AI that most of the definitions seem to hide in the fog of incomprehensiveness. This thesis does not aim at developing a complete and comprehensive working definition of AI for three specific reasons.

Pitfalls, Plea’ [2020] *Philosophy & Technology*; Nicolas Petit, ‘Antitrust and Artificial Intelligence: A Research Agenda’ (2017) 8 *Journal of European Competition Law & Practice* 361; Kevin D Ashley, *Artificial Intelligence and Legal Analytics* (Cambridge University Press 2017); Paulius Čerka, Jurgita Grigienė and Gintarė Sirbikytė, ‘Liability for Damages Caused by Artificial Intelligence’ (2015) 31 *Computer Law & Security Review* 376.

⁷ For a detailed panorama of the developments in AI in the various EU Member States see European Commission, ‘The European AI Landscape - Workshop Report’ (2018).

⁸ EU Commission, ‘Ethics Guidelines for Trustworthy AI’ (*Shaping Europe’s digital future - European Commission*, 8 April 2019) <<https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>> accessed 4 December 2020.

⁹ European Commission, ‘Artificial Intelligence for Europe’ (European Commission 2018) Communication COM(2018) 237 final 5.

¹⁰ *ibid* 4.

¹¹ David Lehr and Paul Ohm, ‘Playing with the Data: What Legal Scholars Should Learn About Machine Learning’ (2017) 51 *University of California, Davis* 653, 669.

¹² Ryan Calo, ‘Artificial Intelligence Policy: A Primer and Roadmap’ (2018) 3 *University of Bologna Law Review* 180, 184.

First, AI is a buzzword. While extremely interesting and even appropriate for motion pictures,¹³ when a legal question is at stake, buzzwords are not desirable as they lack a concrete substance.

Second, the notion of AI constantly evolves, or like, Douglas Hoffstater has eloquently put it “AI is whatever hasn’t been done yet”.¹⁴ Coined in the 50s, the term has been regularly associated with the work of Alan Turing and his ground-breaking test, which evaluated a machine’s ability to appear human.¹⁵ Nowadays, the discussions often revolve around strong AI¹⁶ and weak AI,¹⁷ artificial general intelligence¹⁸ and narrow AI,¹⁹ singularity²⁰ and “Altheists”.²¹ AI can be a software or a hardware.²² Therefore, defining the term is impossible.

¹³ Films and TV series based on the idea of an artificially intelligent system/robot are numerous. Some examples include Stanley Kubrick’s ‘2001: A Space Odyssey’ (1968), Spike Jonze’s ‘Her’ (2013), Alex Garland’s ‘Ex Machina’ (2014), the Wachowski’s ‘The Matrix’ (1991), Charlie Brooker’s ‘Black Mirror’ (2010), Jonathan Nolan’s ‘Westworld’ (2016) and many others.

¹⁴ Douglas Hoffstater, *Godel, Escher, Bach: An Eternal Golden Braid* (20Anniversary Ed edition, Penguin 2000) 601, where he refers to this as the ‘Tesler Theorem’.

¹⁵ Alan Turing, ‘Computing Machinery and Intelligence’ (1950) 49 *Mind* 433.

¹⁶ Adriana Braga and Robert K Logan, ‘The Emperor of Strong AI Has No Clothes: Limits to Artificial Intelligence’ (2017) 8 *Information* 156.

¹⁷ John R Searle, ‘Is the Brain a Digital Computer?’ (1990) 64 *Proceedings and Addresses of the American Philosophical Association* 21, 22.

¹⁸ Ted Goertzel, ‘The Path to More General Artificial Intelligence’ (2014) 26 *Journal of Experimental & Theoretical Artificial Intelligence* 343, 343, referring to it as systems that seek to ‘engineer human-level general intelligence-based theoretical models’.

¹⁹ *ibid*, referring to it as software developed ‘to solve limited practical problems’.

²⁰ Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford University Press 2014); Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (Viking 2005).

²¹ Luciano Floridi, ‘Singularitarians, Altheists, and Why the Problem with Artificial Intelligence Is H.A.L. (Humanity At Large), Not HAL’ (2015) 14 *APA Newsletter on Philosophy and Computers* 8, 9.

²² European Commission, ‘A Digital Single Market Strategy for Europe’ (2015) COM(2015) 192 final 1.

Third, and most importantly, AI is the wrong term to start with. Focusing on ‘intelligence’ is misleading and risky. Some definitions stress that these new systems are capable of “some degree of autonomy”.²³ Confusingly, WIPO’s Secretariat seems to suggest that these new systems can generate output entirely without human intervention.²⁴ This is not the case, at least not yet. Strong AI is not a reality.²⁵ AI autonomy should therefore not be equated with consciousness in the sense that we are used to seeing in humans. Fully autonomous creations by AI are not (yet) a reality.²⁶ Thus, while these new technological processes seem to question the degree of human intervention and control, references to ‘machine autonomy’ should be cautiously approached as nowadays AI systems are better described as “sophisticated tools in the hands of human operators”.²⁷ In addition to employing “certain degree of autonomy”, these processes are for sure and always highly automated. While

²³ *ibid* 2, where it defines AI as ‘systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals’.

²⁴ WIPO, ‘Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence’ (WIPO 2020) WIPO/IP/AI/2/GE/20/1 REV 4
<https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf> accessed 27 November 2020, point 12, which reads, “AI-generated” and “generated autonomously by AI” are terms that are used interchangeably and refer to the generation of an output by AI without human intervention. In this scenario, AI can change its behavior during operation to respond to unanticipated information or events’; The MPI, in a direct response to WIPO’s paper, suggests the use of the neutral term “AI-generated output” as opposed to “AI-generated works” and “literary and artistic works autonomously generated by an AI” as these would allude to the presumption of copyright protection; see further at Josef Drexl and others, ‘Comments of the Max Planck Institute for Innovation and Competition on the Draft Issues Paper of the World Intellectual Property Organization on Intellectual Property Policy and Artificial Intelligence’ (Max Planck Institute for Innovation and Competition 2020) para 17 <https://www.ip.mpg.de/fileadmin/ipmpg/content/stellungnahmen/2020-02-11_WIPO_AI_Draft_Issue_Paper__Comments_Max_Planck.pdf> accessed 7 March 2020.

²⁵ Braga and Logan (n 16) 157, arguing that ‘computers, together with AI, are a form of technology and a medium that extends human intelligence not a form of intelligence itself.’

²⁶ Christian Hartmann and others, ‘Trends and Developments in Artificial Intelligence - Challenges to the Intellectual Property Framework’ (European Commission 2020) 116.

²⁷ *ibid*.

automated processes are not a novelty, these new systems bring such automation to an extremely large scale. They consist of a powerful capability to generate works and augment human capabilities.²⁸ As Luciano Floridi has stressed, “the point is not that our machines are conscious, or intelligent, or able to know something as we do. They are not. The point is that they are increasingly able to deal with more and more tasks better than we do”.²⁹ As a result, one specific feature of the definitions emerges as recurring and must be carefully appreciated and analysed, namely the ability of certain machines to learn. Thus, the essence and hence the challenge of most recent and relevant developments in the field of AI lies not with the idea of creating ‘thinking’ machines, but with the notion of machine learning.

Generally, ML is considered a sub-field of the buzzwordy AI.³⁰ Unsurprisingly, also ML is not a new term. Rooted in the early 40s,³¹ it stands for the ability to program systems to automatically learn with example and improve with experience.³² In this work, it will emerge that even though ML techniques have been around for that many years, in the last decades three key features have brought about a visible revolution

²⁸ Avigdor Gal, ‘Human Intelligence, Artificial Intelligence, Machine Learning: And the Winner Is? - AI: Legal & Ethical Implications - Young Scholars Workshop’ (*YouTube*, 6 January 2019) <https://www.youtube.com/watch?v=jk0wT1NW6s4&ab_channel=TheCenterforCyberLaw%26Policy> accessed 27 November 2020; Pedro Domingos, *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World* (Penguin 2017) 8; ‘Delving into Artificial Intelligence | Riccardo Zecchina | TEDxBocconiU - YouTube’ <<https://www.youtube.com/watch?v=pw5LLc0GJwk&t=4s>> accessed 11 January 2020.

²⁹ Floridi (n 21) 10.

³⁰ Josef Drexl and others, ‘Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective’ (Max Planck Institute for Innovation and Competition 2019) 13 3.

³¹ Warren Mcculloch and Walter Pitts, ‘A Logical Calculus of Ideas Immanent in Nervous Activity’ (1943) 5 *Bulletin of Mathematical Biophysics* 114.

³² Hartmann and others (n 26) 25.

to the ML landscape: (i) the ubiquity of data; (ii) the unprecedented computing power; and (iii) the advancement in computer science.³³

For all these reasons, any comprehensive discussion on the implications of such ‘learning’ systems, be it legal, ethical, economic or socio-cultural, should use the appropriate terminology and refer to the precise issue at stake, namely ‘machine learning’ and not ‘artificial intelligence’.

The above premise is the steppingstone of this entire work which pivots around machine learning’s capability to participate in and contribute to a creative expression.

Indeed, history shows that technology has been a crucial driver and influencer in the creative industries. In that respect, the disruption caused by ML systems and their interaction with the law inevitably brings copyright law to the forefront.³⁴ The evolution of new technologies³⁵ has regularly confronted copyright systems worldwide with difficult questions such as the many new modes of content production,³⁶ distribution³⁷ and consumption.³⁸ Focussing on the various modes of production, one finds a vast

³³ European Commission, ‘Artificial Intelligence for Europe’ (n 9) 11; Ian Goodfellow, Yoshua Bengio and Aaron Courville, *Deep Learning* (The MIT Press 2016) 26.

³⁴ The term ‘copyright law’ is used in this thesis with reference to both the common law copyright law system, as well as the civil law tradition of author’s rights. Whenever a distinction between the two is necessary, it will be explicitly stated.

³⁵ Uma Suthersanen, ‘Collectivism of Copyright: The Future of Rights Management in the European Union’ in Eric M Barendt and Alison Firth (eds), *Yearbook of Copyright and Media Law*, vol V (Oxford University Press 2000) 230–231.

³⁶ *Case C-476/17 Pelham GmbH and Others v Ralf Hütter and Florian Schneider-Esleben* [2019] CJEU ECLI:EU:C:2019:624 [35], discussing the technique of digital sound sampling, ‘which consists in a user taking a sample from a phonogram, most often by means of electronic equipment, and using the sample for the purposes of creating a new work’; *Cour de Cassation, 1st Civil Chamber, 15 May 2015, No 13-27391*, which pertains to the dispute between Klasen v Malka on the subject of appropriation art.

³⁷ Eleonora Rosati, ‘The CJEU Pirate Bay Judgment and Its Impact on the Liability of Online Platforms’ (2017) 39 EIPR 737.

³⁸ Lawrence B Solum, ‘The Future of Copyright’ (2005) 83 Texas Law Review 1137, 1137, reviewing Lawrence Lessig, *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity* (2004).

range of creative processes at the disposal of today's authors. In this regard, legislators and the Courts have regularly had to determine whether these new modes of expression would lead to an original copyright work.

Machines capable of producing creative output with complex computational methods date as early as the 70s: Harold Cohen and AARON in the realm of artistic works,³⁹ David Cope and Emmy regarding musical works⁴⁰ and Ray Kurzweil and his Cybernetic Poet regarding literary works⁴¹ are just some of the most often cited examples. In recent years, developments in ML have given birth to a large amount of 'creative' works, which have stirred philosophical discussions on the notion of creativity,⁴² but also challenged our understanding of creativity. For example, IAMUS, is a sophisticated software that composes modern classical music,⁴³ while AIVA is a system composing emotional soundtrack music marketed as "a creative assistant for creative people".⁴⁴ In the field of artworks, the e-David project uses a welding robot, typically used for manufacturing cars, to paint; it utilizes ML processes to test whether a machine is able to "learn the whole process of creating a painting".⁴⁵ As for literary works, the examples are numerous also here – from a Japanese program that almost

³⁹ 'Harold Cohen and AARON—A 40-Year Collaboration' (*Computer History Museum*, 23 August 2016) <<https://computerhistory.org/blog/harold-cohen-and-aaron-a-40-year-collaboration/>> accessed 11 January 2020.

⁴⁰ 'David Cope Emmy Vivaldi' (*YouTube*, 12 August 2012) <<https://www.youtube.com/watch?v=2kuY3BrmTfQ>> accessed 11 January 2020.

⁴¹ 'Kurzweil CyberArt Technologies Home Page' (2001) <http://www.kurzweilcyberart.com/poetry/rkcp_overview.php> accessed 11 January 2020.

⁴² Margaret Boden, 'Creativity and Computers' (1993) 64 *Current Science* 419, 420; Margaret Boden, 'Creativity and Artificial Intelligence' (1998) 104 *Artificial Intelligence* 347, 349.

⁴³ Jonathan P Farrell, 'Artificial Composers: Tools of the Modern Musician or Affront to Human Creativity?' (2015) 7 *Inquiries Journal* 2.

⁴⁴ 'AIVA - The AI Composing Emotional Soundtrack Music' <<https://aiva.ai/>> accessed 26 November 2020.

⁴⁵ 'E-David. | A Painting Process.' <<http://graphics.uni-konstanz.de/eDavid/>> accessed 26 November 2020.

won a literary prize,⁴⁶ through a machine fed with hundreds of sci-fi TV and movie scripts that could write screenplays,⁴⁷ to a program fed with grammar rules and vocabulary to generate prose randomly.⁴⁸ While the examples are quite fascinating, what is more interesting for the present discussion, is that some of these works have marketed for incredibly high prices.⁴⁹

The “creative pipeline”⁵⁰ in the generation of these works differs, among many other things, in the way the ML process is devised, the amount and type of information it is fed with, the method of training, as well as whether or not the code is constantly refined. To the unbiased observer, it may become difficult to draw the line between what the machine produced prompted by its user, what flows from the original algorithm written by the programmer and what, if anything at all, the machine has generated automatically.

In the past, computer programs used to heavily rely on the programmer’s coding, who would pre-define the features of the sought outcome. This was very time-

⁴⁶ Chloe Olewitz, ‘Japanese A.I. Writes Novel, Passes First Round for Literary Prize’ (*Digital Trends*, 23 March 2016) <<https://www.digitaltrends.com/cool-tech/japanese-ai-writes-novel-passes-first-round-national-literary-prize/>> accessed 26 November 2020.

⁴⁷ ‘Sunspring | A Sci-Fi Short Film Starring Thomas Middleditch’ (*YouTube*, 9 June 2016) <https://www.youtube.com/watch?v=LY7x2lhqjmc&app=desktop&ab_channel=ArsTechnica> accessed 26 November 2020.

⁴⁸ Racter, *The Policeman’s Beard Is Half-Constructed: Computer Prose and Poetry* (Warner Software/Warner Books 1984), where one of the poems reads as follows: ‘Awareness is like consciousness. Soul is like spirit. But soft is not like hard and weak is not like strong. A mechanic can be both soft and hard, a stewardess can be both weak and strong. This is called philosophy or a world-view.’

⁴⁹ ‘Edmond de Belamy - Obvious Art’ (2018) <<https://obvious-art.com/edmond-de-belamy.html>> accessed 11 January 2020; ‘Artificial Intelligence and the Art of Mario Klingemann’ (*Sothebys.com*, 2019) <<https://www.sothebys.com/en/articles/artificial-intelligence-and-the-art-of-mario-klingemann>> accessed 11 January 2020.

⁵⁰ Jean-Marc Deltorn and Franck Macrez, ‘Authorship in the Age of Machine Learning and Artificial Intelligence’ in Sean M O’Connor (ed), *The Oxford Handbook of Music Law and Policy* (2019) 1 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3261329> accessed 5 September 2019.

consuming, required large computational powers and risked imprecision.⁵¹ In the last decades, the presence of large amounts of data in the digital environment made the soil ripe for a genuine revolution to take place. This, coupled with technological developments where devices became more powerful and capable of processing large amounts of information in a short period of time, resulted in a genuine shift in algorithms. Nowadays, computational systems learn and improve (hence, the name ‘machine learning’); and, they do so on a large scale by virtue of being exposed at many examples. The difference to the systems we had in the past is that these do not rely on an *a priori* definition by a programmer of the sought outcome.

These revolutionary techniques disturb traditional understanding of authorship in copyright law in the EU since copyright law subsists only in intellectual creations of the human mind. For that reason, whenever any mechanical tool, be it a ML model or another device, such as a photo camera⁵² or a video game,⁵³ is involved in the creative process, one is prompted to clearly establish a link between the choices of the human author in charge and the final creative output. This constitutes a sort of an “originality causation” relationship in copyright subsistence.⁵⁴ Should copyright subsist, one is granted with a very strong property right. Copyright protection typically

⁵¹ ‘Delving into Artificial Intelligence | Riccardo Zecchina | TEDxBocconiU - YouTube’ (n 28).

⁵² Aaron Hertzmann, ‘Can Computers Create Art?’ (2018) 7 Arts 18, 21.

⁵³ Jane C Ginsburg and Luke Ali Budiardjo, ‘Authors and Machines’ (2018) 34 Berkeley Technology Law Journal 343, 37–38, where it would typically be the video game developer’s creative choices reflected in the game. But note that in certain video games it may be the player’s creativity. See page 87, where the authors say: ‘Few would argue that a player who spends years using Minecraft to imagine and construct her dream mansion (complete with guest house, pool, bowling alley, and four-car garage) would not be the “author” of the resulting model, or that the programmer of Minecraft would have any authorial stake in the resulting work.’

⁵⁴ Daniel Gervais, ‘The Machine As Author’ (2019) 105 Iowa Law Review 52 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3359524> accessed 1 June 2020; For a detailed view on the ‘tracing of legal causation’ in various authorship contexts see Dan L Burk, ‘Thirty-Six Views of Copyright Authorship, by Jackson Pollock’ (2020) 58 Houston Law Rev Forthcoming (note, that the latter paper analyses the issues entirely from a US law perspective, but bears some valuable lessons for the discussion in the EU too).

lasts for the life of the author and for 70 years after his/her death.⁵⁵ The copyright author is vested with long-lasting rights *in rem*. This renders the claim of authorship a particularly strong one as copyright is enforceable against the world.

The ML process stretches, up to a breaking point, the causation bond between the human author and the final creative output. For that reason, the early academic literature in this field pondered upon questions of the “true creator”,⁵⁶ as well as dilemmas like “people or machines” when problematising the notion of authorship.⁵⁷ The debate is now revived as a result of recent projects in the field of art,⁵⁸ some of which have gone off into auction houses quite successfully.⁵⁹ Thus, unsurprisingly, since 2017, copyright academics, national, regional and international legislators and policy makers have been actively mulling over the intersection of copyright law and emergent works.⁶⁰

⁵⁵ Term Directive, art 1.

⁵⁶ Timothy L Butler, ‘Can a Computer Be an Author? Copyright Aspects of Artificial Intelligence’ (1981) 4 Comm/Ent L.S. 707; Ralph D Clifford, ‘Intellectual Property in the Era of Creative Computer Program: Will the True Creator Please Stand Up?’ (1997) 71 Tulane Law Review 1675.

⁵⁷ Jane C Ginsburg, ‘People Not Machines: Authorship and What It Means in the Berne Convention’ (2018) 49 IIC - International Review of Intellectual Property and Competition Law 131; Sam Ricketson, ‘The 1992 Horace S. Manges Lecture - People or Machines: The Berne Convention and the Changing Concept of Authorship’ (1991) 16 Columbia-VLA Journal of Law & the Arts 1.

⁵⁸ ‘The Next Rembrandt’ (*The Next Rembrandt*) <<https://www.nextrembrandt.com>> accessed 2 February 2020.

⁵⁹ ‘Edmond de Belamy - Obvious Art’ (n 49); ‘Artificial Intelligence and the Art of Mario Klingemann’ (n 49).

⁶⁰ WIPO Secretariat, ‘WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI)’ (WIPO 2019) WIPO/IP/AI/2/GE/20/1; Maria Iglesias, Sharon Shamullia and Amanda Anderberga, ‘Intellectual Property and Artificial Intelligence - Literature Review’ (Joint Research Center, European Commission 2019) EUR 30017 EN; Jonathan P Osha, ‘Copyright in Artificially Generated Works’ (International Association for the Protection of Intellectual Property (AIPPI) 2019); The first time the term ‘emergent works’ was used in relation to this kind of works was by Bruce Boyden, ‘Emergent Works’ (2016) 39 Colum. JL & Arts 377.

Scope, objective and research question

Given these emerging technological challenges, this thesis analyses the protectability of ML-generated works with copyright law in the EU. More specifically, it studies the problem of allocating authorship in the creative output of a ML process.

The jurisdictional focus is entirely on the legal framework of the EU, which represents a unique legal order. According to Article 5(2) of the Treaty on European Union (TEU), the Union can only act within the competences conferred upon it by the Member States (MS). None of the EU competences, however, tackle copyright directly, but at the same time copyright law has been subject to numerous legislative measures approximating the laws of the MS. Therefore, it appears that the EU legislator has nonetheless managed to find a suitable legal basis for the harmonisation of the national EU copyright regimes. The relevant provision is the notorious Article 114 of the Treaty on the Functioning of the European Union (TFEU), also known as one of the functional legal bases.⁶¹ This provision allows the Union to adopt harmonising legal acts on an EU level which have as “their object the establishment and functioning of the internal market”. In essence, the urge to harmonise copyright laws in the EU has been driven by a fear that differences between the laws of the Member States would jeopardise the free movement of goods and services.⁶² With thirteen directives and two regulations directly tackling copyright law,⁶³ all adopted on

⁶¹ Paul Craig and Gráinne de Búrca, *EU Law: Text, Cases, and Materials* (5th Edition, Oxford University Press 2011) 120–124, discussed together with the other flexible provision - Article 352 TFEU.

⁶² Eleonora Rosati, *Copyright and the Court of Justice of the European Union* (Oxford University Press 2019) 10.

⁶³ Directive 93/83/EEC (Satellite and Cable Directive); Directive 96/9/EC (Database Directive); Directive 2001/29/EC (Information Society Directive); Directive 2006/115/EC (Rental and Lending Rights Directive); Directive 2006/116/EC (Term Directive); Directive 2001/84/EC (Resale Right Directive); Directive 2004/48/EC (Enforcement Directive); Directive 2009/24/EC (Software Directive); Directive 2011/77/EU (Term Directive); Directive 2012/28/EU (Orphan Works Directive); Directive 2014/26/EU (Collective Rights Management Directive); Directive 2017/1564 (Directive implementing the Marrakesh Treaty in the EU); Directive 2019/790 (DSM Directive); Regulation 2017/1563 (Regulation implementing the Marrakesh Treaty in the EU); Regulation (EU) 2017/1128 (Portability Regulation).

the basis of Article 114 TFEU, we can now safely speak of an EU copyright acquis. Copyright has, thus, found a place under the internal market umbrella when it comes to EU legislation.

Having said that, copyright law, however, is not just about economic concerns for the internal market. It is rooted in the idea of fostering culture, providing access to cultural works, while also encouraging creativity. However, whereas the internal market legal basis of the EU falls within the shared competences between the Union and the Member States,⁶⁴ the EU only has supporting competence when it comes to culture (Article 167 TFEU, as well as Article 6 TFEU). This means that MS maintain tighter control on their legislation pertaining to culture and the EU is expressly prohibited from passing harmonising legislation.⁶⁵ In addition, culture itself bears a different meaning for the various parties involved – authors, users of copyright material, cultural heritage institutions, online platforms, libraries and museums, all interpret the notion of culture in their own way and this may lead to conflicting copyright prerogatives. Besides, looking at the different copyright justification theories it emerges that MS are historically burdened by their own vision of what copyright law should protect.

Therefore, in light of the many uncertainties of the term ‘culture’ and the limited scope for the EU’s cultural competence, copyright law has firmly attached itself to the internal market narrative. All legislative measures in copyright law are adopted based on Article 114 TFEU, which allows for harmonisation measures. The academic literature in the field of EU law has identified this provision as the main cause for the problem of “competence creep”.⁶⁶ This means that we run the risk of introducing competences into the hands of the EU legislator any time that there is a connection to the internal market objective. One practical consequence of this is that industries,

⁶⁴ TFEU, art 4(2).

⁶⁵ *ibid*, art 167(5).

⁶⁶ S Weatherill, ‘Competence Creep and Competence Control’ (2004) 23 *Yearbook of European Law* 1; Paul Craig, ‘Competence: Clarity, Conferral, Containment and Consideration’ (2004) 29 *European Law Review* 323.

fearing that the absence of copyright protection in a specific context would hinder their flourishing, tend to regularly lobby the EU legislator to adopt harmonising measures and grant them positive IP rights tailored to their interests by invoking the internal market objective.⁶⁷ This was the case of the database industry, where the EU allegedly had to catch up with the flourishing database industry in the US.⁶⁸ The Database Directive's recitals state that "unless a stable and uniform legal protection regime is introduced for the protection of the rights of makers of databases",⁶⁹ investment in the database industry in the EU would not have taken place. Such fears of lack of investment might be used also with regard to ML-generated works to advocate for a clear copyright law intervention in the matter.

In addition to the rather problematic legislative setting illustrated above, the EU judiciary has been also highly engaged with copyright law. This is only natural, as MS regularly find themselves in a situation in which, when faced with a copyright dispute, the law to be applied is a "hotchpotch" of EU and national law.⁷⁰ In this respect, the CJEU has stepped up to fill in the gaps left, intentionally or not so, by the EU legislature.⁷¹ In the last twenty years, the CJEU has ruled in nearly one hundred cases in the field of copyright law.⁷²

⁶⁷ Many scenarios can be listed here, eg the Database Directive and the new publisher's right in the DSM Directive.

⁶⁸ Database Directive, Recital 11, which states that "Whereas the exponential growth, in the Community and worldwide, in the amount of information generated and processed annually in all sectors of commerce and industry calls for investment in all the Member States in advanced information processing systems".

⁶⁹ Database Directive, Recital 12.

⁷⁰ Niilo Jääskinen, 'Europeanisation of National Law: A Legal-Theoretical Analysis' (2015) 40 EL Rev 667, 668.

⁷¹ Jonathan Griffiths, 'Taking Power Tools to the Acquis - the Court of Justice, the Charter of Fundamental Rights and European Union Copyright Law' in Christophe Geiger, Craig Allen Nard and Xavier Seuba (eds), *Intellectual Property and the Judiciary* (Edward Elgar 2018) 144.

⁷² Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 1.

Against this background, this thesis explores the issue of copyright protection of ML-generated works by posing a two-fold research question. The substantive dimension analyses whether the current EU copyright law framework *does* offer protection to ML-generated works, while the normative one questions whether EU copyright law *should* offer protection to ML-generated works.

The first dimension has been addressed by many scholars on both sides of the Atlantic. Since authorship is a strictly human trait,⁷³ the main and mostly shared view is that copyright would not subsist in ML-generated works unless free and creative authorial choices are evident in the production process and product. In the EU, this is the consequence of a long line of CJEU case-law.⁷⁴ The contribution of this thesis to the existing literature, which brings it beyond the state of the art, is that it clearly identifies the degree of human involvement in this computational creativity process. Thanks to the thorough analysis of the technology behind ML-generated works, this thesis provides new evidence to support the main argument that copyright law does not protect ML-generated works due to the absence of an “originality causation”.⁷⁵ It will transpire that at certain stages of the creative process copyright protection could in fact emerge. However, the breakdown of the technology demonstrates that in the key pillar, which distinguishes the ML process from the traditional generative art dominant until today and which is mostly responsible for the final ‘creative’ output, namely the trained algorithm, the human involvement is very detached. This leads to the conclusion that ML-generated works are not protected with copyright law.

⁷³ Martha Woodmansee, ‘The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the “Author”’ (1984) 17 *Eighteenth-Century Studies* 425; Martha Woodmansee and Peter Jaszi, *The Construction of Authorship: Textual Appropriation in Law and Literature* (Duke University Press 1994); *Opinion of Advocate General Trstenjak in Case C-145/10 Eva-Maria Painer v Standard VerlagsGmbH and Others* [2011] CJEU ECLI:EU:C:2011:239 [121], where the AG says ‘only human creations are therefore protected, which can also include those for which the person employs a technical aid, such as a camera’.

⁷⁴ See Chapter III – EU copyright law-making and the protectability causation, section 3.2 The subsistence issue.

⁷⁵ Gervais (n 54).

The second dimension has a normative connotation. This thesis advocates for a cautious evidence-based and inclusive approach to be adopted by the EU institutions and particularly by the EU legislator; an approach reflecting the genuine need for legislation to achieve a balanced internal market pursuant to Article 114 TFEU, where all interested stakeholders have been consulted prior to proposing a legislative act. When it comes to ML-generated works and copyright protection, in the absence of a clear proof of either a market failure or other socio-cultural costs, the EU legislature should not move towards protection of such works.

Before going into the merits of the research question, three caveats are necessary regarding the scope of the analysis.

First, this work focuses on copyright law in the sense of authorial protection of intellectual works. Some authors have discussed the possibility of protecting ML-generated works through new neighbouring right, but this follows an investment narrative.⁷⁶ While the arguments brought in by these authors will inevitably be entertained in the following chapters, the purview of this thesis and the theoretical framework it builds lie on authorial works, ie copyright, and not neighbouring rights. Nonetheless, this work remains rather sceptical also towards any protection of ML-generated works through a new neighbouring right following the technological investment narrative. Like some commentators have noticed, such neighbouring rights based on technological investment might be *passé*.⁷⁷

Second, the intersection of ML and copyright law generate issues at both the upstream, as well as the downstream level of creative production.⁷⁸ The former are

⁷⁶ Ana Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (2017) 21 *Journal of Internet Law* 12, 20; Martin Senftleben and Laurens Buijtelaar, 'Robot Creativity: An Incentive-Based Neighboring Rights Approach' 23 <<https://papers.ssrn.com/abstract=3707741>> accessed 9 October 2020.

⁷⁷ P Bernt Hugenholtz, 'Neighbouring Rights Are Obsolete' (2019) 50 *IIC - International Review of Intellectual Property and Competition Law* 1006, 1011.

⁷⁸ Burkhard Schafer and others, 'A Fourth Law of Robotics? Copyright and the Law and Ethics of Machine Co-Production' (2015) 23 *Artificial Intelligence and Law* 217, 219.

concerned with the input that the ML algorithm handles, namely the training data.⁷⁹ As such, it includes questions of text and data mining, liability for copyright infringement during the training process, access to data, exceptions to copyright infringement and other similar issues.⁸⁰ The downstream issues instead look at the output of algorithmic creativity. While these two function as two sides of the same coin, with the aim of keeping the discussion on point and focused, this thesis concentrates on the latter, ie downstream questions, and leaves aside the equally interesting issue of inputs, which is a minefield of its own.

Third, in order to have a sufficiently in-depth discussion of the problem at stake, this thesis focuses strictly on EU copyright law. However, works generated through a ML processes are digital and, as the prominent ML artist Robbie Barrat has stressed, “digital work should remain digital”.⁸¹ In this context, one specific aspect comes to mind – the global nature of circulation of digital works through the Internet. In that regard, several years ago Marco Ricolfi has reminded that conflict of laws issues are essential since all these works will be available over the Internet.⁸² Should copyright

⁷⁹ *ibid.*

⁸⁰ Thomas Margoni, ‘Text and Data Mining in Intellectual Property Law: Towards an Autonomous Classification of Computational Legal Methods’ in Irene Calboli and Maria Lillà Montagnani (eds), *Handbook of Intellectual Property Research* (Oxford University Press 2021); Thomas Margoni, ‘Artificial Intelligence, Machine Learning and EU Copyright Law: Who Owns AI?’ (2019) XXVII AIDA: Annali italiani del diritto d’autore, della cultura e dello spettacolo 281; Christophe Geiger, Giancarlo Frosio and Oleksandr Bulayenko, ‘Crafting a Text and Data Mining Exception for Machine Learning and Big Data in the Digital Single Market’ in Xavier Seuba, Christophe Geiger and Julien Pénin (eds), *Intellectual Property and Digital Trade in the Age of Artificial Intelligence and Big Data* (CEIPI-ICTSD 2018) <http://www.i3pm.org/files/misc/CEIPI-ICTSD_Issue_5.pdf> accessed 29 October 2020; Daniel Schönberger, ‘Deep Copyright: Up - And Downstream Questions Related to Artificial Intelligence (AI) and Machine Learning (ML)’ in Jacques de Werra (ed), *Droit d’auteur 4.0 / Copyright 4.0 (Propriété intellectuelle - Intellectual Property)* (Schulthess Juristische Medien 2018) 156.

⁸¹ ‘Art + Tech Summit: The A.I. Revolution | Christie’s’ (*YouTube*, 28 June 2019) <https://www.youtube.com/watch?v=_NYaY8rU3h8> accessed 22 May 2020.

⁸² Marco Ricolfi, ‘AI Generated Works: Private International Law Issues’ (EU copyright, quo vadis? From the EU copyright package to the challenges of Artificial intelligence, Brussels, 25 May 2018)

protect these works in one jurisdiction, the risk of serious fragmentation would become even more pronounced. Hence, mindful of the obvious constraints of space and time in this thesis, while limiting this work to the ambit of the EU, it is particularly important to appreciate the serious spill over effects that prominent jurisdictions such as the EU has in the global arena.

<<https://europeancopyrightsocietydotorg.files.wordpress.com/2018/06/ricolfi-ai-and-ipl.pdf>> accessed 9 June 2020.

Research methodology

The methodology of any research is indispensably linked and determined by the respective research objective. This work's objectives can be characterised as explanatory and evaluative.⁸³

The first research objective of this thesis is to provide new evidence supporting the general argument that EU copyright law does not protect ML-generated works. Whereas some scholars have come to this conclusion through an analysis of the justification theories for copyright law,⁸⁴ this thesis relies on a technical dissection of the computational creativity process. This research objective, reflecting the substantive dimension of the research question, has an explanatory end-goal.

In order to do this, in Chapter II, this research identifies four key pillars of the computational creativity process: input, learning algorithm, trained algorithm, output. Then, in Chapter III, following the CJEU case-law, the analysis identifies three benchmarks as relevant in the copyright protectability criteria: (i) the human author; (ii) the author's own intellectual creation (AOIC); and (iii) the need for the protected subject matter to be sufficiently objective and precise (an objectivity criterion). It then maps the technical aspects of computational creativity against these three benchmarks. This thesis does not strive to merely describe the protectability criteria under EU copyright law. Instead, it engages in a profound law and technology assessment by dissecting the ML computational creativity process to pinpoint the exact human intervention in every step of the process. Such technical analysis has never been done before and therefore this thesis fills in a gap in the literature.

The second research objective engages in a normative assessment. It has an evaluative end-goal, meaning that it assesses the limits of the EU's internal market legislative competence in view of the ML-copyright law debate. To that end, the

⁸³ Lina Kestemont, *Handbook on Legal Methodology: From Objective to Method* (1st edn, Intersentia 2018) 16–17.

⁸⁴ Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (n 76).

analysis approaches the issue from the perspective of a balanced internal market.⁸⁵ It evaluates whether such balance would be achieved, should the EU decide to legislate and protect ML-generated works with copyright law. In doing so, this thesis applies to copyright law fundamental EU law principles such as subsidiarity and proportionality, as well as the Better Regulation Agenda, requiring legislative measures to be preceded by inclusive stakeholder consultations and thorough impact assessments. This is a new way of addressing the issue of copyright protection for ML-generated works. Put differently, this thesis frames the research questions from the perspective of EU lawmaking.

This work pays particular attention also to the dissent, ie the counterarguments. Some authors sustain that the absence of IP protection for ML-generated works will cause market failure: many creative works free of copyright protection will directly compete with human-authored copyright-protected works and companies will have no incentive to invest in the AI/ML technologies.⁸⁶ In addition to expanding copyright protection to cover such works, the academic literature has contemplated protection with non-authorial rights, ie neighbouring rights,⁸⁷ a sui generis framework⁸⁸ or even a new 'disseminators right'.⁸⁹ The literature has also turned their focus to the so-called

⁸⁵ Gareth Davies, 'The Competence to Create an Internal Market: Conceptual Poverty and Unbalanced Interests' in Sacha Garben and Inge Govaere (eds), *The Division of Competences between the EU and the Member States : Reflections on the Past, the Present and the Future* (Hart Publishing 2017).

⁸⁶ Iglesias, Shamullia and Anderberga (n 60) 14–15; Anne Lauber-Rönsberg and Sven Hetmank, 'The Concept of Authorship and Inventorship under Pressure: Does Artificial Intelligence Shift Paradigms?' (2019) 14 *Journal of Intellectual Property Law & Practice* 570, 578; Timothy Pinto, 'Robo ART! The Copyright Implications of Artificial Intelligence Generated Art' (2019) 30 *Entertainment Law Review* 174, 178; Senftleben and Buijtelaar (n 76) 21.

⁸⁷ Senftleben and Buijtelaar (n 76).

⁸⁸ Madeleine de Cock Buning, 'Autonomous Intelligent Systems as Creative Agents under the EU Framework for Intellectual Property' (2016) 7 *Eur. J. Risk Reg.* 310; Lauber-Rönsberg and Hetmank (n 86).

⁸⁹ Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (n 76) 20.

legal fictions⁹⁰ in an attempt to protect ML-generated works.⁹¹ As it was mentioned in the previous section, this thesis analyses the research question from the perspective of copyright law, meaning author's rights. Neighbouring rights, ie IP protection that follows the investment rationale, are beyond the scope of this thesis. Yet, these dissenting arguments, dealing with neighbouring rights, will be briefly addressed in Chapter V.

Two main categories of reference have been used throughout this thesis to support its main explanatory and evaluative objectives:

1. Primary and secondary sources of EU law and the case-law of the CJEU: among these, the main focus is on the directives in the field of copyright and the jurisprudence of the CJEU. Considering that, in the last twenty years, nearly one hundred decisions on copyright law have been issued by the CJEU,⁹² a significant part of this work analyses the case-law developed by the courts.
2. Legal literature, policy documents, preparatory reports: a vast number of publicly available sources have been consulted. The legal literature in the field of EU copyright law is constantly aiming to fill in the gaps and elaborate upon the jurisprudence of the CJEU and the meaning of the directives. Furthermore, in light of the Digital Single Market,⁹³ various EU institutions have pushed for further developments in the field of AI, ML and the digital application of

⁹⁰ Ian R Kerr, 'Legal Fictions' (PhD, The University of Western Ontario 1995) <<https://ir.lib.uwo.ca/digitizedtheses/2526/>> accessed 9 June 2020.

⁹¹ Andres Guadamuz, 'Do Androids Dream of Electric Copyright? Comparative Analysis of Originality in AI Generated Works' [2017] IPQ 169, who turns to the UK provision under section 9(3) of the UK Copyright, Designs and Patents Act 1988. Annemarie Bridy, 'Coding Creativity: Copyright and the Artificially Intelligent Author' (2012) 5 STAN. TECH. L. REV. <<https://osf.io/5ru6m>> accessed 9 August 2019, where the author discusses the applicability of the works made for hire doctrine; Kalin Hristov, 'Artificial Intelligence and the Copyright Dilemma' (2017) 57 IDEA - The Journal of the Franklin Pierce Center for Intellectual Property 431, discussing the works made for hire doctrine.

⁹² Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 1.

⁹³ European Commission, 'A Digital Single Market Strategy for Europe' (n 22).

copyright law.⁹⁴ For that reason, a large number of policy documents in the form of communications, recommendations, staff working papers and briefings have also been consulted.

⁹⁴ European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Tackling Illegal Content Online Towards an Enhanced Responsibility of Online Platforms' (2017) COM(2017)555 final; Stéphane Séjourné, 'Report on Intellectual Property Rights for the Development of Artificial Intelligence Technologies' (European Parliament 2020) A9-0176/2020.

A road map

This thesis is divided in six chapters.

Chapter I introduces the problem of ML in copyright law, the objective of this thesis, its research question, scope and methodology.

Chapter II turns to computational creativity. It first traces the theory of generative art and its evolution. Then, it juxtaposes ML against traditional software. The analysis breaks down the ML process in four key pillars, with specific attention paid to artificial neural networks, generative adversarial networks (GANs) and creative adversarial networks (CANs). Some fascinating ML/art projects will be introduced as examples of artistic works in which free and creative human choices in the final creative output are difficult to detect.

Having painted the technical background of the research, Chapter III turns to the law – it addresses the EU copyright law framework. The analysis here looks at the EU legislative process by introducing the reader with the competences of the EU legislator in the field of copyright. It transpires that even though copyright is driven and linked to culture, the internal market legal basis has been the key engine behind the EU directives, which have nonetheless left the EU copyright legal framework in a fragmented state. The CJEU has filled in the gaps in interpretation and pushed the harmonisation process further. One feature that has seen such strong harmonisation is the protectability criteria, which entails two aspects – the designation issue (who is the author), as well as the subsistence issue (what is protected). At the end of this chapter, the thesis extracts three protectability benchmarks that must always be satisfied for copyright protection to subsist in the EU.

With the technological and the legal background in mind, Chapter IV seeks to untangle the net of authorship claims. It answers the substantive research question of this thesis by mapping out the various copyright authorship claims along the four pillars of the ML/art computational process. It identifies the specific stages and builds a practical guideline in the context of authorship and ML. It pinpoints the degree of human involvement in the computational creativity process. Essentially, it assesses

whether the potential author candidate(s) have exercised free and creative choices to substantiate a copyright claim.

Chapter V discusses the normative dimension of the research question – should EU copyright law protect ML-generated works? It emphasises the need for a balanced internal market, where the principles of proportionality and subsidiarity, as well as regulation backed up with impact assessments and public consultations are crucial. It also turns to the important role of the CJEU since copyright cases regularly land before the Court and push further the harmonisation agenda. This chapter suggests that copyright law is not the right mechanism to achieve a balanced internal market with respect to ML-generated works. Finally, it briefly discusses some alternative non-authors' rights solutions for a future EU legislative action.

Chapter VI concludes the discussion and synthesises the findings of the previous chapters.

Chapter II – Computational creativity

1. Premise

Copyright law, art and technology have always stood in a triangular relationship. Art and technology tend to evolve very quickly, so copyright law is sometimes accused of being late in addressing the dilemmas these fields pose. Each technological advancement has given rise to policy discussions filled with hope and fear – from the printing press to Google.⁹⁵ In this respect, the ‘AI phenomenon’ is nothing copyright academia has not seen before. The debates surrounding the protection with copyright of ‘creative’ output generated via a process that is largely automated, resemble to a great extent the discussions that copyright scholars faced in respect of photography,⁹⁶ video games⁹⁷ and animation;⁹⁸ and more generally, any creative work in which there is the presence of a computational device.

This chapter demystifies the ML technology in a computational creativity process. This is a critical first step before delving into the copyright implications. It will help comprehend, as much as possible, its mechanics in order to then adequately address the authorship conundrum.

To do this, this chapter starts from the generative art theory.⁹⁹ In the first part it briefly traces its evolution as this provides the base to discuss creativity of ML-

⁹⁵ Tom Wheeler, *From Gutenberg to Google: The History of Our Future* (Brookings Institution Press 2019); Paul Goldstein, *Copyright's Highway: From Gutenberg to the Celestial Jukebox* (1 edition, Stanford Law and Politics 2003).

⁹⁶ Hertzmann (n 52) 21.

⁹⁷ *Case C-355/12 Nintendo Co Ltd and Others v PC Box Srl and 9Net Srl* [2014] CJEU ECLI:EU:C:2014:25 [25].

⁹⁸ Hertzmann (n 52) 25.

⁹⁹ This will be further discussed in section 2. See, Philip Galanter, ‘What Is Generative Art?’ (*Philip Galanter*, 2003) <https://www.philipgalanter.com/downloads/ga2003_paper.pdf> accessed 18 May 2020, where the author defines it as ‘any art practice where the artist uses a system, such as a set of

generated works (section 2). In many fields, courageous claims have been made regarding the power of ML. This has led to serious exaggeration and misinformation. In order to address the ‘novelty’¹⁰⁰ of ML, this chapter turns to the functioning of traditional software to illustrate its limits (section 3). It is, in fact, only by understanding how programming was done in its very beginning and juxtaposing it with ML techniques, that one can truly address the present-day copyright consequences of computational creativity.

In the second part of the chapter, the reader is introduced to the so-called ‘master algorithm’ (section 4).¹⁰¹ This analysis adopts a hands-on technical approach, the aim of which is to comprehensively break down the stages of the ML process in order to address the emerging copyright authorship issues. The analysis identifies four main pillars of generative art (section 4.1.). The discussion then zooms into the field of artificial neural networks, where further features of the ML process emerge (section 4.2.). As a result, the delicate question which occupies the heart of this thesis will slowly start shaping – how should copyright law treat new forms of creativity such as “computational creativity”¹⁰² that have flourished with the spread of ML. Indeed, many works entailing in one way or another a certain degree of system ‘autonomy’ have come around. Some have had a wide commercial success. For instance, ‘The Next Rembrandt’ was a sensational project.¹⁰³ Programmers fed a ML system with all of Rembrandt’s paintings, which were analysed pixel by pixel. Studying the works of the great master for more than 500 hours, the system eventually generated the ‘next Rembrandt’. Some have rightly argued that there may be many creative choices at certain stages of the process carried out by the programmers which would be sufficient

natural language rules, a computer program, a machine, or other procedural invention, which is set into motion with some degree of autonomy contributing to or resulting in a completed work’.

¹⁰⁰ Please, note that this does not refer to the requirement for novelty in patent law.

¹⁰¹ Domingos (n 28).

¹⁰² Boden, ‘Creativity and Artificial Intelligence’ (n 42) 349.

¹⁰³ ‘The Next Rembrandt’ (n 58).

as far as copyright protection is concerned.¹⁰⁴ This is most likely the case for that specific project, but the answer is not that straightforward for other computational creativity projects. Thus, to provide more precise illustration of these issues, this chapter ends by presenting some specific case studies from the two most prominent techniques of ML-generated art: generative adversarial networks (GANs)¹⁰⁵ and creative adversarial networks (CANs) (section 5).¹⁰⁶

2. Theory of generative art and its evolution

The foundations of generative art are said to be laid down by Philip Galanter.¹⁰⁷ He defines it as “any art practice where the artist uses a system, such as a set of natural language rules, a computer program, a machine, or other procedural invention, which is set into motion with some degree of autonomy contributing to or resulting in a completed work”.¹⁰⁸ An essential feature of his definition is the presence of a certain level of autonomy of the system, whereby the artist cedes control fully or partially. He underlines that the scope of generative art is rather broad and is not necessarily tied to any technology in particular.¹⁰⁹ In fact, Galanter sustains that, even though generative art has often been associated with computer and technology, it actually

¹⁰⁴ Gerald Spindler, ‘Copyright Law and Artificial Intelligence’ (2019) 50 IIC - International Review of Intellectual Property and Competition Law 1049, 1050; Hartmann and others (n 26) 82.

¹⁰⁵ Ian J Goodfellow and others, ‘Generative Adversarial Networks’ [2014] arXiv:1406.2661 [cs, stat] <<http://arxiv.org/abs/1406.2661>> accessed 16 March 2020.

¹⁰⁶ Ahmed Elgammal and others, ‘CAN: Creative Adversarial Networks, Generating “Art” by Learning About Styles and Deviating from Style Norms’ [2017] arXiv:1706.07068 [cs] 1.

¹⁰⁷ Galanter (n 99).

¹⁰⁸ *ibid* 4.

¹⁰⁹ *ibid*.

precedes computer art and may be considered as old as art itself.¹¹⁰ The key take away point from his definition is the element of autonomy,¹¹¹ whereby the artist passes over certain tasks to a system, device or algorithm. The crucial copyright concerns start coming to shape – is there a point in which the artists has ceded so much control to the system that the artist is no longer able to call the final work their own?

At this stage, fundamental questions about the essence of creativity in the realm of machine-generated works arise. In this respect, Simon Colton and Geraint A. Wiggins, leading the Painting Fool project,¹¹² understand computational creativity as “the philosophy, science and engineering of computational systems which, by taking on particular responsibilities, exhibit behaviours that unbiased observers would deem to be creative.”¹¹³ The idea of taking on responsibilities here matches the notion of ceding control (or system autonomy) that Galanter referred to above and which has been underlined by many others too.¹¹⁴ In contrast to him, however, the authors focus on the precise role of computers. According to Colton and Wiggins, the scope of computational creativity, is narrower than that of generative art. It pertains to creative output generated with the aid of some computational system.

In that respect, their work comes closer to that of Ahmed Elgammal and Marian Mazzone, whose foundational notion is that of “algorithmic art”.¹¹⁵ In their understanding, any art which cannot be created without the aid of programming would

¹¹⁰ *ibid* 15; See also Jon McCormack and others, ‘Ten Questions Concerning Generative Computer Art’ (2014) 47 *Leonardo* 135.

¹¹¹ Further on the ‘illusion of autonomy’ see Burk (n 54) 3.

¹¹² ‘The Painting Fool - A Computer Artist’ <<http://www.thepaintingfool.com/>> accessed 19 May 2020.

¹¹³ Simon Colton and Geraint A Wiggins, ‘Computational Creativity: The Final Frontier?’ (IOS Press 2012) 1.

¹¹⁴ McCormack and others (n 110) 138–139.

¹¹⁵ Marian Mazzone and Ahmed Elgammal, ‘Art, Creativity, and the Potential of Artificial Intelligence’ (2019) 8 *Arts* 26, 26.

fall in the scope of algorithmic art.¹¹⁶ An additional element present in these later studies is that of creativity.¹¹⁷ Towards the end of this chapter Elgammal and Mazzone's projects will come up again and their strong reliance on the system will be demonstrated more practically. For the time being, it suffices to stress that Colton and Wiggins underline that faced with computational creativity the unbiased observer" would be led to believe that the work is creative. The emphasis is on the unbiased observer since it seems that the wider audience is not yet prepared to associate the notion of creativity to a machine.¹¹⁸

In an earlier work, Colton stressed that software can be stamped with the creativity label only provided that it can balance alone on the "creativity tripod".¹¹⁹ The three legs of the tripod are skilfulness, appreciation and imaginative behaviour. Only if all three legs are present will the tripod accurately support the perception of creativity.¹²⁰ Colton and Wiggins acknowledge that computational systems are not equal to humans – they fail to stand on the creativity tripod for one reason or another. Yet, the authors maintain an optimistic outlook and urge to look differently at computational creativity and celebrate it for what it is – "creativity, but not as we know it".¹²¹ According to them, three important maxims should be borne in mind when assessing computational creativity projects.¹²² First, when we celebrate an artefact,

¹¹⁶ *ibid.*

¹¹⁷ *ibid*; Colton and Wiggins (n 113).

¹¹⁸ D Moffat and M Kelly, 'An Investigation into People's Bias against Computational Creativity in Music Composition' (2006) <http://ccg.doc.gold.ac.uk/ccg_old/events/ecai06/proceedings/Moffat.pdf> accessed 19 May 2020.

¹¹⁹ Simon Colton, 'Creativity versus the Perception of Creativity in Computational Systems', *AAAI Spring Symposium on Creative Systems*, (2008) <<https://www.aaai.org/Papers/Symposia/Spring/2008/SS-08-03/SS08-03-003.pdf>> accessed 19 May 2020.

¹²⁰ *ibid* 4.

¹²¹ Colton and Wiggins (n 113) 5.

¹²² *ibid.*

we are also celebrating the creative act which brought it into being.¹²³ So, this is linked to the computational creativity process itself. For that reason, this work focuses narrowly on the technicalities of the ML process. Secondly, the artefact resulting from a creative act should be seen as an invitation to engage in a dialogue with the artefact and/or the creator and/or the culture and/or yourself.¹²⁴ It is important to underline that the dialogue is not with the system itself, but with the human beings involved in the process, the cultural aspects or the artefact itself. Finally, Colton and Wiggins emphasise that software is not human, so all “unreasoned” and romantic ideas about the creative process in humans shall be abandoned and replaced with computational understanding of creativity.¹²⁵ This last point pushes traditional and central copyright conventions to their limits. It is common to attach a label such as “computational creativity” to these creations, but this does not automatically qualify such productions for copyright protection. And, there is nothing wrong with that. Like Lionel Bently says, the death of the author in literature does not automatically lead to the death of the author in copyright law.¹²⁶ So, in the same vein – the existence and appreciation of computational creativity within the art circles does not necessarily stamp a work with copyright protection right away. As it will emerge, in the EU in order to get there several conditions have to be fulfilled.

3. Traditional programming and its limits

Policy discussions on ML regularly try to define the term, but there is often a lack of understanding of the practical revolution ML brought. In other words, how does ML differ from traditional programming? To provide an answer, this subsection breaks down traditional programming, which will then serve as a point of reference when we

¹²³ Colton (n 119) 5.

¹²⁴ Colton and Wiggins (n 113) 5.

¹²⁵ *ibid.*

¹²⁶ Lionel Bently, ‘Copyright and the Death of the Author in Literature and Law’ (1994) 57 *Modern Law Review* 973, 976.

delve into ML. It briefly examines the basics of programming (section 3.1.) and then turns to its limits in the context of more complicated tasks (section 3.2).

One important specification needs to be made at this stage. The term ‘traditional programming’ in this section refers to classical computer programs, which at their core level are composed of a source code and an object code, whereby the latter is also called machine code.¹²⁷ These two elements set detailed instructions regarding the order in which the hardware of a computer must execute its primitive functions to carry out a particular task.¹²⁸ The source code, intelligible to the human mind, comprises words in one of the several programming languages. It is written by human programmers and could even entail a degree of subjectivity and interpretation similar to what books are.¹²⁹ The source code is then translated into machine or object code, which, most often consists of digits (0 and 1) and is executed by a machine.¹³⁰ This transformation into a machine code takes place through compilers and interpreters.¹³¹ This classical understanding of a computer program is the target of the analysis in this subsection.

3.1. The revolution of software

Technology has given rise to cases and legislation in the context of copyright law, where it seems like the legislator or the court is rather unclear on the mechanics of the

¹²⁷ Pamela Samuelson, ‘CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form’ (1984) 1984 Duke Law Journal 663, 683.

¹²⁸ *ibid.*

¹²⁹ *ibid.*, see footnote 74 in particular.

¹³⁰ *Case C-393/09 Bezpečnostní softwarová asociace - Svaz softwarové ochrany v Ministerstvo kultury* [2011] CJEU ECLI:EU:C:2010:816 [49]; Samuelson, ‘CONTU Revisited’ (n 127) para 21.

¹³¹ Hoo-min D Toong and Amar Gupta, ‘Personal Computers’ (1982) 247 *Scientific American* 86, 99.

technology.¹³² In all this, many legislative initiatives have strived to adopt a ‘technologically neutral’ language with the aim of being forward looking. However, before becoming forward-looking, as such, a realistic assessment of the available technology is necessary. And, this is precisely what this section strives to achieve. If computers are comparable to magic and they work in a fascinating way, then indeed “the magic we understand is safer and more powerful than the magic we don’t.”¹³³

The term ‘traditional software program’ is the starting point of the analysis.¹³⁴ It intends to cover all software programs, widely employed for many decades. One author characterises this traditional software as “a recorded set of instructions that control the actions of a machine”.¹³⁵ Such “pre-configured set of instructions”¹³⁶ includes very serious and heavy coding carried out by a programmer or a group of programmers. In the very beginning of its evolution, during the 60s, software programs

¹³² One very recent example is Directive 2019/790 on copyright and related rights in the Digital Single Market, which obliges intermediaries to either license all copyright infringing content which may be uploaded by their users, or to adopt a filtering mechanism capable of identifying such works without prejudice to legitimate permitted uses such as parody, caricature and pastiche. Interestingly, no such advanced algorithm exists that is capable of performing this function. It is even arguable that this is an onerous task also for humans. For further discussion on this see, among many others: Martin Senftleben, ‘Bermuda Triangle – Licensing, Filtering and Privileging User-Generated Content Under the New Directive on Copyright in the Digital Single Market’ (2019) 41 EIPR 480; Maria Lillà Montagnani, ‘Virtues and Perils of Algorithmic Enforcement and Content Regulation in the EU – A Toolkit for a Balanced Algorithmic Copyright Enforcement’ (2020) 11 Journal of Law, Technology & the Internet (Forthcoming); Maria Lillà Montagnani and Alina Trapova, ‘Safe Harbours in Deep Waters: A New Emerging Liability Regime for Internet Intermediaries in the Digital Single Market’ (2018) 26 International Journal of Law and Information Technology 294; Giancarlo Frosio, ‘To Filter or Not to Filter? That Is the Question in EU Copyright Reform’ (2018) 32 Cardozo Arts & Entertainment Law Journal 331.

¹³³ Ron White and Timothy Edward Downs, *How Computers Work* (Que 2005) ch Introduction.

¹³⁴ The term is used interchangeably with ‘algorithm’, ‘computer’ and ‘application program’. When the discussion pertains to ML, this is explicitly specified.

¹³⁵ White and Downs (n 133) ch How software works?

¹³⁶ *ibid.*

were very different from those we are used to today – one software was designed to function on one particular piece of hardware (ie computer) and carried out one specific function.¹³⁷ This first generation of computers were “hard-wired”.¹³⁸ To prompt the device to perform a different function, the whole machine had to be re-wired and re-configured. Back then, the software industry saw only a few firms on the market, which would typically offer both hardware and software.¹³⁹ During the late 70s, software became more widespread and not the sole domain of large hardware producers.¹⁴⁰ With this, the price of software also dropped significantly and saw many smaller and software specialised companies enter the market. By then computers had become “universal machines” in the sense that they could be programmable: “machines capable of performing any task for which it was possible to create program instructions.”¹⁴¹

At the same time, legal challenges and regulatory doubts surfaced. For instance, in the US in 1974, Congress established the National Commission on New Technological Uses of Copyrighted Works (CONTU) to study, among other things, problematic issues around software and computer-generated works.¹⁴² The report recommended the protection of computer programs with copyright law,¹⁴³ which was criticised both by some of the Commissioners, among which there was also Melville

¹³⁷ *ibid.*

¹³⁸ Samuelson, ‘CONTU Revisited’ (n 127) 673.

¹³⁹ White and Downs (n 133) ch Introduction; ‘William Fisher, CopyrightX: Lecture 3.1, The Subject Matter of Copyright: Literature (and Software) - YouTube’ <<https://www.youtube.com/watch?v=zBNsrX7TFIM>> accessed 7 May 2020.

¹⁴⁰ Peter S Menell, ‘Tailoring Legal Protection for Computer Software’ (1987) 39 *Stanford Law Review* 1329, 1329–1330.

¹⁴¹ Samuelson, ‘CONTU Revisited’ (n 127) 674, referring to Andrew Hodges, *Alan Turing: The Enigma* (Burnett Books/Hutchinson 1983).

¹⁴² National Commission on New Technology Uses of Copyrighted Works (CONTU), ‘Final Report’ (1978) <<http://digital-law-online.info/CONTU/index.html>> accessed 7 May 2020.

¹⁴³ *ibid* 1–2.

Nimmer – a leading name in the field of copyright law,¹⁴⁴ as well as by academics for lack of compliance with the utility rule.¹⁴⁵

Overtime computer programs and their packaging evolved rapidly and dramatically to the extent that we have moved to very powerful devices presented in a miniature and elegant form. Yet, all traditional software is characterised by one and the same facet: “the only way to get a computer to do something – from adding two numbers to flying an airplane – was to write down an algorithm explaining how, *in painstaking detail*.”¹⁴⁶ [emphasis added]. In other words, every time one would like to prompt a computer to do a different function, new lines of code are necessary since the essence of traditional algorithms is a “sequence of instructions telling a computer what to do.”¹⁴⁷ These instructions cannot be vague and incomplete. Quite the opposite – they must be very precise and unambiguous so that a computer is able to execute the requested function. Alternatively, the program would not run. This is something that Martin Senftleben and Laurens Buijtelaar call “step-by-step” algorithm, ie the algorithm is an “instruction manual (or a set of rules) that directly dictates the robot’s creation process”.¹⁴⁸ The programmer would have to anticipate all functions a user of the program needs to be able to perform, arrange these functions, connect them, and then ensure that the whole system is quick, reliable and efficient.¹⁴⁹

This setting has worked well for many decades - coding and programming have been at the heart of many successful industries and innovations of our lives.

¹⁴⁴ *ibid* 26–27, where he overall concurs with the majority of the opinion, but expresses serious doubts as to the protection of computer programs with copyright law; *ibid* 27–38, where Commissioners John Hersey and Rhoda Karpatkin express their disagreement on the question of treating computer programs as a copyrightable subject matter.

¹⁴⁵ Samuelson, ‘CONTU Revisited’ (n 127) 705.

¹⁴⁶ Domingos (n 28) xi; Ethem Alpaydin, *Machine Learning: The New AI* (MIT Press 2016) 16.

¹⁴⁷ Domingos (n 28) 1.

¹⁴⁸ Senftleben and Buijtelaar (n 76) 9.

¹⁴⁹ Samuelson, ‘CONTU Revisited’ (n 127) 687.

3.2. The limits of traditional software

That said, overtime substantial challenges emerged, especially when more advanced tasks were at stake. First such difficulty was storage space – the more intricate the function of the computer, the more memory it required to save the code. Storage and computing power were the first barriers programmers hit when exploring the limits of algorithms. Second, there was the complexity of time – the more complicated the algorithms, the longer it takes to execute the tasks.¹⁵⁰ Computers can only process so much at a single time. Finally, and perhaps most importantly, there is the human complexity. Algorithms become too complex for the human brain to grasp. This last aspect seems to be particularly frustrating for many talented computer scientists.

Pedro Domingos has characterised these challenges as “the complexity monster”.¹⁵¹ Getting to grips with this creature has been a lifetime challenge of many computer scientists, who, despite sometimes losing some battles, have nonetheless kept fighting the war and, thus, continued “to build the tower of algorithms, with greater and greater difficulty.”¹⁵²

It was not until significant advances in hardware processing came about that serious steps were made in defeating the first two issues – the storage space and time complexity.¹⁵³ In fact, the latest graphic processing units (GPUs) operate faster than

¹⁵⁰ *ibid.*

¹⁵¹ Domingos (n 28) 5.

¹⁵² *ibid.*

¹⁵³ This was stressed by Riccardo Zecchina during the inaugural lecture for the Vodafone Chair in Machine Learning and Data Science; See further at Riccardo Zecchina, ‘Bocconi Events - Vodafone Chair in Machine Learning and Data Science - Lectio Inauguralis - The Future of Machine Learning Is Our Future’ (*Bocconi University*, 28 May 2018) <<https://www.unibocconi.it/wps/wcm/connect/ev/Events/Bocconi+Events/Vodafone+Chair+Lectio+Inauguralis>> accessed 3 December 2020.

the fastest computers in the year of 2000.¹⁵⁴ Advances in video games hardware seem to have been crucial in this respect.¹⁵⁵ Consequently, computers, nowadays, function ten million times faster than the fastest workstation in the 80s.¹⁵⁶ Still, despite this, the human complexity remained lurking in the dark to remind computer scientists that their capabilities, for now, still do have limits.

4. Machine learning – key features of the master algorithm

Once the computation and the storage challenges were overcome, the soil became almost fertile for a serious revolution to take place. The last element to the equation which brought about the latest renaissance in computer science is data, more precisely *big data*.¹⁵⁷ While data is not the focus of this thesis, it is important to take a moment to appreciate that the ubiquity of data stimulated a revolution in ML in the last decades. Data has been compared to oil as it is the backbone of the digital economy. It is what the ML process feeds on: the more data, the better, more accurate the process. This is though only one element of the revolution. Advanced algorithms giving rise to many fascinating commercial applications have steered the discussion even further.¹⁵⁸

Much has been written on the topic of ML and more literature will certainly come about. Nonetheless, put in a very simplistic manner, when we talk about ML, we refer to an algorithm, trained to classify objects by being exposed to many examples, ie data. The algorithm then establishes patterns in the data it has been fed with and

¹⁵⁴ *ibid.*

¹⁵⁵ Bryan House, 'A Brief History of GPUs - Neural Magic Blog' (*Neural Magic*, 6 August 2019) <<https://medium.com/limitlessai/a-brief-history-of-gpus-27122d8fd45>> accessed 3 December 2020.

¹⁵⁶ Zecchina (n 153).

¹⁵⁷ Domingos (n 28) 7.

¹⁵⁸ Jason Furman and Robert Seamans, 'AI and the Economy' 4 <<https://papers.ssrn.com/abstract=3186591>> accessed 12 May 2020.

learns to generate new such works with this data without being explicitly programmed to do so. The process is a “general-purpose technique”, applicable in all sectors to optimise decision-making and facilitate innovation.¹⁵⁹ Importantly, it is the algorithm itself that determines this pattern in the training material and not the programmer. According to computer scientists, such ability is completely natural for humans, but has always been very difficult for computers.¹⁶⁰ In the past, as it has emerged in the previous section, traditional programming operated on the basis of pre-defining the features of the sought outcome which resulted in much imprecision and was extremely time-consuming. The shift is now towards systems that “learn from example, rather than define *a priori* what the objects are.”¹⁶¹ In that respect, the technique resembles the early learning experiences of children based on constant repetition and error.¹⁶² Importantly though, digital technologies do not think better than humans; they can do more things *better* than humans by processing large amounts of data.¹⁶³ In the field of art, once the training is completed, the algorithm manages to generate new works that follow the aesthetics of the works it has been trained on.¹⁶⁴

When it comes to various types of learning and the way in which training data is used, broadly speaking we can distinguish between supervised and unsupervised learning.¹⁶⁵ The most common type of learning is supervised, which uses labelled data.¹⁶⁶ In that respect, a human being is behind the labelling process, which then hints to a clear human involvement and naturally, investment. Another type of learning

¹⁵⁹ Drexl and others, ‘Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective’ (n 30) 4.

¹⁶⁰ ‘Delving into Artificial Intelligence | Riccardo Zecchina | TEDxBocconiU - YouTube’ (n 28).

¹⁶¹ *ibid.*

¹⁶² Buning (n 88) 312.

¹⁶³ Floridi (n 21) 10.

¹⁶⁴ Mazzone and Elgammal (n 115) 26.

¹⁶⁵ Note, there is also ‘reinforcement learning’, see further Hartmann and others (n 26) 26.

¹⁶⁶ Yann LeCun, Yoshua Bengio and Geoffrey Hinton, ‘Deep Learning’ (2015) 521 *Nature* 436, 436.

is unsupervised learning, which produces clusters based on the similarities in the training data and relies on unlabelled data.¹⁶⁷ The human involvement in the data preparation stage is less.¹⁶⁸

A strict division between the two methods is not always possible. These categories were set long before breakthrough advances in the field took place. Nowadays, artificial neural networks (NN) often tend to merge the two. Indeed, many of the most modern generative art techniques, such as generative adversarial networks (GANs), that will be discussed in section 5, entail many supervised learning components in order to carry out unsupervised learning tasks.

Sceptics of the ML field are many. One particularly fierce group of critics are knowledge engineers, among which we find the MIT Professor Marvin Minsky¹⁶⁹ and the prominent linguist Noam Chomsky.¹⁷⁰ They strongly believe that knowledge cannot be learnt automatically.¹⁷¹ If knowledge is to happen in a machine it must be coded into it by a human expert.¹⁷² Yet, despite this, the ML field is blossoming again. One specific aspect has become evident which seems to defeat the knowledge engineers' argument.¹⁷³ Over the years, many talented coders have taken up the task of programming into machines various facets of human intelligence - vision, speech recognition, reasoning, navigation. However, the "complexity monster" kept re-emerging – "too many moving parts, too many interactions, too many bugs for poor

¹⁶⁷ Kevin P Murphy, *Machine Learning: A Probabilistic Perspective* (MIT Press 2012) ss 9–13.

¹⁶⁸ Drexl and others, 'Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective' (n 30) 8, where the authors underline that more extensive human involvement might be necessary at the output interpretation stage.

¹⁶⁹ Marvin Minsky, *The Society of Mind* (Simon & Schuster 1988).

¹⁷⁰ Domingos (n 28) 36.

¹⁷¹ *ibid* 34.

¹⁷² *ibid*.

¹⁷³ *ibid* 35–36, where the author refers to sceptics such as Marvin Minsky from MIT, Noam Chomsky and the psychologist Jerry Fodder.

human software engineers to cope with”.¹⁷⁴ Consequently, ML has firmly taken the stage and sparked many interesting discussions.

Having said that, it is important to be clear on one specific aspect - ML does not constitute just one specific method. Quite the opposite: there are many techniques, competing schools of thought and theories. Pedro Domingos divides these in five distinctive tribes: (i) symbolists, inspired by philosophy, psychology and logic; (ii) connectionists, driven by neuroscience; (iii) evolutionaries, drawing on genetics and evolutionary biology; (iv) Bayesians, basing their learning models in statistics; and (v) analogizers, highly influenced by psychology and mathematical optimization.¹⁷⁵ Each tribe sees the learning process differently, bears its own set of core beliefs and works on the basis of its own ‘learner’. Thus, each theory devises its own ‘master algorithm’.¹⁷⁶ Among these five, the connectionist field has given rise to major developments in the field of art. Connectionists, driven by the arguments from neuroscience, strongly believe that learning is what the brain does, so their main goal is to reverse engineer it.¹⁷⁷ The learning process in humans takes place by adjusting the strengths of the connections between the neurons in the brain. Hence, the name of the theory – connectionists.¹⁷⁸

Against this background and with the aim of having a rigorous discussion on copyright authorship and ML in the next chapters, this part of the thesis dissects the ML process behind computational creativity. Far too many conflicts can emerge when there is lack of understanding of the underlying fundamental concepts in a given field. Prior to recommending any reform or even assessing the adequacy of the law, it is imperative that key notions such as ML, training sets, learning algorithm, trained algorithm, learning process, among others, are clearly defined, organised and

¹⁷⁴ *ibid* 36.

¹⁷⁵ *ibid* xvii.

¹⁷⁶ *ibid* 51–54.

¹⁷⁷ *ibid* 52.

¹⁷⁸ *ibid* 93.

comprehended. Borrowing the term from Pedro Domingos, this section introduces its own “master algorithm”.¹⁷⁹ It builds the skeleton of the ML process in computational creativity and familiarizes the reader with its key features from the point of view of copyright law. Consequently, this part builds the foundations for copyright authorship discussion in the next chapters.

4.1. The four main pillars of generative art

Before delving into the specifics of the process an important caveat is necessary. Each ML process entails its own individual peculiarities, depending on the final artistic goal as well as the technical specifications. The beauty of the field is that it provides artists and computer scientists with a wide, but not always controllable, freedom to tweak and adjust. In that regard, Lehr and Ohm underline that ML is far from a monolith; on the contrary, it “dances back and forth” across the various steps and stages instead of proceeding through them linearly.¹⁸⁰

With this in mind, the following digs into the technical process of the ML/art master algorithm by reference to several studies. A central study forming the basis of this work is a technical analysis carried out in 2017 by the Harvard Law School Cyberlaw Clinic at the Berkman Klein Center for Internet & Society (the ‘Berkman Center Study’).¹⁸¹ It lifted the veil of ‘AI’ by dissecting computational creativity systems to study their features from a legal perspective. The researchers called this “a legal anatomy of AI-generated art”. In their work, they emphasise the importance of sharing a common vocabulary with plain-language, which has eliminated many areas of potential

¹⁷⁹ Domingos (n 28); *Pedro Domingos: ‘The Master Algorithm’ | Talks at Google* <<https://www.youtube.com/watch?v=B8J4uefCQM>> accessed 21 October 2019.

¹⁸⁰ Lehr and Ohm (n 11) 669.

¹⁸¹ Jessica Fjeld and Mason Kortz, ‘A Legal Anatomy of AI-Generated Art: Part I’ [2017] JOLT Digest <<http://jolt.law.harvard.edu/digest/a-legal-anatomy-of-ai-generated-art-part-i>>.

conflict.¹⁸² From further talks with the Managing Director of the Cyberlaw Clinic, Chris Bavitz, it emerges that the idea of digging deeper into generative algorithms was born out of a practical need.¹⁸³ The clinic has been advising artists and ML specialists who collaborated in an art exhibition. Eventually, it seems like the final creative output started resembling too much the inputs of the artists, unravelling potential conflict areas between the involved parties. So, this is when the Cyberlaw Clinic stepped in. Despite the idea that ML models can vary widely, the Berkman Center Study underlines that all generative processes bear certain commonalities. These peculiar technical specifications evidently differentiate ML from traditional programming. In that respect, four different and identifiable steps emerge out of the legal anatomy of a generative art system (Figure 1: “A Legal Anatomy of AI-Generated Art” - J. Fjeld and M. Kortz (2017)):

- i. Input
- ii. Learning algorithm
- iii. Trained algorithm
- iv. Output

These four clearly identifiable steps will then be supplemented with further facets emerging from the peculiarities of the deep neural networking process. The four pillars are the “ML/art master algorithm” (herein also referred to as ‘ML/art process’), the steppingstones of the legal analysis that will follow. The ML process is separated in four clearly identifiable steps. This thesis adopts a gradual methodology as far as the technical aspects of ML are concerned – this subsection first introduces the groundwork, ie the four main pillars, and then supplements them with additional features stemming from the specifics of the artificial neural networks technique.

¹⁸² *ibid.*

¹⁸³ The author has had the opportunity of discussing this topic with Prof Christopher Bavitz at the Geneva Internet L@w Colloquium 2018 organised by the University of Geneva on 22 June 2018.

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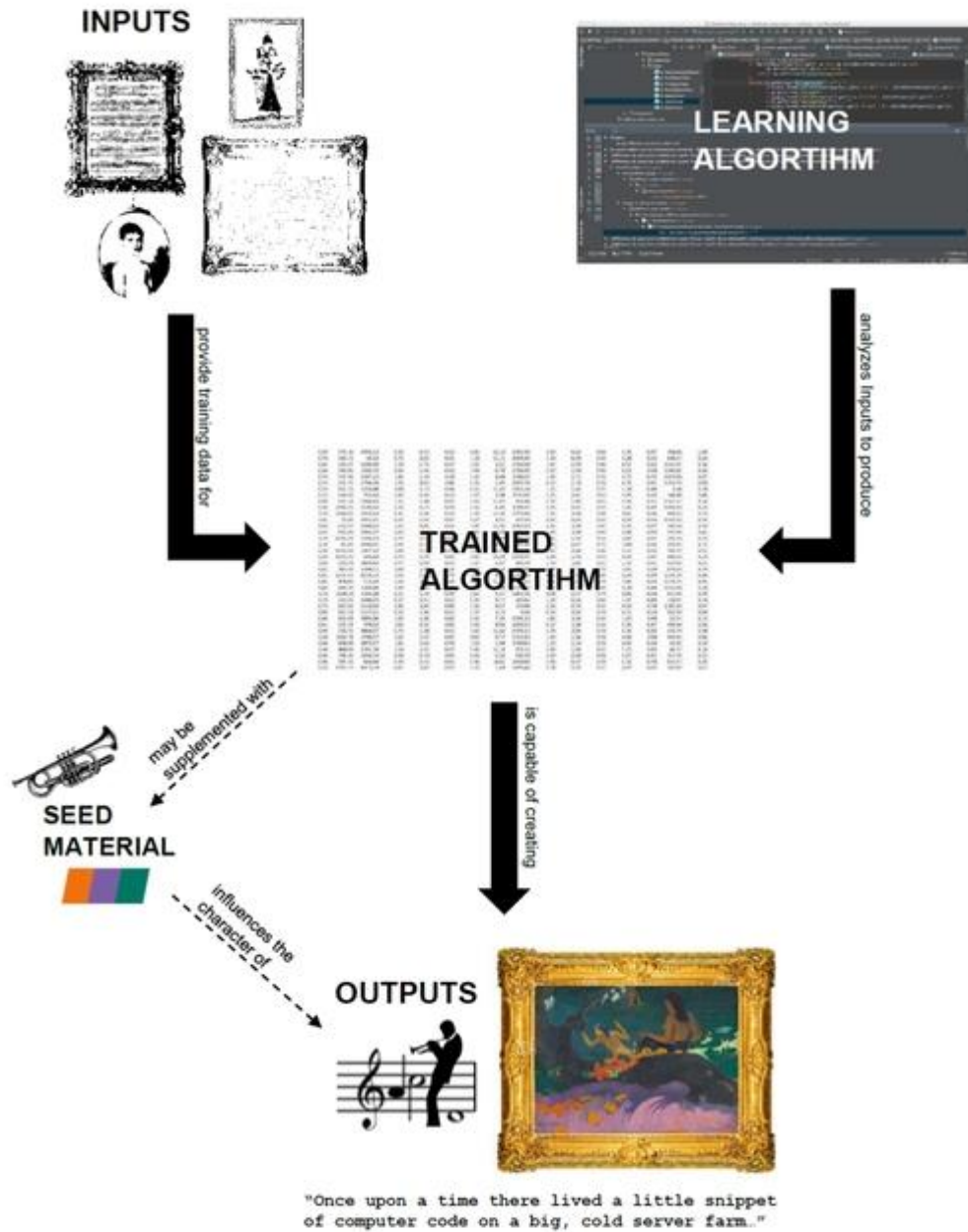


Figure 1: "A Legal Anatomy of AI-Generated Art" - J. Fjeld and M. Kortz (2017)

The starting point is the input - existing artworks fed into the system to train it. Authors have strongly emphasised the importance of the input stage and the collection of data. In particular, David Lehr and Paul Ohm present the ML process in eight stages, which they divide in two workflows – “playing with the data” and “running the model”.¹⁸⁴ They emphasise the crucial importance of the former by highlighting that many broad legal issues (not always only copyright law ones) could be minimised, even eliminated, if more attention is paid to the input data and its handling.¹⁸⁵

Then, the inputs would ‘teach’ a so-called learning algorithm how to generate art and in that sense, they act as training data. The learning algorithm runs through the inputs and identifies their relevant characteristics. It could be an off-the-shelf proprietary software, open-source, a freshly written code, or even a mix of several types.¹⁸⁶ The processes employed at the learning algorithm stage can vary widely. Additionally, the learning may be ‘active’ to the extent that it involves a certain degree of human feedback.¹⁸⁷

The third pillar is the trained algorithm, which is practically the information that the learning algorithm has extracted after having operated on the inputs. This stage is unique to each individual project in the sense that running the same learning algorithm on different inputs, or the other way around, would result in a new, unique trained algorithm. It is indeed the trained algorithm that finally generates the outputs, ie the new artwork in the form of a drawing, musical work, or other classical work.

The Berkman Center Study underlines one important feature that deserves a mention at the stage of the trained algorithm – the use of seed material. These are template or grammar rules, which influence the character of the outputs.¹⁸⁸ This step

¹⁸⁴ Lehr and Ohm (n 11) 655, where they argue that legal scholars have not given sufficient attention to the former workflow and have been too narrowly focused on ‘running the model’.

¹⁸⁵ *ibid* 655–657.

¹⁸⁶ Drexler and others, ‘Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective’ (n 30) 7.

¹⁸⁷ Fjeld and Kortz (n 181).

¹⁸⁸ *ibid*.

should not be conflated with the inputs, the starting point of the ML process. Instead, the seed material acts as a tweaking mechanism when the trained algorithm produces the outputs.

Consequently, the trained algorithm emerges as the most important and peculiar pillar of this framework. Many, not familiar with ML, conflate the various stages, in particular the trained algorithm with the learning algorithm or the outputs. This happens because in traditional programming one is typically used to seeing one single algorithm, while here the process entails two of them. Importantly, the trained algorithm “represents the unique combination of the Inputs and the Learning Algorithm, which raises complex ownership questions”.¹⁸⁹

To understand the value behind this simplified figure a metaphor introduced by Pedro Domingos might come in handy.¹⁹⁰ The learning algorithm is the seed, while data (here, the input images) are the soil, and the trained algorithm is the grown plants. In all this, he compares the ML expert to a farmer who is responsible to sow the seeds, irrigate and fertilise the soil, and keep “an eye on the health of the crop, but otherwise stay[s] out of the way”.¹⁹¹

In 2019, an art historian (Marian Mazzone) and a computer scientist (Ahmed Elgammal) also studied the technical process for generative art.¹⁹² The authors adopt a very open-minded approach, advocating for a partnership between the device and the human being as opposed to a conflict. Furthermore, they introduce a block diagram showing the artist’s role in the art generative process (Figure 2: “Art, Creativity, and the Potential of Artificial Intelligence” - a diagram created by A. Elgammal (2019)). The input pillar introduced in the Berkman Center Study here corresponds to ‘input images’, or ‘pre-curation’. This stage sees the involvement of the artist in the selection

¹⁸⁹ *ibid.*

¹⁹⁰ Domingos (n 28) 7.

¹⁹¹ *ibid.*

¹⁹² Mazzone and Elgammal (n 115); Note, that many of these studies misleadingly use the buzzword ‘AI’. This is rather deceptive. For a detailed discussion on the term AI refer see Chapter I - Introduction, Problem Review.

and organisation of the training data. The learning and trained algorithm are boxed into the ‘AI generative model’ stage, whereby some level of tweaking by the artist is possible.¹⁹³ Eventually, the model generates images (output), which can then again be curated by the artist. This implies that an important feature – even following the running of the process the artist still has some room for intervention before the artwork becomes final. This is depicted as follows:

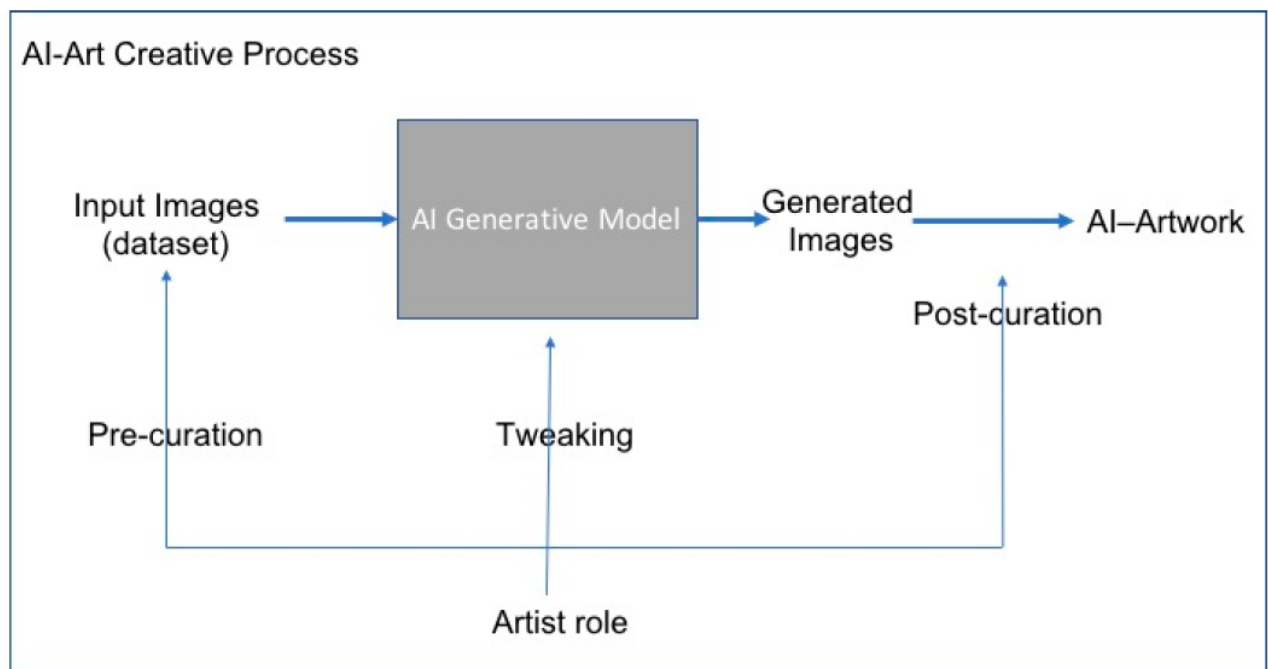


Figure 2: “Art, Creativity, and the Potential of Artificial Intelligence” - a diagram created by A. Elgammal (2019)

4.2. Zooming into artificial neural networks

The Berkman Center Study has identified the trained algorithm as the most important and novel stage of the ML process. In 2019, the Max Planck Institute for Innovation and Competition also engaged in a comprehensive overview of the technical aspects of ‘AI’ (‘MPI Study’).¹⁹⁴ It refers to the trained algorithm as a ‘trained machine learning

¹⁹³ Hartmann and others (n 26) 25–26, where the authors refer to this stage as ‘operational logic’.

¹⁹⁴ Drexler and others, ‘Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective’ (n 30) 5.

model’, or just ‘model’. In that respect, the MPI Study underlines that the trained algorithm is based upon a mathematical function that generates output through the process of learning patterns in the training data.¹⁹⁵

A specific type of trained algorithms are artificial neural networks (NN)- structures that highly resemble the functioning of the human brain. These models follow the neuroscience, connectionist logic, where neurons organised in networks establish associations according to the strength of the synapse connection. Two specific features of the NN are crucial – one the one hand, the so-called ‘architecture’ and on the other hand, the neurons connected by weights.

The architecture is developed by a programmer prior to the entire training process. It is fixed and does not evolve during the ML process and for that reason is characterised as a ‘hyperparameter’.¹⁹⁶

On the other hand, the weights (corresponding to synapse connections in the human brain), which connect the neurons, are trainable parameters. Thus, they get automatically optimised during the training process. The weights are in the form of a numeric value. Being trainable parameters, the weights are automatically optimised during the training process by the learning algorithm.¹⁹⁷ The neurons which these weights connect are mathematical functions. Consequently, the trained algorithm is a sum of all these mathematical functions. This is crucial for the copyright subsistence analysis in Chapter IV.

There can be many layers in the artificial neural network model. This is widely known as deep neural networks. The MPI study summarises and illustrates the trained algorithm, involving the weights and the neurons as follows:

¹⁹⁵ *ibid.*

¹⁹⁶ *ibid* 6.

¹⁹⁷ Note, that the MPI study refers to the ‘learning algorithm’ as ‘training algorithm’ or ‘optimisation algorithm’. It calls the ‘trained algorithm’ the ‘trained machine learning model’ or ‘model’

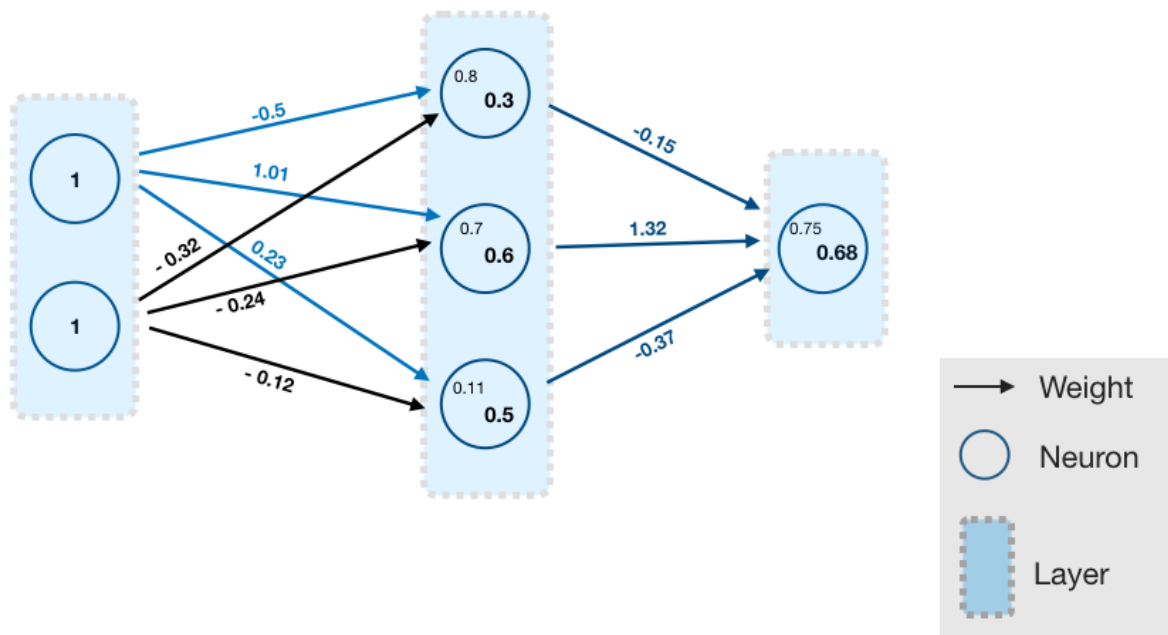


Figure 3: "Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective" - Josef Drexl and others (2019)

As the figure shows, a typical NN would have three layers: (i) an input layer to process the data; (ii) a middle, sometimes hidden, layer; and (iii) an output layer that generates the final outcome.¹⁹⁸ Nowadays, systems implement many layers which raise the complexity and require a higher computational power to be able to operate. Consequently, the training data (the input) is fed into the trained algorithm with the assistance of the learning algorithm which optimises the trainable parameters (ie, the weights). Being a mathematical operation, this optimisation is an automatic process. Therefore, the setting up of the architecture is the programmer's job (so, some human intervention there exists), but the optimisation of the weights through the learning algorithm is a mathematical operation (so, no human intervention exists there).

¹⁹⁸ Philip Galanter, 'Artificial Intelligence and Problems in Generative Art Theory' (2019) 113 <<https://scienceopen.com/document?vid=e14c8834-1858-468b-934d-1fa646c4711e>> accessed 20 May 2020.

Any practical use of a ML process requires a human step, meaning that no ML model kicks off on its own. Of course, it needs to be prompted by a human being in a certain way. Yet, what challenges the copyright authorship discussion is the exact degree of human involvement, which varies widely from one application to another.¹⁹⁹

5. Examples

In practice, things can become even more complex than the four pillars of the master algorithm and the NN systems since many other types of ML methods often get involved in the functioning. The purpose of this thesis is not to examine in profound detail all technical aspects of ML in generative art. This is a task for computer scientists and ML specialists in algorithmic art. Yet, in order to bring in some more concrete examples that question the copyright authorship arrangements in the EU, some ML/art projects will be introduced below. The aim is to practically demonstrate that computational creativity has led to many exciting artworks, which from afar, in the eyes of the unbiased audience, may indeed seem like authorial works.

5.1. Generative Adversarial Networks (GANs)

One type of ML is generative adversarial networks ('GANs'), which were developed by Ian Goodfellow during his doctoral studies.²⁰⁰ These have been extremely diffused in the fields of generative art. The general goal of GANs can be classified as unsupervised learning, but its functioning is characterised by supervised learning techniques.

¹⁹⁹ Drexl and others, 'Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective' (n 30) 9; Deltorn and Macrez (n 50) 7.

²⁰⁰ Goodfellow and others (n 105) 1.

In essence, GANs are a specific ML method in which two networks interact – a discriminator and a generator.²⁰¹ To understand how the system works, Goodfellow and his team used a police-counterfeiters metaphor.²⁰² The generative model is compared to a team of counterfeiters. The discriminators network are the police. Only the police have access to the training data, ie the input artwork. The counterfeiters/generators try to fool the police/discriminators into believing that the works they produce stem from the training set. The police/discriminators try to catch the counterfeiters/generators. However, in this process, the police constantly feeds the counterfeiter with feedback as to how the input training data looks like. This happens because the police/discriminators constantly compare the images generated by the counterfeiters/generators with the input (to which only the police/discriminators have access). Eventually, thanks to this constant communication between the two networks, the counterfeiters/generators are able to produce images that resemble the images in the training set. The essence of the process is this communication between the two models – this is also why these systems are called ‘adversarial’.

GAN projects are ubiquitous and have taken the centre stage in AI art firmly. Recently, a project called ‘GANKsy’ seeks to generate works that bear resemblance to the UK street artist Banksy.²⁰³ It must be underlined that, different to Banksy, the GANKsy works are closer to abstract art. One of the works generated in the projects looks like as follow:

²⁰¹ *ibid*; Drexl and others, ‘Technical Aspects of Artificial Intelligence: An Understanding from an Intellectual Property Law Perspective’ (n 30) 9; Elgammal and others (n 106) 5.

²⁰² Goodfellow and others (n 105) 1.

²⁰³ Kabir Jhala, ‘An AI Bot Has Figured out How to Draw like Banksy. And It’s Uncanny’ (*The Art Newspaper*, 23 October 2020) <<http://www.theartnewspaper.com/news/ai-generates-fake-banksy-algorithm>> accessed 3 December 2020.



Figure 4: Gansky's 00001101: promenade (2020)

A GANs was precisely the ML model adopted in the highly publicised work called 'Edmond de Belamy'.²⁰⁴ In October 2018, the portrait of the fictitious Mr Belamy was sold at an auction at Christie's for the spectacular price of \$432, 500.²⁰⁵ Signed with

²⁰⁴ 'Edmond de Belamy - Obvious Art' (n 49).

²⁰⁵ 'Is Artificial Intelligence Set to Become Art's next Medium? | Christie's' <<https://www.christies.com/features/A-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx>> accessed 22 May 2020.

the code of the algorithm, the proprietors of the work were a French collective called 'Obvious'. However, this project also raised some controversy when it emerged that it was not 'Obvious' that wrote the code for the project, but a coder called Robbie Barrat. He had put up the code with an open source license on GitHub – a code-sharing platform for software developers – and Obvious borrowed the code for their project. While Barrat says that he sees nothing legally wrong per se with Obvious' behaviour, it seems like morally there are some hard feelings as he was not credited and did not receive any of the remuneration.²⁰⁶

In fact, Barrat is behind some incredibly interesting projects such as a "RAPBOT", a rapping neural network, trained on 6000 lyrics lines from Kanye West songs, 'AI Generated Nude Portraits' and 'Infinite Skulls'. In the last, he collaborated with a French painter.²⁰⁷ Barrat compares his role to that of the artist Sol Lewitt, who would leave instructions to others who would then interpret them and put together the artwork. Barrat considers ML just as a mere tool in his creative process and claims that he is not just a "robot-tamer".²⁰⁸ Speaking more precisely of his nude portraits project, he specifies that he sees himself as the one that lays down the rules in the dataset that he feeds to the GAN. Yet, similar to the works of Sol Lewitt, the GAN does not always interpret perfectly his instructions since "otherwise, we'd get perfect nude portraits back. But we aren't, because the GAN has interpreted the rules laid down [...] incorrectly."²⁰⁹ At this stage, interesting questions arise as to where exactly is the art located – in the instructions to the model, in the process itself, if so, at which stage, in the tweaking or in the final product?²¹⁰ One of Barret's impressive works from these series is the following nude portrait:

²⁰⁶ 'Art + Tech Summit: The A.I. Revolution | Christie's' (n 81) at 3:59:32.

²⁰⁷ 'Robbie Barrat – Artist Profile (Photos, Videos, Exhibitions)' (*AIArtists.org*) <<https://aiartists.org/robbie-barrat>> accessed 22 May 2020.

²⁰⁸ 'Art + Tech Summit: The A.I. Revolution | Christie's' (n 81).

²⁰⁹ Jason Bailey, 'AI Art Just Got Awesome' (*Artnome*, 5 April 2018) <<https://www.artnome.com/news/2018/3/29/ai-art-just-got-awesome>> accessed 22 May 2020.

²¹⁰ Galanter (n 198) 116.



Figure 5: "Nude Portraits" by Robbie Barrat

5.2. Creative Adversarial Networks (CANs)

One criticism to the GANs from an art perspective is that these systems might stick too much to the images in the input since the adversarial process is based on what the police/discriminators have 'seen' already. In that respect, Ahmed Elgammal and

Marian Mazzone at the Rutgers' Art & AI Lab have developed a spin-off from GANs – an AI Creative Adversarial Network, or “AICAN”.²¹¹

Having studied the artistic creative process and the manner in which traditional art evolves, the researchers modified the GAN system in a way that there are two driving forces in the ML process. On the one hand, the machine would “follow the aesthetics of the art it is shown (minimizing deviation from art distribution)”, while, on the other hand, a parallel “force penalizes the machine if it emulates an already established style (maximizing style ambiguity)”.²¹² Consequently, the generated works would be novel without deviating excessively from the accepted aesthetic standards.²¹³ Some of the works produced through AICAN look as follows:

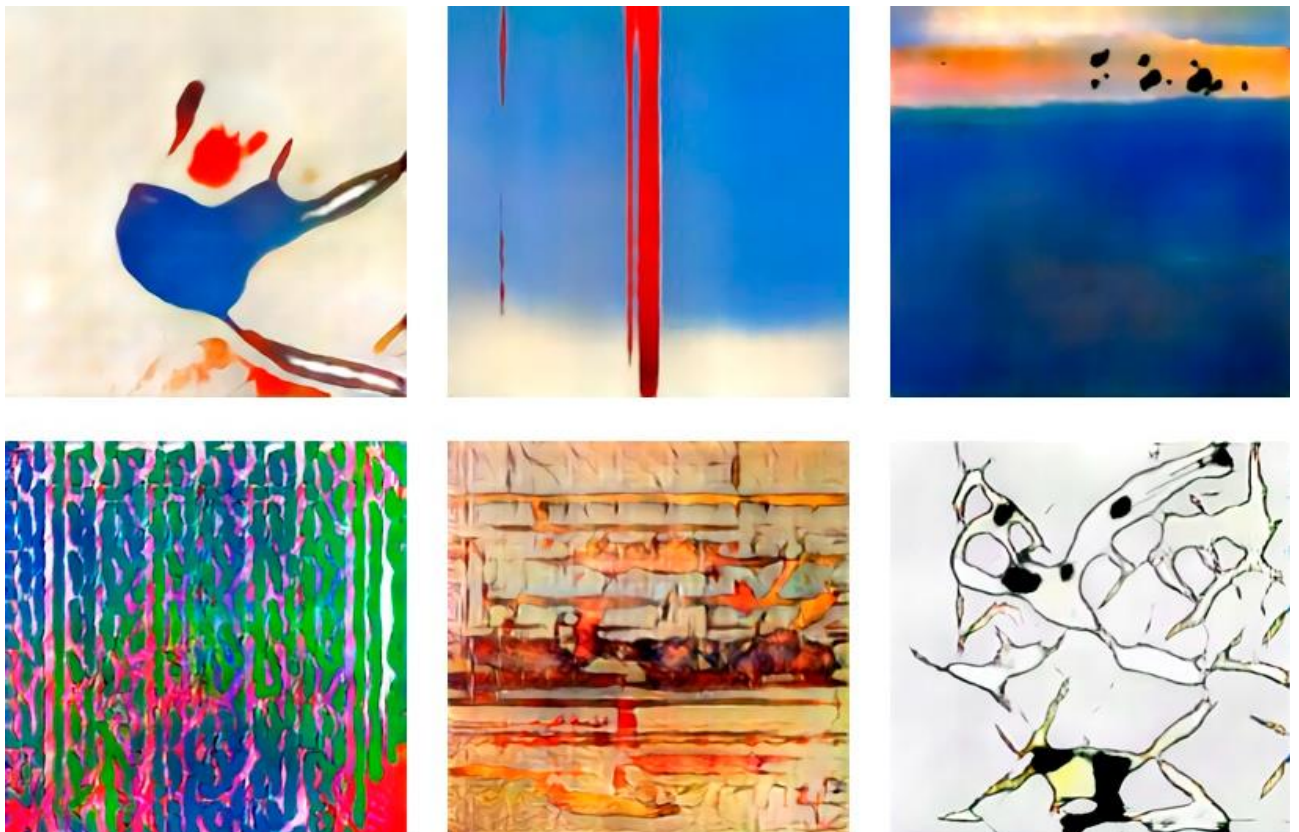


Figure 6: "Art, Creativity, and the Potential of Artificial Intelligence" – M. Mazzone and A. Elgammal (2019)

²¹¹ Elgammal and others (n 106); Mazzone and Elgammal (n 115) 29.

²¹² Mazzone and Elgammal (n 115) 29.

²¹³ *ibid.*

All in all, these works tend to genuinely challenge one's perception of art. In an experiment carried out by the Elgammal and his research team, 75% of the audience confronted with artworks generated through these processes were convinced these were products of a human creativity.²¹⁴ The technological process is very complex and the techniques vary from one project to another. Having said that, the four pillars of the ML/art master algorithm stand regardless of the various tweaks and peculiarities of the individual project. These four pillars bring in pertinent copyright law difficulties, which will come to the forefront in Chapter IV.

6. Conclusion

This chapter has lifted the veil behind 'AI' and has sought to dissect the ML process from a technical perspective. It bases its foundations on the generative art theory, where a key feature is the presence of a certain level of autonomy of the ML system. In that respect, the artists cede control to the benefit of a machine in a computational creativity process.

Until several decades, computational creativity was a field driven by traditional programming where a computer programmer would code *ex ante* all creative choices that the final output should entail. Nowadays, what makes computational creativity particularly fascinating as a field, both from an artistic and technological, but also from a copyright law perspective, is the ML process. Systems, fed with large amounts of creative material, are trained and learn how to generate 'creative' works. To be able to address the copyright authorship claims in this complex process in the following chapters, this first substantive chapter has broken down the ML process into four clearly identifiable pillars – input, learning algorithm, trained algorithm and outputs. It has presented in a comprehensive way this complex manner in which systems generate creative works nowadays turning to some impressive examples from the field of GANs and CANs.

²¹⁴ Elgammal and others (n 106) 17.

Chapter III – EU copyright law-making and the protectability criteria

1. Premise

The previous chapter has demonstrated that developments in ML in the field of the creative industries challenge the conventional understanding of creativity, and push it to its limits and out of its boundaries. Now, in order to contextualise the technical analysis previously carried out in the legal setting, this chapter delves into EU copyright law as it is (*lex lata*). This will help untangle the net of authorship claims later in Chapter IV.

The first part of this chapter scrutinises the EU copyright law-making process by outlining the EU competences in the field of copyright law (section 2). EU copyright legislation has been driven by a strong concern for the establishment and functioning of internal market (section 2.1.). This rationale is not surprising and not even completely inappropriate. Nonetheless, it can be a risky legislative approach – the internal market competence has a functional nature and in that sense its scope can be very broad. The main Treaty basis for legislative action in this respect is Article 114 TFEU, which lacks a normative character. This provision has been accused of being one of the culprits for the EU “competence creep” problem.²¹⁵ The essence of it lies in the idea that legislative competences, which have not been originally conferred on the EU by the Member States, can creep in under the pretext of safeguarding the functioning of the internal market. This is problematic and undesirable, especially in complex areas such as ML and art, where technicalities of the creative process are not easily accessible to all lawmakers. There is no common understanding of what ML is capable of, the buzzword ‘AI’ is all over policy papers and we are constantly reminded that more investment is needed in industries that utilise ML and AI techniques.²¹⁶ Besides, many of these concepts are not entirely clear to the broad

²¹⁵ For a detailed discussion of the problem see Weatherill (n 66); Another flexible provision for a legislative action is Article 352 TFEU. For an overview refer to Craig and de Búrca (n 61) 120–124.

²¹⁶ European Commission, ‘Call for Tenders - Trends and Developments in Artificial Intelligence - Challenges to the Intellectual Property Rights Framework’ (*Shaping Europe’s digital future - European Commission*, 8 March 2019) <<https://ec.europa.eu/digital-single-market/en/news/trends-and->

public. So, the legislative process runs the risk of lacking transparency, addressing a problem that is not a genuine copyright concern, or favouring interests that lie outside the copyright remit. Additionally, copyright law is not just about the internal market establishment and functioning. Nurturing culture is an important and valid foothold for copyright law and not just a mere praise that has to be there.²¹⁷ However, this is as far as everyone agrees. Fostering culture is in the Treaty provisions (Article 6 TFEU and Article 167 TFEU), but the Union has only competence to encourage cooperation and, if necessary, support and supplement Member States' actions. Besides, the Union is explicitly prohibited from adopting harmonising measures to address cultural goals. This makes the EU's cultural competences rather weak to stand as a sole legislative basis (section 2.2.). This state of EU copyright law has left too many gaps. The CJEU has been the one filling them, though perhaps not always in the most coherent manner (section 2.3.). It has pushed the harmonisation of many central EU concepts, at the forefront of which is the copyright protectability criteria.

Against this background, the second part of this chapter examines precisely the protectability standard set out by the case-law of the CJEU (section 3). This is the central legal question when evaluating the computational creativity advances in the field of ML (GANs and CANs). Before assuming that ML-generated works deserve protection in the same fashion as Umberto Eco's 'The Name of the Rose', The Beatles' 'Eleanor Rigby' or Pablo Picasso's 'Guernica', one must take a step back and assess how these 'traditional' works qualify for copyright protection in the first place. To that end, I extract three benchmarks from the CJEU case law on copyright: (i) the presence of a human author; (ii) that author's own intellectual creation; (iii) an objective and precise subject matter. This requires an in-depth inquiry into two central interrelated

developments-artificial-intelligence-challenges-intellectual-property-rights> accessed 3 October 2020; European Commission, 'Artificial Intelligence for Europe' (n 9) 3; Séjourné (n 94) para 6.

²¹⁷ Giuseppe Mazziotti, 'Cultural Diversity and the EU Copyright Policy and Regulation' in Evangelia Psychogiopoulou (ed), *Cultural Governance and the European Union: Protecting and Promoting Cultural Diversity in Europe* (Palgrave Macmillan UK 2015) 92, where the author stresses that support for cultural creation is one of the key objectives of copyright law.

“twin” chimeric notions – authorship (pertaining to the first benchmark) and originality (pertaining to the second and third benchmarks).²¹⁸

As to the first – the notion of authorship – this pivots around the question of ‘who is the author’ (section 3.1.). Already in the 60s, Roland Barthes and Michel Foucault have questioned the adequacy of the concept from a philosophical perspective.²¹⁹ Copyright academia has also extensively pondered on the copyright contours of ‘authorship’.²²⁰ Yet, the EU legislation is much more laconic. Even though prominently placed in the centre of all copyright law frameworks, authorship is not defined neither in the Berne Convention, nor in the main EU directive on copyright law, the Information Society Directive. Though, in the context of technology and the specific subject matter of software and databases, the directives have been slightly more explicit and include

²¹⁸ Mireille van Eechoud, ‘Voices near and Far’ in Mireille van Eechoud (ed), *The Work of Authorship* (Amsterdam University Press 2014) 7.

²¹⁹ Roland Barthes, ‘The Death of the Author (1967)’ in E Heath (ed), *Image, music, text* (Fontana 1977); Michel Foucault, ‘What Is an Author? (1969)’ in Josué V Harari (ed), *Textual Strategies* (Cornell University Press 1979).

²²⁰ Jane C Ginsburg, ‘The Concept of Authorship in Comparative Law’ (2003) 52 *DePaul Law Review* 1063; Jane C Ginsburg, ‘The Role of the Author in Copyright’ in Ruth L Okediji (ed), *Copyright Law in an Age of Limitations and Exceptions* (Cambridge University Press 2017) <https://www.cambridge.org/core/product/identifier/9781316450901%23CN-bp-2/type/book_part> accessed 29 April 2020; Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126); Lionel Bently, ‘R. v. the Author: From Death Penalty to Community Service - 20th Annual Horace S. Manges Lecture, Tuesday, April 10, 2007’ (2008) 32 *Columbia Journal of Law and the Arts* 1; Daniela Simone, *Copyright and Collective Authorship: Locating the Authors of Collaborative Work* (Cambridge University Press 2019); Lior Zemer, *The Idea of Authorship in Copyright* (Ashgate Publishing 2007); Lionel Bently and Laura Biron, ‘Discontinuities between Legal Conceptions of Authorship and Social Practices’ in Mireille van Eechoud (ed), *The Work of Authorship* (Amsterdam University Press 2014); James Boyle, ‘The Search for an Author: Shakespeare and the Framers’ (1988) 37 *American University Law Review* 625; David Saunders, *Authorship and Copyright* (Routledge 1992); Rebecca Tushnet, ‘The Romantic Author and the Romance Writer: Resisting Gendered Concepts of Creativity’ in Irene Calboli and Srividhya Ragavan (eds), *Diversity in Intellectual Property* (Cambridge University Press 2015); van Eechoud (n 218); Martha Woodmansee, ‘The Genius and the Copyright: Economic and Legal Conditions of the Emergence of the “Author”’ (1984) 17 *Eighteenth-Century Studies* 425.

some sort of a definition of the author.²²¹ Anyway, over time, certain characteristics of the author have certainly emerged: the author is a human being, not an isolated self-inspired romantic, but someone who exercises a subjective judgment in composing a piece and controls its execution. These issues will be discussed at length under ‘the designation issue’ (section 3.1.).

As to the second – the notion of originality – following now settled CJEU case-law, the concept is broken down into two features – expression and originality.²²² These two have also often crossed paths and were not always stand-alone elements. Sometimes they are understood as two separate requirements, other times they are two sides of the same coin.²²³ This subsection will trace their development – from the vertical approach in the directives to the horizontal standard brought in by the active role of the CJEU. The Court has been instrumental in filling in the “normative void” left by the EU secondary legislation and further shaping key concepts in the protectability standard.²²⁴ These questions are addressed under ‘the subsistence issue’ (section 3.2).

When untangling copyright protection in the EU, separating the designation from the subsistence issue is beneficial to comprehensively evaluate how the four pillars of the master algorithm translate in the copyright law rules. Nonetheless, a strict divide between designation and subsistence, and between originality and the notion of a work, can be highly artificial. These concepts are profoundly intertwined as authorship

²²¹ Software Directive, Article 2; Database Directive, Article 4.

²²² *Case C-833/18 SI and Brompton Bicycle Ltd v Chedech / Get2Ge* [2020] [22]; *Case C-683/17 Cofemel – Sociedade de Vestuário SA v G-Star Raw CV* [2019] [29 and 32].

²²³ See the detailed discussion in *Case C-310/17 Levola Hengelo BV v Smilde Foods BV* [2018]; *Opinion of AG Wathelet in Case C-310/17 Levola Hengelo BV v Smilde Foods BV* [2018] CJEU ECLI:EU:C:2018:899.

²²⁴ Marcella Favale, Martin Kretschmer and Paul LC Torremans, ‘Who Is Steering the Jurisprudence of the European Court of Justice? The Influence of Member State Submissions on Copyright Law’ (2020) 83 *The Modern Law Review* 831, 836; Ana Ramalho, *The Competence of the European Union in Copyright Lawmaking* (Springer International Publishing 2016) 59.

in isolation of the subsistence criteria makes little sense as a standalone question.²²⁵ In this regard, the designation and the subsistence issues are in a constant dialogue to the extent that conclusions of what does copyright protect in the ML process is conditioned upon the presence of a human being in the creative pipeline.

²²⁵ Ginsburg, 'The Concept of Authorship in Comparative Law' (n 220) 1078, where she says that originality is synonymous to authorship; Jani McCutcheon, 'The Concept of the Copyright Work under EU Law' (2019) 44 *European Law Review* 767, 783, where the author says that 'the work is difficult, perhaps impossible, to unravel without correspondingly separating questions of authorship, originality, and, where applicable, fixation and subject-matter definition'.

2. The EU copyright law-making process

Several copyright (and related rights) legislative measures in the form of directives and regulations have been enacted on a Union level. These measures have followed the internal market objective as per Article 114 of the TFEU and there is nothing to suggest that future legislation will follow a different logic (section 2.1). Cultural considerations, while present in the Treaties, the recitals of the EU copyright directives and evoked by the CJEU, have taken a backseat (section 2.2). One reason for this might lie in the fact that the Union's legislative powers in the field of culture are limited – while the Union shall contribute to the flowering of the cultures of the Member States, it can only do so by recourse to cooperation, adopting incentive measures and recommendations, but it cannot resort to harmonisation of the laws and regulations of the Member States (Article 167 TFEU). Furthermore, the goal of fostering culture gains a different flavour depending on the point of view – authors, content-disseminators, users, intermediaries, cultural institutions, all have their own understanding of what is the best way to encourage cultural production. Last but not least, diverging national copyright traditions act as a further serious hurdle in the construction of a sound EU copyright theory to underline and drive the legislative process. Eventually, it has come to the CJEU to facilitate the discussion between the EU narrative of free movement, the cultural considerations and the national copyright laws by interpreting autonomously key concepts and developing several uniform notions (section 2.3).²²⁶ Such judicial activism, among many other things, has shaped the essence of the requirements for copyright subsistence.²²⁷

²²⁶ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 67; Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 62.

²²⁷ T Tridimas, 'The Court of Justice and Judicial Activism' (1996) 21 *European Law Review* 199, 199; Mauro Cappelletti, 'The Law-Making Power of the Judge and Its Limits: A Comparative Analysis' (1981) 8 *Monash Univ Law Rev* 15, 1981.

2.1. The internal market legislative objective taking the lead

The EU legal order is unique. The Union can legislate only within the limits of the competences conferred upon it by the MS. These competences are found in the Treaties (TEU and TFEU). This is the so-called principle of conferral (Article 5(2) TEU), which basically translates into an obligation to have a clear legal basis in the Treaties when the EU adopts legal acts.²²⁸ The presence of a legal basis stamps the EU action with a badge of legitimacy. This principle is one way of catering for “the balance of power” between the EU and the Member States.²²⁹ In line with the necessity for legal certainty and clarity when adopting a legal measure, the EU should clearly state not only the legal basis but also the concrete objective it intends to achieve with a given measure.²³⁰

Copyright laws on an EU level follows that same legislative path. That said, explicit reference to copyright law in the Treaties is completely missing. Until the Treaty of Lisbon, mention of IP rights was also absent. However, the Treaty of Lisbon, which entered in force on 1 December 2009, introduced a new provision, which now permits the EU to “create European intellectual property rights to provide uniform protection of intellectual property rights throughout the Union and for the setting up of centralised Union-wide authorisation, coordination and supervision arrangements.”²³¹ Products of

²²⁸ *Case C-370/07 Commission v Council* [2009] CJEU ECLI:EU:C:2009:590 [46]; *Case C-325/91 Commission v France* [1993] CJEU ECLI:EU:C:1993:245 [26], where the CJEU underlines that ‘as a result of that requirement for legal certainty, the binding nature of any act intended to have legal effects must be derived from a provision of Community law which prescribes the legal form to be taken by that act and which must be expressly indicated therein as its legal basis.’

²²⁹ Peter Lindseth, ‘Democratic Legitimacy and the Administrative Character of Supranationalism: The Example of the European Community?’ *Columbia Law Rev* 99: (1999) 99 *Columbia Law Review* 628, 706.

²³⁰ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 106.

²³¹ Article 118 TFEU.

this new legal basis are the legal orders on EU trade marks²³² and designs,²³³ which find their home at the European Union Intellectual Property Office (EUIPO).²³⁴ These regimes are unitary. This means that the legislative instruments have introduced entirely new, Union-wide IP titles, which run in parallel to the national regimes. To that end, an important difference exists between unification and harmonisation.²³⁵ Harmonisation aims at bringing together existing national laws by adjusting them to one single standard. During the process of building the European Digital Single Market,²³⁶ the European Commission has called for the adoption of a single European copyright code, a single copyright title and a single copyright jurisdiction with its own tribunal.²³⁷ However, none of the adopted directives and regulations has succeeded in this ambitious unification goal. Instead, the European copyright regime has been the consequence of harmonisation in the form of secondary legislation – directives, recommendations and various soft law instruments. It is worth noting that very partial unification exists in copyright law via the handful of recent regulations, tackling very specific fields.²³⁸

²³² First introduced by Council Regulation (EC) No 30/94 of December 1993 on the Community trade mark, which was recently amended by Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark.

²³³ Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs.

²³⁴ Note that pre-Lisbon Treaty the relevant provision was Article 97.

²³⁵ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 10.

²³⁶ European Commission, 'A Digital Single Market Strategy for Europe' (n 22); European Commission, 'Mid-Term Review on the Implementation of the Digital Single Market Strategy' (2017) COM(2017) 228 final.

²³⁷ European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Tackling Illegal Content Online Towards an Enhanced Responsibility of Online Platforms' (n 94) 12.

²³⁸ Regulation 2017/1563 (Regulation implementing the Marrakesh Treaty in the EU); Regulation (EU) 2017/1128 (Portability Regulation).

The idea of a single EU copyright title, ie the unification model, entails various difficulties.²³⁹ One such problem is the fact that according to established international copyright principles (Berne Convention, Article 5(2)), enjoyment and exercise of copyright law starts automatically and cannot be subject to any requirement to deposit or apply for registration in the same manner in which trade marks and designs' system function. In that regard, the existence of two parallel copyright systems — the national and the EU one — would present further obstacles to the free movement of goods and services and excessively burdens users of copyright works. The latter would have to deal with double the amount of copyright holders than before.²⁴⁰ One author acknowledging these difficulties argues that in the long run, the EU system could render the national ones obsolete.²⁴¹ Others have been more firm in stating that it is desirable that, should an EU copyright unitary title come to life, it would have to replace the existing national regimes as the two cannot co-exist.²⁴² Another difficulty in following the unification model lies in the diverging copyright traditions in the various Member States – the classical juxtaposition between common law and *droit d'auteur*.²⁴³

²³⁹ For a detailed proposal in this respect see the 'Wittem Code', elaborated in detail by Eleonora Rosati, 'The Wittem Group and the European Copyright Code' (2010) 5 *Journal of Intellectual Property Law & Practice* 862; For a proponent of the unitary code based on Article 118 TFEU, modelled on the 'Wittem Code', see Bernt Hugenholtz, 'Is Harmonization a Good Thing? The Case of the Copyright Acquis' in Justine Pila and Ansgar Ohly (eds), *The Europeanization of Intellectual Property Law: Towards a European Legal Methodology* (Oxford University Press 2013); For a criticism of this approach, see Marco Ricolfi, 'Towards a EU Copyright Code? A Conceptual Framework' [2015] *Bocconi Legal Papers* 1, 2–3.

²⁴⁰ Mireille van Eechoud and others, *Harmonizing European Copyright Law: The Challenges of Better Lawmaking* (Kluwer Law International 2009) 317–318.

²⁴¹ K Peifer, 'Das Territorialitätsprinzip Im Europäischen Gemeinschaftsrecht Vor Dem Hintergrund Der Technischen Entwicklungen' (2006) 50 *ZUM* 4, 4.

²⁴² Trevor Cook and Estelle Derclaye, 'An EU Copyright Code: What and How, If Ever?' (2011) 3 *Intellectual Property Quarterly* 259, 262; van Eechoud and others (n 240) 318; Reto Hilty, 'Reflections on a European Copyright Codification' in Tatiana Eleni Synodinou (ed), *Codification of European Copyright Law*, vol 29 (Wolters Kluwer Law & Business 2012) 360–361.

²⁴³ Gillian Davies, 'The Convergence of Copyright and Authors' Rights - Reality or Chimera?' (1995) 26 *IIC* 964, 965.

Consequently, unification of copyright law has not taken place in the EU. Instead, EU copyright law has been the product of harmonisation of national laws. Considering the most recent legislative actions of the EU in the field of copyright law, there is no reason to doubt that future EU copyright legislation would follow the same route and resist the unification model.²⁴⁴

The harmonisation model though comes with its own set of issues. The most obvious such problem is that there is no specific legal basis in the TFEU tackling copyright concerns.²⁴⁵ Hence, harmonisation has not been based on copyright-related reasoning, but instead on the goal of establishing an internal market in the EU. The internal market is “an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured”.²⁴⁶ To that end, the EU would typically introduce secondary legislation in the field of copyright whenever the differences between the copyright laws of Member States risk intervening with the free movement of goods and services.²⁴⁷ In this respect, Article 26 TFEU in a very broad manner establishes that the Union has the competence to adopt measures with the aim of establishing or ensuring the functioning of the internal market.²⁴⁸ Enactment of secondary EU law must follow the ordinary legislative procedure as per Article 114 TFEU.²⁴⁹ With roots in the 1987 Single European Act, Article 114 TFEU states that the European Parliament and the Council, in accordance with the ordinary legislative procedure, can adopt measures for the “approximation of the provisions in Member States which have as their object the establishment and functioning of the internal

²⁴⁴ Directive 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market Official Journal L 130.

²⁴⁵ An exception that is worth mentioning is the cultural reference in Article 167 TFEU, which will be discussed in the next subsection.

²⁴⁶ Treaty on the Functioning of the European Union (OJ C 326) article 26(2).

²⁴⁷ Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 10.

²⁴⁸ TFEU article 26(1).

²⁴⁹ For further discussion on the ordinary legislative procedure consult Robert Schütze, *European Constitutional Law* (2nd edn, Cambridge University Press 2015) 151.

market”. According to Robert Schütze, Article 114 TFEU – compared to its neighbouring provision Article 115 TFEU, which was initially considered as “unlimited” – widened the scope of the EU competences in two respects: first, textually as it no longer referred to specific legislative acts such as directives, but broadly stated that the EU can adopt “measures”; and secondly, it no longer required the unanimity of all Member States²⁵⁰ In the field of copyright law, this legal provision has led to a long list of regulations and primarily directives.²⁵¹

What strikes when one is confronted with the wording of Article 114 TFEU is that it has no normative content, ie the provision does not provide any guidance regarding its substantive content.²⁵² Authors have termed this as a “functional competence”: the provision grants the EU the powers to achieve an objective but it leaves the substantive choice to the legislators.²⁵³ Being so functionally driven, “any national measure” may be subject to harmonisation as long as it leads to better

²⁵⁰ Robert Schütze, ‘Limits to the Union’s “Internal Market” Competence(s)’ in Loïc Azoulay (ed), *The Question of Competence in the European Union* (Oxford University Press 2014) 224.

²⁵¹ Directive 93/83/EEC (Satellite and Cable Directive); Directive 96/9/EC (Database Directive); Directive 2001/29/EC (Information Society Directive); Directive 2006/115/EC (Rental and Lending Rights Directive); Directive 2006/116/EC (Term Directive); Directive 2001/84/EC (Resale Right Directive); Directive 2004/48/EC (IPRED); Directive 2009/24/EC (Software Directive); Directive 2011/77/EU (Term Directive); Directive 2012/28/EU (Orphan Works Directive); Directive 2014/26/EU (Collective Rights Management Directive); Directive 2017/1564 (Directive implementing the Marrakesh Treaty in the EU); Directive 2019/790 (DSM Directive); Regulation 2017/1563 (Regulation implementing the Marrakesh Treaty in the EU); Regulation (EU) 2017/1128 (Portability Regulation).

²⁵² Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 11.

²⁵³ Weatherill (n 66) 6–7; Sacha Garben, ‘Restating the Problem of Competence Creep, Tackling Harmonisation by Stealth and Reinstating the Legislator’ in Inge Govaere (ed), *The Division of Competences between the EU and the Member States: Reflections on the Past, the Present and the Future* (Oxford: Hart Publishing 2017) 304; Bruno De Witte, ‘Clarifying the Delimitation of Powers: A Proposal with Comments’ in European Commission (ed), *Europe 2004: le grand débat: Setting the agenda and outlining options* (2002) 125 <https://ec.europa.eu/governance/whats_new/europe2004_en.pdf> accessed 20 October 2020.

functioning of the internal market and “nothing is placed off the EU’s limits”.²⁵⁴ To this end, it has been argued that when adopting measures under this functional competence, the legislative powers can “cut horizontally though virtually all policy areas” and can also include fields in which the Union has no, or only, complementary competence.²⁵⁵ As Bruno De Witte points out, the legislative history of the EU is rich on such examples and this provision has caused the most political controversy.²⁵⁶ At first sight, the functional competence infuses the law-making process with significant flexibility. It has been pointed out however that the EU’s powers under Article 114 TFEU have been drafted in a broad sense already from its very inception. So, they have been clearly and deliberately broadly formulated in view of the goals they need to attain.²⁵⁷ Furthermore, the decision to legislate is taken by the EU legislator following the respective legislative procedures, which involve the EU institutions (EU Commission, the Council and the EU Parliament, as well as the national parliaments as per the subsidiarity principle protocol). Therefore, it has been argued that the democratic deficit issues are not as severe in this respect.

Having said that, Article 114 TFEU is still worrying. It could open the door to the problem of “competence creep” as the EU legislator is vested with a rather broad discretion.²⁵⁸ The EU can practically legislate as long as there is a “point of connection to the building of an internal market”.²⁵⁹ The competence creep problem has been the target of serious criticism in academia. When defined in a narrow sense it is

²⁵⁴ Stephen Weatherill, ‘The Limits of Legislative Harmonization Ten Years after Tobacco Advertising: How the Court’s Case Law Has Become a “Drafting Guide”’ (2011) 12 *German Law Journal* 827, 831 (note, the exclusion in Article 114[2] for fiscal provisions, free movement of persons and employed persons); Schütze (n 250) 231, who argues that the only real limits have been ‘the political safeguarda of federalism’.

²⁵⁵ Garben (n 253) 304.

²⁵⁶ De Witte (n 253) 125.

²⁵⁷ Garben (n 253) 317–318.

²⁵⁸ Weatherill (n 66) 6; Craig (n 66).

²⁵⁹ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 11.

synonymous with ‘indirect legislation’ as it pertains to the idea that the EU has adopted a legislation in areas in which it is not considered to have been conferred specific legislative competence. For instance, the EU legislature is able to manipulate the “broad and fuzzy contours” of Article 114 TFEU, which transforms the important compliance with the principle of conferral into a mere “drafting exercise”.²⁶⁰ The competence creep problem can however also be defined more broadly. According to this broad understanding, sustained by Sacha Garben, the competence creep is tightly linked to the idea of “harmonisation by stealth”, which occurs when an area of integration belongs to the Member States competence (it is neither an exclusive, nor a shared EU competence), harmonisation has been explicitly excluded in the specific legal basis applicable to that field, or there is no legal basis altogether.²⁶¹ Such a push towards harmonisation utilising the “by stealth” method can take five main forms: indirect legislation, negative integration through the CJEU case law, economic governance, EU soft law and parallel integration.²⁶² For the purposes of the present discussion on copyright law, the first two aspects have been particularly relevant. The judicial activities in this respect will be discussed further below in Section 2.3. of this Chapter.

In the context of the functional competence of Article 114 TFEU, the CJEU has sought to define its contours in the *Tobacco Advertising* cases.²⁶³ The dispute concerned a directive which had the objective of harmonising the law relating to tobacco advertising. The EU has only supplementary competence as far as public

²⁶⁰ Weatherill (n 254) 848.

²⁶¹ Garben (n 253) 303.

²⁶² *ibid.*

²⁶³ *Case C-376/98 Federal Republic of Germany v European Parliament and Council of the European Union* [2000] CJEU ECLI:EU:C:2000:544 (Tobacco Advertising I), where parts of Directive 98/43 were annulled with respect to the prohibition of advertising on posters, parasols, ashtrays and other items, as well as in hotels, restaurants, cafés and others. *Case C-380/03 Federal Republic of Germany v European Parliament and Council of the European Union* [2006] CJEU ECLI:EU:C:2006:772 (Tobacco Advertising II), whereby the later concerned a reviewed version of the first Directive on the ban of tobacco advertising (Directive 98/34). Directive 2003/33 survived the scrutiny of the CJEU in full.

health is concerned as per Article 168 TFEU. At the same time, it can resort to its harmonising powers as per Article 114 TFEU, if obstacles to the free movement of goods or the freedom to provide services arise as a result of disparities between national laws on the advertising of tobacco products. The directive at stake imposed a general ban on the advertising and sponsorship of tobacco products in the EU, ie it sought to harmonise the laws of the Member States. In *Tobacco Advertising I*, Germany challenged the directive and argued that such harmonisation was not permitted in the framework of a supporting competence.²⁶⁴ In response, the CJEU stressed that a measure validly based on Article 114 TFEU must have as its genuine goal the establishment or functioning of the internal market.²⁶⁵ Thus, a “mere finding of disparities” or an “abstract risk of obstacles to the exercise of fundamental freedoms” is not sufficient.²⁶⁶ The internal market will constitute such a genuine goal if there are obstacles to trade; for instance, if MSs already have diverging laws that impact the functioning of the internal market. Alternatively, Article 114 TFEU can be relied on to adopt a measure, the aim of which is to prevent future obstacles to trade resulting from multifarious development of national laws.²⁶⁷ Nonetheless, the emergence of such future obstacles must be likely and the measure in question must be designed to prevent them.²⁶⁸ While some authors have accused the CJEU in *Tobacco Advertising* of scattering these principles throughout the entire judgment,²⁶⁹ later cases have been more systematic and have diligently confirmed all these

²⁶⁴ The challenge by Germany was the result of the entry into force of the Single European Act 1987, which no longer required the unanimity of the Council when adopting legislation, but only required qualified majority. Thus, MS responding to the ‘political defeat’ in the Council sought remedy before the CJEU. For a further discussion, see Weatherill (n 254) 830.

²⁶⁵ *Tobacco Advertising I* (n 263) para 84.

²⁶⁶ *ibid.*

²⁶⁷ *ibid* 86.

²⁶⁸ *ibid.*

²⁶⁹ Weatherill (n 254) 832.

principles.²⁷⁰ Having said that, the CJEU in *Tobacco Advertising* stressed that the EU cannot rely on Article 114 TFEU when the measure at stake “only incidentally harmonises market conditions”.²⁷¹ The key mechanism adopted by the court when a legislative measure pertained to more than one policy areas with different consequences – one permitting adopting harmonising measures and another one only with a supporting competence – is the “centre of gravity” test.²⁷² In the *Tobacco Advertising* cases, it was held that public health was only an incidental concern and that the centre of gravity of the directive lied in the internal market goal. However, the Court is clear that provided that the main goal of a measure is the functioning of the internal market, the same adopted measure can have impact on other fields or pursue other aims.²⁷³ This is only reasonable since policy areas are not “watertight compartments”.²⁷⁴ Adopting legislation in one field would inevitably have to address various aspects of human life. Preventing such interaction would paralyse the EU, hinder legitimacy and inevitably lead to “handcuffing” of the EU, which is not in line with the preferences of the electorate.²⁷⁵ Some early examples of legislative measures that target more than one policy area include the VAT Directive, which covers certain

²⁷⁰ *Case C-58/08 Vodafone, O2 et al v Secretary of State* [2010] CJEU ECLI:EU:C:2010:321 [32–33].

²⁷¹ *Tobacco Advertising I* (n 263) para 33 and the case law referred to in that paragraph.

²⁷² *ibid* 54.

²⁷³ *ibid* 78.

²⁷⁴ *Garben* (n 253) 328.

²⁷⁵ *ibid* 329.

cultural goods,²⁷⁶ the Directive on the Education of the Children of Migrant Workers²⁷⁷ and the Television without Frontiers Directive.²⁷⁸

However, this legislative approach must be cautiously approached. Stephen Weatherill has argued that when seeking to define the limits of Article 114 TFEU in a more “sophisticated way” than the Treaty, the CJEU places excessive significance on “slippery adjectives and adverbs”.²⁷⁹ In particular, a measure’s objective must be to *genuinely* improve the conditions for the establishment and functioning of the internal market; an *abstract* risk of disturbing the fundamental freedoms or competition distortion is not enough to trigger Article 114; differences of MS laws must have a *direct* effect on the functioning of the internal market or cause *appreciable* distortions to competition; preventive harmonisation is permitted only on the condition that obstacles to trade are *likely*.²⁸⁰ These standards are extremely vague and it is unclear how to properly assess them in practice. While they bear an “immense constitutional weight”, they remain “a set of phrases which merely serve as a “drafting guide” which readily enables the legislative institutions to comply with the principle of conferral.”²⁸¹

In this landscape, Article 114 TFEU may help fine-tune copyright legislation, when it pertains to the internal market, ie when differences in the laws of the MS bring

²⁷⁶ Sixth Council Directive 77/388/EEC of 17 May 1977 on the harmonization of the laws of the Member States relating to turnover taxes - Common system of value added tax: uniform basis of assessment [1977] OJ L 145/1 (now, replaced by Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax [2006] OJ L 347/1).

²⁷⁷ Council Directive 77/486/EEC of 25 July 1977 on the education of the children of migrant workers [1977] OJ L 199/32.

²⁷⁸ Council Directive 89/552/EEC of 3 October 1989 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the pursuit of television broadcasting activities [1989] OJ L 298/23 (now, replaced by Directive 2010/13/EU (Audiovisual Media Services Directive, last amended in 2019).

²⁷⁹ Weatherill (n 254) 832–833.

²⁸⁰ *ibid* 832.

²⁸¹ *ibid* 833.

about obstacles to trade or distortions of competition. At the same time, though, it also risks allowing wide areas of interests to ride on the coattails of the internal market goal. Lobbying organisations look after the specific interests of various stakeholders such as the different creative industries, consumers, users, etc. In particular, the copyright policy debate has been underlined by strong industry lobbying voices, which have regularly held meetings with the Commission during the legislative process.²⁸² In this respect, the functional competence of Article 114 can present lobbying associations of the creative industries with a handy opportunity to further argue for the introduction of yet another IP right. Usually, there is nothing wrong with that, provided that the lobby's arguments are sufficiently well backed up by independent research and not just driven by their own industry concerns. This however is not always the case.²⁸³ Given the internal market rationale, the whole process can be more skewed towards the interests of businesses. In particular, these groups have regularly stipulated that in the absence of regulation (and often lacking positive IP rights) as far as a specific subject matter is concerned, their industry would suffer disproportionately. This was the case with respect to the Database Directive, which was first adopted in 1996 and had as one of the main objectives to stimulate investment in the database industry.²⁸⁴ The directive contains two types of database rights – protection for databases with

²⁸² re:publica, 'Re:Publica 2019 – Martin Kretschmer: European Copyright Reform: Is It Possible?' (*YouTube*, 7 May 2019) <<https://www.youtube.com/watch?v=ZyujNlpxu9k>> accessed 26 July 2020; 'Copyright Directive: How Competing Big Business Lobbies Drowned out Critical Voices' (*Corporate Europe Observatory*, 10 December 2018) <https://corporateeurope.org/en/2018/12/copyright-directive-how-competing-big-business-lobbies-drowned-out-critical-voices#footnoteref3_bpiolyx> accessed 3 December 2020.

²⁸³ 'General Opinion on the EU Copyright Reform Package' (European Copyright Society 2017) 5 <<https://europeancopyrightsocietydotorg.files.wordpress.com/2015/12/ecs-opinion-on-eu-copyright-reform-def.pdf>> accessed 3 December 2020; Giancarlo F Frosio, 'From Horizontal to Vertical: An Intermediary Liability Earthquake in Europe' (2017) 12 *Journal of Intellectual Property Law & Practice* 565, 567–568.

²⁸⁴ Database Directive, Recitals 39 and 40.

copyright as an authorial work²⁸⁵ and a new sui generis database regime.²⁸⁶ The latter was severely criticised for a potential risk of abuse – its risks anticompetitive effects on the information market since it confers a monopoly in collections of facts and other non-copyrightable items.²⁸⁷ In 2018, the Directive went through an evaluation process, which assessed, among other things, its effectiveness, efficiency and relevance.²⁸⁸ The evaluation report based on a thorough external study and various public consultation activities.²⁸⁹ With regard to its effectiveness, it concluded that “despite providing some benefits at the stakeholder level, the sui generis right continues to have no proven impact on the overall production of databases in Europe, nor on the competitiveness of the EU database industry.”²⁹⁰ Hence, the EU database market is characterised by a certain level of stagnation.²⁹¹ Turning to the field of IP and ‘AI’ it is possible to draw a parallel with this competitiveness narrative. The European Parliament has recently voted favourably in a plenary session a report on IPRs for the development of artificial intelligence technologies.²⁹² The report strongly emphasises the aim of making the Union “the world leader in AI technologies” by encompassing efforts to ensure its competitiveness and promote regulation in the

²⁸⁵ Database Directive, Art 3(1).

²⁸⁶ Database Directive, Art 7.

²⁸⁷ Bernt P Hugenholtz, ‘Abuse of Database Right Sole-Source Information Banks under the EU Database Directive’ in Francois Leveque and Howard A Shelanski (eds), *Antitrust, patents and copyright: EU and US perspectives* (Edward Elgar Publishing 2005) 203.

²⁸⁸ European Commission, ‘Commission Staff Working Paper - Executive Summary of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases’ (2018) SWD(2018) 147 final.

²⁸⁹ JIIP and others, ‘Study in Support of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases’ (European Commission 2018) SMART number 2017/0084.

²⁹⁰ European Commission, ‘Commission Staff Working Paper - Executive Summary of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases’ (n 288) 1.

²⁹¹ JIIP and others (n 289), Annex 6: Economic Analysis.

²⁹² Séjourné (n 94).

field.²⁹³ The Parliament has advocated for “a fully harmonised Union regulatory framework in the field of AI” which is justified by the desire and potential to turn the EU into “a legislative benchmark at international level”.²⁹⁴ This shows that from the European Parliament’s perspective encouraging investment in the fields that touch upon the ML/IP intersection is tightly linked to the need for a harmonising legislation, one that only Article 114 TFEU can ensure in the field of copyright law.

In a very timely study in 2016, Ana Ramalho looked at the competence of the EU in copyright law-making.²⁹⁵ Employing a content analysis technique and studying the various directives, explanatory memoranda in the initial proposals and the amended proposals, she identifies patterns of the recurrent goals of legislative activity.²⁹⁶ Her study looks at the directives as of 1 November 2015 and thus the latest copyright directive she analyses is the Collective Management Directive.²⁹⁷ Interestingly, she establishes that references to the internal market-related goals are 49 in total (compared to 25 references to fostering culture).²⁹⁸

This position seems to be supported by two Green Papers that have been crucial in the copyright legislative history. First, in 1988 the Green Paper on Copyright

²⁹³ *ibid* E.

²⁹⁴ *ibid* F.

²⁹⁵ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224).

²⁹⁶ *ibid* 26.

²⁹⁷ Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market. The study excludes the most recent directive in the field – the DSM Directive (Directive 2019/790).

²⁹⁸ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 54; note that the content industries are leading the way with 88 references. This is a point that will be further analysed in the next chapters.

and the Challenge of Technology,²⁹⁹ which preceded the Database Directive³⁰⁰ and the Software Directive,³⁰¹ explicitly referred to Article 114 TFEU (then, Article 100a, later Article 95 EC Treaty) as the relevant legal basis for legislative action targeting obstacles and distortions which emerge from different national copyright laws.³⁰²

Next, in 1995, the Commission issued the Green Paper on Copyright and Related Rights in the Information Society, in which strong emphasis was laid on the need for harmonisation of certain issues, such as which economic rights of reproduction, communication and digital dissemination, as well as exhaustion of rights and technical identification rules.³⁰³ The text also makes a clear reference to the internal market objective by underlining that “the question of the protection of intellectual property in the information society is a matter of interest to the Community [now, Union] primarily because of the need to ensure that goods and services can move freely.”³⁰⁴ Additionally, the Commission states that a legal framework targeting these key issues stemming from the information society is already in place at a Union level. In particular, the fundamental freedoms of the internal market, and more precisely, the right of establishment and the freedom to provide services, already “provide answers to a number of the questions which arise, and point the way for future policy on the information society”.³⁰⁵ However, the Green Paper surprisingly identified

²⁹⁹ ‘Green Paper on Copyright and the Challenge of Technology - Copyright Issues Requiring Immediate Action’ (1988) COM_1988_0172_FIN_HIST.

³⁰⁰ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases (hereinafter, the Database Directive).

³⁰¹ Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (hereinafter, the Software Directive).

³⁰² ‘Green Paper on Copyright and the Challenge of Technology - Copyright Issues Requiring Immediate Action’ (n 299) pt 1.5.10.

³⁰³ ‘Green Paper on Copyright and Related Rights in the Information Society’ (1995) COM(95) 382 final 35–79.

³⁰⁴ *ibid* 10.

³⁰⁵ *ibid* 29.

no problem with the diverging protectability criteria.³⁰⁶ This Green Paper resulted in the adoption of the Information Society Directive: the main EU copyright directive, which harmonises horizontally many crucial copyright issues.³⁰⁷ Already in its first lines, the Directive makes a clear reference to the fact that harmonisation of the laws of the Member States on copyright and related rights contributes to the achievement of an internal market with undistorted competition.³⁰⁸

Eventually, from these different policy papers and legislative instruments it follows the internal market considerations have firmly taken the lead and acted as a legal basis for all copyright directives so far.³⁰⁹ Therefore, unsurprisingly the Commission refers to the internal market narrative in all of its proposals for directives.³¹⁰

Generally, the internal market goal is not completely inappropriate for copyright law purposes. The establishment and proper functioning of the internal market is certainly intertwined with copyright law. Differences in national copyright regimes can potentially hinder cross border trade in the sense that goods cannot move freely across the different Member States. This can be the case, for instance, if one copyright system does not grant protection to certain works, but another does.³¹¹ An additional problem requiring an action with the internal market rationale in mind arises when MS, threatened by a disruptive phenomenon, such as the information society, technology,

³⁰⁶ Mireille van Eechoud, 'Along the Road to Uniformity – Diverse Readings of the Court of Justice Judgments on Copyright Work' 60, 73.

³⁰⁷ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 14.

³⁰⁸ Information Society Directive, recital 1.

³⁰⁹ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 18.

³¹⁰ *ibid* 34, where in footnote 9 the author refers to all these.

³¹¹ See, among others, Council Directive 92/100/EEC of 19 November 1992 on rental right and lending right and on certain rights related to copyright in the field of intellectual property, recitals 1 to 6; Case C-245/00 *SENA v NNOS* [2003] ECLI:EU:C:2003:68, [4]; Case C-200/96 *Metronome Musik GmbH v Music Point Hokamp GmbH* [1998] ECLI:EU:C:1998:172, [22]; In general, see also Case C-5/11 *Titus Alexander Jochen Donner* [2012] CJEU ECLI:EU:C:2012:370.

peer2peer file-sharing platforms, legislate on their own national level. At this stage, in an attempt to prevent distortions of the internal market, the EU legislator has sometimes resorted to “preventive harmonisation”.³¹² Examples in the Information Society Directive are the protection of technological measures and digital rights management, which up until the adoption of the Directive were not regulated on a national level. Recitals 47 and 56 of the Directive reflect this logic - “in order to avoid fragmented legal approaches that could potentially hinder the functioning of the internal market, there is a need to provide for harmonised legal protection.”

With this historical background in mind and taking these examples into account, similar arguments have been put forward for ML and copyright.³¹³ Specifically, in its motion for a resolution the Parliament has stressed that a regulation rather than a directive fully harmonising the laws of MS in respect of “AI” and IP is the most appropriate legislative tool in order to avoid fragmentation of the European Digital Single Market.³¹⁴ This desire to regulate seems rather premature and rushed and will be discussed at length in Chapter V. At this stage, it suffices to say that the EU Member States have regularly struggled to agree on directives in the field of copyright law.³¹⁵ Naturally, passing a regulation that leaves no leeway to the national legislators to implement the obligations in the way they see fit seems to be an unattainable goal. Furthermore, how wise is it to regulate an emerging digital technology such as art/ML, if its genuine socio-economic impact is not clear yet?³¹⁶ Despite the vast and constantly growing literature in the field focusing on the EU framework,³¹⁷ to date not

³¹² Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 35; For a broader discussion on this not directly linked to copyright law see Schütze (n 250).

³¹³ Séjourné (n 94).

³¹⁴ *ibid* 3.

³¹⁵ The DSM Directive is the most recent example. The Commission proposed a text in September 2016 and the directive was eventually adopted in April 2019 and was subject to many amendments in the Council.

³¹⁶ See Chapter V, Section 2.2.1. Better Regulation.

³¹⁷ See the following, among many others, Ana Ramalho, ‘Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works’ [2018] AIDA 23; Ramalho, ‘Will Robots Rule the

(Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (n 76); Senftleben and Buijtelaar (n 76); Guadamuz (n 91); Emily Dorotheu, 'Reap the Benefits and Avoid the Legal Uncertainty: Who Owns the Creations of Artificial Intelligence?' [2015] *Computer and Telecommunications Law Review* 85; Buning (n 88); Alessio Chiabotto, 'Intellectual Property Rights Over Non-Human Generated Creations' [2017] *SSRN Electronic Journal* <<https://www.ssrn.com/abstract=3053772>> accessed 9 August 2019; Julia Dickenson, Alex Morgan and Birgit Clark, 'Creative Machines: Ownership of Copyright in Content Created by Artificial Intelligence Applications' [2017] *EIPR* 457; Dr Paul Lambert, 'Who Owns What's inside Your Head? Thoughts, Mind Data, Ownership and Future Battles Ahead' (2020) 42 *European Intellectual Property Review* 174; Massimo Maggiore, 'Artificial Intelligence, Computer Generated Works and Copyright' in Enrico Bonadio and Nicola Lucchi (eds), *Non-Conventional Copyright: Do New and Atypical Works Deserve Protection?* (Edward Elgar 2018); Jason Raeburn, 'AI, Computer Vision and English Law: Time to Face (Augmented) Reality' (2017) 12 *Journal of Intellectual Property Law & Practice* 957; Deltorn and Macrez (n 50); Jani Ihalainen, 'Computer Creativity: Artificial Intelligence and Copyright' (2018) 13 *Journal of Intellectual Property Law & Practice* 724; Margoni, 'Artificial Intelligence, Machine Learning and EU Copyright Law: Who Owns AI?' (n 80); Mark Perry and Thomas Margoni, 'From Music Tracks to Google Maps: Who Owns Computer-Generated Works?' (2010) 26 *Computer Law & Security Review* 621; Pinto (n 86); Spindler (n 104); Giovanni Sartor, Francesca Lagioia and Giuseppe Contissa, 'The Use of Copyrighted Works by AI Systems: Art Works in the Data Mill' <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3264742> accessed 9 August 2019; Pratap Devarapalli, 'Machine Learning to Machine Owning: Redefining the Copyright Ownership from the Perspective of Australian, US, UK and EU Law' (2018) 40 *EIPR* 722; Péter Mezei, 'From Leonardo to the Next Rembrandt – The Need for AI-Pessimism in the Age of Algorithms' (2020) 2 *UFITA* Forthcoming; Enrico Bonadio and Nicola Lucchi, 'How Far Can Copyright Be Stretched? Framing the Debate on Whether New and Different Forms of Creativity Can Be Protected' 21; Enrico Bonadio and Luke McDonagh, 'Artificial Intelligence as Producer and Consumer of Copyright Works: Evaluating the Consequences of Algorithmic Creativity' [2020] *IPQ* 112; Carys J Craig and Ian R Kerr, 'The Death of the AI Author' [2019] *Osgoode Legal Studies Research Paper*; Tanya Aplin and Giulia Pasqualetto, 'Artificial Intelligence and Copyright Protection' (Social Science Research Network 2019) <<https://papers.ssrn.com/abstract=3419481>> accessed 6 February 2020; David Linke and David Petřík, "'Copyright Work and Its Definition with Regard to Originality and AI" – Conference Report on the Fourth Binational Seminar of TU Dresden and Charles University in Prague, 27 June 2019' (2020) 69 *GRUR International* 39; Shlomit Yanisky-Ravid and Samuel Moorhead, 'Generating Rembrandt: Artificial Intelligence, Accountability and Copyright - The Human-Like Workers Are Already Here - A New Model' [2017] *SSRN Electronic Journal* <<https://www.ssrn.com/abstract=2957722>> accessed 9 August 2019; Shlomit Yanisky-Ravid and Luis Antonio Velez- Hernandez, 'Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model' (2018) 19 *Minnesota Journal of Law, Science & Technology* 1.

a single EU impact assessment has been carried out to evaluate whether the law requires harmonisation at an EU level. A comprehensive such assessment must take into account several crucial issues: the nature and scale of the problem; the stakeholders' views; whether the EU should be involved; the objectives of any such involvement; the main policy options for reaching these objectives, including effectiveness and efficiency; and most importantly in our case, the likely economic and social impact of those options. Moreover, it is generally said that it is not possible for the law on copyright to be ahead of technology, but it is advisable that the legal framework is better prepared to face the challenges brought in by machine learning. While such premise is not wrong *per se*, one must be wise when rushing to regulate.

To summarise, it clearly emerges that the internal market narrative has dominated copyright law-making in the EU. The functional competence of Article 114 TFEU, main legal basis for copyright legislation, has presented the EU legislature with a wide stage to act. This flexibility however is tied to the pursuant objective of an internal market. Admittedly, many aspects of copyright law are tightly linked to the idea of free movement of goods, persons, services and capital. However, copyright is also deeply intertwined with many other fields, such as culture.

2.2. 'Fostering culture' – are we all on the same page?

Cultural concerns have emerged very early in the EU discussions on copyright. Indeed, the first reference ever to a legislative action in copyright law can be traced back to 1974 and focused on the importance of protecting cultural heritage.³¹⁸ A unanimously approved European Parliament Resolution encouraged the Commission to take action in several cultural fields, and in particular, asked the Commission to propose measures “to approximate the national laws on the protection of cultural heritage, royalties and other related intellectual property-rights”.³¹⁹ This makes a clear

³¹⁸ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 14; 'Resolution of the European Parliament on the Protection of Europe's Cultural Heritage' (1974) OJ C 62.

³¹⁹ 'Resolution of the European Parliament on the Protection of Europe's Cultural Heritage' (n 318) 6.

reference to a desire by the Parliament to adopt a legislative instrument of a harmonising nature and not just to coordinate the policies of the MS.

Several years later, in 1977, the Commission issued a Communication in which it underlined a number of copyright fields which should become the focus of harmonisation, namely the duration of copyright, the public lending and the resale right.³²⁰ Seeking to identify a legal basis for action in these fields, the Commission underlined this can be found in the TFEU itself (EEC back then) and in particular it stressed that the freedom of trade, movement and establishment, as well as harmonisation of taxation justify the EU legislative action. In the words of the Commission, “the legal basis is the Treaty itself”.³²¹ Given the stress on taxation and trade, it transpires that such a reference to culture is once again more geared towards an internal market harmonisation than any other cultural focus. And rightly so – at the time, the EU did not have any competence with respect to culture.

However, the EU project has always had ambitious end goals. In the 60s, the Heads of State in several policy documents stressed that the Union is beyond a simple economic entity.³²² This culminated in 1976 with the Tindermans Report on European Union, which promoted the Union’s involvement in the areas of education and culture, news and communications.³²³ This understanding was later confirmed in Pietro Adonnino’s Second Report on “A People’s Europe”, which highlighted that the advancement of Europe is linked to the Union’s action in the field of culture and communication.³²⁴ Since then, it seems like it is beyond doubt that the EU project is not just an economic union, but it instead a true social and cultural project. Thus,

³²⁰ ‘Communication from the Commission to the Council on Community Action in the Cultural Sector’ (European Commission 1977) COM (77) 560 final 15–26.

³²¹ *ibid* 5.

³²² ‘Communiqué of the 1969 Hague Summit’ (1970) I Bull EC 11 para 4; ‘Declaration of the 1972 Paris Summit’ (1972) 10 Bull EC 14 para 3; ‘Declaration on the European Identity of the 1973 Copenhagen Summit’ (1973) 12 Bull EC 118 para 2502.

³²³ Leo Tindermans, ‘Report on the European Union’ (1976) Bull EC, Supplement 1/76 12.

³²⁴ Pietro Adonnino, ‘Second Report on a People’s Europe’ (1985) 18 Bull. EC, supp 7/85 21.

culture is not a “by-product” of a successful economic integration, but it is “a project in its own right”.³²⁵

Nonetheless, the Title on culture appeared with the Treaty of Maastricht only in 1992 and in a very limited form – the EU could only encourage cooperation between the MS and if necessary, support and supplement their actions.³²⁶ The common market objective instead was present already since the Treaty of Rome, so the EU had a long standing competence to adopt measures to approximate the laws of the MS in that regard. Therefore, the emphasis on culture, while underlying the discourse of the legislative history and recurring in the various copyright law directives,³²⁷ very early on married the internal market goal, which has now clearly taken the lead in the EU directives on copyright law. An early example of this is the *Italian Art Treasures* case, where the CJEU established that the free movement of goods principle applies equally to articles possessing artistic and historic value as these could also be the object of a commercial transaction.³²⁸ Consequently, promoting cultural rationale within an economic setting was already taking place long before the Union had any

³²⁵ Rachael Craufurd Smith, ‘The Evolution of Cultural Policy in the European Union’ in Paul Craig and Gráinne de Búrca (eds), *The Evolution of EU Law* (Oxford University Press 2011) 894.

³²⁶ Art 167(2) TFEU.

³²⁷ InfoSoc Directive, recital 11, which states that “a rigorous, effective system for the protection of copyright and related rights is one of the main ways of ensuring that European cultural creativity and production receive the necessary resources and of safeguarding the independence and dignity of artistic creators and performers.”; recital 12, which states that an “adequate protection of copyright works and subject-matter of related rights is also of great importance from a cultural standpoint. Article 151 of the Treaty requires the Community to take cultural aspects into account in its action.”; recital 22, which states that “the objective of proper support for the dissemination of culture must not be achieved by sacrificing strict protection of rights or by tolerating illegal forms of distribution of counterfeited or pirated works”; Most recently, refer to the DSM Directive, recital 2, which states that “the protection provided by that legal framework also contributes to the Union's objective of respecting and promoting cultural diversity, while at the same time bringing European common cultural heritage to the fore.”

³²⁸ *Case 7/68 Commission v Italy* [1968] [2].

competence in the field of culture.³²⁹ Such an approach of “cultural mainstreaming”³³⁰ once again questions the delineation between the competences of the EU and those of the Member States.

The Union has though evolved in its understanding and approach to cultural concerns. EU institutions could not ignore culture due to both legal and political reasons.³³¹ The legal reasons lie in the fact that prosperity inevitably resulted in trade in cultural goods and thus certain clashes between national provisions and EU ones surfaced.³³² From a political point of view, the attachment to national cultural identity that Europeans bear to their domestic systems may result in obstacles to the development of a European identity.³³³ These reasons have driven European cultural policy over the decades.

Nowadays, the EU has the competence to support, coordinate or supplement the action of the MS as far as culture is concerned as per Article 6 of the TFEU. In that vein, Article 167(1) TFEU underlines that “the Union shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore”.³³⁴ Therefore, the Union does not have competence to harmonise the Member States’ laws. This competence has been seen as “setting the boundaries than giving the green

³²⁹ Evangelia Psychogiopoulou, ‘The Cultural Mainstreaming Clause of Article 151(4) EC: Protection and Promotion of Cultural Diversity or Hidden Cultural Agenda’ (2006) 12 *European Law Journal* 575, 581–582.

³³⁰ Psychogiopoulou (n 329).

³³¹ Craufurd Smith (n 325) 871.

³³² *ibid.*

³³³ *ibid.*

³³⁴ For further and detailed discussion on Article 167 (ex Article 151 EC) see Rachael Craufurd Smith, ‘Community Intervention in the Cultural Field: Continuity or Change?’ in Rachael Craufurd Smith (ed), *Culture and European Union Law* (Oxford University Press 2004).

light to the Community to delve further into cultural matters.”³³⁵ However, Article 167(4) TFEU stresses that the EU must take cultural aspects into account in its action under other provisions of the Treaties, in particular in order to respect and promote the diversity of its cultures. Interestingly, this attaches a certain horizontal dimension to the cultural concerns and over time respecting and promoting cultural diversity has become a transversal concern underlying all EU actions.³³⁶ This provision is explicitly referred to in the most recent directive in the field of copyright law (the DSM Directive), where recital 2 emphasises that Article 167(4) requires the Union to take cultural aspects into account in its action. Consequently, the respect for cultural diversity appears in various EU provisions that are not necessarily within the EU ‘cultural policy’ strictly speaking.³³⁷

Furthermore, Article 167(4) includes the general term ‘cultural aspects’. Absent a positive definition in the Treaties, the term is open to diverging interpretations.³³⁸ This is a notion that could be understood both in a narrow sense and in a broad sense.³³⁹ Understood broadly, the term refers to any type of cultural aspect that has a link to culture – for instance, the optional copyright exception from the reproduction right of reporting current economic, political or religious topics as per Article 5(2)(c) of the InfoSoc Directive, or the new mandatory exception for the use of works and other subject matter in digital and cross-border teaching activities pursuant to Article 5 of the DSM Directive. If understood narrowly, the notion would cover only those provisions that explicitly refer to culture, such as the mandatory TDM exception for cultural

³³⁵ Psychogiopoulou (n 329) 583.

³³⁶ *ibid* 576.

³³⁷ Evangelia Psychogiopoulou, ‘Cultural Rights, Cultural Diversity and the EU’s Copyright Regime: The Battlefield of Exceptions and Limitations to Protected Content’ in Oreste Pollicino, Giovanni Maria Riccio and Marco Bassini (eds), *Copyright and fundamental rights in the digital age* (Edward Elgar Publishing 2020) 134–152, where the author studies the InfoSoc Directive and the DSM Directive from the perspective of cultural policy and identifies the provisions that bear cultural connotations.

³³⁸ For a further discussion on the conception of culture in EU law see Craufurd Smith (n 325) 872–875.

³³⁹ Psychogiopoulou (n 337) 126–127.

heritage institutions as per Article 3 of the DSM Directive. In light of the tone of Article 157(4), ie the Union “*shall take*” cultural aspects into account, it can be argued that the notion must be understood in its broad sense. Therefore, the obligation would be not just for the EU legislator, but it would pertain also to the CJEU.³⁴⁰ This, however, prompts questions as to whether the CJEU can annul an EU act if it finds that cultural aspects were not taken not account sufficiently. Nonetheless, the manner in which the provision is drafted indicates that the EU should consider culture when acting in other policy areas, but the actual outcome of the legislative act is not defined, or like Evangelia Psychogiopoulou puts it: “it is a matter of assessment and evaluation, not of prescribed results to obtain”.³⁴¹

Clear problems emerge from this framework. It has been suggested that whether or not certain cultural interests will be taken into account hinges on the “ability of states [to] form voting alliances or broker deals than a principled evaluation of the interest’s cultural value”.³⁴² In copyright law, this aspect has been criticised with regard to the “broadest copyright policy measure” enacted so far, namely the Information Society Directive.³⁴³ Giuseppe Mazziotti argues that the Information Society Directive “sought in the abstract to create a common level playing field for *all* actors in the markets for cultural and entertainment works”, but in reality “the main beneficiaries of the harmonised rules were media conglomerates and major content producers who could concretely engage in cross-border trade of their internationally appealing productions”.³⁴⁴ This was precisely due to the fact that the Directive provided uniformly defined exclusive rights and very limited harmonisation of copyright exceptions and limitations. This setting benefitted only a limited number of cultural industries – book and music publishers, record and film producers, broadcasters and the large collecting

³⁴⁰ Psychogiopoulou (n 329) 585.

³⁴¹ *ibid.*

³⁴² Craufurd Smith (n 325) 885.

³⁴³ Mazziotti (n 217) 93.

³⁴⁴ *ibid* 94.

societies.³⁴⁵ It thus did not fully benefit authors and artists, whose cultural concerns are the essence of copyright law.

Unsurprisingly, the CJEU has been called to adjudicate upon the limits of Article 167 TFEU. In a case related to linguistic diversity programmes, the choice of legal basis was contested.³⁴⁶ The European Parliament had brought an annulment action arguing that the establishment of a linguistics programme should have been adopted pursuant to Article 167 (then, Article 128 EC Treaty) as its nature was entirely cultural. The CJEU drew the line between direct and indirect/incidental effects of the provisions at stake. It stated that, the object of the programme – the promotion of linguistic diversity – is of an essentially economic nature and can *only incidentally* act as a vehicle for culture.³⁴⁷ Consequently, the programme will inevitably have beneficial effects for the dissemination of cultural works, in particular by improving the tools available for translation, but such effects are only incidental compared to the direct effects sought, which are of an economic nature.³⁴⁸ Making such a qualification is not always easy. Is a certain copyright-related activity within the scope of the internal market and only indirectly of cultural nature? What are the consequences of this? Making the assessment is very often dependant on the merits of the case at stake. However, it seems like overall Article 167 has taken a backseat and given way to the powerful free movement rationale. This has been once again tackled in the landmark *Bosman* case, where the CJEU had to address the question of free movement of workers for football players.³⁴⁹ It was argued that sport is similar to culture and it was questioned whether as per Article 167(1) TFEU (then, Article 128(1) EC Treaty) the EU must respect national and regional diversity of cultures of the MS. The CJEU stated

³⁴⁵ *ibid.*

³⁴⁶ *Case 42/97 European Parliament v Council of the European Union* [1999] CJEU ECLI:EU:C:1999:81.

³⁴⁷ *ibid* 61.

³⁴⁸ *ibid* 63.

³⁴⁹ *Case C-415/93 Union Royale Belge des Sociétés de Football Association ASBL v Jean-Marc Bosman* [1995] CJEU ECLI:EU:C:1995:463.

that the argument about the alleged similarity between sport and culture cannot be accepted, since the question submitted by the national court does not relate to the conditions under which the Union powers of limited extent (Article 167) may be exercised.³⁵⁰ Instead, the question tackled the scope of the freedom of movement of workers, which is a fundamental freedom in the Union. Thus, going around the question of how far Article 167 must go, the CJEU adopted the standard two-fold assessment it usually follows in free movement cases – it sought to first identify whether there was an obstacle to the free movement principles and if so, it looked at whether there was a possible justification for the measures.

Copyright law logically follows the same reasoning as it is a field rich on cultural concerns but is also highly entangled with internal market goals. Striving to remove obstacles in the free movement of goods between MS, the copyright directives have generally promoted cultural creation by ensuring appropriate rewards for authors. Therefore, as long as the regulated copyright aspect can be geared towards an internal market goal, then there will always be a justification to harmonise the laws of the MS and fill the functional competence of Article 114 TFEU with normative content.

That said, one important omission in this copyright ‘harmonisation fever’ deserves consideration: moral rights.³⁵¹ They typically represent the idea of a work as continuity and extension of the author’s personality.³⁵² Therefore, moral rights zealously safeguard the identity and integrity of a work and its author. Arguably, moral rights mirror the cultural concerns of the Member States and this is evident in particular in the understanding of the right of integrity, which safeguards the work against any modifications which may be considered prejudicial to the author’s reputation and

³⁵⁰ *ibid* 78.

³⁵¹ On the romantic author and moral rights, see Peter Jaszi, ‘TOWARD A THEORY OF COPYRIGHT: THE METAMORPHOSES OF “AUTHORSHIP”’ *DUKE LAW JOURNAL* 49, 496–500.

³⁵² Lauriane Nocella, ‘Copyright and Moral Rights versus Author’s Right and *Droit Moral*: Convergence or Divergence?’ (2008) 19 *Entertainment Law Review* 151, 151; Alan R Durham, ‘The Random Muse: Authorship and Indeterminacy’ (2002) 44 *WILLIAM AND MARY LAW REVIEW* 569, 612.

honour.³⁵³ Yet, moral rights fall entirely outside the EU copyright harmonisation program and the directives explicitly state this.³⁵⁴ Being so highly intertwined with culture, one may tie this decision to the EU competences and leave moral rights either entirely to the national competence of the MS or only engage in minimal intervention by virtue of the coordination competence as per Article 167. From the point of view of the European Commission, the culprit for this exclusion is the internal market narrative. According to it, there is lack of evidence that diverging approaches to moral rights would have a “negative impact on the good functioning of the Internal Market.”³⁵⁵ Clearly and evidently, considerations for the internal market take precedence over the cultural ones when it comes to harmonisation. It appears that this time round culture stood its own ground and did not stick to the internal market narrative.

An additional consideration is that the umbrella goal of fostering culture gains a different flavour when seen from each stakeholder’s perspectives. It has been said that generally when the legislative provisions emphasise the safeguarding of cultural diversity, two dimensions of the discourse are included – nurturing cultural creation, but also fostering the distribution of cultural output.³⁵⁶ Indeed, the EU legislator has sought to protect the interests of different parties all engaged in one way or another with the notion of “flowering of the cultures”³⁵⁷ – authors, performers, content-disseminating bodies and users of copyright material.³⁵⁸ Perhaps for that precise reason one may be left with the impression that even though culture is somehow

³⁵³ Berne Convention, article 6*bis*(1).

³⁵⁴ Term Directive, recital (21); Database Directive, recital (28); Information Society Directive, recital (19).

³⁵⁵ European Commission, ‘Review of the EC Legal Framework in the Field of Copyright and Related Rights’ (European Commission 2004) SEC(2004) 995 16.

³⁵⁶ Psychogiopoulou (n 337) 125.

³⁵⁷ Article 167(1) TFEU, where the provision reads: “the Union shall contribute to the flowering of the cultures of the Member States, while respecting their national and regional diversity and at the same time bringing the common cultural heritage to the fore.”

³⁵⁸ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 36–39.

always present in some of the recitals, it is nonetheless not pursued in a logically sound manner. It rather follows a chaotic and heterogeneous approach. Culture, to that end, is yet another flexible concept in EU copyright law easily applicable to different lenses and standpoints. Many recognise themselves in the discourse on fostering culture. In other words, authors will argue, most logically, that being the “original source of creative outcome or activity”³⁵⁹ that grants them with exclusive rights, fosters culture as they are able to produce creative content by benefiting from IP protection. On the other hand, users of protected works may claim that they should be permitted to reuse freely copyright protected content in a certain way in order to further produce creative output. Content-disseminators and platforms in their own way could stress that they ease access to cultural works, so they should be able to benefit from certain liability exceptions. These are just some examples of the many possible claims. There are many more lines of argumentation. All standpoints, while falling under the general umbrella of “fostering culture”, derive from clashing concerns and have regularly proved particularly difficult to reconcile. This is also pointed out in Recital 22 of the Information Society Directive, which states that the objective of proper support for the dissemination of culture must not be achieved by sacrificing strict protection of rights. It all sounds good in theory, but it is very difficult to reconcile in practice.

One other aspect demonstrating that when it comes to culture, we are not all on the same page are the diverging views of cultural traditions across the Member States. Thus, in some cases, rather than oppose it, Member States have supported EU legislative initiatives with the hope that (contrary to a judicial intervention), a legislative initiative leaves Member States some room for influence over the regulatory

³⁵⁹ *ibid* 40.

outcome.³⁶⁰ This would ideally enable them to “lock in” their preferred approach.³⁶¹ This was the case with France and the Resale Rights Directive.³⁶²

Linked to this are the copyright justificatory theories, which are deeply rooted in a national understanding of fostering culture. Barely any work on EU copyright law, let alone a PhD thesis, goes without mentioning these. This thesis does not strive to give a complete overview of the different copyright ideologies in the EU Member States. This has already been done on many occasions in other very detailed and comprehensive studies.³⁶³ The aim of the analysis instead is to frame the conflict between common law and civil law jurisdictions in the copyright discourse and to demonstrate that these two legal traditions have seriously burdened the process of harmonising EU copyright law. As a result of this analysis, it will emerge that a clear EU copyright theory to underline the EU legislative process is absent. This omission has prompted the CJEU to actively interpret vague and broad notions and thus put flesh to the bones of the EU directives.

It is well-known that copyright law traditions of the different EU Member States vary significantly as far as their theoretical framework is concerned. The majority are classical civil law countries (France, Germany, Italy, etc), whereas a few derive from a common law background (Ireland, Cyprus and until recently, the UK). These differences lead to very diverging policy styles regarding the national legislation.³⁶⁴ It may be the case that Brexit pushes the Union copyright law-making more towards a

³⁶⁰ Craufurd Smith (n 325) 884.

³⁶¹ *ibid.*

³⁶² Directive 2001/84/EC of the European Parliament and of the Council of 27 September 2001 on the resale right for the benefit of the author of an original work of art.

³⁶³ Alain Strowel, ‘Droit d’auteur et copyright: divergences et convergences : étude de droit comparé’ (E Bruylant 1993); Paul Goldstein and Bernt P Hugenholtz, *International Copyright. Principles, Law and Practice* (2nd edn, Oxford University Press 2010) 14; Nocella (n 352); Davies, ‘The Convergence of Copyright and Authors’ Rights - Reality or Chimera?’ (n 243); Oliver R Goodenough, ‘Pointillism, Copyright and the Droit d’auteur Time to See a Bigger Picture’ (1994) 5 *Entertainment Law Review* 35.

³⁶⁴ JJ Richardson (ed), *Policy Styles in Western Europe* (1st edn, Routledge 2014).

civil law understanding of different notions. Regardless of this, the UK, as the most prominent example of a (now former) Member State with a common law tradition, has been highly influential and contributing to the copyright discussion both at the level of legislation,³⁶⁵ as well as in the judiciary.³⁶⁶ Thus, its departure from the EU, orderly or not, will leave the Union in short of a strong balancing voice in the copyright discussions at both a legislative and judiciary level. Its legacy, however, is enshrined in the already enacted legislation and the CJEU jurisprudence.

On one end of the spectrum lie civil law jurisdictions, such as France, which sees copyright as authors' rights or '*droit d'auteur*'. Their understanding of copyright law is paralleled to that of human rights and ties the protection of creative expression to the personality of the author.³⁶⁷ Thus, copyright is tangent to a personal right.³⁶⁸ The other end of the spectrum sees the UK – now, former EU Member State – where copyrights are widely understood as economic rights, or as the right to prevent copying.³⁶⁹ These widely diverging perceptions have sparked constant policy discussions – personal rights vs economic interests; human dignity and the common good vs competitiveness and profitability.³⁷⁰ Sometimes the attempt to find a middle ground has resulted in a fruitful and successful compromise between the two. In the

³⁶⁵ Directive 2003/88/EC of the European Parliament and of the Council of 4 November 2003 concerning certain aspects of the organisation of working time.

³⁶⁶ Favale, Kretschmer and Torremans (n 224) 858.

³⁶⁷ Annabelle Littoz-Monnet, 'Copyright in the EU: Droit d'auteur or Right to Copy?' (2006) 13 *Journal of European Public Policy* 438, 440.

³⁶⁸ *ibid.*

³⁶⁹ This is not to say that the copyright regime in the UK and the other common law jurisdictions in the EU lack moral rights protection. These countries include a moral rights regime, but that regime is less central in comparison to the economic rights protection. For further discussion on the different moral rights regime worldwide see Mike Holderness, 'Moral Rights and Authors' Rights: The Keys to The Information Age' [1998] *Journal of Information Law & Technology* <http://elj.warwick.ac.uk/jilt/infosoc/98_1hold/> accessed 25 July 2020.

³⁷⁰ Littoz-Monnet (n 367) 441; Davies, 'The Convergence of Copyright and Authors' Rights - Reality or Chimera?' (n 243) 986.

field of copyright law, such aspects include the originality standard,³⁷¹ corporate and employed authorship.³⁷²

The line between the *droit d'auteur* and the right to copy regimes is not always an easy one to draw.³⁷³ A copyright regime strongly reflects the cultural identity of a Member State, which is an additional hurdle when attempting to bring these systems together.³⁷⁴ This discussion on the divergences and convergence of the *droit d'auteur* and the right to copy regimes is underlined by the choice of copyright rationale each system advocates for. This rationale derives from philosophical justification theories,³⁷⁵ which for centuries have come to shape the copyright regimes worldwide.

Depending on the jurisdiction, the existence of copyright law can be justified differently by reference to several theories. There is no unanimity as far as the taxonomy of the theories is concerned.³⁷⁶ In what follows, three of the most

³⁷¹ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 176.

³⁷² Davies, 'The Convergence of Copyright and Authors' Rights - Reality or Chimera?' (n 243) 985.

³⁷³ *ibid* 964–965 and 974.

³⁷⁴ Silke von Lewinski, *International Copyright Law and Policy* (Oxford University Press 2008) 34 and 63.

³⁷⁵ For an interesting discussion on Kant and his link to a communication theory see Laura Biron, 'Creative Work and Communicative Norms' in Mireille van Eechoud (ed), *The Work of Authorship* (Amsterdam University Press 2014).

³⁷⁶ William Fisher, 'Theories of Intellectual Property' (*Harvard Law*) <<http://www.law.harvard.edu/faculty/ffisher/iptheory.html>> accessed 22 January 2020; Alfred C Yen, 'Restoring the Natural Law: Copyright as Labor and Possession' (1990) 51 *Ohio State Law Journal* 517; Strowel (n 363) 173; Barbara Friedman, 'From Deontology to Dialogue: The Cultural Consequences of Copyright' (1994) 13 *Cardozo Arts & Entertainment Law Journal* 157; Lucie Guibault, *Copyright Limitations and Contracts. An Analysis of the Contractual Overridability of Limitations on Copyright* (Kluwer Law International 2002) 7; Christophe Geiger, *Droit d'auteur et droit du public a l'information. Approche de droit compare* (LEXISNEXIS 2004) 22; Justin Hughes, 'The Philosophy of Intellectual Property' (1988) 77 *Georgetown Law Journal* 278; Justin Hughes, 'A Short History of "Intellectual Property" in Relation to Copyright' 001 *intellectual property* 49; Edwin C Hettinger, 'Justifying Intellectual

prominently referred to justification theories will be sketched out. Following their underlying logic, these justificatory theories can be broadly divided in two families – the natural rights theories and the utilitarian theory.³⁷⁷

The first theory from the natural rights family is the Lockean labour theory. Developed by John Locke in the seventeenth century, this theory is based on the idea that everyone is entitled to the fruits of their own labour.³⁷⁸ While John Locke's theory of property developed outside the ambit of IP law, it is often quoted when justifying the grant of exclusive rights. The starting point here is a state of nature where goods are held in common. Individuals then render these goods private legitimately by exercising labour on them. Creative expression is protected as the result of *intellectual* labour. The mind is the crucial element of authorship as that is the facet transforming public property, ie goods held in common, into private property, ie copyright material. There are however two important boundaries to such appropriation. First, one is entitled to appropriate from the common good as long as there is enough and as good left for the other. Secondly, preserving the common good is imperative, ie one cannot appropriate up to a point of depletion and impoverishment of the common good. This reasoning is particularly relevant for the integrity of the public domain and is linked to the tragedy of anticommons. The term anticommons was coined by Michael Heller in 1998³⁷⁹ and refers to the idea of “wasteful underuse”. He has argued that this is the opposite of “wasteful overuse” and the well familiar from economics “tragedy of the commons”.³⁸⁰ The “tragedy of commons” was coined by Garrett Hardin in 1968 and referred to a situation in which individuals would rationally consume a pool of a common scarce resource despite the fact that they know that their simultaneous consumption would

Property' (1989) 18 *Philosophy & Public Affairs* 31; Peter Drahos, *A Philosophy of Intellectual Property* (1 edition, Routledge 1996).

³⁷⁷ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 3.

³⁷⁸ John Locke, *Locke : Two Treatises of Government* (Cambridge University Press 1988) s 27.

³⁷⁹ Michael Heller, 'The Tragedy of the Anticommons: Property in the Transition from Marx to Markets' (1998) 111 *Harvard Law Review* 621.

³⁸⁰ Michael Heller, 'The Tragedy of the Anticommons: A Concise Introduction and Lexicon: The Anticommons' (2013) 76 *The Modern Law Review* 6, 9.

deplete the resource.³⁸¹ The tragedy of anticommons depicts a situation in which too many people can block each other from using or creating a scarce resource.³⁸² Heller calls this “a free market paradox”, in which if too many owners control a single resource, cooperation tends to break down, wealth risks disappearing and therefore everybody loses.³⁸³ The EU IPR landscape risks falling within this paradoxical situation as it is highly populated and this already creates many overlapping IP claims. Therefore, before bringing in an additional layer of protection and entangling the net of (authorship) claims further, a clear need for it must be established. The two Lockean provisos ensure that we do not end up in a tragedy of anticommons. The Lockean labour theory and the tragedy of anticommons rationales are aligned here. Typical representative of this Lockean logic is the UK.

Next in the family of natural rights is the personality rights theory deriving from Immanuel Kant’s work in the eighteenth century and later furthered by Georg Hegel in the nineteenth century. It is rooted in the idea that works of intellectual merit represent their creator’s personality, self-actualisation and personal expression.³⁸⁴ Consequently, these are worthy of protection as they represent an extension of one’s personality. Author’s rights are not created by law, but have always existed and the law is there to just recognise these rights.³⁸⁵ The moral rights regime is the clearest manifestation of this theory.³⁸⁶ The romantic perception of copyright law is in sync with

³⁸¹ Garrett Hardin, ‘The Tragedy of the Commons’ (1968) 162 *Science* 1243.

³⁸² Heller (n 380) 9.

³⁸³ *ibid* 7.

³⁸⁴ Hughes, ‘The Philosophy of Intellectual Property’ (n 376) 330; Fisher (n 376); Martin Kretschmer and Friedemann Kawohl, ‘The History and Philosophy of Copyright’ in Simon Frith and Lee Marshall (eds), *Music and Copyright* (Edinburgh University Press 2004) 31 <<https://www.jstor.org/stable/10.3366/j.ctvxcrsmt.5>> accessed 25 July 2020.

³⁸⁵ Senftleben and Buijtelaar (n 76), referring to F.W. Grosheide, *Auteursrecht op maat*, Deventer: Wolters Kluwer 1986, 219 and E. Ulmer, *Urheber- und Verlagsrecht*, Berlin/Heidelberg/New York: Springer 1980, 110-111; H. Desbois, “Le droit d’auteur en France”, Paris: Dalloz 1978, 538.

³⁸⁶ Stef van Gompel, *Formalities in Copyright Law: An Analysis of Their History, Rationales and Possible Future* (Kluwer Law International 2011) 218.

the need to foster culture.³⁸⁷ Personal expression and personal identity stand on the same side of the scale as national cultural identity. Here, one clearly identifies that priority is not economic (ie market-related concerns), but cultural ones. On this front, we find France, among many others.

On the other side, one finds the utilitarian theory, developed by Jeremy Bentham and John Stuart Mill. According to the utilitarian approach, the idea of maximising net social welfare is central. Granted with copyright protection, an author is eventually incentivised to create and disseminate their work to the public, which enhances the overall social welfare.³⁸⁸ Since copyright bears the features of a public good, it is non-rivalrous and non-exclusive. In that sense, first, the use of the copyright material by one person does not diminish the benefits of it available for another, and second, it is impossible to exclude certain users from enjoying the benefits of a good regardless of whether or not they have paid for the use. The incentive to create established by copyright protection leads to a situation in the absence of copyright protection, the production of works is under-efficient. Therefore, the ultimate trade off in copyright law is between the cost of limiting access to a work and the benefit of providing an incentive to create the work in the first place.³⁸⁹ Consequently, being able to strike the correct balance between access and incentives is a fundamental obstacle in copyright law from the utilitarian approach perspective.³⁹⁰ Importantly, the incentives here are not to be confused with the reward mentioned above in the context of the labour theory. The incentive in the utilitarian theory is reasoned from the point of view of the society as a whole, while the reward in the labour theory is targeted directly at the individual that exercises intellectual labour.³⁹¹ Consequently, the focal point of the two families of theories is different – natural rights theories concentrate on the creator of the work who deserves to be compensated and rewarded for it, while

³⁸⁷ For a further discussion on the romantic author see Chapter III, section 3.1.2. The romantic human author.

³⁸⁸ Friedman (n 376) 176; Fisher (n 376); Geiger (n 376) 27–35; Guibault (n 376) 10.

³⁸⁹ Fisher (n 376).

³⁹⁰ *ibid.*

³⁹¹ Guibault (n 376) 11.

the utilitarian theory gives more importance to the work itself and its dissemination. This logic is rooted in economic concerns. It is fair to acknowledge once more the ultimate goal of the utilitarian approach – striving to disseminate more creative works for the society as a whole. However, its mechanics are the cost/benefit analysis, ie the cost of limiting access vs the benefit of providing an incentive to create the work in the first place, are really economics-based. Copyright protection does not arise as a result of a natural right in this respect, but a law must be enacted and goes as far as it is necessary to provide the incentive to encourage the creation and dissemination of creative expression.³⁹² The main jurisdiction following this reasoning is the United States. Nonetheless, the internal market in the EU is a product of economic concerns in which the dissemination and circulation of copyright works is central. So, while a typical US theory, utilitarianism does have traces in the EU copyright legal order too.³⁹³ Recital 4 of the InfoSoc Directive stresses that “a harmonised legal framework on copyright and related rights [...] will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry, both in area of content provision and information technology and more generally across a wide range of industrial and cultural sectors.” This is a rationale focusing on the society overall and not solely on the individual author; therefore, it exemplifies utilitarian-based considerations.

The historical development of the copyright regimes in the EU Member States demonstrates that some (the civil law countries) were based on personality rights foundations, while others — the common law jurisdictions — followed the Lockean labour theory, while including certain utilitarian facets. Therefore, to a certain extent, abstractly theorising the potential boundaries between the different rationales is possible. However, is this really desirable? Or, like Oliver R. Goodenough eloquently puts it: "Copyright and *droit d'auteur* suffer from the constraints of historical aesthetic

³⁹² Senftleben and Buijelaar (n 76) 13; Steve P Calandrillo, 'An Economic Analysis of Property Rights in Information: Justifications and Problems of Exclusive Rights, Incentives to Generate Information, and the Alternative of a Government-Run Reward System' (1998) 9 Fordham Intellectual Property Media and Entertainment Law Journal 301, 310.

³⁹³ Senftleben and Buijelaar (n 76) 13–14.

theory and from overparticularisation. Such pointillist jurisprudence has gone on long enough. We need to step back, view the canvas as a whole, and identify the broader social principles which draw the picture together."³⁹⁴ In that vein, when one turns to the peculiarities of copyright law, identifying this division between rationales becomes rather difficult. Several authors agree that different theories have infused different aspects into the copyright regimes.³⁹⁵ Thus, these theories are not incompatible with one another. Put differently, copyright nowadays is more appropriately understood as a mix of theories, rather than one stand-alone theory justifying all aspects of copyright law – from the grant of rights, through their duration, economic and moral exploitation, to their limitations in light of users.³⁹⁶ One author maintains that certain copyright principles can be justified by either theory.³⁹⁷ For instance, the idea/expression, seen from the perspective of the labour rights theory, goes as follows: one is granted protection only for the expression of their work (not for the idea) since it is the expression that constitutes the fruit of their own labour. This is achieved when the author mixes their own intellectual labour with the common good. The common good is understood as the ideas free for everyone to draw inspiration from. Alternatively, under the utilitarian rationale, it is overall more efficient to protect only the creative expression and leave ideas in the public domain since these will be free for others to produce more creative works. This will eventually lead to more creative works for the society as a whole to enjoy and benefit from.

In EU copyright law, this mixture of theories and justifications is evident. This approach tends to be more respectful of the cultures and legal traditions of the different Member States. Though, inadvertently it has led to a rather incoherent general legal framework. In a unique legal order like the EU, it becomes very difficult to identify only

³⁹⁴ Goodenough (n 363) 37.

³⁹⁵ Bently and Biron (n 220).

³⁹⁶ Geiger (n 376) 38–39; Linda J Lacey, 'Of Bread and Roses and Copyrights' (1989) 38 *Duke Law Journal* 1532, 1595–1596; Yen (n 376) 558–559, underlying the undeniable economic consequences of copyright law, which eventually get to be justified by principles beyond the realm of economics, ie the 'natural rights insights which guide how the economic institution of copyright should be shaped'.

³⁹⁷ Yen (n 376) 531.

one single theory underlying all EU copyright directives. This is exacerbated by the fact that legislative action is not based on a purely copyright-tailored legal basis, but it has chiefly followed the functional internal market legal basis. Another difficulty is that even though references to fostering culture are not completely absent in the directives, the overall understanding of culture also bears the stamp of incoherence. To that end, in practice encouraging culture means one thing for authors, a different one for libraries and museums and third for sampling and appropriation artists. As it has become apparent from the previous section the functional competence of Article 114 leaves a perceptible normative gap. The copyright traditions of the various Member States have not adequately filled that gap. They can be sometimes in conflict; other times, they justify the same principle following a different reasoning; and at times, traces of each justificatory theory are evident in the legislative tools and the judiciary's approach.

Consequently, perhaps it would have been preferable to have a coherent and clear European copyright theory instead of mixing and matching the different existing traditional justifications whenever convenient for the internal market narrative or whenever the strongest lobbying voice during the legislative process manages to be heard.³⁹⁸ In this context, however, it suffices to stress that sometimes this normative gap has been filled in by the CJEU by virtue of its preliminary reference procedure. Wearing its activist hat, the Court is responsible for defining many concepts in an autonomous EU manner and adapting the EU copyright legislation to the technological reality we live in.

³⁹⁸ re:publica (n 282), where he underlines that as a result of many freedom of information requests to the Commission it appears that the music record and the publishers industry have met the most with the Commission during the DSM Directive approval; hence, exercised the strongest lobbying efforts. 'Copyright Directive: How Competing Big Business Lobbies Drowned out Critical Voices' (n 282).

2.3. CJEU activism

Pulled by various lobbying interests,³⁹⁹ torn in their understanding of culture and burdened by their own national copyright justification, Member States have often struggled to agree on various aspects of EU copyright law.⁴⁰⁰ The EU legislative framework in copyright law constitutes a highly fragmented legal landscape. As a consequence, in copyright disputes, the law national courts would have to apply is a “hotchpotch” of EU and national law.⁴⁰¹ It often happens that national courts are obliged to apply a provision stemming directly from an EU directive, but are uncertain as to its interpretation. Very frequently, regardless of the freedom to transpose EU directives in the way they see fit, MS would adopt measures that do not add much clarity. Consequently, many key EU notions lack definition or have been defined only laconically. Some such concepts, among many others, are the right of communication to the public,⁴⁰² the originality requirement,⁴⁰³ the reproduction right,⁴⁰⁴ digital exhaustion,⁴⁰⁵ best efforts.⁴⁰⁶ The inability to reach a political agreement between the

³⁹⁹ re:publica (n 282).

⁴⁰⁰ An intense discussion took place during the entire legislative procedure of the DSM Directive. This has led to the directive being rejected by the European Parliament during its plenary vote on 5 July 2018. For a complete discussion, see <https://www.create.ac.uk/policy-responses/eu-copyright-reform/#timeline>.

⁴⁰¹ Jääskinen (n 70) 668.

⁴⁰² Mathias Leistner, ‘Europe’s Copyright Law Decade: Recent Case Law of the European Court of Justice and Policy Perspectives.’ (2014) 51 *Common Market Law Review* 559, 569; Favale, Kretschmer and Torremans (n 224) 840.

⁴⁰³ Leistner (n 402) 574.

⁴⁰⁴ *ibid* 569.

⁴⁰⁵ *ibid* 574.

⁴⁰⁶ Axel Metzger and Martin Senftleben, ‘Comment of the European Copyright Society on Selected Aspects of Implementing Article 17 of the Directive on Copyright in the Digital Single Market into National Law’ (European Copyright Society 2020) 5

Member States during the legislative drafting is one reason for leaving such key concepts without a clear, if any, definition.⁴⁰⁷ Alternatively, it might be the EU legislator's intentional decision to avoid defining these contentious norms as it wanted to avoid a political compromise.⁴⁰⁸ One way or another, national courts have regularly faced questions on the interpretation of EU copyright notions and unsurprisingly have resorted to the guidance of the CJEU on numerous occasions. Thus, the CJEU's activism is understandable.⁴⁰⁹

When a national court finds itself before an EU act the interpretation of which it is uncertain of, it would stay the proceedings and refer several specific questions to the CJEU for interpretation. This is the so-called preliminary reference procedure as per Article 267 TFEU.⁴¹⁰ However, national courts are not always obliged to refer cases to the CJEU. They must refer questions to the CJEU in a case pending before a court or tribunal of a Member State against the decisions of which there is no judicial remedy under national law, ie if the case is before a last instance court. Alternatively, any other lower court has discretion to decide whether to refer to the case to the CJEU. National judges, to that end, act as "agents" within the national legal orders of the CJEU and EU law.⁴¹¹ During the proceedings, if the case is admissible, the involved parties can send written submissions, while the Commission as well as the Member

<https://europeancopyrightsocietydotorg.files.wordpress.com/2020/04/ecs-comment-article-17-cdsm.pdf> accessed 26 July 2020.

⁴⁰⁷ Vincent Cassiers and Alain Strowel, 'Intellectual Property Law Made by the Court of Justice of the European Union' in Christophe Geiger, Craig Allen Nard and Xavier Seuba (eds), *Intellectual Property and the Judiciary* (Edward Elgar 2018) 178.

⁴⁰⁸ *ibid.*

⁴⁰⁹ van Eechoud (n 306) 74.

⁴¹⁰ For a further detailed examination of the preliminary reference procedure and its evolution see Thomas de la Mare and Catherine Donnelly, 'Preliminary Rulings and EU Legal Integration: Evolution and Stasis' in Paul Craig and Gráinne de Búrca (eds), *The Evolution of EU Law* (Oxford University Press 2011).

⁴¹¹ Alec Stone Sweet, 'The European Court of Justice' in Paul Craig and Gráinne de Búrca (eds), *The Evolution of EU Law* (Oxford University Press 2011) 150.

States can intervene. In this process, certain Member States seem to be more influential than others.⁴¹² Of course, factors such as the size of the country's economy and its propensity to litigate before the CJEU in general are to be borne in mind when assessing who steers the jurisprudence of the EU's highest court.⁴¹³

During a preliminary reference procedure, the CJEU is only permitted to respond to the questions it has been asked and “provide a national court with an interpretation of Community [now, Union] law which may be useful to it in assessing the effects of that provision”.⁴¹⁴ Furthermore, the CJEU is not competent to rule on findings of fact.⁴¹⁵ Thus, in principle the referring court defines the limits of the matter deferred. However, the line between national and supranational jurisdiction is more blurred than it might seem *prima facie*. This fine balancing exercise of the CJEU between national and supranational judicial power is based on direct cooperation and a dialogue between the two courts, where the initiation of the proceedings depends entirely on the national court's assessment as to whether a reference is “appropriate or necessary”.⁴¹⁶ Therefore, this mechanism allows the participation of national courts in the application and enforcement of EU law. Nonetheless, it is controversial and has produced varying responses in academia.⁴¹⁷ As Alec Stone Sweet says, despite the fact that the “CJEU does not sit at the apex of a unified system”, it has often behaved as a “federal supreme court”.⁴¹⁸ It must be pointed out that the judgments of the CJEU are governed by the principle of collegiality, according to which even though the judges

⁴¹² Favale, Kretschmer and Torremans (n 224) 848.

⁴¹³ *ibid* 849.

⁴¹⁴ *Case 20/87 Ministère public v André Gauchard* [1987] CJEU ECLI:EU:C:1987:532 [5].

⁴¹⁵ Many cases have established this, but in the field of copyright law refer to *Opinion of Advocate General Sharpston in Case C-355/12 Nintendo Co Ltd and Others v PC Box Srl and 9Net Srl* [2013] CJEU ECLI:EU:C:2013:581.

⁴¹⁶ *Case C-201/06 CARTESIO Oktató és Szolgáltató bt* [2008] CJEU ECLI:EU:C:2008:723 [90–91].

⁴¹⁷ Niamh Nic Shuibhne, *The Coherence of EU Free Movement Law: Constitutional Responsibility and the Court of Justice* (Oxford University Press 2013) 19.

⁴¹⁸ Stone Sweet (n 411) 133.

might disagree, a decision can still be taken by majority, which sometimes transpires in the text of the judgments – there is a search for consensus and the final text of the judgment may be the product of compromise.⁴¹⁹ The reasoning of the Court is not as clearly displayed and elaborated as in common law cases; and there is no dissenting opinions. A certain degree of succinctness may even be seen as an indication of disagreement between the judges.⁴²⁰ In some cases, the CJEU seems to have overstepped its powers and decided the case concretely.⁴²¹ Other times, the Court stays within its jurisdictional boundaries and provides clear guidance on the issues raised.⁴²² At times, the Court fails at both – it neither decides the case, nor does it provide any useful guidance to the national referring court. Sometimes, the CJEU even “pre-loads” certain questions and provides guidance on matters it was not asked on the first place.⁴²³ Admittedly, the Court is given certain degree of freedom as it can reformulate the question(s) asked by extracting from all factors provided by the

⁴¹⁹ Tridimas (n 227) 510.

⁴²⁰ *ibid.*

⁴²¹ *Levola Hengelo* (n 223); The academic opinion varies on whether such prescriptive approach is a positive trend, see further Gareth Davies, ‘Abstractness and Concreteness in the Preliminary Reference Procedure’ in Niamh Nic Shuibhne (ed), *Regulating the Internal Market* (Edward Elgar Publishing 2006); Oreste Pollicino, ‘The New Relationship between National and the European Courts after the Enlargement of Europe: Towards a Unitary Theory of Jurisprudential Supranational Law?’ (2010) 29 *Yearbook of European Law* 65; Xavier Groussot, ‘Spirit Are You There? – Reinforced Judicial Dialogue and the Preliminary Ruling Procedure’ [2008] *Europarättslig tidskrift* 934.

⁴²² Many cases can be referred to here, but in the field of copyright law see *Case C-145/10 Eva-Maria Painer v Standard VerlagsGmbH and Others* [2011] CJEU ECLI:EU:C:2011:798 [90–91], where the Court clarified that portrait photographs do not obey a different originality standard, but follow the previously established ‘author’s own intellectual creation’ test. The Court gave precise guidelines on how to evaluate the creative choices, when making a photograph.

⁴²³ Stephen Vousden, ‘Protecting GUIs in EU Law: Bezpečnostní Softwarová Asociace’ (2011) 6 *Journal of Intellectual Property Law & Practice* 728, 730, referring to *BSA*; van Eechoud (n 306) 72, referring to *Painer*.

national court all the elements that require interpretation.⁴²⁴ However, the CJEU can only do so much. Its freedom to reformulate should not be confused with the idea of bringing new questions on its own volition. Recently, in a copyright case related to exceptions and limitations Advocate General Szpunar has pointed the finger to the referring court and criticised it for not asking the right questions.⁴²⁵

Despite these mixed reactions, one aspect is not disputed: the CJEU has filled in apparent gaps in the EU copyright legislation.⁴²⁶ It has populated the so-called normative void with substance.⁴²⁷ Many copyright concepts have been subject to the CJEU's interpretation as part of the preliminary reference proceedings. From the case-law of the Court on copyright, it emerges that certain topics have been more problematic than others – or at least, national courts have been more inclined to seek interpretation of certain notions more than of others. In a recent study, Marcella Favale, Martin Kretschmer and Paul Torremans reviewing the CJEU jurisprudence on copyright law between 1998 and 2015 established that this shows that certain areas of copyright law are more vulnerable to “strategic litigation arguably because there is room for alternative policy paths without introducing legislation”.⁴²⁸ In this regard,

⁴²⁴ *Case 83/78 Pigs Marketing Board v Raymond Redmond* [1978] CJEU ECLI:EU:C:1978:214 [26]; *Painer* (n 422); *Case C-393/09 Bezpečnostní softwarová asociace – Svaz softwarové ochrany v Ministerstvo kultury* [2010] CJEU ECLI:EU:C:2010:816.

⁴²⁵ *Opinion of Advocate General in C-469/17 Funke Medien NRW GmbH v Bundesrepublik Deutschland* [2018] [22].

⁴²⁶ Griffiths, 'Taking Power Tools to the Acquis - the Court of Justice, the Charter of Fundamental Rights and European Union Copyright Law' (n 71) 144; Cassiers and Strowel (n 407) 183–185.

⁴²⁷ Favale, Kretschmer and Torremans (n 224) 836.

⁴²⁸ *ibid* 859 See also at 845, where the authors establish that more than half of these cases discuss the same recurrent concepts - communication to the public, copyright exceptions, levies, distribution rights and intermediaries liability; Littoz-Monnet (n 367) 443; *Case C-110/88 Lucazeau v SACEM* [1989] CJEU ECLI:EU:C:1989:326, where several night club owners in France brought a claim against the collecting society for the authors, challenging the excessively high rates and the refusal to grant certain licenses.

adopting the role of a “catalyst in the integration process”,⁴²⁹ the CJEU has inadvertently pushed the EU copyright harmonisation agenda further than the contours sketched by the directives.⁴³⁰ As a result of this, some academics have labelled the CJEU as a co-legislator.⁴³¹ With that in mind, one can speak of EU copyright law even in the absence of a unitary title or outright harmonisation of the laws as is the case in EU trade mark law.⁴³²

Aside from the substantive interpretation of the CJEU, turning to the manner in which the Court reasons, several interpretative techniques have come to life. In this respect, the Court often refers to the existence versus exercise doctrine,⁴³³ the specific subject matter doctrine,⁴³⁴ the exhaustion principle⁴³⁵ and the principle of non-discrimination.⁴³⁶ Ana Ramalho calls these “judicial solutions” aimed at overcoming the clash between the four fundamental freedoms and the national copyright

⁴²⁹ Renaud Dehousse, *The European Court of Justice: The Politics of Judicial Integration* (Macmillan 1998) 177.

⁴³⁰ Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 79; Paul Torremans and Irini Stamatoudi, *EU Copyright Law: A Commentary* (Edward Elgar 2014) 11. Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 79; Torremans and Stamatoudi 11; Jonathan Griffiths, ‘Constitutionalising or Harmonising? The Court of Justice, the Right to Property and European Copyright Law’ [2013] *European Law Review* 65; van Eechoud (n 306) 77.

⁴³¹ Cassiers and Strowel (n 407) 178.

⁴³² Favale, Kretschmer and Torremans (n 224) 838; Directive 2015/2436 of the European Parliament and of the Council of 16 December 2015 to approximate the laws of the Member States relating to trade marks; Regulation 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark.

⁴³³ Littoz-Monnet (n 367) 443; *Case C-78-70 Deutsche Grammophon GmbH v Metro GmbH* [1971] CJEU ECLI:EU:C:1971:59 [40]; *Case C-262/81 Coditel v Ciné-Vog Films* [1982] CJEU ECLI:EU:C:1982:334 [13].

⁴³⁴ *Deutsche Grammophon* (n 433) para 11.

⁴³⁵ Littoz-Monnet (n 367) 443; *Case C-128/11 UsedSoft GmbH v Oracle International Corp* [2012] CJEU ECLI:EU:C:2012:407 62.

⁴³⁶ *Joined cases C-92/92 and C-326/92 Phil Collins* [1993] CJEU ECLI:EU:C:1993:847 [32].

systems.⁴³⁷ Additionally, Eleonora Rosati identified eleven policies and principles, which she frames as “standards” that the CJEU has considered when taking decisions in copyright law.⁴³⁸ Some are “generally applicable standards”,⁴³⁹ whereas others are more specific since they are called on when a more specific situation arises before the CJEU.⁴⁴⁰ In her work, Eleonora Rosati establishes that certain standards are often paired and referred to together by the CJEU. For instance, the Court often associates the interpretation in light of the objectives pursued by the legislation at issue on the one hand with the need for a high level of protection, and on the other hand with the interpretation in light of wording and context of provisions.⁴⁴¹ Thus, it follows that the reference to the objective pursued by the legislation at issue is the most frequently referred to principle.⁴⁴² In this aim to teleologically interpret the legal provisions, the Court refers not only to the text of the directive, but also to the *travaux préparatoires*, including the original Commission proposal and its Explanatory Memorandum.⁴⁴³ At this point, it is worth recalling that the Commission, when proposing a directive should clearly indicate the legal basis for its action. Like it was demonstrated in the previous sections of this chapter, in copyright law such legal basis has been Article 114 TFEU, namely the establishment and functioning of the internal market. Thus, through this emphasis on the objective pursued by the legislation at issue the internal market

⁴³⁷ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 67.

⁴³⁸ Rosati, *Copyright and the Court of Justice of the European Union* (n 62) 38.

⁴³⁹ *ibid*, where she refers to the following general standards: high level of protection, autonomous concepts of EU law, effectiveness, proportionality, fair balance of different rights and interests, interpretation in light of international instruments, interpretation in light of wording and context of provisions, interpretation in light of objectives pursued by legislation at issue, interpretation in light of fundamental rights as granted by the Charter of Fundamental Rights of the European Union.

⁴⁴⁰ *ibid*, where she refers to the following specific standards: preventive nature of economic rights, and strict interpretation of exceptions and limitations.

⁴⁴¹ *ibid* 64.

⁴⁴² *ibid* 39.

⁴⁴³ *Case C-279/13 C More Entertainment AB v Linus Sandberg* [2015] CJEU ECLI:EU:C:2015:199 [26]; *Case C-174/15 Vereniging Openbare Bibliotheken* [2016] CJEU ECLI:EU:C:2016:856 [41].

narrative creeps back into the CJEU's toolbox of interpretative techniques. Eventually, in IP cases the CJEU "has gradually elaborated general principles which give guidance on the extent to which Community rules [...] impinge upon national intellectual property rights".⁴⁴⁴

Therefore, the CJEU's work is not just interpretative. The Court has actively contributed to the shaping of guidelines and concepts on an EU level. Alec Stone Sweet describes the CJEU as "one of the most important examples of extensive judicialization ever documented".⁴⁴⁵ This has generally been characterised as negative integration.⁴⁴⁶ Naturally, the opposite is positive integration, which in copyright law is marked by the large number of adopted directives and some regulations. The two types of integration are complementary. In copyright law, the two go hand in hand. Sometimes the CJEU has defined vague concepts from the directives, such as communication to the public⁴⁴⁷ or the notion of a 'work'.⁴⁴⁸ Other times, the EU legislator has introduced directives as a result of CJEU decisions.⁴⁴⁹ In all this, it has been questioned whether or not the CJEU has become excessively

⁴⁴⁴ Inge Govaere, *The Use and Abuse of Intellectual Property Rights in E.C. Law* (Sweet & Maxwell 1996) 60.

⁴⁴⁵ Stone Sweet (n 411) 145.

⁴⁴⁶ First to refer to such kind of integration is Jan Tinbergen, *International Economic Integration* (Elsevier 1954) 76, whereby negative integration pertains to an abolition of impediments hampering the proper functioning of an integrated area.

⁴⁴⁷ See, among many others, *Case C-160/15 GS Media BV v Sanoma Media Netherlands BV* [2016] CJEU ECLI:EU:C:2016:644; See further Eleonora Rosati, 'What Does the European Commission Make of the EU Copyright Acquis When It Pleads Before the CJEU? The Legal Service's Observations in Digital/Online Cases' (2020) 45 *European Law Review* 67.

⁴⁴⁸ See all cases referred to in Chapter III, section 3.2. The subsistence issue.

⁴⁴⁹ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 12; See also the Rental Directive (Directive 92/100/EEC), which is linked to *Case C-158/86 Warner Brothers and Metronome Video v. Erik Viuff Christiansen* (1988) ECLI:EU:C:1988:242.

“creative” and perhaps too active.⁴⁵⁰ Going even further, some have labelled the Court as a co-legislator.⁴⁵¹

The consequences of this judicial activism are manifold. First of all, the CJEU must be congratulated for constructing the ‘walls’ of EU copyright law, whereby its foundations were laid down by secondary legislation. Secondly, the CJEU is a court, it is not a co-legislator. Its role is to interpret the provisions in question and in a preliminary reference procedure to give guidance to the national court as far as an EU norm is concerned. A sign of warning is necessary. Utilising the internal market hermeneutical tool to interpret all aspects of copyright law is not appropriate.

⁴⁵⁰ Tridimas (n 227) 199, where the author discusses judicial activism of the CJEU and concludes that, employing a teleological interpretation of the Treaties, the Court has not exceeded its judicial function.

⁴⁵¹ Cassiers and Strowel (n 407) 178.

3. The protectability criteria

One important consequence of this judicial activism is the case-law on the requirements of copyright protection. An area with very little mention directly in the legislative texts,⁴⁵² the requirements have entertained the CJEU from various perspectives – from the question of the protection of 11 words⁴⁵³ to the most recent judgments on clothing⁴⁵⁴ and the shape of a bicycle.⁴⁵⁵ The protectability criteria overall entails two issues that require closer scrutiny here: the designation issue and the subsistence issue.

3.1. The designation issue

The essence of the designation issue boils down essentially to the important question of who the author is – after all, in the words of Paul Goldstein “copyright is about sustaining the conditions of creativity that enable an *individual* to craft out of thin air, and intense, devouring labor, an Appalachian Spring, a Sun Also Rises, a Citizen Kane” [emphasis added].⁴⁵⁶ In addressing this seemingly straightforward question, this section traces the doctrine. It starts from the theory and ends with a more practical test to address the designation issue. First, the discussion turns to the strong anthropocentric view of the author, derived from the Berne Convention. Then, the highly criticised romantic authorship conception will be discussed. While the perception of authorship has drastically changed, it is important to discuss the idea of the romantic authorship since its traces are still visible in the current EU copyright

⁴⁵² Three exceptions in this respect can be mentioned – the Software Directive, the Database Directive and the Term Directive. These will be discussed at length below.

⁴⁵³ *Case C-5/08 Infopaq International A/S v Danske Dagblades Forening* [2009].

⁴⁵⁴ *Cofemel* (n 222).

⁴⁵⁵ *Brompton Bicycle* (n 222).

⁴⁵⁶ Paul Goldstein, ‘Copyright’ (1991) 38 J. Copyright Soc’y U.S.A. 109, 110.

regimes.⁴⁵⁷ Eventually, adopting a more pragmatic approach towards the end of this part, certain more concrete criteria in the authorship definition will be emphasized. Such an understanding of copyright authorship — not just theoretical, but also in practical terms — is necessary since “copyright cannot be understood merely as a grudging tolerated way station on the road to the public domain”.⁴⁵⁸

3.1.1. The human author

Who is the author? How does one become an author? Does she/he have to be a human being? The Berne Convention lacks a correlative definition of the term⁴⁵⁹ and so do most European legislative instruments with two particular exceptions.⁴⁶⁰ This could be due to the fact that the necessity for such a definition is redundant, or even perhaps because it may be considered obvious that the author of a copyright work must be a human being. Nonetheless, some have stipulated that “the first beneficiary of copyright laws is somewhat hidden in the clouds”.⁴⁶¹

⁴⁵⁷ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126) 977; van Eechoud (n 218) 11.

⁴⁵⁸ Ginsburg, ‘The Concept of Authorship in Comparative Law’ (n 220) 1068.

⁴⁵⁹ Sam Ricketson, *The Berne Convention for the Protection of Literary and Artistic Works: 1886-1986* (1987) para 6.4.

⁴⁶⁰ Exceptions to this are the Software Directive and the Database Directive.

⁴⁶¹ Massimo Maggiore, ‘Artificial Intelligence, Computer Generated Works and Dispersed Authorship: Spectres That Are Haunting Copyright’ (*Maschietto Maggiore Besseghini*, 26 November 2018) <<https://www.mmllex.it/en/magazine/artificial-intelligence-computer-generated-works-and-dispersed-authorship-spectres-are-haunting-copyright>> accessed 22 January 2020.

Some academics argue that despite the lack of an explicit internationally agreed definition of an author,⁴⁶² generally the author is the one who creates the work.⁴⁶³ One such author is Sam Ricketson who has stated that the Berne Convention embodies a “fundamental human right”.⁴⁶⁴ To this end, the substantive provisions of the Berne Convention point towards human authorship. One such indication, according to Sam Ricketson and Jane C. Ginsburg, transpires on the one hand, from the fact that copyright duration is linked to the life of the author and on the other hand, moral rights only entitle a human. In that respect, as it was mentioned above, moral rights are attached to the personality and presence of an author.⁴⁶⁵ Thus, the human being is indispensable. Therefore, copyright law does not foresee protection of commercial considerations.⁴⁶⁶ Besides, the Berne Convention was inspired by a group of European authors under the leadership of Victor Hugo.⁴⁶⁷ Therefore, it is not surprising that an anthropocentric view on authorship prevailed.⁴⁶⁸

That said, in the EU the Information Society Directive does not include a definition of the authorship concept. However, two other directives, both tightly linked to technology, include such a definition. Article 2(1) of the Software Directive and Article 4(1) of the Database Directive state that the author of the respective subject matter in these directives – software and database – shall be the natural person, or group of natural persons, or the legal person defined as a rightholder under national law. It has

⁴⁶² Ricketson (n 57) 8.

⁴⁶³ Antoon Quaedvlieg, ‘Authorship and Ownership: Authors, Entrepreneurs and Rights’ in Tatiana-Eleni Synodinou (ed), *Codification of European Copyright Law Challenges and Perspectives* (Wolters Kluwer 2012) 198–199; Copyright, Designs and Patents Act 1988, section 9(1) (UK).

⁴⁶⁴ Ricketson (n 57) 34.

⁴⁶⁵ Stef van Gompel, ‘Creativity, Autonomy and Personal Touch’ in Mireille van Eechoud (ed), *The Work of Authorship* (Amsterdam University Press 2014) 127–128.

⁴⁶⁶ Ginsburg, ‘People Not Machines’ (n 57) 131; Ricketson (n 57) 1.

⁴⁶⁷ Sam Ricketson and Jane C Ginsburg, *International Copyright and Neighbouring Rights: The Berne Convention and Beyond Two Volume Set* (Second Edition, Oxford University Press 2006) pt 1.

⁴⁶⁸ Buning (n 88) 319; Ricketson (n 57) 6; Adolf Dietz, ‘The Concept of Authorship under the Berne Convention’ (1993) 155 RIDA 3.

been suggested that the drafting style of these provisions and the *travaux préparatoires* hint to the fact that the author will be a natural person and deviations from this principle are merely tolerated.⁴⁶⁹ At the same time, this aspect is further emphasised in the Explanatory Memorandum of the Software Directive, where the text refers to moral rights and natural persons.⁴⁷⁰ Consequently, it could be safely concluded that there is a strong emphasis on the need for human authorship in EU copyright law.

While the EU legislature and the case-law is somehow not that explicit, a case from the Dutch Supreme Court dating back to 2008 has tackled this issue and has stated clearly that for a work to be protected with copyright law and to be stamped with the author's personality, it must be the result of human creation and creativity.⁴⁷¹ This is now also confirmed by the AG in *Painer*.⁴⁷² Consequently, the discussion on whether copyright authorship can be attached to a non-human might be an interesting theoretical and philosophical topic,⁴⁷³ but in practice nowadays seems to be a settled question – in the EU, copyright authorship is for humans only.

⁴⁶⁹ Quaedvlieg (n 463) 207.

⁴⁷⁰ See Explanatory Memorandum to the proposal for a Software Directive, COM (88) 816 final, 17 March 1989, at 2.1: “in common with all literary works, the question of authorship of the program is to be resolved in favour of the natural person or group of persons who have created the work. Although the right to exercise exclusive rights may be assigned to another, the author will retain at least the unalienable rights to claim paternity of his work.”

⁴⁷¹ *Supreme Court of the Netherlands (Hoge Raad) Zonen Endstra* [2008] [4.4. and 4.5.1.].

⁴⁷² *AG Opinion in Painer* (n 73) para 121.

⁴⁷³ See further, Andrés Guadamuz, *Internet Policy Review and Internet Policy Review*, ‘The Monkey Selfie: Copyright Lessons for Originality in Photographs and Internet Jurisdiction’ [2016] *Internet Policy Review* <<http://policyreview.info/node/398>> accessed 9 August 2019; Eleonora Rosati, ‘The Monkey Selfie Case and the Concept of Authorship: An EU Perspective’ (2017) 12 *Journal of Intellectual Property Law & Practice* 973.

3.1.2. The romantic human author

In addition to the idea that copyright law safeguards the interests of the human author, an understanding of copyright authorship is often tied to the discussion on the romantic author. Such a conception of authorship envisages the author as this lone self-inspired figure creating works from scratch that deeply reflect their soul.

The romantic author came to life in the late eighteenth century in England at a time when booksellers were pushing for perpetual rights over authorial works.⁴⁷⁴ In a work studying the “original genius” and its evolution Martha Woodmansee explains that up until that point, writers would create inspired by a muse or directly from God, acting more like a “vehicle or instrument” than a self-standing person “distinctly and personally responsible” for their creation.⁴⁷⁵ The paradigm shift was most evidently characterised in respect of the inspiration – in the era of the romantic author, it would no longer emanate “from outside or above, but from within the writer himself”.⁴⁷⁶ To this end, the romantic author is “exclusively deserving of credit for the production of a unique work”.⁴⁷⁷

In seeking to locate the human author in copyright law, the doctrinal analysis⁴⁷⁸ has built up on Michel Foucault’s “What is an Author?”⁴⁷⁹ and Roland Barthes’s “The

⁴⁷⁴ Bently, ‘R. v. the Author’ (n 220) 16; Peter Jaszi, ‘On the Author Effect: Contemporary Copyright and Collective Creativity’ in Martha Woodmansee and Peter Jaszi (eds), *The Construction of Authorship: Textual Appropriation in Law and Literature* (Duke University Press 1994) 32.

⁴⁷⁵ Woodmansee, ‘The Genius and the Copyright’ (n 220) 427.

⁴⁷⁶ *ibid.*

⁴⁷⁷ *ibid.* 426.

⁴⁷⁸ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126); Woodmansee, ‘The Genius and the Copyright’ (n 220) 426; Lior Zemer, ‘Dialogical Transactions’ (2016) 45 *Oregon Law Review* 141, 146; Jane C Ginsburg, ‘Exceptional Authorship: The Role of Copyright Exceptions in Promoting Creativity’ in Susy Frankel and Daniel Gervais (eds), *The Evolution and Equilibrium of Copyright in the Digital Age* (Cambridge University Press 2014) 23.

⁴⁷⁹ Foucault (n 219).

Death of the Author”.⁴⁸⁰ Foucault is critical of the intimate relationship between the work and the author. He questions the understanding that “the coming into being of the notion of the author constitutes the privileged moment of individualization”.⁴⁸¹ Foucault, instead, encourages a vision of culture where the author is socially constructed. Barthes, a strong advocate of intertextuality, sees any text as “a new tissue of past citations”.⁴⁸² In this respect, he argues that once a work is published it parts ways with the author, who loses control over it since “writing is the destruction of every voice, of every point of origin.”⁴⁸³ These strong criticism of the author figure were made in the field of literature. Thus, one question begs – does the “death of the author” in literary authorship lead to the demise of the author in copyright law, too?⁴⁸⁴ It has been convincingly argued that copyright and literature follow different goals.⁴⁸⁵ With that in mind and considering the justificatory copyright theories, it must be admitted that the author in copyright law is still very much alive. The real problem is locating him/her.

Many academic analyses were dedicated to the ‘romantic author’ concept and its inappropriateness.⁴⁸⁶ Marta Woodmansee traces the history of writing to discover that

⁴⁸⁰ Barthes (n 219).

⁴⁸¹ Foucault (n 219) 142.

⁴⁸² Barthes (n 219) 146.

⁴⁸³ *ibid* 142.

⁴⁸⁴ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126) 976, who finds the proposition unconvincing; Alan Trachtenberg and Jane M Gaines, *Contested Culture: The Image, the Voice and the Law* (British Film Institute 1992) 25, arguing that the legal and the literary discourses inform each other since both have roots in the 17th century.

⁴⁸⁵ Saunders (n 220) 223.

⁴⁸⁶ Keith Aoki, ‘Authors, Inventors and Trademark Owners: Private Intellectual Property and Public Domain’ (1993) 15 *Columbia-VLA Journal of Law & the Arts* 191; Mark Rose, *Authors and Owners: The Invention of Copyright* (Harvard University Press 1993); Woodmansee and Jaszi (n 73); Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126); Simone (n 220); Tushnet (n 220);

“the collective, corporate, or collaborative element in writing [...] becomes even more pronounced”.⁴⁸⁷ She carries out an insightful case study of the practices of Dr Samuel Johnson – a prominent English writer from the 18th century. Dr Johnson was often engaged to write prologues, lectures, political speeches and sermons for others. Having been paid to write, he considered these works the “absolutely the property of the purchaser” with the effect that he would renounce all claims in these works.⁴⁸⁸ One such interesting example of his “collaborative impulse” is his contribution to the prestigious Vinerian Law Lectures⁴⁸⁹ at Oxford University between 1767 and 1773.⁴⁹⁰ The Vinerian Law Lectures were linked to the first ever Professorship of the Common Law at the University of Oxford. Dr Johnson did not deliver the lectures himself, but it is alleged that he assisted Sir Robert Chambers, a prominent English jurist, in the preparation of these. Being only the second chair of the lectures after Sir William Blackstone, it is alleged that Sir Chambers was intimidated and sought Dr Johnson’s help.⁴⁹¹ In light of this, one can argue that creative production seems to have become less individualistic and more collaborative in nature.

Such distancing of the authorship notion from romantic connotations is further buttressed by technology. Already back in 1994, Marta Woodmansee acknowledged the threat: “electronic technology is hastening the demise of the illusion that writing is solitary and originary [...] the computer is dissolving the boundaries essential to the

Mark A Lemley, ‘Romantic Authorship and the Rhetoric of Property’ (1997) 75 *Texas Law Review* 873; Bently, ‘R. v. the Author’ (n 220).

⁴⁸⁷ Martha Woodmansee, ‘On the Author Effect: Recovering Collectivity’ in Martha Woodmansee and Peter Jaszi (eds), *The Construction of Authorship: Textual Appropriation in Law and Literature* (Duke University Press 1994) 17.

⁴⁸⁸ *ibid* 19, referring to Samuel Johnson, *The Works of Samuel Johnson, Vol 14: Sermons* (Jean Hagstrum and James Gray eds, 1st ed., Yale University Press 1978).

⁴⁸⁹ Sir Robert Chambers and Thomas Curley, *A Course of Lectures on the English Law Delivered at the University of Oxford 1767-1773 by Sir Robert Chambers, Second Vinerian Professor of English Law and Composed in Association with Samuel Johnson: Volume II* (Oxford University Press 1987).

⁴⁹⁰ Woodmansee, ‘On the Author Effect: Recovering Collectivity’ (n 487) 21–22.

⁴⁹¹ *ibid* 22–23.

survival of our *modern fiction* of the author as the sole creator of unique, original works.”⁴⁹²

In an attempt to further unpick this modern fiction, Peter Jaszi points out two problems with the romantic authorship narrative.⁴⁹³ First and foremost, he stresses that the romantic authorship idea jeopardises the emergence of any new legal synthesis focusing on the reality of collective creativity.⁴⁹⁴ For instance, copyright law is ungenerous to “non-individualistic cultural productions” such as folkloric works, which are far away from the notion of solitary and originary authorship.⁴⁹⁵ Secondly, he brings to the foreground a point that is very evident in present day copyright law-making, namely that the romantic authorship idea has been skilfully manipulated by firms and individuals with capital investment.⁴⁹⁶ This was evident already in the lobbying efforts of London publishers, and it is still clear in present day discussions in the EU institutions as it will emerge in Chapter V. All in all, Jaszi’s bold critique is pertinent in present day creative production – “copyright law, with its emphasis on rewarding and safeguarding “originality”, has lost sight of the cultural value of what might be called “serial collaborations” – works resulting from successive elaborations of an idea or text by a series of creative workers, occurring perhaps over years or decades.”⁴⁹⁷

This idea of the romantic author notion being manipulated to serve the interests of publishers and other parties with capital investment is very intertwined with the concept of propertisation and commercialisation of IP. For Mark Rose, the author is a

⁴⁹² *ibid* 25.

⁴⁹³ Jaszi (n 474) 31.

⁴⁹⁴ *ibid*.

⁴⁹⁵ *ibid* 38.

⁴⁹⁶ *ibid* 32.

⁴⁹⁷ *ibid* 40.

proprietor, an “owner of a special kind of commodity” - the copyright work.⁴⁹⁸ This understanding of copyright and authorship, still quite prominent today,⁴⁹⁹ distances the author further away from the romantic conception.

Nowadays, it is clear that copyright law has moved away from the romantic concept of authorship. Instead, “polyvocal [...] increasingly collective, corporate, collaborative authors” have become particularly widespread.⁵⁰⁰ Improvisation works, open source collaborations and the many wiki-models are just examples of the plethora of collective collaborative authorship.⁵⁰¹ Nonetheless, the legacy of the romantic author has not entirely evaporated. It is not dominant, but at least in some contexts, the image of the author as “an individual autonomous agent operating in relative isolation”⁵⁰² has persisted.⁵⁰³ This transpires concretely from the originality standard as developed by the CJEU.

3.1.3. The creative human author

⁴⁹⁸ Mark Rose, ‘The Author as Proprietor: Donaldson v Becket and the Genealogy of Modern Authorship’ (1988) 23 *Representations* 51, 54; Rose (n 486) 1.

⁴⁹⁹ Caterina Sganga, *Propertizing European Copyright: History, Challenges and Opportunities* (Edward Elgar Pub 2018).

⁵⁰⁰ Jaszi (n 474) 38.

⁵⁰¹ Simone (n 220); Jane C Ginsburg, ‘Authors and Users in Copyright, Part I’ (1997) 45 *Copyright Soc’y U.S.A.* 1, 10, where the author refers to a serial novella organised by Amazon.com where participants were invited to continue short story begun by the author John Updike, the ending of which was completed by Updike himself forty-four days later. For a general overview on the Wikipedia culture, see Joseph Michael Reagle, *Good Faith Collaboration: The Culture of Wikipedia* (MIT Press 2010); Elena Cooper, ‘Reassessing the Challenge of the Digital: An Empirical Perspective on Authorship and Copyright’ in Mireille van Eechoud (ed), *The Work of Authorship* (Amsterdam University Press 2014); van Gompel (n 465) 130–131.

⁵⁰² van Eechoud (n 218) 11.

⁵⁰³ Bently, ‘Copyright and the Death of the Author in Literature and Law’ (n 126) 977.

Even though no longer romantic, authors still must be creative. This may imply a certain lowering of the protectability standard. But, what makes an author creative?

The concept of creativity has its roots in Latin and derives from the word “*creatus*”, the past participle of “*creare*”, meaning “*to produce, to make*”. It is also related to the verb “*crescere*” in Italian, meaning “*to grow*”.⁵⁰⁴ This is as far as researchers agree on the notion of creativity. Thereafter, the term evolves depending on the context and the field it is used in.⁵⁰⁵ Even within the individual fields, there is a strong disagreement about its meaning.⁵⁰⁶ In this respect, in their attempt to decipher copyright law, originality and authorship some authors have sought inspiration from other fields such as aesthetics and creativity studies,⁵⁰⁷ as well as philosophy and psychology.⁵⁰⁸ Others, trace the history of creativity from cave art to remixing and advocate for a reconciliation of all creative practices.⁵⁰⁹ The many and varying approaches towards creativity lead to lack of a universal agreement as to the precise conceptual meaning of the term.⁵¹⁰ This certainly complicates the examination of the consequences of the

⁵⁰⁴ Panagiotis G Kampylis and Juri Valtanen, ‘Redefining Creativity — Analyzing Definitions, Collocations, and Consequences’ (2010) 44 *The Journal of Creative Behavior* 191, 191–192.

⁵⁰⁵ Stef van Gompel and Erlend Lavik, ‘On the Prospects of Raising the Originality Requirement in Copyright Law: Perspectives from the Humanities’ (2013) 60 *Journal of the Copyright Society of the USA* 387, 404–405, underlining that ‘different creations are original for different reasons’ and that the creative process is ‘myserious’.

⁵⁰⁶ Howard B Parkhurst, ‘Confusion, Lack of Consensus, and the Definition of Creativity as a Construct’ (1999) 33 *The Journal of Creative Behavior* 1, 2–3, looking at behavioural studies.

⁵⁰⁷ van Gompel (n 465) 101; van Gompel and Lavik (n 505), where the authors look into originality and creativity in aesthetics and argue that the standard there is closer to patent law, than to copyright law.

⁵⁰⁸ Ana Ramalho, ‘Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works’ (2018) 1 *AIDA* 23.

⁵⁰⁹ Giancarlo Frosio, *Reconciling Copyright With Cumulative Creativity: The Third Paradigm* (Edward Elgar Pub 2018).

⁵¹⁰ ‘Encyclopedia of Creativity - 1st Edition’ <<https://www.elsevier.com/books/encyclopedia-of-creativity/runco/978-0-08-054850-0>> accessed 15 May 2019; M. A. Runco & S. R. Pritzker, *Encyclopedia of Creativity* (Elsevier 1999) 511-524.

creativity, copyright protection being one such consequence. Besides, the different fields have varying starting points of assessment. While copyright is an author-oriented field, aesthetics is based on relative assessment of originality, ie the allegedly creative work is compared to other earlier ones.⁵¹¹ In addition, aesthetics evaluate whether the work has generally contributed to the genre overall, a sort of a novelty assessment.⁵¹² Regardless of the approach, one constant remains - the expression 'creativity' is a very culturally loaded term. It has been stressed that in general the proposed definitions of creativity are either "too broad or too narrow to sufficiently enhance the understanding and guide the interests of creativity researchers and concerns of practitioners".⁵¹³ Yet, Stef van Gompel correctly points out that creativity is part of the originality standard in copyright law⁵¹⁴ and it risks remaining a "hollow term" if it is not taken more seriously.⁵¹⁵

Thus, in taking this term more seriously concerned with the shift in focus in modern copyright law, Jane C. Ginsburg carries out a comprehensive comparative study of common law and civil law systems in an attempt to identify the meaning of the concept of authorship.⁵¹⁶ She concludes that the creative author is a human being exercising, on the one hand a subjective judgment in composing a piece, ie a detailed conception, and on the other hand, controlled execution.⁵¹⁷ The essence of this two-fold assessment translates into the idea that the author is the one that conceptualises and

⁵¹¹ van Gompel (n 465) 102.

⁵¹² *ibid.*

⁵¹³ Kampylis and Valtanen (n 504) 198.

⁵¹⁴ van Gompel and Lavik (n 505) 420.

⁵¹⁵ van Gompel (n 465) 104.

⁵¹⁶ Ginsburg, 'The Concept of Authorship in Comparative Law' (n 220) 1064.

⁵¹⁷ *ibid* 1072; Ginsburg and Budiardjo (n 53) 12.

directs the development of the work and not merely the one who follows orders to execute the work.⁵¹⁸

In a later piece with a very elegant reference to Antoine de Saint-Exupéry's masterpiece "The Little Prince", Jane C. Ginsburg and Ali Budiardjo exemplify the conception and execution standard in action.⁵¹⁹ The analogy goes as follows: The Little Prince says to the aviator "Draw me a sheep!". At this stage, the aviator calls to his mind the concept of a sheep, determines all of its features such as size, shape, colour and eventually picks up the pen and draws it. The Little Prince only provides very general instructions, but the aviator is entirely responsible for all the creative choices that lead to the depiction of that particular sheep. Hence, The Little Prince has provided the aviator only with a general concept(ion), without controlling the execution. The aviator is responsible both for concretising this general idea by imagining the type of sheep to be drawn, but also for the proper controlled execution of the act of drawing. Both steps are strictly required for someone to be considered an author.

The 'detailed conception' element from the Ginsburg standard of authorship is linked to the differentiation between concept and conception.⁵²⁰ The distinction, very common in the field of philosophy,⁵²¹ refers to the different levels of abstractions.⁵²² The concept remains at this broad level of abstraction. Generally, there is a common understanding on what a concept is about, ie what is a sheep. However, when it comes to the detailed conception, there can be a million manners of depicting a sheep. Such differentiation is tied to the idea/expression dichotomy, according to which ideas roam free and copyright law protects solely the original expression of such ideas.⁵²³ The

⁵¹⁸ Ginsburg, 'The Concept of Authorship in Comparative Law' (n 220) 1072.

⁵¹⁹ Ginsburg and Budiardjo (n 53) 52.

⁵²⁰ Zemer (n 220) 27.

⁵²¹ Ronald Dworkin, *Taking Rights Seriously* (Duckworth 1977) 135.

⁵²² Zemer (n 220) 27.

⁵²³ Michel Vivant and Jean-Michel Bruguière, *Droit d'auteur et Droits Voisins* (4th edn, Dalloz 2016) 151.

concept (or, its abstract conception) of a sheep drawing cannot be subject to copyright protection, whereas its subjective creative conception is precisely what copyright law protects. These issues are tightly intertwined with the originality standard, which takes the centre stage in the next subsection.

The other element, the controlled execution, is equally relevant. There is a clear division between an author and ‘an amanuensis’⁵²⁴, ie someone “employed (willingly) to do the important but sometimes menial work of transcribing the words of another”.⁵²⁵ In the ‘Little Prince’ scenario, the aviator is no amanuensis; instead, he is a sole author. He would have been an amanuensis had he been engaged in “mindless implementation of mechanical means of production”.⁵²⁶ Exercising subjective choices as far as the contents and the actual act of presentation of a work is precisely what is required to tick the originality box in the framework of copyright law. Originality crops up again in this definition to become that overarching standard of authorship.⁵²⁷ Consequently, the discussion on the creative human author makes little sense in isolation of the standard of originality in copyright law.

⁵²⁴ Ginsburg, ‘The Concept of Authorship in Comparative Law’ (n 220) 1077.

⁵²⁵ ‘Definition of AMANUENSIS’ (*Merriam-Webster*) <<https://www.merriam-webster.com/dictionary/amanuensis>> accessed 1 November 2020.

⁵²⁶ Ginsburg, ‘The Concept of Authorship in Comparative Law’ (n 220) 1077, referring to Antoine Latreille, ‘L’appropriation des photographies d’oeuvres d’art: éléments d’une réflexion sur un objet de droit d’auteur’ (2002) Dalloz, 299, 300-1; On the discussion of ‘assistants’ in the creative process see Burk (n 54).

⁵²⁷ Ginsburg, ‘The Concept of Authorship in Comparative Law’ (n 220) 1077.

3.2. The subsistence issue

The crucial concept of a ‘copyright work’ finds itself at the centre of the subsistence issue.⁵²⁸ However, initially the notion was only harmonised in three concrete contexts – software, photographs and databases. And even there, it was not entirely clear what it meant or how it would be judged. As for general subject matter, the notion of copyright work lacked clearly definable parameters and was heavily influenced by the copyright traditions of the Member States — it was some sort of a “you know it, when you see it” evaluation. Some authors have noted that a theory of originality, which is generally recognised as one of the central components of the protectability standard, seems sometimes to amount to “a theory of almost everything and sometimes to almost nothing.”⁵²⁹ In this chaotic setting, in 2009 in a landmark case⁵³⁰ the CJEU harmonised horizontally the originality standard across all types of subject matter.⁵³¹ A work would be protected only if it constituted “the author’s own intellectual creation” (‘AOIC’). This was indeed the applicable originality standard as far as software, photographs and databases were concerns. This step, while commendable from a legal certainty point of view, still did not provide a clear methodological approach for the assessment of copyright subsistence. Having a clear framework in place is particularly important as all other aspects of copyright law – from economic and moral rights to exceptions and limitations – hinge upon the articulation of the protectability criteria,⁵³² ie they are the “gatekeepers of copyrightability”.⁵³³ Most recently, though,

⁵²⁸ *Levola Hengelo* (n 223) para 33.

⁵²⁹ John Vignaux Smyth, *Originality in the Enlightenment and Beyond*. in Reginald McGinnis (ed), *Originality and Intellectual Property in the French and English Enlightenment* (Taylor & Francis Group 2009) 175-176.

⁵³⁰ *van Eechoud* (n 306) 60.

⁵³¹ *Infopaq* (n 453).

⁵³² Eleonora Rosati, *Originality in EU Copyright: Full Harmonization through Case Law* (Edward Elgar Pub 2013) 59.

⁵³³ Kimberlee Weatherall and Rebecca Giblin, *What If We Could Reimagine Copyright?* (ANU Press) 114 <<https://press.anu.edu.au/publications/what-if-we-could-reimagine-copyright>> accessed 14 May 2019.

three CJEU cases have succeeded in structuring the protectability criteria by setting two cumulative elements that always need to be considered when assessing copyright subsistence – first, a work must be an expression and second, it must meet the copyright originality standard.

This section traces the subsistence issue chronologically. Hence, it follows the EU's approach of the issue by starting from the vertical harmonisation in the three specific technology-related issues. Then, it goes through the sheer amount of case-law attempting to outline the limits of the protectability criteria. Finally, it turns to the latest cases, as a result of which the protectability criteria in EU copyright law has matured into a two-fold analysis, ie expression and originality.

3.2.1. Sticking to vertical harmonisation only

A perceptible difficulty was always present in the attempt to establish a harmonised originality standard. Too much divergence in the national copyright standards has always been very hard to overcome and reconcile into one single standard.⁵³⁴

Three important exceptions to this general rule exist. Only in the context of technology was the EU legislator bold enough to take positive steps towards an explicit definition of originality. This took place vertically - in respect of software, phonographs and databases. However, adopting such a definition was not without its own difficulties.⁵³⁵

The legislative history of the Software Directive shows that initially the proposal contained an originality provision, but failed to define it.⁵³⁶ The European Parliament

⁵³⁴ Ginsburg, 'The Concept of Authorship in Comparative Law' (n 220) 1080–1081.

⁵³⁵ Stef van Gompel and Erlend Lavik, 'Quality, Merit, Aesthetics and Purpose: An Inquiry into EU Copyright Law's Eschewal of Other Criteria than Originality' [2013] RIDA 100, 4–8.

⁵³⁶ 'Proposal for a Council Directive on the Legal Protection of Computer Programs of 12 April 1989' (European Commission 1989) COM (88) 816 final, OJ C 91/4, art 1(4)(a), which states that "a computer

proposed an amendment to the text to include a definition⁵³⁷ which was eventually fine-tuned and accepted by the Commission. As a result, pursuant to Article 1(3) of the Software Directive computer programs are protected with copyright law, provided that they are original in the sense that they are the result of the “author’s own intellectual creation” and no other criteria shall be applied to determine their eligibility. An additional point was added to the recitals, underlining that no tests as to the qualitative or aesthetic merits of the program should be applied.⁵³⁸ Arguably the decision to harmonise the originality standard was prompted by the necessity to eliminate barriers to the free movement of computer programs within the Union which is also tied to the idea of stimulating the software industry.⁵³⁹ The internal market goal creeps in again and this is rather unsurprising since the legal basis for the directive is once more the well-familiar Article 114 TFEU.

As for photographs, Article 6 of the Term Directive underlines that photographs which “are original in the sense that they are the author’s own intellectual creation shall be protected in accordance with Article 1. No other criteria shall be applied to determine their eligibility for protection. Member States may provide for the protection of other photographs.” Recital 16 adds that the author’s own intellectual creation should reflect the personality of the author. The legislative history here once more shows that the internal market reasoning dominated the harmonisation process.⁵⁴⁰ The highly diverging national standards among the national laws, whereby countries

program shall not be protected unless it satisfies the same conditions as regards its originality as apply to other literary works”.

⁵³⁷ Amendment no.4 of the Proposal for a Council Directive on the legal protection of computer programs (Text amended by the European Parliament), *OJ* 231/78 of 17 September 1990.

⁵³⁸ Amended proposal for a Council Directive on the legal protection of computer programs, *OJ* No C 320/22 of 20 December 1990.

⁵³⁹ ‘Proposal for a Council Directive on the Legal Protection of Computer Programs of 12 April 1989’ (n 536) para 1.4.

⁵⁴⁰ van Gompel and Lavik (n 535) 6.

such as Italy, Spain and Germany operated on a two-tiered system for the copyright protection of photographs, pushed the need for a harmonised EU standard.⁵⁴¹

Similarly, in the context of databases the diverging originality standards had to be substituted with a harmonised one in order to remove barriers to the free movement of databases.⁵⁴² Hence, Article 3(1) that “databases which, by reason of the selection or arrangement of their contents, constitute the author’s own intellectual creation shall be protected as such by copyright. No other criteria shall be applied to determine their eligibility for that protection.” As it was mentioned in the previous chapter, in 2018 the EU reviewed the directive to assess its impact.⁵⁴³ It does not seem like the legislation has had any significant impact on making the EU database industry more competitive.

Clearly, the recurrent phrase in all these directives is “the author’s own intellectual creation”. What prompted the EU legislator to harmonise the standard in these three particular fields is the “special technical nature of the category of work in question”.⁵⁴⁴

So far so good. But what about general subject matter such as literary and musical works? The discussion on the originality requirement for general subject matter intensified in 2004 when the EU Commission issued a Staff Working Paper on the “Review of the EC legal framework in the field of copyright and related rights”.⁵⁴⁵ Main objectives of the paper were first to improve the operation of the *acquis communautaire* in the field of copyright and its coherence and second to safeguard

⁵⁴¹ Silke von Lewinski, ‘Der EG-Richtlinienvorschlag Zur Harmonisierung Der Schutzdauer Im Urheber- Und Leistungsschutzrecht’ [1992] GRUR International 724, 728; van Eechoud (n 306) 62.

⁵⁴² Database Directive, recital (3).

⁵⁴³ European Commission, ‘Commission Staff Working Paper - Executive Summary of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases’ (n 288).

⁵⁴⁴ European Commission, ‘Staff Working Paper on the Review of the EC Legal Framework in the Field of Copyright and Related Rights’ (European Commission 2004) SEC (2004) 995 14.

⁵⁴⁵ European Commission, ‘Staff Working Paper on the Review of the EC Legal Framework in the Field of Copyright and Related Rights’ (n 544).

the good functioning of the internal market.⁵⁴⁶ The provisions of the early *acquis* were analysed and compared with the standards introduced by the Information Society Directive. Among other issues, the Commission included a section on certain issues falling outside of the ambit of the current *acquis*.⁵⁴⁷ The originality of copyright works was one of these. The Working Paper noted that originality is a key concept in copyright law and forms part of the underlying justification for the statutory system of copyright protection for authors. The Commission reminded that the standard of originality has been expressly addressed in EU legislation systematically with respect to software, photographs and databases. Aside from these particular categories, which have been specifically addressed by the EU legislator, EU Member States are free to determine the level of originality for all other works so that copyright protection is granted. And then, the Commission points out something rather contradictory. It stresses that in theory divergent requirements for the level of originality by Member States have the potential of posing barriers to intra-Community trade, but it seems like no such thing has happened in practice as there is no convincing evidence to support this proposition.⁵⁴⁸ This subjects the potential future harmonisation of the originality standard to the internal market goal. Therefore, the Commission concludes that no legislative intervention is necessary at this stage as far as the originality standard for general subject matter is concerned. It has been argued that “hard cases” such as the protectability criteria was not something the CJEU had to deal with unless it involved serious industry interests such as those of the software and the data base industries in the 80s.⁵⁴⁹

It seems like only diverging economic rights might have impaired the proper functioning of the internal market. Such a conclusion completely neglects the fact that economic rights exist only by virtue of the entitlement of copyright protection, tightly

⁵⁴⁶ *ibid* 3.

⁵⁴⁷ *ibid* 14.

⁵⁴⁸ *ibid*.

⁵⁴⁹ van Eechoud (n 306) 73.

linked and determined by the presence of originality in a work.⁵⁵⁰ Any copyright framework is doomed to be narrow-minded and inefficient if it reasons that “disparities in the scope of copyright protection would harm the efficient functioning of the internal market only and expressly when such disparities relate to economic rights.”⁵⁵¹ In hindsight, this troubling and incoherent technique started already with the Information Society Directive which harmonised the main economic rights on a Union level, but left key concepts such as that of originality on which such economic rights are conditioned subject to the understanding of the individual Member States. This opened a true Pandora Box.⁵⁵²

One reason for the avoidance of harmonising the originality standard horizontally is mentioned by the Commission itself.⁵⁵³ The standards of originality in the various EU Member States vary significantly as they are inevitably tied to the underlying justification theory dominant in the respective Member State. The classical divide – common law vs civil law – is valid here too. Traditionally, common law countries understood the originality of a work to encompass two elements. First, a work needs to originate from the author in the sense that it has not been copied from anywhere else.⁵⁵⁴ Second, the work in question must employ sufficient level of “skill, judgment and/or labour”.⁵⁵⁵ Under this tradition, creativity and in particular artistic creativity in the sense that the work reflects the personality of the author are entirely irrelevant factors.⁵⁵⁶ As it has become apparent, copyright law in the UK developed following

⁵⁵⁰ Rosati, *Originality in EU Copyright* (n 532) 63.

⁵⁵¹ *ibid* 64.

⁵⁵² Valerie Benabou, ‘Note d’observations’ (2009) 4e ch. RDTI 85.

⁵⁵³ European Commission, ‘Staff Working Paper on the Review of the EC Legal Framework in the Field of Copyright and Related Rights’ (n 544) 13.

⁵⁵⁴ *University of London Press v University Tutorial Press* [1916] [609-610 per Peterson J.].

⁵⁵⁵ Lionel Bently and Brad Sherman, *Intellectual Property Law* (2nd edn, OUP 2004) 96; William Cornish and others, *Intellectual Property: Patents, Copyrights, Trademarks & Allied Rights* (8th edn, Sweet & Maxwell 2013) 11-04; *Ladbroke v William Hill* [1964] 1 All ER 465.

⁵⁵⁶ Copyright Designs and Patents Act 1998, section 4(1)(a).

the Lockean labour theory. Thus, authors are entitled to the fruits of their own labour. In contrast, civil law countries, emphasise that a work must reflect an original expression in the sense that it mirrors the author's personal vision, which as it has been pointed out has been interpreted differently across Member States.⁵⁵⁷ This family of copyright traditions place an explicit emphasis on the personal relationship or personal input of an author in a work.⁵⁵⁸ The object of protection in common law and in civil law traditions is completely different. The former focuses on the work itself, while the latter puts the author in the first place.⁵⁵⁹

Despite the diverging peculiarities of these standards, all these conceptions of originality and in particular the different interpretations of "intellectual creation" are all compatible with the Berne Convention as the determination of the substance of these words has been left to the national systems.⁵⁶⁰ Over the years, regardless of the differing phrasing, common law and civil law traditions have witnessed a "certain rapprochement" as far as practical outcome is concerned.⁵⁶¹

Against this background, to sum up, the Commission has held that the originality of general subject matter lies outside the *acquis communautaire* of the EU and is the territory of national copyright regimes.

3.2.2. Horizontal harmonisation fuelled by the CJEU

Over the years, the meaning and the threshold of originality became the subject to harmonisation. This time, this happened by virtue of a line of cases coming to the

⁵⁵⁷ van Eechoud and others (n 240) 42.

⁵⁵⁸ Goldstein and Hugenholtz (n 363) 192–193.

⁵⁵⁹ Davies, 'The Convergence of Copyright and Authors' Rights - Reality or Chimera?' (n 243) 965.

⁵⁶⁰ Thomas Margoni, 'The Harmonisation of EU Copyright Law: The Originality Standard' in Mark Perry (ed), *Global Governance of Intellectual Property in the 21st Century* (Springer 2016) 91.

⁵⁶¹ van Eechoud and others (n 240) 42.

CJEU on preliminary reference. Showing itself as an “activist and willing to construct pan-European notions of copyright that are not clearly in the directives” starting from 2009 onwards the Court has adopted several ground-breaking decisions tacking the protectability criteria.⁵⁶² The jurisprudence of the Court now unequivocally points towards a harmonised standard of originality regarding all types of works and not only the special subject matter of software, databases and photographs – the AOIC standard.

The revolutionary case in this respect is *Infopaq*.⁵⁶³ Before going into its details it must be stressed that typically, with a few exceptions,⁵⁶⁴ CJEU cases in the field of protectability do not directly question whether a certain object is protected by copyright law, but instead pertain to an infringement action centred on the reproduction right. This is due to the fact that copyright as opposed to trade mark and design law arises automatically and is not subject to any registration, where an IP office would evaluate compliance with the protectability criteria. The dispute in *Infopaq* is no exception. The case was referred to the CJEU by the Danish national courts and concerned the storing and the subsequent printing of a text extract from an article in a daily newspaper. The extract consisted of a search keyword (provided by the clients of the service), the five preceding and the five subsequent words. This led to the question of whether this process of storing and printing of eleven words could be considered reproduction of copyright protected subject matter as per Article 2 of the Information Society Directive. The key phrase to interpret was “reproduction ... in part”. Since there was no explicit reference to the law of Member States which would govern its meaning, the CJEU held that it should be given an autonomous and uniform interpretation.⁵⁶⁵ This is one of the interpretative techniques used by the CJEU when in the secondary legislation it faces vague and undefined concepts. This point is further supported by

⁵⁶² van Eechoud (n 306) 76.

⁵⁶³ *Infopaq* (n 453).

⁵⁶⁴ *BSA* (n 424); *Cases C-403/08 and C-429/08 Football Association Premier League Ltd and Others v QC Leisure and Others and Karen Murphy v Media Protection Services Lt* [2011].

⁵⁶⁵ *Infopaq* (n 453) para 27.

Recitals 6 and 21 of the Information Society Directive. Both provisions underline the need for harmonised interpretation to enhance legal certainty. The contrary risks “refragmentation of the internal market and legislative inconsistency”.⁵⁶⁶ Having once again recalled the internal market goal of copyright law, the Court reminds that the originality standard has been harmonised for certain subject matter, namely software, databases and photographs to mean that a work is original only if it constitutes “the author’s own intellectual creation”.⁵⁶⁷ In *Infopaq*, the CJEU injects this standard into to all other types of work – the general subject matter – which benefit from the economic right of reproduction as per Article 2 of the Information Society Directive.⁵⁶⁸ This standard of originality is also applicable as far as parts of the works are concerned as these cannot be treated any differently from the work as a whole.⁵⁶⁹ Nonetheless, the Court stresses that an intellectual creation becomes such only through the “choice, sequence and combination” of words and thus words in isolation do not constitute the author’s own intellectual creation. Of course, it is for national courts to decide whether the eleven words at stake in the case do indeed constitute an original protectable subject matter.⁵⁷⁰

⁵⁶⁶ Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society Official Journal L 167, recital (6), which reads in full ‘without harmonisation at Community level, legislative activities at national level which have already been initiated in a number of Member States in order to respond to the technological challenges might result in significant differences in protection and thereby in restrictions on the free movement of services and products incorporating, or based on, intellectual property, leading to a refragmentation of the internal market and legislative inconsistency. The impact of such legislative differences and uncertainties will become more significant with the further development of the information society, which has already greatly increased transborder exploitation of intellectual property. This development will and should further increase. Significant legal differences and uncertainties in protection may hinder economies of scale for new products and services containing copyright and related rights.’

⁵⁶⁷ *Infopaq* (n 453) para 35.

⁵⁶⁸ *ibid* 37.

⁵⁶⁹ *ibid* 35–38.

⁵⁷⁰ *ibid* 51.

It has been suggested that the classical common law and civil law standards of originality have come close to one another in the golden phrase “author’s own intellectual creation” (or AOIC).⁵⁷¹ To this end, the test a mix of objective and subjective elements.⁵⁷²

The legacy of the common law approach, reflecting the objective features, is in the idea that the work must derive from the author. This assessment is deeply rooted in UK copyright law. Ever since 1916, the English courts stated that originality simply meant that a work has not been copied from another work.⁵⁷³ According to Daniela Simone, this represents the causative dimension of authorship.⁵⁷⁴ It is narrowly linked to the designation issue discussed above – a work is only protected if it is the product of a *human* creative effort.⁵⁷⁵

The other part of golden phrase, reflective of the civil law tradition, relates to a subjective assessment. The intellectual creation aspect here constitutes the idea that a work demonstrates the imprint and personal stamp of the author.⁵⁷⁶ Daniela Simone describes this as the normative dimension of the originality test.⁵⁷⁷ Importantly, different to aesthetics and creativity studies, this does not mean that originality in copyright law is a synonym of quality, merit or purpose, even though it has been argued that in practice courts have not been able to completely ignore the success,

⁵⁷¹ Ramalho, ‘Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works’ (n 508) 27; Benoît Michaux, ‘L’originalité en Droit d’auteur, Une Notion Davantage Communautaire a Prés l’arrêt Infopaq’ (2009) 5 Auteurs & Media 473.

⁵⁷² van Eechoud (n 306) 70.

⁵⁷³ *University of London Press v. University Tutorial Press* (n 554) paras 609–610.

⁵⁷⁴ Simone (n 220) 23.

⁵⁷⁵ Ramalho, ‘Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works’ (n 317) 32–33.

⁵⁷⁶ van Eechoud (n 306) 70.

⁵⁷⁷ Simone (n 220) 23.

merit or quality of a work when granting copyright protection.⁵⁷⁸ In addition, it is misleading to treat the AOIC standard as a particularly high standard to satisfy; it is not that only culturally significant works qualify for protection.⁵⁷⁹ In sum, it is questioned whether the interpretation given by the CJEU in the *Infopaq* case comes closer to the objective or the subjective interpretation of originality of either tradition.⁵⁸⁰ What is more likely is that the post-*Infopaq* standard entails elements of both traditions.⁵⁸¹

The next case that came before the CJEU on the question of originality – the *BSA* case⁵⁸² - has confirmed the proposition that both objective and subjective elements certainly play a role in defining the standard of originality.⁵⁸³ The case questioned whether a graphic user interface enabling communication between a computer program and the user could be protected by copyright. The CJEU established that the graphic user interface represents merely one element of the program for the use of the features of that program and thus it is not the expression of the computer program.⁵⁸⁴ Hence, it falls outside the scope of subject matter protected under Article 1(2) of the Software Directive, namely computer programs. Nevertheless, the interface may potentially fall within the general protectable subject matter by copyright law pursuant to the Information Society Directive provided that the interface meets the

⁵⁷⁸ van Gompel (n 465) 103; van Gompel and Lavik (n 535) 19–28.

⁵⁷⁹ van Gompel (n 465) 95.

⁵⁸⁰ E Derclaye, 'Wonderful or Worrisome? The Impact of the ECJ Ruling in *Infopaq* on UK Copyright Law' (2010) 32 *European Intellectual Property Review* 247.

⁵⁸¹ Ramalho, 'Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works' (n 317) 27.

⁵⁸² *BSA* (n 424).

⁵⁸³ Ramalho, 'Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works' (n 317) 28.

⁵⁸⁴ *BSA* (n 424) para 41.

golden AOIC standard.⁵⁸⁵ Referring to the Advocate General’s opinion, the CJEU stated that if the expression of the graphic user interface’s components is dictated by their technical function, the criterion of originality is not met.⁵⁸⁶ The reason for this is that the different methods of implementing an idea are so limited that the idea and the expression become indissociable.⁵⁸⁷ This comes very close to the well-known merger doctrine, widespread in the United States.⁵⁸⁸

An important consideration in this respect is the available room for creativity, ie the creative constraints. The fact that an author is limited by certain creative constraints is not sufficient reason to deny that author copyright protection.⁵⁸⁹ This is, though, a delicate point. Some constraints might be too rigid leaving the author no, or very limited, space for creativity. Others may actually stir creativity – too much freedom may “paralyse” creativity as the creative space becomes too wide to control and make any creative choices.⁵⁹⁰ While the discussion on constraints is a familiar particularity of functional and utilitarian works, which would re-appear again in the later cases of the CJEU, it is not limited just to such works. For instance, referring to literary works, Jon Elster considers artistic creation as “choice of constraints followed by choice within constraints”⁵⁹¹ Similarly, the world-famous composer Igor Stravinsky sustains that “my freedom will be so much the greater and more meaningful the more narrowly I limit my field of action and the more I surround myself with obstacles”.⁵⁹² Thus, authors

⁵⁸⁵ *ibid* 40–42 and 44–46.

⁵⁸⁶ *ibid* 49.

⁵⁸⁷ *ibid*.

⁵⁸⁸ Pamela Samuelson, ‘Reconceptualizing Copyright’s Merger Doctrine’ (2016) 63 *Journal of the Copyright Society of the U.S.A.* 417.

⁵⁸⁹ Hartmann and others (n 26) 73.

⁵⁹⁰ van Gompel (n 465) 107.

⁵⁹¹ Jon Elster, *Ulysses Unbound: Studies in Rationality, Precommitment, and Constraints* (Cambridge University Press 2000) 176.

⁵⁹² Igor Stravinsky, *Poetics of Music in the Form of Six Lessons* (Harvard University Press 1970) 65.

often voluntarily impose constraints such as choice of genre or audience; other times, the constraints are involuntary (writer's block, author's mood, etc) and do not depend on the author's will.⁵⁹³ Some of these constraints are irrelevant from a copyright perspective since they do not restrict choice, but "limit the freedom of action" (deadlines, budget, etc).⁵⁹⁴ Nonetheless, there is a link between the degree of freedom that the creator enjoys delineated by the constraints and the level of creativity evident in the works produced.⁵⁹⁵ What matters is that following these sources of creative constraints, there still remains some room for creativity, ie "for authorship to flourish, authors must enjoy autonomy in their work".⁵⁹⁶

What mattered in *BSA* was that the author was still able to express his creativity in an original manner and come to a result which is intellectual creation of that author.⁵⁹⁷ Thus, here too both the causative and the normative elements must be present. The objective (causative) component requires that a work derives from the author. Second, the (normative) element necessitates that the work be the result of an independent creativity by that very same author. In this context it should once more be underlined that the legislative provisions defining the originality standard in relation to the specific subject matter of software, database and photographs explicitly state that no further criteria shall be applied to determine the originality of the particular work. Therefore, by analogy through the parallel interpretation given in *Infopaq* it follows that being an "author's own intellectual creation" was the sole requirement for a work to be protected. Nothing more was required.

Subsequent decisions of the CJEU strengthen further the proposition that the subjective as well as the objective aspects of originality are necessary. Indeed 2011

⁵⁹³ For a comprehensive overview of the different categories of internal, external, voluntary and involuntary constraints see van Gompel (n 465) 108.

⁵⁹⁴ *ibid* 118–119.

⁵⁹⁵ *ibid* 104.

⁵⁹⁶ Goldstein (n 456) 110.

⁵⁹⁷ *BSA* (n 424) para 50.

and 2012 have been particularly fruitful in terms of CJEU judgments analysing the notion of originality.

In October 2011, the CJEU issued its joint judgment in the *FAPL and Karen Murphy* case, which concerned the use and marketing in the UK of decoding devices that provide access to satellite broadcasting services of a broadcast.⁵⁹⁸ Among other things, the case tackled whether subject matter in question – sporting events and, in particular FAPL Premier League matches – would be protected by copyright law. The CJEU notes that to be protected football matches should be classified as works.⁵⁹⁹ This suggested that a preliminary step in the protectability criteria is the requirement of fitting the said work into either an open or closed list of protected subject matter – something that would eventually depend on the particular Member State’s copyright framework.⁶⁰⁰ Nevertheless, immediately in the next paragraph the Court emphasises that “to be so classified, [as a work] the subject matter concerned would have to be original in the sense that it is its author’s own intellectual creation” as per *Infopaq*.⁶⁰¹ It then goes on to highlight that sporting events are not intellectual creations to be classified as works in the copyright sense. This applies with respect to football matches in particular that are subject to the rules of the game and leave no room for creative freedom for the purposes of copyright law.⁶⁰²

A first comment that can be made is that for the very first time the CJEU has ruled that a specific subject matter is not classified as a work *per se* and thus excluded from copyright protection right away.⁶⁰³ While this may very much be the logical reasoning

⁵⁹⁸ *FAPL and Karen Murphy* (n 564).

⁵⁹⁹ *ibid* 96.

⁶⁰⁰ Note, the UK (at the time, a Member States of the EU) operated on the basis of a closed list of subject matter.

⁶⁰¹ *BSA* (n 424) para 97, referring to paragraph 39 of *Infopaq*.

⁶⁰² *FAPL and Karen Murphy* (n 564) para 98.

⁶⁰³ Ted Shapiro and Brigitte Lindner, ‘More Football in Pubs: European Union – Court of Justice (Grand Chamber) Football Association Premier League Ltd and Others v QC Leisure and Others (C-403/08)

as far as sporting events such as football, basketball and volleyball are concerned, a certain level of a caution is necessary. Some sporting events could entail a degree of creativity in their choreography – for instance, synchronised swimming or gymnastics. Labelling all sporting events as non-protectable is therefore prejudicial towards these other sports in which there is more room for creative choices. In sum, this suggests that the CJEU is capable of categorically excluding types of works from copyright protection. This is a rather bold move, which, in light of the CJEU’s most recent judgments can certainly be questioned.⁶⁰⁴

Next, an interesting aspect here is that the CJEU conflates the notion of a work with that of originality – the former is inevitably linked to the latter.⁶⁰⁵ Nevertheless, the fact that a work falls within one of the normative categories of copyright-protected subject matter is not a necessary step in the analysis of protectability. This aspect comes further once again under the scrutiny of the CJEU in its most recent jurisprudence on the protectability standard.

All in all, the reference to intellectual creation and the manner in which it is applied in this case is particularly important for this thesis and the discussion on ML and authorship. The principle according to which if an element is dictated by certain rules, then there is no room for creative freedom⁶⁰⁶ for the purposes of copyright law indicates that both the process of production as well as the final creative product are relevant from the point of view of copyright originality. Translated into the art/ML context this means that the protectability of the artwork in the output pillar depends on

and *Karen Murphy v Media Protection Services Ltd (C-429/08)* (2013) 3 Queen Mary Journal of Intellectual Property 43, 46.

⁶⁰⁴ *Cofemel* (n 222), where the CJEU held that jeans and a T-shirt can potentially be protected by copyright provided that these are the author’s own intellectual creation; *Brompton Bicycle* (n 222), where the CJEU held that a foldable bicycle is not excluded from copyright protection despite its utilitarian character.

⁶⁰⁵ van Eechoud (n 306) 66.

⁶⁰⁶ Some works refer to this as ‘creative space’; see for example van Gompel (n 465) 121; Hartmann and others (n 26) 74, where the creative freedom is referred to as ‘the availability of sufficient “creative space” for the creator’.

the mechanics of the process in the learning algorithm and the trained algorithm pillars. Looking at the final product and judging its creative nature is the easier exercise. As it was already mentioned above, in different experiments an unbiased audience has been labelled ML-generated work as creative (as flowing from a human being) since these works are often indistinguishable from classical human creations. Nonetheless, when one turns to the process of creativity, copyright question marks emerge and its subsistence is challenged. The creative process here depends on the creative human author referred to above, ie the conception and the execution criteria that Jane C. Ginsburg underlines. Consequently, it is human creativity that is central (and, not mechanical creativity). The importance of both the process and the product would be reaffirmed in the next CJEU case on the topic of originality, decided just two months after the *FAPL/Karen Murphy* judgment.⁶⁰⁷

Upon a preliminary reference from Austria, in *Painer* the CJEU tackled the question of whether a photo-fit based on a photograph might be published in the media without the right holders consent.⁶⁰⁸ The photograph in question was that of Natascha Kampusch who was kidnapped in 1998. The applicant in the case, Eva-Maria Painer, is a freelance photographer who had taken several photographs of Natascha Kampusch prior to her kidnapping. The photographer designed the background, decided the position and facial expression, and produced and developed the photographs.⁶⁰⁹ All photographs taken by Ms Painer were labelled by herself. Eventually, Ms Painer sold these photographs to third parties but without conferring any rights over them and without consenting to their publication – in that sense, the price for the photographs she would charge corresponded solely to the price of the prints. In 2006, Natascha Kampusch escaped from her abductor and before she made her first public appearance the photographs taken by Ms Painer were distributed in the media – newspapers and magazine publishers in Austria and Germany. This was done without indicating the name of the photographer. A photo-fit, created by a computer from the photographs in question, was also released. Ms Painer brought a case before

⁶⁰⁷ *Painer* (n 422).

⁶⁰⁸ *ibid.*

⁶⁰⁹ *ibid* 27.

the Austrian court seeking an order that the defendants immediately ceased the reproduction and/or distribution. Eventually, the Austrian court stayed the proceedings and referred several questions to the CJEU regarding the scope of protection of the “photo-fit”. In particular, the question was raised as to whether such portrait photos attract “weaker” copyright protection or no copyright protection at all. The issue was brought since in view of their “realistic image” the degree of formative freedom in these photos is allegedly too minor.⁶¹⁰ What was essentially asked was whether the originality standard for photographs, namely that they are “the author’s own intellectual creation” reflecting the personal touch of the author, encompasses portrait photographs. If the answer to this question were positive, then the Court was asked to determine whether due to the allegedly too minor degree of creative freedom the threshold for protection of portrait photographs should be higher than for other categories of works.

The CJEU’s analysis goes straight to the heart of *Infopaq*. The Court reminds that copyright protection is afforded only to “subject matter, such as a photograph, which is original in the sense that it is its author’s own intellectual creation.”⁶¹¹ Furthermore, Recital 17 of the Term Directive emphasises that such intellectual creation is author’s own if it reflects the author’s personality, which according to the CJEU is so if the author can express his/her “creative abilities in the production of the work by making free and creative choices.”⁶¹² From that moment on, the latter phrase has become some sort of a “mantra” in the CJEU’s judgments on the subsistence issue.⁶¹³

The Court then turns to the process of production of portrait photographs and emphasises that these creative choices can be exercised in several ways and at various points of the production. This part of the judgment is particularly relevant as far as the machine learning process is concerned. Photography has from its very beginning challenged traditional arts as it automated the creative process. It took a

⁶¹⁰ *ibid* 43.

⁶¹¹ *ibid* 87.

⁶¹² *ibid* 89.

⁶¹³ van Gompel (n 465) 97.

while for photography to be fully accepted in the family of creativity and the Term Directive is a testament that the protection of photographs is now fully integrated into the copyright framework too. *Painer* goes one step further and zooms in to the protection of portrait photographs. The Court's reasoning is quite insightful as to the creative process of photography as it emphasises the different stages in which creativity can be exercised by the photographer.⁶¹⁴ In particular, the CJEU highlights that free and creative choices on behalf of the photographer could be present in the preparation phase in which the photographer chooses the subject's pose and the lighting. They can also appear in the execution phase when the photograph is actually taken – at this point the photographer has the freedom of choosing the angle of view and the framing for instance. Moreover, these free and creative choices could be present also when selecting the snapshot as the photographer could choose a developing technique, he/she wishes to adopt. At any of these stages it would be the author's "personal touch" that must be stamped to the work in order for it to attract protection under copyright law.⁶¹⁵ The Court is eminent that there is nothing in EU law to support the proposition that the level of protection is dependent on the degree of creative freedom of different works.⁶¹⁶ Put differently, if a work is the author's own intellection creation in which he stamps his personal imprint and has the ability to make free and creative choices, then both high-level and low-level creative works would be protected equally. Three important conclusions can be drawn from this case for the purposes of ML-generated works and copyright authorship.

First, bearing in mind that the Court makes a direct reference to *Infopaq* and notes that photographs are considered subject matter for the purposes of copyright protection only if they meet the *Infopaq* standard, one can safely conclude that there is only one originality standard at an European level for all types of works. Therefore, the three directives concerning the specific subject matter – software, databases and photographs – as well as the *Infopaq* case pertain to the same understanding and

⁶¹⁴ *Painer* (n 422) paras 90–91.

⁶¹⁵ *ibid* 93.

⁶¹⁶ *ibid* 97.

threshold of originality.⁶¹⁷ In the field of ML-generated works, it can thus be said that also those works when seeking to qualify for copyright protection, would have to meet the AOIC standard.

Secondly, the Court steps away from its categorical reasoning in *FAPL*, where it noted that there might be certain categories such as sports events that cannot be subject to copyright protection since they are too strictly dictated by the rules of the game. Painting the “creative space”, the CJEU passes the ball to the national court to evaluate whether and how the author has exercised their creative autonomy. Thus, since no types of works are excluded as such from potential copyright protection, ML-generated works, provided that they meet the golden standard, could also be protected with copyright law.

Finally, and most importantly, turning to the application of the originality standard to the particular circumstances at hand, the CJEU in *Painer* stresses that both the process through which a work is created as well as the final product should be taken into consideration. With its detailed examination of how portrait photographs are created and the different stages of production during each of which an author can exercise his free and creative choices the CJEU dives deeply into the process of creation. At the same time, the Court makes reference to the fact that the portrait photograph is stamped with the personal touch of the author, which unambiguously refers to the final creative product of the work – the intellectual creation.⁶¹⁸ ML-generated works as well have to comply with this standard – one must look at both the product and the process. It is the latter element that present challenges for copyright subsistence.

These conclusions were once more acknowledged in *Football Dataco*, which concerned a claim of infringement of IP rights in fixture lists.⁶¹⁹ The potential rights in

⁶¹⁷ van Eechoud (n 306) 67.

⁶¹⁸ Note, that this should not be interpreted as requiring the personality of the author to be ‘objectively discernible in the resulting expression (the output)’ Hartmann and others (n 26) 73.

⁶¹⁹ *Case C-604/10 Football Dataco Ltd and Others v Yahoo! UK Ltd and Others* [2012] CJEU ECLI:EU:C:2012:115.

question were copyright as a database and a *sui generis* database right. For the purpose of the present discussion, only a brief note on the *sui generis* database right would suffice as this discussion falls outside the ambit of the present inquiry into the standard of originality. Yet, it must be mentioned that the *sui generis* right protects the substantial investment that has gone into the obtaining, verification or presentation of the contents of a database.⁶²⁰ Such protection is regardless of the existence of copyright in the database which is governed by Article 3 of the Database Directive, but which is obtain only provided that the database meets the golden AOIC standard. The two rights are independent from one another, meaning that even if a database would not qualify for the *sui generis* protection as it lacked the necessary substantial investment, it could nevertheless still qualify for copyright protection, provided that it is original.

As it was noted in previous paragraphs, what matters here for the purpose of originality is that the database constitutes the author's own intellectual creation by reason of the selection or arrangement of its contents.⁶²¹ Pursuant to Article 3(2) of the Database Directive read in conjunction with Recital 15, originality here is understood by reference to the structure of the database as opposed to the contents meaning the elements that constitute its contents. Focusing on the aspect of the intellectual creation, the Court emphasised that the effort and skill involved in creating the data remain irrelevant in the assessment of the eligibility of the database itself for copyright protection.⁶²²

The first aspect that the Court analysed was the way in which the selection and the arrangement of the data in the databases was carried out. In this regard, the CJEU emphasised that this was done in accordance with a set of rules, parameters and organisational constraints as well as the specific requests of the clubs concerned.⁶²³ With this in mind, the Court turned to analyse whether this process could reach the

⁶²⁰ Database Directive, Article 7(1).

⁶²¹ *Football Dataco and Others* (n 619) para 29.

⁶²² *ibid* 33.

⁶²³ *ibid* 35.

required originality threshold – would the selection and the arrangement of the data in the fixtures amount to the expression of the author’s creative ability in an original manner through which he/she made free and creative choices and thus stamped the work with his/her personal touch? At this stage, the Court reaffirms once more the *BSA* standard according to which there will be no room for creative freedom where choices are dictated by technical considerations, rules or constraints. Consequently, once more the CJEU emphasised that evaluating the creative elements in the process of producing the copyright work is as important as the final creative features of the product itself.

In the following years, two other CJEU decisions further cemented the golden AOIC standard reached in the cases up to now.⁶²⁴ For the sake of the present discussion, these will not be considered in depth as they do not add any further elaboration on the originality standard different to what the previous cases said.

Ultimately, it clearly emerges that in less than three years (2009-2012) the CJEU has been extremely productive on the topic of copyright protectability. The EU now benefits from a harmonised originality standard for all types of works, which entails both objective and subjective elements. First, the idea that a work should certainly derive from the author is evident in the words of the court – “*author’s own* intellectual creation” [emphasis added], which stands for the objective component in the originality test. Second, the Court has been careful to emphasise that the “personal touch” of that very same author should stamp the work, which is certainly an aspect bearing much more subjectivity. Each of the above cases has added an additional layer of elaboration to this definition. From this analysis, it surfaces that both the final product as well as the process of production are important in the originality assessment.⁶²⁵ This means that the author cannot arrive at that final work employing a strict process

⁶²⁴ Case C-406/10 *SAS Institute Inc. v World Programming Ltd* [2012] ECLI:EU:C:2012:259; Case C-360/13 *Public Relations Consultants Association Ltd v Newspaper Licensing Agency Ltd and Others* [2014] ECLI:EU:C:2014:1195.

⁶²⁵ Ramalho, ‘Originality Redux: An Analysis of the Originality Requirement in AI-Generated Works’ (n 317) 32.

dictated entirely by restraints such as a technical or mathematical function or rules depriving him/her of genuine room for creativity.

3.2.3. The subsistence issue as a two-prong test – Levola Hengelo, Cofemel, Brompton

The notions of a copyright work, originality and authorship go hand in hand. They are so intertwined that the CJEU has gradually come to conflate them all together. Jane C. Ginsburg has even stated that originality is a synonym of authorship.⁶²⁶ The “intense fusion” between the notion of a work, authorship, originality, fixation and other related concepts has sometimes been reflected in the manner in which the directives are drafted; other times, it transpires from the reasoning of the CJEU.⁶²⁷ Following the long line of cases that have paved the contours of the protectability criteria, it results that, according to the CJEU, originality is the only indication one needs to look at when analysing the criteria for copyright protection. Considering the explicit mention of the “author” in the AOIC standard, the human element is also present, but apart from that, “no other criteria should be applied”.⁶²⁸ This characterisation may seem straightforward and unambiguous, but when one seeks to actually apply the originality standard in practice simple questions such as the protectability of the taste of a cheese, clothing or a foldable bicycle have not found simple answers. Instead, it took three references to the CJEU to put in order the protectability criteria. As a result of these references, the subsistence issue is now more clearly defined, and it entails a two-step test. One needs to first identify that the work concerned is the author’s own intellectual creation; and second, this work needs to be the *expression* of the author’s own intellectual creation in order to be protected. The three CJEU cases defining and applying these cumulative conditions will be discussed below to demonstrate that,

⁶²⁶ Ginsburg, ‘The Concept of Authorship in Comparative Law’ (n 220) 1078.

⁶²⁷ McCutcheon, ‘The Concept of the Copyright Work under EU Law’ (n 225) 784.

⁶²⁸ Database Directive, Article 3(1); Term Directive, Article 6 and Recital (16); Software Directive, Article 1(3).

while it is still far from perfect, the protectability criteria in EU copyright law has now taken a somehow more matured shape.

(i) *Levola Hengelo*

The case that took many aback concerned the protectability of the taste of a cheese.⁶²⁹ In the 48-paragraph judgment, the Grand Chamber of the CJEU examines the conflict between two cheese producers in the Netherlands. Levola Hengelo produces a type of spread cheese with fresh herbs. In the past, the cheese was also protected as a patent for its method of manufacturing. In 2014, a competing product that tasted like the Levola cheese appeared on the market and Levola sued for copyright infringement in the taste of the cheese. The CJEU had to determine whether the taste of a food product can benefit from copyright protection, ie whether it constitutes the author's own intellectual creation. These doubts had their roots in Article 2(1) of the Berne Convention, which refers solely to examples of works

⁶²⁹ European Copyright Society, 'Opinion on the Pending Reference before the CJEU in Case 310/17 (Copyright Protection of Tastes)' (2018) <<https://europeancopyrightsocietydotorg.files.wordpress.com/2018/03/ecs-opinion-on-protection-for-tastes-final1.pdf>> accessed 23 August 2020; Jani McCutcheon, 'Levola Hengelo BV v Smilde Foods BV: The Hard Work of Defining a Copyright Work' (2019) 82 *The Modern Law Review* 936; McCutcheon, 'The Concept of the Copyright Work under EU Law' (n 225); Caterina Sganga, 'Say Nay to a Tastier Copyright: Why the CJEU Should Deny Copyright Protection for Taste (and Smells)' (2019) 14 *Journal of Intellectual Property Law & Practice* 187; Caterina Sganga, 'The Notion of "Work" in EU Copyright Law after Levola Hengelo: One Answer given, Three Question Marks Ahead' (2019) 41 *EIPR* 415; Ruth Hoy and Ella Castle, 'CJEU Puts a Stop to the Spread of Copyright Works: The Taste of a Food Product Cannot Be Classified as a Work' (2019) 30 *Entertainment Law Review* 69; Eugénie Coche, 'Heks'nkaas or the "Fifty Shades of Taste" Explained by the CJEU through EU Copyright Law (Case Comment)' (2019) 41 *EIPR* 173; Joshua Marshall, 'Case Comment: Copyright "Works" and "Fixation": Where Are We Now?' (2019) 3 *Intellectual Property Quarterly* 252; Daniele Fabris, 'The Food Industry and the Fallacies of Denying Copyright Protection to Haute Cuisine Recipes' (2019) 41 *EIPR* 704; Ewa Laskowska-Litak, 'Between Scylla and Charybdis: A Comparative Look at Copyright's Protected Subject Matter and the (CJ)EU Harmonization' (2019) 14 *Journal of Intellectual Property Law & Practice* 761.

perceivable by sight and/or by hearing. The Court had to decide whether the (possible) instability of a food product and/or the subjective nature of the taste experience preclude the taste of a food product from copyright protection.

Even though the CJEU had actively been interpreting the protectability standard, the methodological facets of the golden AOIC test were shady and missing. Hence, the CJEU was left in a situation of reasoning backwards in the sense that the economic rights and exceptions were harmonised on an EU level in the Information Society Directive, but the intricacies of the subsistence issue, especially for non-conventional subject matter, were still not entirely clear. This meant that one would know, with a certain degree of certainty,⁶³⁰ what kind of rights one would possess as a result of the existence of copyright protected subject matter. But one is still left wondering whether there is a copyright protected work in the first place.

Unsurprisingly, different national courts have indeed come down to diverging conclusions about copyrightability of such non-conventional subject matter such as scents. In 2013, the French *Cour de Cassation* in a case between L’Oreal and Lancôme ruled that perfume scents are not protectable as one cannot adequately discern the complexity of a perfume’s original creation. Scents were a mere implementation of know-how unable to constitute an a “*form* of expression that can benefit from copyright protection”.⁶³¹ For that reason, the scent of a perfume is not protected as it is not “identifiable with sufficient precision to allow its communication” and cannot be apprehended.⁶³² Contrariwise, the Dutch Supreme Court reached the

⁶³⁰ Note that the economic rights have been subject to many CJEU cases and many preliminary references tackle that issue. What is referred to here however is the fact that these rights are harmonised on an EU level, which provides, at least to a certain extent, a level of legal certainty.

⁶³¹ Marshall (n 629) 255.

⁶³² *Société Lancôme v. Patrice Farque*, Cass. com., December 10, 2013 [pourvoi no 11-19872], 3, which reads “Mais attendu que le droit d’auteur ne protège les créations dans leur forme sensible, qu’autant que celle-ci est identifiable avec une précision suffisante pour permettre sa communication; que la fragrance d’un parfum, qui, hors son procédé d’élaboration, lequel n’est pas lui-même une oeuvre de l’esprit, ne revêt pas une forme présentant cette caractéristique, ne peut dès lors bénéficier de la

opposite conclusion in 2006 in another case on perfumes.⁶³³ According to that court, the mere volatility and instability of a smell did not exclude it from copyright protection outright.⁶³⁴

The *Levola Hengelo* judgment was therefore eagerly awaited as it bore the promise of putting to sleep such “interpretative short-circuits”.⁶³⁵ Qualifying the notion of a work in an autonomous and uniform manner, the CJEU goes on to say that a taste can be protected by copyright only if it can be classified as a work under the Information Society Directive.⁶³⁶ Echoing the AG, the Court states that this would then entail a two-fold examination – first, the subject matter concerned must be original in the sense that it is the author’s own intellectual creation; second, only the expression of this author’s originality would attract protection.⁶³⁷ In this context, ideas fall outside the scope of copyright protection. The Court goes on to stress that copyright protects only the expression of these ideas in a manner which makes it identifiable with sufficient precision and objectivity, even though that expression must not necessarily be in a permanent form.⁶³⁸ The rationale behind this is that authorities, individuals as well as competitors must operate in a system of legal certainty whereby only subject matter which is vested with sufficient clarity and precision has place. Besides, the absence of such precision and clarity would lead to subjectivity which is detrimental to

protection par le droit d’auteur ;que le moyen n’est pas fondé”, <
<http://www.cecoa.eu/images/cecoa/artdroit201312001.pdf>> accessed 23 August 2020.

⁶³³ *Lancôme/Kecofa, Hoge Raad der Nederlanden* [H.R.] [Sup. Ct. of the Netherlands], 16 June 2006, AMI 2006/5, 161.

⁶³⁴ Marshall (n 629) 255.

⁶³⁵ Sganga, ‘The Notion of “Work” in EU Copyright Law after *Levola Hengelo*: One Answer given, Three Question Marks Ahead’ (n 629) 420.

⁶³⁶ *Levola Hengelo* (n 223) para 33.

⁶³⁷ *ibid* 35–37.

⁶³⁸ *ibid* 40.

legal certainty.⁶³⁹ Similar to the AG, the CJEU emphasises that the current state of scientific development does not allow the taste of a food product to be identified with the necessary precision and clarity.⁶⁴⁰ Eventually, the Court concludes that the taste of a cheese cannot be subject to copyright protection.

The CJEU's reasoning in *Levola Hengelo* raises several considerations for the purposes of the present discussion. Different to the AG, the CJEU is careful enough not to mention explicitly the trade mark case of *Sieckmann*. In that case, the matter concerned the failed attempt to register a scent as a trade mark and there the CJEU held that in order for signs to function as trade marks these would have to be capable of being represented graphically which meant that a sign had to be “*clear, precise, self-contained, easily accessible, intelligible, durable and objective*”.⁶⁴¹ Nonetheless, despite not mentioning it directly, it is clear that the CJEU took inspiration from that principle when it referred to identifiability, clarity and precision, especially since the AG directly cited *Sieckmann*.

Moreover, the CJEU seems to have conflated the notion of work with the standard of originality, despite the AG's explicit warning that such conflation should be carefully avoided.⁶⁴² Thus, the CJEU overlooked an important conceptual distinction between the two notions.⁶⁴³ It has been argued that it would be more logical to first paint the boundaries of the object of protection, ie focus on the notion of work, and then go on to identify the threshold for copyright protection.⁶⁴⁴ The former is very important as it should directly correspond to the justifications of copyright law, namely what does

⁶³⁹ *ibid* 41.

⁶⁴⁰ *ibid* 43.

⁶⁴¹ *Case C-273/00 Ralf Sieckmann v Deutsches Patent- und Markenamt* [2002] EU:C:2002:748 [55].

⁶⁴² *Opinion of AG Wathelet in Levola Hengelo* (n 223) para 46.

⁶⁴³ McCutcheon, ‘*Levola Hengelo BV v Smilde Foods BV*’ (n 629) 941.

⁶⁴⁴ European Copyright Society (n 629) 2.

copyright aim to protect as a system? This assessment paints the external boundaries of the copyright realm.⁶⁴⁵

Most importantly, the CJEU is clear on the fact that meeting the originality standard is not the only protectability requirement. The work must also constitute an expression. Thus, following this judgment a work would qualify for copyright protection if it satisfied a two-prong test. The first part is the well familiar golden AOIC standard, which, as explained above, entails both an objective and subjective element (causative plus normative dimensions). Secondly, the CJEU emphasises the need for an expression. This aspect on its own is nothing new – the idea/expression dichotomy is a settled crucial copyright principle.⁶⁴⁶ The novelty here is the manner in which the notion of expression is understood. It seems like only aspects that can be clearly and precisely communicated will merit copyright protection in the EU. Manoeuvring around trade mark law notions, without explicitly mentioning *Sieckmann*, the CJEU *de facto* applied a trade mark law reasoning to a pure copyright case. However, copyright law and trade mark law follow entirely diverging rationales. The former seeks to protect creative authorial expression, whereas the latter grants protection over business identifiers. Moreover, aside from the absence of any reference to precise and objective subject matter in the copyright directive (something that is explicitly required for the registration of trade marks),⁶⁴⁷ the scope of a copyright law becomes clear only when a conflict emerges. In other words, only when a claimant decides to bring a lawsuit against a potential infringer does the clear and precise boundary of a protected subject matter take real form.⁶⁴⁸ Until that point, it is not in the interest of any copyright holder to trim their copyright subject matter unnecessarily. That said, it is in the interest of the

⁶⁴⁵ *ibid* 4.

⁶⁴⁶ Agreement on Trade-Related Aspects of Intellectual Property Rights 1995, Article 9(2); WIPO Copyright Treaty 1996, Article 2; Software Directive, Article 1(2).

⁶⁴⁷ Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark 2017, recital 10, articles 4 and 33; Directive 2015/2436 of the European Parliament and of the Council of 16 December 2015 to approximate the laws of the Member States relating to trade marks (n 432), recital 13 and 37; article 3 and 39.

⁶⁴⁸ *Marshall* (n 629) 257.

general public to know the actual contours of the protected subject matter so they can exercise their prerogatives under the exceptions and limitations regimes.⁶⁴⁹ Jani McCutcheon has been less harsh on the trade mark imported concepts and stated that the objectivity/identifiability condition is mandated by the very nature of property and as such it should be a universal condition in any type of legal protection of property, IP or physical.⁶⁵⁰

All in all, some commentators have criticised the decision fiercely for its “rudimentary, tautological and opaque” attempt to define the notion of a work.⁶⁵¹ Others have applauded the judgment for settling existing controversies within copyright law.⁶⁵² It is fair to admit that in the already very confusing and perplexed EU IP rights arena the injection of trade mark notions into copyright law is not a welcome approach.⁶⁵³ Yet, it must be admitted that the *Levola Hengelo* case brought a radical change to the *manner* in which the protectability criteria is approached. It is not that *Levola Hengelo* established a crystal-clear standard of protectability in copyright law. Setting such a standard in stone remains an impossible task as copyright law is not static and evolves constantly.⁶⁵⁴ Moreover, the previous case-law has been quite elaborate as far as the threshold of the protectability standard was concerned. However, the fact that the “elusive” national definitions of the notion of a work have not made the system crack already is not a sound excuse to ditch an attempt to at

⁶⁴⁹ McCutcheon, ‘The Concept of the Copyright Work under EU Law’ (n 225) 773.

⁶⁵⁰ McCutcheon, ‘*Levola Hengelo BV v Smilde Foods BV*’ (n 629) 945; McCutcheon, ‘The Concept of the Copyright Work under EU Law’ (n 225) 773.

⁶⁵¹ McCutcheon, ‘The Concept of the Copyright Work under EU Law’ (n 225) 779; McCutcheon, ‘*Levola Hengelo BV v Smilde Foods BV*’ (n 629) 941; Sganga, ‘The Notion of “Work” in EU Copyright Law after *Levola Hengelo*: One Answer given, Three Question Marks Ahead’ (n 629) 415.

⁶⁵² Coche (n 629) 174.

⁶⁵³ Estelle Derclaye, ‘Right and Wrong Analogies: The CJEU’s Use of Trade Mark Concepts in Copyright and Design Law’ (2020) 42 EIPR 78, 82.

⁶⁵⁴ Coche (n 629) 177; Michael J Madison, ‘The End of the Work as We Know It’ (2012) 19 *Journal of Intellectual Property Law* 325, 326.

least systematise the protectability assessment.⁶⁵⁵ Without doubt, the two-limb criteria has its flaws, but it is a decent starting point. It is then up to the national court to take into account all the aspects of the individual case, apply the AOIC, “free and creative choices” and the “personal stamp” tests to the facts at stake and give a final ruling, but the CJEU’s ruling in *Levola Hengelo* is commendable for its systematic methodology. It is not fair to say that the judgment distances EU copyright law from a harmonised definition of the copyright notion of a work.⁶⁵⁶

(ii) *Cofemel*

The two-limb assessment introduced in *Levola* was put to test in the *Cofemel* case which concerned the protectability of designs of jeans, sweatshirts and T-Shirts.⁶⁵⁷ The case came before the CJEU on a reference from Portugal, the law of which contained a provision in its copyright act subjecting utilitarian articles to a higher, stricter originality standard, namely that the work creates its own visual and distinctive effect from an aesthetic point of view.⁶⁵⁸ In addressing this issue, the CJEU positioned the notion of a ‘work’ as the main cornerstone in the case. It thus evoked the two cumulative criteria from *Levola*: (1) a work must entail an original subject matter in the sense of being the author’s own intellectual creation; and (2) only elements that are the expression of such creation, ie identifiable with sufficient precision and objectivity,

⁶⁵⁵ McCutcheon, ‘The Concept of the Copyright Work under EU Law’ (n 225) 783, where the author suggests that defining the work may simply be unnecessary.

⁶⁵⁶ See *ibid* 788, who argues that *Levola* failed in this respect.

⁶⁵⁷ *Cofemel* (n 222) para 19.

⁶⁵⁸ For a discussion on the implications of the case on the law of the Member States, including the UK at the time, see Eleonora Rosati, ‘CJEU Rules That Copyright Protection for Designs Only Requires Sufficient Originality’ (2019) 14 *Journal of Intellectual Property Law & Practice* 931; Simon Clark and Sara Sefton, ‘*Cofemel v G-Star Raw* (C-683/17) and Its Effect on UK Copyright Law before and after Brexit’ (2020) 42 *EIPR* 141.

are protected.⁶⁵⁹ The judgment also concerned the potential of cumulative protection of clothing design with designs rights as per Directive 98/71 together with copyright law pursuant to the Information Society Directive. Such possibility was not excluded considering that the two IP rights follow different rationales.⁶⁶⁰ In any case, the Court was firm that aesthetic effect, understood in its usual meaning as “effect that may be produced by a design [...] product of an intrinsically subjective sensation of beauty experienced by each individual who may look at that design”, does not have a place in the copyright protectability criteria since it brings along too much subjectivity. Such subjectivity does not permit the subject matter to be identified with sufficient clarity and precision.⁶⁶¹ The case represents another affirmation that the originality standard in EU copyright law is indeed horizontally harmonised for all kinds of works. In essence, the utilitarian nature of an article does not jeopardise its protection with copyright law, especially in the field of fashion, where, while some designer choices indeed serve primarily a utilitarian function, the fashion item itself is also a means of communication between the designer and the public.⁶⁶² As the case was positioned at the crossroads between copyright law and design law, it has provoked commentators to eagerly advocate aligning more the two fields as much as possible.⁶⁶³ In this vein, the European Copyright Society, a group of prominent copyright academics who regularly

⁶⁵⁹ *Cofemel* (n 222) paras 29–32.

⁶⁶⁰ *ibid* 50–51.

⁶⁶¹ *ibid* 53–54, where the CJEU admits that ‘aesthetic considerations play a part in creative activity’, but ‘the fact remains that the circumstance that a design may generate an aesthetic effect does not, in itself, make it possible to determine whether that design constitutes an intellectual creation reflecting the freedom of choice and personality of its author’. Thus, according to the CJEU, aesthetic considerations cannot form part of the originality test.

⁶⁶² Estelle Derclaye and Marco Ricolfi, ‘Opinion of the European Copyright Society in Relation to the Pending Reference before the CJEU in *Cofemel v G-Star*, C-683/17’ (European Copyright Society 2018) 4 <https://europeancopyrightsocietydotorg.files.wordpress.com/2018/11/ecs-opinion-cofemel_final_signed.pdf> accessed 23 August 2020.

⁶⁶³ Annette Kur, ‘Unité de l’art Is Here to Stay—Cofemel and Its Consequences’ (2020) 15 *Journal of Intellectual Property Law & Practice* 290, 297; Derclaye and Ricolfi (n 662) 6.

author opinions on pending CJEU cases, has suggested introducing the notion of freedom of the creator into copyright law.⁶⁶⁴ A similar notion already exists in design law – the freedom of the designer. The European Copyright Society has suggested that before granting copyright protection to a certain shape, one should assess the room for creativity available to a designer. This seems to be an approach in line with *Painer*, where the freedom of creation was assessed to determine whether free and creative choices have been made. Should this be the case, it would tie in very logically with the creative constraints discussion above.

(iii) *Brompton Bicycle*

In 2020, the CJEU was faced with yet another case in this field.⁶⁶⁵ This time, the question was whether a foldable bicycle could be protected with copyright law – the Brompton bicycle. The copyright claim was once more underlined by an expired patent, which brought to the surface the discussion on constraints, technical function, as well as design law.⁶⁶⁶ The question before the CJEU was whether copyright protection can be granted to a product the shape of which is, at least in part, necessary to obtain a technical result.⁶⁶⁷ Firmly repeating the two-prong cumulative criteria, established by *Levola Hengelo* and confirmed by *Cofemel*,⁶⁶⁸ the CJEU focuses entirely on the originality standard and particularly on the technical considerations

⁶⁶⁴ Derclaye and Ricolfi (n 662) 6.

⁶⁶⁵ *Brompton Bicycle* (n 222).

⁶⁶⁶ *Case C-395/16 DOCERAM GmbH v CeramTec GmbH* [2018] CJEU ECLI:EU:C:2018:172, where in the field of design law 'in order to determine whether the features of appearance of a product are exclusively dictated by its technical function, it must be established that the technical function is the only factor which determined those features, the existence of alternative designs not being decisive in that regard.'

⁶⁶⁷ *Brompton Bicycle* (n 222) para 20.

⁶⁶⁸ *ibid* 22.

since the subject matter was identifiable with sufficient objectivity and precision.⁶⁶⁹ The CJEU restates its case law on originality stressing that if a work is dictated solely by a technical considerations, rules or other constraints which leave no room for creative freedom, originality is absent.⁶⁷⁰ The mere presence of technical considerations is not a barrier to copyright law protection, but the author must have room for creativity – he/she must be able to reflect their personality in an expression of free and creative choices.⁶⁷¹ Copyright does not protect works solely dictated by a technical function as that would jeopardise technical progress and industrial development and risks monopolising ideas.⁶⁷² The CJEU admits that the shape of the Brompton bicycle appears necessary to obtain a technical result since it permits the bicycle to be folded in three positions, but whether this completely eliminates the room for copyright creativity is an assessment for the national court to make.⁶⁷³ Then, the CJEU addresses several elements that can potentially be evaluated when deciding whether a shape is necessary to achieve a technical result.

4. Conclusion

This chapter has illustrated the EU copyright law-making process and has zoomed in to the facets of the protectability standard.

When passing legislation at a Union level, the EU has firmly relied on the internal market legislative objective. Article 114 TFEU in this respect has served as the main provision to drive legislative action in the field of copyright law. The analysis has demonstrated that this provision lacks normative content and to that end is entirely

⁶⁶⁹ *ibid* 28.

⁶⁷⁰ *ibid* 24.

⁶⁷¹ *ibid* 26.

⁶⁷² *ibid* 27, referring to *SAS Institute*, C-406/10, EU:C:2012:259, paragraphs 33 and 40.

⁶⁷³ *ibid* 29–30.

functional. This, while infusing certain flexibility into the law-making process, can also open the door to the well-known “competence creep” problem in EU law.⁶⁷⁴ The above has also demonstrated that copyright law is not just about the internal market, but is a field also deeply enshrined in culture. However, the EU’s cultural competences are only coordinating, meaning that the Union is prohibited from adopting harmonising measures, but can only resort to passing supplementing measures. Besides, generally the EU legislative measures have sought to promote cultural creation from the perspective of those cultural industries that produce internationally appealing content, ie intermediaries and media corporations. Individual rightholders’ interests have been directly addressed only in a few very special limited cases,⁶⁷⁵ which is not sufficient to maintain a fair balance between all interested stakeholders. Thus, the internal market provision has been the preferred legal basis when passing legislation in the field of copyright law. This flexible provision can be ‘manipulated’ in order to fit in the legislative agenda concerns that may not necessarily be copyright concerns, but instead industry concerns tied to investment.

Nonetheless, both positive and negative integration firmly characterise EU copyright law. The EU legislator has so far passed thirteen directives and two regulations, but the CJEU has pronounced itself more than one hundred times in the last twenty years on the topic of copyright law. One field which has been subject to intense activity by the CJEU is the protectability criteria. The CJEU’s definition of the notion of a work was not the smoothest process. So, the Court’s lack of consistency and systematic review of the author and their free and creative choices in the course of creation has been constantly under attack.⁶⁷⁶ Despite these shortcomings, over the last few years, one cannot deny that three clear benchmarks emerge in the EU copyright protectability test:

- (i) a work must be authored by a human being (the designation issue);

⁶⁷⁴ Weatherill (n 66).

⁶⁷⁵ Mazziotti (n 217) 95–100.

⁶⁷⁶ van Gompel (n 465) 130.

- (ii) a work must be the result of this author's own intellectual creation (the subsistence issue – limb one);
- (iii) a work must be represented in a clear and precise form – objectivity criteria (the subsistence issue – limb two).

Chapter IV – Mapping authorship claims in the ML process

1. Premise

Following the analysis of the CJEU's heavy lifting attempt to organise the protectability standard as clearly as possible, this thesis now turns to position and assess the ML process through the lens of the EU copyright law framework. In Chapter III, three benchmarks have been identified as relevant in the protectability criteria: (i) the human author; (ii) the author's own intellectual creation (AOIC); and (iii) the objectivity of the subject matter. In this Chapter, I address the substantive dimension of the central research question – which is *whether* EU copyright law protects ML-generated works – by mapping the technical aspects of computational creativity against these benchmarks. This part analyses the question of copyright protection of ML-generated works from a technical perspective. This is the added value of this thesis – it provides new evidence for the general stance that ML-generated works do not meet the protectability criteria.

For the purpose of this analysis, let us assume that a team of ML experts stands behind the entire computational creativity project ('ML team').⁶⁷⁷ This team is generally responsible for all the arrangements of the work from the conception of the project and the collection of the training material, through the devising of the architecture and tuneable parameters, to the generation, selection and tweaking of the final output. This 'simplified' scenario avoids differentiating between 'user' and 'programmer' – something that has been typically done until now when copyright authorship was discussed with respect to computer-generated works. This reference to ML team is intentional. A differentiation between user and programmer in ML computational creativity projects is not entirely appropriate anymore. The processes involve a very high level of complexity, at least two types of algorithms (learning and trained), numerous layers in the NN, data curators and collectors and often also further experts.

⁶⁷⁷ Note, that depending on the field this presumption might change. In fields such as journalism, AI operates under the 'artificial intelligence as a service' (AlaaS) paradigm, where the focus is entirely on the user of the system. Hartmann and others (n 26) 28.

Sometimes, many of these tasks are carried out by the same experts' team; other times, not, as external programmers and artists might be engaged. Nevertheless, mapping all authorship claims on the ML process will demonstrate not that several candidates have conflicting authorship claims, but that none of these authorship claims are valid. To do this, the following sections (2.1 to 2.4) untangle each pillar of the ML process individually and zoom into the specifics to assess whether the three benchmarks are satisfied. Importantly, in order for a copyright claim to subsist all three benchmarks must be clearly satisfied.

2. A net of authorship claims untangled

In order to map the authorship claims, I analyse the four central pillars identified in Chapter II – input, learning algorithm, trained algorithm and outputs – against the three protectability benchmarks identified in Chapter III – human authorship, author's own intellectual creation (AOIC) and objectivity of the subject matter (see, Table 1: "A net of authorship claims untangled"). As the pillars sometimes involve several stages, the protectability criteria in each stage is elaborated separately. This mapping exercise identifies the degree of actual human involvement at each stage in each of the four pillars.

More in detail, in Table 1 the first column (named 'who?') points to the relevant actor responsible for the respective stage. The next column indicates whether this actor is a human being or an automated⁶⁷⁸ process. This benchmark refers to the designation issue. Then, the following column summarises the activity that is carried out (named 'what do they do?'). Based on this, it is then indicated whether that activity can potentially satisfy the AOIC (this benchmark refers to the first limb of the

⁶⁷⁸ Automation in this case refers to processes that are still controlled by a human being but are carried out by machines, ie they are very highly automated. The idea of automation is not a novelty as such. What is new is the scale of automation in the sense that this automatic nature leaves no room for creative freedom to the author. For a detailed discussion, please refer to Chapter I – Introduction, Problem review.

subsistence issue) and the objectivity standard (this benchmark refers to the second limb of the subsistence issue).

To decide whether copyright protection will arise all three benchmarks have to be met. Importantly, not all these acts lead to a copyright claim in the final 'creative' work. For example, in the input pillar if any copyright claim subsists, then that is strictly limited to what is taking place in that specific stage – for example, curation of the training material. Similarly, since the learning algorithm is a computer program it may be protected with copyright itself, provided that it is original enough. It emerges that only in the trained algorithm and the output may there be certain choices (human and/or automatic) which have direct consequences for the final 'creative' work.

All in all, to grant copyright protection at any stage, the author must 'score' positively in all three benchmarks (human process; AOIC; objectivity). When this is not the case, the table flags this in yellow. A detailed discussion of each pillar follows immediately after the table.

Pillar	Who?	DESIGNATION	What do they do?	SUBSISTENCE	
		(i) Human or automatic? BENCHMARK ONE		(ii) AOIC BENCHMARK TWO	(iii) Objectivity BENCHMARK THREE
Input	ML team (data collector) or AUTOMATIC	Human(s) or AUTOMATIC	Collect the copyright material (training data) based on which the ML process will learn	Possibly, but not necessarily	Yes
	ML team (data curator; possibly the same person as the ML team or data collector) or AUTOMATIC	Human(s) or AUTOMATIC	Curate/organise that copyright material (training data) which will be fed to the learning algorithm	Possibly, but not necessarily	Yes
Learning algorithm	External programmer – external to the ML team	Human(s)	Proprietary software that runs through the inputs and identifies the relevant characteristics	Yes, potentially	Yes
	ML team (programmer) – freshly written software	Human(s)	Freshly written software that runs through the inputs and identifies the relevant characteristics	Yes, potentially	Yes
	ML team	Human(s) or AUTOMATIC	Active learning – giving human feedback to the software that adjusts its parameters	Possibly, but not necessarily; it may not be enough	Yes
Trained algorithm	ML team	Human(s)	Set up the architecture – hyperparameter	Probably not – need to assess the technical constraints (<i>Brompton</i>)	Yes
	AUTOMATIC	AUTOMATIC	Optimisation of the weights that connect the neurons – trainable parameters	No	No
Output	ML team	Human(s)	Curation/organisation/s election of the outputs	Yes, possibly, but is it enough?	Yes

Table 1: "A net of authorship claims untangled"

2.1. The input pillar untangled

Within the input pillar, the ML team is preparing the artwork that will be fed into the generative model. This training data can be copyright protected material and that may give rise to upstream issues.⁶⁷⁹ However, as it was mentioned in the introduction, these lie beyond the scope of this thesis.

When collecting and curating the input material there is certainly the possibility to have a human, or a team of people, responsible for that activity. However, collecting the works that will be studied and on the basis of which the process will learn and generate new works is a task that can also be carried out automatically, not necessarily by a human being.⁶⁸⁰ Should this be done completely automatically, without the involvement of any human being, then the designation benchmark would not be checked.

Presuming though that the ML team is responsible for the collection and curation of the input material, the first benchmark can be satisfied. Then, in order to meet the first limb of the subsistence benchmark (the AOIC) the collection and curation of the artwork cannot be a mere piling up of the artwork, but it must entail certain free and creative choices reflecting the personality of the data curator/collector and in that sense it would be the collector/curator's own intellectual creation. Possibly, at this stage the ML team might be able to satisfy the originality requirement, but this is not necessarily the case. In its position paper on the topic, the MPI underlines that while theoretically the ML team may be engaged in some creative choices when collecting the training data, overall the selection and arrangement of datasets for the purpose of ML are predominantly driven by technical and functional considerations; thus, lacking

⁶⁷⁹ Josef Drexl and others, 'Artificial Intelligence and Intellectual Property Law - Position Statement of the Max Planck Institute for Innovation and Competition' (Max Planck Institute for Innovation and Competition 2021) Position Statement 21–10 10, referring to exceptions and limitations and also page 12 turning to the moral right of integrity.

⁶⁸⁰ Jonathan P Osha and others, 'Copyright in Artificially Generated Works' (AIPPI 2019) 2–3.

creative character.⁶⁸¹ Therefore, a case-by-case evaluation of the AOIC standard must ensue. Additionally, such curation and collection does not seem to be problematic from the point of view of the objectivity criteria. This criterion corresponds to the second limb of the subsistence benchmark – the subject matter at stake is a creative database.

Against this background, should this arrangement/collection be a copyright protected work, then it is important to underline that the claim is limited solely to the manner in which the arrangement is made. It does not extend to cover the final ML-generated work at the output stage. Therefore, should the collection and arrangement of the works be sufficiently creative for copyright purposes it can be a copyright protected database as per Article 3 of the Database Directive.⁶⁸² If the selection and the arrangement of the content does not represent the ML team’s own intellectual creation, the ML team can resort to another IPR – the *sui generis* database right as per Article 7 of the Database Directive. Specifically, if the ML teams’ work involves qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents, then the collection and curation of the input material could be protected by virtue of the *sui generis* database right. According to the MPI, analysing the nature of “substantial investment” is central.⁶⁸³ This is also a notion not defined in the Database Directive directly. Yet, the CJEU has stressed that substantial investment refers to “the resources used to seek out existing independent materials and collect them in the database, and not to the resources used for the creation as such of independent materials”.⁶⁸⁴ Therefore, acquiring input data from third parties could qualify as “obtaining of the contents”. The labelling activity is slightly more difficult to categorise. On the one hand, labelling can be seen as “verifying” or “presenting” of pre-existing material. To this end, according to the CJEU investment in

⁶⁸¹ Drexl and others, ‘Artificial Intelligence and Intellectual Property Law - Position Statement of the Max Planck Institute for Innovation and Competition’ (n 679) 6.

⁶⁸² Guido Noto La Diega, ‘Artificial Intelligence and Databases in the Age of Big Machine Data’ (2018) 25 AIDA: Annali italiani del diritto d’autore, della cultura e dello spettacolo 93, 101.

⁶⁸³ Drexl and others, ‘Artificial Intelligence and Intellectual Property Law - Position Statement of the Max Planck Institute for Innovation and Competition’ (n 679) 7.

⁶⁸⁴ Case C-338/02 *Fixtures Marketing Ltd* [2004] CJEU ECLI:EU:C:2004:696 [24].

“verifying” refers to the “resources used, with a view to ensuring the reliability of the information contained in that database, to monitor the accuracy of the materials collected when the database was created and during its operation”.⁶⁸⁵ Alternatively, investment in the “presentation” of the contents of the database includes the “resources used for the purpose of giving the database its function of processing information, that is to say those used for the systematic or methodical arrangement of the materials contained in that database and the organisation of their individual accessibility”.⁶⁸⁶ From this point of view, given that costs of carrying out each of these activities are typically high, then the activity can fall within the head of “substantial investment”. However, one may also classify “labelling” as creating new data.⁶⁸⁷ Should that be the case, following the CJEU’s settled case-law, this kind of activity would not be protected.⁶⁸⁸

This is an indication that the ML team’s work at this stage is not entirely stripped of IP protection. The protection of the database – by virtue of copyright or, more likely, as *sui generis* right – might help recoup some of the investment in the project.

2.2. The learning algorithm untangled

Moving on to the learning algorithm, the situation becomes slightly more complicated. The essence of this stage, as it was explained at length in Chapter II, is the use of a software that runs through the inputs and identifies patterns and characteristics among them.

First difficulty here arises if the learning algorithm is proprietary, ie the copyright author of which is someone external to the ML team. The presence of an external

⁶⁸⁵ *ibid* 27.

⁶⁸⁶ *ibid*.

⁶⁸⁷ Drexl and others, ‘Artificial Intelligence and Intellectual Property Law - Position Statement of the Max Planck Institute for Innovation and Competition’ (n 679) 7.

⁶⁸⁸ *Case C-203/02 BHB Horseracing* [2004] CJEU ECLI:EU:C:2004:695 [31]; *Case C-338/02 Fixtures Marketing Ltd* (n 684) para 27 et seq.

programmer can complicate the authorship claims. This could bring in another IP proprietor into the already complicated net of authorship claims. As far as the subsistence of copyright in the learning algorithm is concerned, software copyright law is a minefield of its own, into which this thesis does not intend to venture.⁶⁸⁹ However, simply put, the software developers, whether external or internal to the ML team, could have a valid copyright claim in the learning algorithm itself.⁶⁹⁰ They potentially satisfy the first benchmark since the ML team or the external programmers are human beings. Next, the source and object code of an algorithm are considered literary works from a copyright subject matter perspective and provided that they meet the originality standard set out in the Software Directive, ie they are the AOIC, they can be protected with copyright law. Such protection was envisaged also internationally in the TRIPs and the WIPO Copyright Treaty, so it is not a great novelty of the EU order.⁶⁹¹ The learning algorithm would also meet the final benchmark without much difficulty as it is sufficiently objective, ie a literary work. It is important to stress that this copyright claim is limited to the software itself (meaning the learning algorithm only), so it only covers whatever the programmer has coded in *ex ante*. It does not spill over to the works generated in the output pillar, despite the fact that the programmers can be considered “the authors of the authors”.⁶⁹² This is still the case, even though it is but for the learning algorithm that the final output could be generated. The programmers of the learning algorithm (external or internal to the ML team) are able to recoup some of

⁶⁸⁹ For a further discussion see Sean E Gordon, ‘The Very Idea! Why Copyright Law Is an Inappropriate Way to Protect Computer Programs’ (1998) 20 EIPR 10; Ken Moon, ‘The Nature of Computer Programs: Tangible? Goods? Personal Property? Intellectual Property?’ (2009) 37 EIPR 396; David Bainbridge, *Intellectual Property* (8th edition, Prentice Hall 2010) 485, where the author classified conventional works as ‘passive’ and computer programs as ‘active’, as ‘they do thing’, such as ‘they manipulate symbols, transform, modify and retrieve digitally stored information’.

⁶⁹⁰ Senftleben and Buijtelaar (n 76) 9–10 and 15–16, where the authors differentiate between ‘if-then’ decision models and rule-based algorithms, arguing that if the latter is used then it becomes more difficult to identify human creativity.

⁶⁹¹ TRIPs, Article 10(1); WIPO Copyright Treaty, Article 4.

⁶⁹² Senftleben and Buijtelaar (n 76) 15.

their investment since the learning algorithm (or its source/object code) can be licensed or sold.⁶⁹³

Second consideration in this pillar pertains to the possibility of ‘active learning’. In this case, the algorithm does not only learn from the training material collected and curated by the ML team, but also by accessing external sources by itself. It is a peculiarity of the ML process, where the learning algorithm can ‘consult’ external sources of information or even get feedback from the ML team itself. In that respect, the ML team can provide ‘human feedback’ to the process and tweak it in order to enhance the accuracy and the performance of the learning algorithm. Could this activity lead to a copyright claim for the ML team in the final ML-generated output? As long as the active learning is done by human programmers (the ML team or internal), the first benchmark (human being) will be satisfied. Should the software consult external sources without the assistance of a human being though, meeting the first benchmark becomes more complicated. Then, what is more questionable is whether active learning is sufficient to meet the second benchmark – the AOIC. In particular, the normative aspect of the AOIC test is present (as the work is done by a human author), but the causative element is problematic since a causal link between what the ML team chooses to tweak and the final reflection of it in the final product generated in the output pillar is very stretched.⁶⁹⁴ Moreover, it is very likely that there are only certain aspects that can be tweaked and certain things that can be subject to human feedback, which takes us back to the constraints discussion. If the creative field is very limited, then the ML team’s creative freedom might be very narrow and thus insufficient for free and creative choices to be taken. In this respect, it is helpful to first paint the freedom of the creator at this stage of tweaking, like it was advocated by the European Copyright Society with regard to *Cofemel*,⁶⁹⁵ and then to assess whether the choices of the ML team are sufficiently free and creative. Thus, the answer with respect to the second benchmark (the AOIC) is that the tweaking in the active learning *could* potentially pass the threshold of originality, but this is not guaranteed. The “free and

⁶⁹³ *ibid* 16.

⁶⁹⁴ Simone (n 220) 23.

⁶⁹⁵ Derclaye and Ricolfi (n 662) 6.

creative choices” may not be sufficient. This is one of the stages in which a case-by-case assessment is strictly necessary. As for the final benchmark, since here we are already assessing the creative output in the final pillar, the objectivity requirement will be satisfied – we are considering traditional subject matter in the form of a literary, musical or artistic works.

2.3. The trained algorithm untangled

In the trained algorithm, the enhanced degree of autonomy of the process becomes evident and dominant with respect to the human involvement. The trained algorithm builds on the information that the learning algorithm has extracted after having operated on the inputs. It is the trained algorithm that generates the final outputs, which take the form of a literary, musical or artistic work. It is unique to each individual ML process and is composed of two elements – model architecture and weights.

As to the model architecture, this is a hyperparameter, meaning that it is pre-designed by computer programmers in advance and does not evolve during the execution of the trained algorithm. The model architecture is a product of computer programmers, so it scores positively in the human authorship benchmark. Also from a theoretical point of view, it meets no difficulty either with the objectivity standard benchmark, as software is expressed in a clear and precise form. However, one issue it may face is with the AOIC benchmark due to technical restraints of its designing stage. Applying the reasoning in *Brompton*, one needs to look at the individual uniquely trained algorithm at stake and analyse whether the creative freedom is so limited that the ML team is deprived of exercising their free and creative choices when designing the architecture.⁶⁹⁶ Consequently, it is more likely that the architecture, being a highly technical and functional subject matter, underlined by technical restraints, would not permit for free and creative choices to subsist. This reasoning is not novel. It has guided the CJEU in many of the cases elaborated upon in Chapter

⁶⁹⁶ *Brompton Bicycle* (n 222) paras 26–27.

III, eg football matches,⁶⁹⁷ databases, graphic user interface,⁶⁹⁸ bicycles⁶⁹⁹ and clothes.⁷⁰⁰ Therefore, this technical and functional process prevents the authorship claim from subsisting at this stage.

The next stage in the trained algorithm is the optimisation of the weights that connect the neurons. This optimisation represents the core of the neural network that characterises advanced ML processes. This seems to be the most problematic stage of the trained algorithm. It tends to score negatively in all three benchmarks. First, this optimisation is carried out to a large extent autonomously by the trained algorithm. Initially, the value given to the weights is assigned by the programmers. However, the optimisation process itself is a mathematical function, so it is done completely independently of the human programmers. This once again reminds the idea/expression dichotomy according to which rules and formulas are not subject to copyright protection. Furthermore, it will be recalled that the more the layers of the NN there are, the larger the number of the weights, neurons and connections to optimise. Even if a human being would be willing to supervise and trace the optimisation process, at a certain stage (presumably already quite in the beginning) this becomes impossible. The ‘complexity monster’ discussed in Chapter II re-appears. The trained algorithm carries out this function on its own, automatically, without the intervention of the human being, without “any control over how the machine works”, which, in Jane Ginsburg and Ali Budiardjo’s words, means that the author “lacks any role in the resulting work’s *execution*”.⁷⁰¹ Consequently, at this stage the designation issue appears with a negative score. There is no human author that directs the optimisation

⁶⁹⁷ *FAPL and Karen Murphy* (n 564).

⁶⁹⁸ *BSA* (n 424).

⁶⁹⁹ *Brompton Bicycle* (n 222).

⁷⁰⁰ *Cofemel* (n 222).

⁷⁰¹ Ginsburg and Budiardjo (n 53) 103, where the authors discuss the issue of ‘authorless works’, which will be such not because the machine is an author, but because the programmer and the user of the machine do not provide sufficiently detailed conception and controlled execution, both as sole authors as well as jointly (the joint authorship doctrine bears additional problems of intent).

of the weights. Thus, the first protectability benchmark is not met. This aspect alone is sufficient to completely rule out any copyright authorship claim as a result of this stage. Nonetheless, for the sake of completeness and to further demonstrate the absence of sufficient creative human intervention in this essential pillar the other two benchmarks are also addressed. Hence, turning to the second benchmark (the AOIC), the presence of the author's free and creative choices is highly questionable. As the CJEU has underlined on many occasions, a work that is subject entirely to technical constraints, the result of rules and automatic calculations cannot be considered the author's own intellectual creation.⁷⁰² Therefore, also in this respect the optimisation of the weights would not tick the box of AOIC. Finally, the optimisation process scores negatively also as far as the objectivity standard is concerned – the third benchmark. Indeed, this seems to be the only stage in the ML pipeline that does not satisfy this condition. It has been argued that subject matter that constantly changes might be very difficult to define with sufficient certainty.⁷⁰³ In the same manner in which taste was considered unstable in *Levola Hengelo* and unable to be defined clearly and precisely,⁷⁰⁴ one can argue that the constant change in the weights deprives this stage of the necessary objectivity and so it cannot be protected with copyright law.

Eventually, all choices that flow from this stage have direct repercussions on the final creative output. They would enter the public domain and are not subject to copyright protection.

2.4. The outputs pillar untangled

Finally, within the outputs pillar one finds the 'creative' works. The outputs take the form of traditional copyright material such as literature, music or artworks and the ML team at this stage is able to carry out a selection and arrangement among all these

⁷⁰² See further all the case law in Chapter III, section 3.2, but in particular *Brompton Bicycle* (n 222).

⁷⁰³ *Hoy and Castle* (n 629) 71.

⁷⁰⁴ *Levola Hengelo* (n 223) para 42.

works. For instance, the ML process may have generated thousands of works and in order to successfully commercialise these someone has to make an intelligent selection. This could be some sort of a “curators right”.⁷⁰⁵ This comes very close to what was mentioned in *Painer* above by the CJEU. A photographer can exercise free and creative choices after having executed the mechanical process of taking a photograph, namely by selecting the snapshot and the photo development technique.⁷⁰⁶ Thus, in respect of the first benchmark (the presence of a human author) presumably the ML team would be the one carrying out this activity. Thus, the first benchmark is met. However, turning to the second benchmark, the AOIC, an assessment of the creative room must take place. One must evaluate the presence of free and creative choices in this selection/curation. This is another very delicate aspect that requires a case-by-case analysis. So, it is possible that the second benchmark is met, but one must assess whether the intellectual expression is sufficient in these choices. Finally, there would be no issue with the objectivity benchmark as what is concerned here is the curation of the final creative output. The output is typically in the form of a traditional copyright subject matter – literary, musical or artistic works. Thus, benchmark three is potentially satisfied.

3. Conclusion

By bridging the computational creativity analysis carried out in Chapter II with the legal setting illustrated in Chapter III, the aim of this Chapter was to assess whether the ML process meets the three benchmarks in the EU copyright authorship test.

Against the background of the analysis carried out, it becomes clear that two significant hurdles emerge: on the one hand, locating the human being in the process; and, on the other hand, the high degree of autonomy that some stages of the ML process exhibit. These two issues are inevitably linked since the human author requirement is deeply engrained in the originality test and *vice versa*. Therefore, very

⁷⁰⁵ Pinto (n 86) 178.

⁷⁰⁶ *Painer* (n 422) paras 90–91.

often the technical and functional nature of some stages completely take out the human author and his/her possibility for a creative intervention out of the picture. And, as it became clear above, the weaker the connection between the author and the final work, the more difficult it seems to apply the AOIC test as currently understood by the CJEU.⁷⁰⁷ The high level of autonomy of the trained algorithm, while still a far cry from the ‘full autonomy’ we see in science fiction films, still prevents the author from exercising their free and creative choices and thus authors are not capable of having their own personal stamp on the final work.

This technical analysis provides further new evidence to support the conclusion that ML-generated works do not meet the copyright protectability standard. While some scholars have reached this conclusion by reference to the justification theories for copyright law,⁷⁰⁸ the reasoning herein carried out relies on a technical dissection of the ML/art process.

One important final remark must be mentioned in respect of the untangled net of authorship claims. It surfaces that ML processes do not merely copy pre-existing works. In some projects, works are created in the same style of the input. For instance, in GANs works are generated based on a communication process between a generator network and the so-called discriminator network, whereby the latter constantly compares the generated images to the input to ensure these do not deviate from the style of the initial training data. Considering the type of training material, it is logical that the final output would be in the style of the input works, but it would not copy them literally. In other projects, utilizing more advanced ML systems such as CANs, the main goal is to move away from the style of the input material so that eventually a ‘new’, genuinely creative, work is produced. In both cases, regardless of the degree of inspiration, the final output is “independent in the sense that it deviates from the source material to be considered novel.”⁷⁰⁹

⁷⁰⁷ van Gompel (n 465) 97.

⁷⁰⁸ Ramalho, ‘Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems’ (n 76).

⁷⁰⁹ Senftleben and Buijtelaar (n 76) 4.

Chapter V – ML-generated works in a balanced internal market

1. Premise

Having untangled the substantive dimension of the research question, this part of the thesis evaluates the normative dimension of the research question that pertains to the need of adapting the EU copyright system to ML-generated works. In other words, considering the conclusion reached above – no human author, no copyright for ML-generated works – should the EU legislator move towards copyright protection for such works?

As it was elaborated in Chapter III, when passing legislation on copyright law, the EU's legal basis has been the goal of establishing and maintaining the functioning of the internal market (Article 114 TFEU). The purpose of this Chapter is to evaluate how a potential copyright protection for ML-generated works fits with this internal market goal from an EU legislative perspective. In order to do this, we need a better, more balanced, understanding of the internal market legislative goal overall (section 2). In particular, the EU legislative competence to pass laws for achieving an internal market should not be seen as harmonisation of the laws in the MSs at all costs. Instead, the EU should always strive to balance harmonisation with diversity in the laws and cultures of the MSs in order to eventually attain an optimal level of regulation. To achieve this balanced internal market, EU law provides some procedural safeguards. First, in 2015 the EU Commission adopted its "Better Regulation Agenda", where a strong commitment was made to regulate more carefully, employing sound impact assessments backed up with qualitative and quantitative data and listening to all stakeholders concerned by a specific policy area.⁷¹⁰ Second, since the internal market is a shared competence of the EU, meaning that both the Union and the MS are competent to pass laws, the principles of subsidiarity and proportionality must be carefully respected. These procedural instruments are without doubt applicable to copyright authorship of ML-generated works and it appears that they would not be

⁷¹⁰ European Commission, 'Better Regulation for Better Results - An EU Agenda' (European Commission 2015) COM(2015) 215 final.

satisfied in case the EU decides to legislate. Furthermore, since copyright law disputes have regularly landed before the CJEU and significantly pushed the EU harmonisation agenda, this chapter discusses the importance of negative integration (section 3). In light of the CJEU's strong emphasis on human authorship, it is unlikely that the Court would sidestep its longstanding case law to protect ML-generated works where the author's intervention is insufficient. That would be not only be undesirable from the point of view of copyright rationales, but also potentially interfering with the separation of powers between the EU judiciary and the EU legislature. Indeed, in this chapter, I argue that copyright law is not the right tool to balance the internal market with regard to ML-generated works (section 4). However, copyright law is not the only possible IP right that may be useful in this respect. Eventually, I provide a brief overview of some of the alternative avenues for IP protection discussed in literature (section 5). Yet, none of these seems to be sufficiently backed up with sound evidence to justify the cost of legislating.

2. Balanced understanding of the internal market

As Chapter III has demonstrated, when the EU legislates in the field of copyright law the main legal basis is Article 114, which has as its objective the establishment and functioning of the internal market. So, what kind of concerns does the internal market encompass? It has been argued that the policy fields that have come under the definition of the internal market in Article 26 TFEU touch upon matters of extreme national sensitivity – from product standards and national food cultures to the many facets of the Brexit debate.⁷¹¹ Copyright law also falls within that long list of sensitive matters affecting the internal market. Considering the absence of normative content in Article 114, the central provision in this respect, the task of defining its limits becomes even more challenging.

⁷¹¹ Davies, 'The Competence to Create an Internal Market: Conceptual Poverty and Unbalanced Interests' (n 85).

2.1. The notion of a “balanced internal market”

The central idea behind the internal market is that of removing obstacles to free movement or appreciable distortions of competition.⁷¹² Free movement can only be restricted if there is a justified ground. Generally, a broad understanding of the internal market goal has been promoted, meaning that almost all differences between MS’ legislation can be subject to harmonisation due to a risk of creating obstacles to free movement.⁷¹³ In that sense, it seems like the internal market will be truly “complete” only when all disparities in the laws of the Member States are removed.⁷¹⁴ Complete homogeneity of rules, though, has not been achieved in many policy fields. Perhaps such absolute harmonisation was not always a desired end goal of the EU legislator. It would not genuinely guarantee a level-playing field for all players in all MS in a specific market. There are large discrepancies between the business conditions in the different EU MS – their laws, but also available funding in various sectors, infrastructure costs, qualified human resources, business culture, etc. The EU legislature must take into account the overall competitive environment in each MS and assess whether there are indeed any genuine obstacles to free movement for the internal market.⁷¹⁵ Rushing to complete harmonisation almost blindly without considering these side effects is problematic and not recommended. It can lead to serious regulatory costs, foreclosing markets and burdening policy fields with unjustified bureaucracy hurdles.

The alternative to full harmonisation is partial. However, harmonising just some legal aspects is often equally problematic. It can be perceived as piecemeal and incoherent. The critics of this approach argue that such partial harmonisation appears

⁷¹² *Tobacco Advertising I* (n 263).

⁷¹³ Gareth Davies, ‘Subsidiarity, the Wrong Idea, in the Wrong Place, at the Wrong Time’ (2006) 43 *Common Market Law Review* 63, 63.

⁷¹⁴ Davies, ‘The Competence to Create an Internal Market: Conceptual Poverty and Unbalanced Interests’ (n 85) 78.

⁷¹⁵ *ibid* 79.

more like an “authorisation to respond to ad hoc political lobbying than a pathway to a better market”.⁷¹⁶ This is precisely where EU copyright law can be positioned. No legal instrument has managed to fully harmonise copyright law. Yet, there are many directives on copyright law seeking to eliminate obstacles to free movement of various types and distortions of competition in a wide range of rather specific contexts – software, databases, photographs, orphan works, just to name a few. What has often pushed the legislative agenda are the strong voices of the industry lobby. Many examples can be mentioned here, but the most recent candidate is the new neighbouring right for press publishers in the latest DSM Directive.⁷¹⁷

Against this background, the crucial issue behind the internal market, as formulated by Gareth Davies, questions the *kind* of market that the law – in this case, copyright law – imagines.⁷¹⁸ To answer this, a better understanding of the internal market goal is necessary – one, that is aware of the above shortcomings and tries to acknowledge and remedy them. The optimal level of EU regulation is not uniformity at all cost and maximum harmonisation;⁷¹⁹ neither is it a piecemeal harmonisation only targeting discretionarily certain specific aspects. Instead, what EU legislation should strive towards is a careful balance between harmonisation and diversity,⁷²⁰ as well as between all parties’ interests. Gareth Davies has convincingly argued that this balance should not be carried out “just in the name of diversity as such and non-economic interests”; instead, the balance is in the name of the market itself.⁷²¹ He maintains that

⁷¹⁶ *ibid.*

⁷¹⁷ DSM Directive, Article 15; For further criticism see Marco Ricolfi, Raquel Xalabarder and Mireille van Eechoud, ‘Opinion on the Proposed Press Publishers Right’ (European Copyright Society 2018) <https://europeancopyrightsocietydotorg.files.wordpress.com/2018/06/2018_european-copyright-societyopiniononpresspublishersright.pdf> accessed 19 November 2020, among many others.

⁷¹⁸ Davies, ‘The Competence to Create an Internal Market: Conceptual Poverty and Unbalanced Interests’ (n 85) 77.

⁷¹⁹ *ibid.* 80.

⁷²⁰ *ibid.*

⁷²¹ *ibid.*

the best, most complete, market is “the one in which social, cultural, economic and other conditions, encourage economic actors to look easily and comfortably across borders”.⁷²² This understanding of the internal market is particularly relevant for the European Digital Single Market, where copyright plays a pivotal role and where looking across borders became possible with just a few clicks.⁷²³

2.2. Procedural safeguards for a balanced internal market

To implement this balanced approach when EU laws for the internal market are made, the EU legislator uses a set of tools. These can be broadly defined as procedural checks. On the one hand, the EU Commission’s Better Regulation Agenda, issued in 2015, states that the EU must carry out careful impact assessments before it proposes any EU level legislation.⁷²⁴ The TFEU further stresses that the Commission must consult widely the public and the relevant stakeholders prior to proposing any legislation.⁷²⁵ This is particularly important in technological fields, such as ML. On the other hand, since the policy area of the internal market falls within the shared competences, one needs to carefully consider the principles of subsidiarity and proportionality, which paint the limits of EU’s action.

⁷²² *ibid.*

⁷²³ European Commission, ‘A Digital Single Market Strategy for Europe’ (n 22) 2, where the document refers to the words of the former Commission President (Jean-Claude Juncker) words: ‘I believe that we must make much better use of the great opportunities offered by digital technologies, which know no borders. To do so, we will need to have the courage to break down national silos in telecoms regulation, in copyright and data protection legislation, in the management of radio waves and in the application of competition law.’

⁷²⁴ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710); European Commission, ‘Better Regulation: Why and How’ (*European Commission*) <https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en> accessed 7 November 2020.

⁷²⁵ Art 2, Protocol (No 2), TFEU.

2.2.1. Better regulation

Since the Better Regulation Agenda in 2015, the EU has committed itself to design policies and laws with a greater level of transparency, evidence and backing them up with the views of citizens and stakeholders.⁷²⁶ The Agenda stipulates that the EU would explain better why it is acting, what results it hopes to achieve and what impact might there be.⁷²⁷ These commendable commitments ensure that EU law-making avoids bureaucracy short circuits. The Agenda acknowledges that, naturally, politicians tend to focus on new initiatives. Nonetheless, the EU is “judged” not just on its new political initiatives, but on the benefit and the burden produced by existing EU legislation.⁷²⁸ Any potential protection with copyright law of ML-generated works must also comply with the EU’s Better Regulation Agenda.

For the sake of completeness, the central argument of proponents of copyright protection for ML-generated works will be reminded here.⁷²⁹ Supporters of legislating maintain that absent IP protection for such works human creativity will be stifled. The argument advances along the following lines. ML processes will be able to produce a large amount of works extremely quickly. Faced with the choice between using a ML-generated work, which according to the status quo of EU copyright law today, is free from copyright protection, and a human-authored work, the permission of which a user needs to secure, some have suggested that users will prefer the former.⁷³⁰ Therefore, such ML-generated works are said to be competing directly with human-authored

⁷²⁶ European Commission, ‘Better Regulation’ (n 724).

⁷²⁷ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 5.

⁷²⁸ *ibid* 10.

⁷²⁹ Some have argued that the copyright protectability standard should focus on the ‘work’ and detach itself from the ‘author’; See Robert Denicola, ‘Ex Machina: Copyright Protection for Computer-Generated Works’ (2016) 69 Rutgers University Law Review 251, 270; Maggiore (n 317) 391.

⁷³⁰ Lauber-Rönsberg and Hetmank (n 86) 578.

works and thus might be capable of disturbing the market for low creativity works, which is where apparently the bigger chunk of artists nowadays make a living.

This thesis maintains that, at this stage of economic and socio-cultural research, the assumption maintained by the supporters of positive legislation is borderline speculation. Presently, there is no impact assessment on the socio-economic effect of computational creativity that provides convincing empirical evidence on the copyright law implications of this discourse.⁷³¹ The Better Regulation Agenda is clear - should the Commission decide to take action in the absence of an adequate supporting impact assessment, it will be required to explain publicly why.⁷³² Backing up proposals with qualitative and quantitative data is crucial. In a 2020 report on a potential regulation in the field of AI and IP, the European Parliament has stressed the need for legislations to be future-proofed and “followed up on through thorough impact assessments”.⁷³³ It is commendable that the European Parliament makes reference to thorough impact assessments, but this should be the first step towards any potential regulation, not a follow up measure. Evaluation reports of existing legislation are equally important, but carefully preparing legislation in the first place is imperative. Besides, in case of doubt as to whether to legislate, an impact assessment should not be considered a panacea that magically dispels concerns about the “competence creep”.⁷³⁴

Such evidence-based impact assessments must not take into account copyright theories only in the abstract. They must carefully consider the impact of protecting ML-generated works as an internal market objective, as that is the driving engine of EU copyright law. There must be a genuine obstacle to free movement (or an imminent risk of the emergence of such an obstacle) that would require an action on an EU level. One such obstacle might be if one MS starts legislating individually in this respect. So

⁷³¹ Mezei (n 317) 10, where the author emphasises that examples where ‘AI artworks’ are sold in auction houses is rather the exception than the rule.

⁷³² European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 7.

⁷³³ Séjourné (n 94) para F.

⁷³⁴ Craig and de Búrca (n 61) 124.

far, none of the MS has proposed or adopted legislation in that direction. The copyright laws of Ireland and the UK (the latter being now a former MS) include certain provisions targeting computer-generated works, which will be briefly discussed below in section 5.1.⁷³⁵ These provisions are not well suited to the ML/art processes that this thesis has dissected. Any regulation in the EU should be easy to implement, provide predictability and avoid unreasonable burdens.⁷³⁶ Exporting the UK and Irish provisions to the EU level is not sensible since these do not provide the necessary legal certainty for very complicated ML computational creativity processes.⁷³⁷ Better regulation, says the Commission, is not a “bureaucratic exercise”⁷³⁸ – legislative initiatives must truly make sense and cater for the ML computational reality.⁷³⁹

Moreover, the Better Regulation Agenda underlines that policies should not be imposed, but “prepared inclusively”, listening to the views of those affected by the legislation.⁷⁴⁰ The Commission has underlined the importance of giving stakeholders the possibility of expressing their views over the entire lifecycle of a policy; typically, this takes place via “roadmaps” and “inception impact assessments”.⁷⁴¹ This pertains to all stakeholders, not only to those with the loudest lobby voice in Brussels. In the words of the Commission, “better regulation is not about favouring certain policies or

⁷³⁵ It will emerge that these provisions are subject to great criticism since they are arguably not in compliance with EU copyright law and to date have not produced much positive impact.

⁷³⁶ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 4.

⁷³⁷ For a detailed discussion on the shortcomings of these measures, see section 5.1. Inspiration from common law (Chapter V).

⁷³⁸ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 4.

⁷³⁹ Even though discussing the US scenario and in the context of computer-generated works, the importance of adopting solutions that ‘make sense from a doctrinal standpoint, but also ... in terms of the realities of the world in which the problem exists’ has been stressed already in 1985 by Pamela Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (1985) 47 *University of Pittsburgh Law Review* 1185.

⁷⁴⁰ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 4.

⁷⁴¹ *ibid* 5.

objectives over others.”⁷⁴² In a recent study on the “Reflecting the Public Voice in Copyright Consultations”, Lee Edwards and Giles Moss have sought to engage the public in consultations on copyright policy.⁷⁴³ They have established that while there still seems to be a lot of uncertainty about copyright law itself, if given sufficient information and time, the public has a strong opinion copyright law that is worth sharing with policymakers.⁷⁴⁴ The authors maintain that copyright law is a public issue and as such requires the input of the public. However, most recently, as the DSM Directive has demonstrated, the public debate can be subject to serious manipulation underlined by fierce lobbying, which does not necessarily leave the public to make up its own mind.⁷⁴⁵

In sum, the debate on a harmonised EU copyright authorship law for ML-generated works, where safeguarding the balanced internal market is essential, cannot entertain a one-sided assessment. If so, that would most likely be the story told by the industries engaged in computational creativity, software development and data curation. These industry players are unsurprisingly rather keen on a copyright protection of ML-generated works as they see themselves as one of the potential copyright authors in this deeply entangled net of authorship claims. Nevertheless, the public voice, as well as the scientific evidence justifying a legislative initiative should have an equal say in this debate.

⁷⁴² *ibid* 6.

⁷⁴³ ‘CREATe Online Public Lecture “Reflecting on the Public Voice in Copyright Consultations” - Lee Edwards and Giles Moss’ (*YouTube*, 25 November 2020) <https://www.youtube.com/watch?v=BVuWX8NMtq4&ab_channel=UniGla> accessed 28 November 2020.

⁷⁴⁴ *ibid*.

⁷⁴⁵ This was stressed by Giuseppe Abbamonte, Director of the European Commission’s Media Policy unit with respect to ‘young audiences’ in particular, see ‘Copyright Issues Concerning Training Data and Outputs of an Algorithm by Giuseppe Abbamonte, Director of the European Commission’s Media Policy Unit’ (*Oxford Law Faculty*, 24 November 2020) <<https://www.law.ox.ac.uk/events/copyright-issues-concerning-training-data-and-outputs-algorithm>> accessed 28 November 2020.

2.2.2. Subsidiarity and proportionality

Since the internal market is a shared competence, both the Union and the MS may legislate and adopt legally binding acts.⁷⁴⁶ The limits of the Union competences in that respect are governed by the principles of subsidiarity and proportionality,⁷⁴⁷ which are further elaborated in Protocol (No 2) of the TFEU. In addition, in an attempt to further promote accountability, the Better Regulation Agenda explicitly refers to the subsidiarity and proportionality principles – the improved explanatory memorandum would include a detailed explanation of how any legislative initiative satisfies the two principles.⁷⁴⁸

According to Article 5(3) of the TEU, the central idea behind subsidiarity is that in areas which do not fall within the Union’s exclusive competence (so, the internal market and, hence, copyright law), the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, but can rather, by reason of the scale or effects of the proposed action, be better achieved at a Union level. The subsidiarity principle therefore is said to entail two cumulative conditions:⁷⁴⁹ (i) the objectives of the proposed action cannot be sufficiently achieved at a MS level, the so-called “sufficient attainment test”;⁷⁵⁰ and (ii) they can be better achieved at an EU level, or the “better attainment test”.⁷⁵¹ The essence of the principle is that an EU intervention would produce an efficiency gain above the minimum level – the benefit of an EU intervention must clearly outweigh

⁷⁴⁶ Art 2(2) TFEU.

⁷⁴⁷ Art 5(1) TEU.

⁷⁴⁸ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 5.

⁷⁴⁹ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 110.

⁷⁵⁰ Margot Horspool and Matthew Humphreys, *European Union Law* (4th Edition, Oxford University Press 2016) 100–101.

⁷⁵¹ *ibid.*

that of a MS action.⁷⁵² The rationale behind subsidiarity is that while the EU is bound to achieve an ever closer Union, decisions must be taken as close as possible to the EU citizens.⁷⁵³ The principle is further motivated by the concerns of over-centralisation, should the legislative powers remain solely with the EU bodies. There is value for the internal market in maintaining diverse certain aspects of the law. Diversity among the MS is reflective of their culture of law-making, language and copyright traditions. It is indeed a vital element in a well-functioning (digital) single market the EU has always foreseen. Therefore, the Protocol on subsidiarity assigns an important role to the national Parliaments, whereby when a legislative measure is proposed by the Commission, national Parliaments are given the possibility to express their concerns on the grounds of subsidiarity.⁷⁵⁴ The draft legislative act must specify the manner in which it complies with the principles of subsidiarity and proportionality, namely why is an action necessary at an EU level. Besides, the reasons for concluding that an objective can be better achieved at Union level shall be substantiated by qualitative and, wherever possible, quantitative indicators.⁷⁵⁵ In this respect, the Commission must consult widely before proposing legislative acts.⁷⁵⁶ These consultations can provide important preliminary evidence of efficiency gains of a Union action, which can in turn serve as valuable guidance for the EU legislator when tailoring the specific content of the proposed measure.⁷⁵⁷

⁷⁵² NW Barber, 'The Limited Modesty of Subsidiarity' (2005) 11 *European Law Journal* 308, 311–312.

⁷⁵³ Art 1 TEU.

⁷⁵⁴ Art 5-7, Protocol (No 2), TFEU, where in Article 7(2) and Article 7(3) respectively the Protocol establishes the so-called "yellow card" and "orange card" procedures. The yellow card procedure requires the EU to issue a reasoned opinion and decide whether to maintain, amend or withdraw the proposed act if one third of all allocated votes to the national Parliaments content the compliance with the subsidiarity principle. The orange card procedure requires a simple majority and may cause the proposed measure to be rejected.

⁷⁵⁵ Art 5, Protocol (No 2), TFEU.

⁷⁵⁶ Art 2, Protocol (No 2), TFEU.

⁷⁵⁷ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 110.

No legislative measure escapes the scrutiny of subsidiarity. National Parliaments will necessarily have a say on the issue of copyright protection for ML-generated works, should the Commission propose a legislation. However, the principle bears a strong political connotation and it is unlikely that it would pose any significant legal issues should a legislation be proposed.⁷⁵⁸ In light of the highly sensitive issue that copyright is, however, it is not entirely ruled out that some MS may be dissatisfied with yet another Union-level harmonising measure in the field of copyright law (in addition to the fifteen directives and regulations already in place) and may try to argue an infringement of the subsidiarity principle. Through the so-called “yellow card” procedure, if a certain number of national Parliaments contest the contents of a proposed measure, the institutions are obliged to review it and justify its final decision.⁷⁵⁹ This mechanism is seen as an important tool to increase the quality of a proposed legislation, for instance prompting the EU to propose an alternative solution better suited to meet the aim of establishing an internal market.⁷⁶⁰ As it was mentioned above, harmonisation (either full or partial) of a certain policy area is not the panacea to making an industry more competitive. The Commission would have to show the existence or the imminent danger of a clear obstacle to the internal market that would be remedied with that proposed Union level measure. A comprehensive overview of the field must be considered – incentivising the computational creativity industry by granting rightholders with one more exclusive IPR through a Union level measure is just one element in the equation of levelling the playfield in that respect. However, in light of previous directives, it is not very likely that subsidiarity would pose serious hurdles to a future legislative process in this respect.

What might be more problematic is satisfying the proportionality principle. It requires that whatever measure is proposed at an EU level it must be proportionate to

⁷⁵⁸ See the remarks of the President of the Court of Justice at the time that ‘subsidiarity is a principle of an essentially political nature’, see more at: Gil Carlos Rodríguez Iglesias, ‘The Court of Justice, Principles of EC Law, Court Reform and Constitutional Adjudication’ (2004) 15 *European Business Law Review* 1115, 1117.

⁷⁵⁹ Art 6 and 7, Protocol (No 2), TFEU.

⁷⁶⁰ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 111.

the interest pursued.⁷⁶¹ In other words, let us not kill a fly with an elephant gun. The crucial question to assess is whether there is a less restrictive way to achieve the aim sought by the legislative measure. The principle assesses the intensity of the Union action.⁷⁶² Its mechanics have been subject to great academic attention.⁷⁶³ Generally, though, it entails three (sometimes four)⁷⁶⁴ steps: (i) assessment of the suitability of the measure for the attainment of the objective, also called the “principle of appropriateness”;⁷⁶⁵ (ii) the evaluation of the necessity of the measure, ie are there other, equally suitable, less restrictive measures capable of attaining the same objective; and (iii) balancing the negative impact of the restrictions imposed against the added value or positive impact on the interest protected through those measures, ie proportionality *stricto sensu*.⁷⁶⁶ These factors, while distinct from one another, eventually emerge as communicating vessels.⁷⁶⁷ Within the field of copyright law, the proportionality test has been described as a “mega” or “golden” standard.⁷⁶⁸ It applies

⁷⁶¹ Art 5(5) TEU.

⁷⁶² Nicholas Emiliou, *The Principle of Proportionality in European Law: A Comparative Study* (Springer Netherlands 1996) 140.

⁷⁶³ See the following, among many others: Aharon Barak, *Proportionality: Constitutional Rights and Their Limitations* (1 edition, Cambridge University Press 2012); Alec Stone Sweet and Jud Matthews, *Proportionality Balancing and Global Constitutionalism: A Comparative and Global Approach* (OUP 2019); Wolf Sauter, ‘Proportionality in EU Law: A Balancing Act?’ (2013) 15 CYELS 448; Peter Oliver and Christopher Stothers, ‘Intellectual Property under the Charter: Are the Court’s Scales Properly Calibrated?’ (2017) 54 Common Market Law Review 517; Orit Fischman Afori, ‘Proportionality – A New Mega Standard in European Copyright Law’ (2014) 45 IIC 889; Peter Teunissen, ‘The Balance Puzzle The ECJ’s Method of Proportionality Review in EU Copyright Law’ (2018) 40 EIPR 579.

⁷⁶⁴ A first preliminary step entails assessment of the legitimacy of the pursued objective.

⁷⁶⁵ Sauter (n 763) 448–449.

⁷⁶⁶ The measure should not disrupt the fair balance between conflicting rights and/or destroy the essence of the right that is restricted; See further at Barak (n 763) 131–133; 243–338.

⁷⁶⁷ Teunissen (n 763) 582.

⁷⁶⁸ Afori (n 763); Alain Strowel and Hee-Eun Kim, ‘The Balancing Impact of General EU Law on European Intellectual Property Jurisprudence’ in Justine Pila and Ansgar Ohly (eds), *The*

not only to the EU copyright law-making process, but also when national measures are challenged before the CJEU.⁷⁶⁹

Unsurprisingly, it becomes extremely important also in the context of a potential copyright legislative measure in the field of ML-generated works. Positioning a legislative measure in the context of the proportionality test, the three factors must be evaluated. First, the suitability test requires that copyright law be the most appropriate measure to attain the objective at stake. Thus, copyright protection would be suitable if there is an existing or imminent obstacle to trade in the context of ML-generated

Europeanization of Intellectual Property Law: Towards a European Legal Methodology (OUP 2013) 121.

⁷⁶⁹ The proportionality principle as well as the balancing it entails have been extensively discussed in academia. See the following, among many other: Alain Strowel, 'Copyright Strengthened by the Court of Justice Interpretation of Article 17(2) of the EU Charter of Fundamental Rights' in Oreste Pollicino, Giovanni Maria Riccio and Marco Bassini (eds), *Copyright and Fundamental Rights in the Digital Age: A Comparative Analysis in Search of a Common Constitutional Ground* (Edward Elgar Pub 2020); Tuomas Mylly, 'Regulating with Right Proportionality? Copyright, Fundamental Rights and Internet in the Case Law of the Court of Justice of the European Union' in Oreste Pollicino, Giovanni Maria Riccio and Marco Bassini (eds), *Copyright and Fundamental Rights in the Digital Age: A Comparative Analysis in Search of a Common Constitutional Ground* (Edward Elgar Pub 2020); Maria Lillà Montagnani and Alina Trapova, 'Copyright and Human Rights in the Ballroom: A Minuet between the US and the EU' (2020) 46 *Mitchell Hamline Law Review* 613; Caterina Sganga, 'A Decade of Fair Balance Doctrine, and How to Fix It: Copyright versus Fundamental Rights before the CJEU from *Promusicae* to *Funke Medien*, *Pelham* and *Spiegel Online*' (2019) 41 *EIPR* 683; Christophe Geiger and Elena Izyumenko, 'The Constitutionalization of Intellectual Property Law in the EU and the *Funke Medien*, *Pelham* and *Spiegel Online* Decisions of the CJEU: Progress, But Still Some Way to Go!' [2019] *Centre for International Intellectual Property Studies (CEIPI) Research Paper* 1; Jonathan Griffiths, 'European Union Copyright Law and the Charter of Fundamental Rights—Advocate General Szpunar's Opinions in (C-469/17) *Funke Medien*, (C-476/17) *Pelham GmbH* and (C-516/17) *Spiegel Online*' (2019) 20 *ERA Forum* 35; Christophe Geiger and Elena Izyumenko, 'Freedom of Expression as an External Limitation to Copyright Law in the EU: The Advocate General of the CJEU Shows the Way' (2018) 41 *EIPR* 131; Griffiths, 'Taking Power Tools to the Acquis - the Court of Justice, the Charter of Fundamental Rights and European Union Copyright Law' (n 71); Tuomas Mylly, 'The Constitutionalisation of the European Legal Order: Impact of Human Rights on Intellectual Property in the EU', *Research Handbook on Human Rights and Intellectual Property* (Edward Elgar 2015); Griffiths, 'Constitutionalising or Harmonising?' (n 430).

works and if left in the public domain the functioning of the internal market would be disturbed. At this stage of research, there is not enough evidence to support this assertion, so it is questionable whether the suitability test will be met.⁷⁷⁰ Nonetheless, the necessity test, namely the second factor, is what could present more serious obstacles to pass a measure of this kind. Copyright protection must be the least restrictive measure to achieve the said objective. Here, the potential legislative measure would meet significant barriers. Duration and the scope of copyright protection are important aspects in this regard. Copyright protection for literary, artistic and musical works is particularly long – it lasts for the life of the author plus 70 years.⁷⁷¹ Furthermore, a copyright holder is granted economic rights, the scope of which is typically interpreted broadly.⁷⁷² Many of these rights are exclusive. Thus, as the works generated by ML process under discussion here fall within the traditional subject matter categories, ie literary, artistic and musical works, the duration and scope of copyright protection might be excessively and unnecessarily long and broad.

ML processes are capable of generating a huge amount of literary, musical and artistic works, in the span of several seconds. If these works are covered by copyright law, then the public domain will inevitably be jeopardised, and for a very long time. This brings the discussion to the third factor – proportionality *stricto sensu*. The interests of stakeholders, other than the ML team, are essential to consider and respect. The EU legislator would have to weigh these as part of the last step of the test and ensure that a potential legislation reflects this. In previous copyright legislation, for instance, interests of users have been catered for by virtue of exceptions and limitations.⁷⁷³

⁷⁷⁰ For further discussion on the absence of empirical data see section 2.2.1. Better Regulation. For the inadequacy of copyright as such, see section 4. Is copyright the tool to balance the market?

⁷⁷¹ Term Directive, art 1(1).

⁷⁷² See the following, among many others: *Infopaq* (n 453) para 43; *Painer* (n 422) para 96; *Case C-301/15 Soulier and Doke* [2016] CJEU ECLI:EU:C:2016:878 [30]; *Case C-469/17 Funke Medien NRW GmbH v Bundesrepublik Deutschland* [2019] CJEU ECLI:EU:C:2019:623 [70].

⁷⁷³ See for instance, Art 5 InfoSoc Directive. The extent to which concern for user rights have been effectively weighted into the discussion is doubtful, especially considering the exhaustive optional

In sum, should copyright law come to protect ML-generated works, the proportionality principle must necessarily step in and ensure that the EU measure does not lead to over-protection, an eventual a “tragedy of anticommons” and exploitation of authorial rights.⁷⁷⁴ In practice, however, it is questionable whether and to what extent these procedural safeguards would have a real effect. Subsidiarity and proportionality have often been criticised for being mere methods of window dressing.⁷⁷⁵ It has been argued that only those legislative choices which “verge on the absurd” are likely to be condemned under the proportionality principle.⁷⁷⁶ Nonetheless, the EU legislature is vested with a large discretion with respect to the choice of measure and its content. In a field of complex technical nature, such as copyright and ML-generated works, the benefits offered by the subsidiarity and proportionality principles can be of real use. While normally they do not bite with respect to an EU legislative measure, in copyright lawmaking they should as the field is particularly complex and requires a very delicate balance. The safeguards could fine-tune and tailor the exact intensity of the proposed legislative measure to further avoid future judicial challenge.⁷⁷⁷

nature of the exception and limitations in Article 5 of the InfoSoc Directive. In addition, user rights became part of Article 17 of the DSM Directive, but these were not mentioned in the original Commission proposal. Academic criticism in this respect has been severe and eventually highly influential. See further: ‘Safeguarding User Freedoms in Implementing Article 17 of the Copyright in the Digital Single Market Directive: Recommendations from European Academics’ <<https://www.ivir.nl/recommendationsarticle17/>> accessed 21 November 2020.

⁷⁷⁴ Heller (n 379); Heller (n 380).

⁷⁷⁵ Weatherill (n 254) 847, arguing that ‘...a more aggressive procedural push is likely to do little more than induce the legislative institutions to find more decorative ways to say what they say now – that the political decision to act has been taken in an area of complex choices, that it has been agreed that it is better that action be taken by the EU than by the Member States and that the means used are in compliance with proportionality.’

⁷⁷⁶ *ibid* 844.

⁷⁷⁷ This is currently the case for Article 17 of the DSM Directive, which has not been challenged on the basis of proportionality or subsidiarity but for infringement of Article 13 of the Charter of Fundamental rights, see further at *Case C-401/19 Poland v Parliament and Council* (CJEU); The hearing of the case

3. Negative integration

In light of these considerations with regard to positive integration, it may be that the EU legislator refrains from adopting any EU measure. In that case, the principle of conferral and the competence division would be respected. The CJEU however also plays an important role to maintain a balanced internal market. As it has become apparent in Chapter III, the CJEU has been particularly active in the field of copyright law. It is thanks to the judicial activism of the Court that the protectability requirement, with its three benchmarks, has been clarified and, thus, horizontally harmonised. Where the EU legislative measures failed, the CJEU stepped up to fill the gaps. Therefore, one must be cautious as such an active Court approach, may eventually lead to protecting ML-generated works through negative integration. It is fair to point out that the CJEU has to be particularly creative in order to side-step the fact that there is no human author responsible for the final “creative” output. However, considering the many copyright cases reaching the CJEU, a note of caution in respect of negative integration is certainly not redundant. Several comments must be made in this respect.

First, the CJEU’s active role in the field of copyright protectability was genuinely necessary. The Information Society Directive stipulated the rights that copyright holders would possess, but omitted clarifying the most important preliminary consideration – when does copyright subsist in the first place? Therefore, cases in this respect were bound to reach the court every time there was a potential discussion of the reproduction right.⁷⁷⁸ Even though the protectability criteria was not directly object of EU harmonisation since the Information Society Directive did not approximate the standard for traditional subject matter, every time the reproduction right was

took place in November 2020; see the arguments presented before the CJEU at Paul Keller, ‘CJEU Hearing in the Polish Challenge to Article 17: Not Even the Supporters of the Provision Agree on How It Should Work’ (*Kluwer Copyright Blog*, 11 November 2020) <<http://copyrightblog.kluweriplaw.com/2020/11/11/cjeu-hearing-in-the-polish-challenge-to-article-17-not-even-the-supporters-of-the-provision-agree-on-how-it-should-work/>> accessed 22 November 2020.

⁷⁷⁸ See all cases discussed in Chapter III, section 3.2. The subsistence issue.

discussed, the CJEU was inevitably faced with the preliminary consideration of whether copyright subsists at all.

Now, with regard to ML-generated works, it is very questionable whether the protectability of such works is indeed that pertinent of a question. Also here, though, opponents may argue that questions on the protectability of such works may once again come before the CJEU through the reproduction right channel. Nonetheless, when and if this happens at all, the CJEU would have to analyse its now well-settled three benchmark test for protectability. As Chapter IV demonstrated one must evaluate the process carefully on a case by case basis. Should the involvement of the human authors be sufficient to satisfy the AOIC and the objectivity requirement, then *certain* aspects of such works may be protected by copyright law. Many ML projects may seem to be strongly driven by “autonomous”, innovative, never-seen-before processes that generate “creative” works. Some projects, such as ‘The Next Rembrandt’, have even been surrounded by so much publicity that the process seemed magical.⁷⁷⁹ However, very often behind these projects there is a powerful team of ML experts that drive the process every step of the way, and whose involvement may satisfy the protectability requirement at the different stages and even in the final output.⁷⁸⁰ Alternatively, in certain other cases, the human author and his/her involvement is very detached from the final “creative” work, so the CJEU would have to conclude that the output must remain in the public domain, ie free from copyright protection.

Despite its activism, the CJEU has recently managed to contain its strong over-interpretative, borderline “co-legislative”⁷⁸¹, desires. In *Funke Medien* and *Spiegel Online* the Court was confronted with a difficult situation, where the boundaries of the Information Society Directive, in particular the very problematic Article 5 providing for an exhaustive closed list of limitations and exceptions to copyright infringement, was

⁷⁷⁹ ‘The Next Rembrandt’ (n 58).

⁷⁸⁰ Spindler (n 104) 1050; Mezei (n 317) 9.

⁷⁸¹ *Cassiers and Strowel* (n 407) 178.

put to the test.⁷⁸² In these cases, the CJEU could not go beyond the wording of the law and introduce exceptions not listed in the closed list of Article 5. Advocate General Szpunar's Opinion in *Spiegel Online* is very clear on the fact that supplementing EU law with exceptions not expressly provided for in Article 5 would "carry with it the risk of calling into question the effectiveness of that law and the harmonisation which it is intended to secure".⁷⁸³ Put differently, the CJEU is very active in copyright law, but it is the EU legislature that bears the task of creating the law. Should the EU one day decide to eliminate the human requirement from the copyright protectability test (regardless of the immense impact this would have on copyright as an intellectual property right *per se*),⁷⁸⁴ it would certainly not be for the judiciary to do so, but for the EU legislators.

The judicial activism avenue, pushing for harmonisation through case law, bears many problems and according to some authors, is yet another layer contributing to the competence creep problem.⁷⁸⁵ One central criticism is that such "harmonisation by stealth" would suffer from a serious democratic deficit.⁷⁸⁶ While the problems associated with Article 114 TFEU cannot be neglected, it is fair to say that the decision to legislate under Article 114 TFEU is triggered by the Commission and requires the involvement of the Council, the European Parliament and the national Parliaments via the subsidiarity principle. Therefore, one can argue that, there are many democratic safeguards in the ordinary legislative procedure. The same cannot be said about negative integration, which risks displacing not only the national Parliaments, but also

⁷⁸² *Case C-469/17 Funke Medien NRW GmbH v Bundesrepublik Deutschland* (n 772); *Opinion of Advocate General in C-516/17 Spiegel Online GmbH v Volker Beck* [2019].

⁷⁸³ *Opinion of Advocate General in C-516/17 Spiegel Online GmbH v Volker Beck* (n 782) para 65.

⁷⁸⁴ Note further, that also the Berne Convention, Art 2(6) states that protection shall operate for the benefit of the author, so overstepping the human authorship requirement would be contrary to MS' international obligations too.

⁷⁸⁵ Garben (n 253) 308.

⁷⁸⁶ *ibid* 318.

the EU legislator.⁷⁸⁷ Therefore, the CJEU interprets EU law and does not have a legislative *carte blanche*, as it became apparent in the *Spiegel Online* and *Funke Medien* cases.⁷⁸⁸ In other terms, should this be the case, the CJEU may risk displacing sensitive national policy choices in areas of MS competence.⁷⁸⁹

In sum, while positive integration is clearly a dangerous avenue for ML-generated works, one must keep in mind that the EU judiciary has also been very active in the field of copyright law. It has sometimes (rightly) defined autonomously and harmonized concepts that were only vaguely mentioned in the directives.⁷⁹⁰ Having said that, considering that the human authorship requirement is such a central pillar in copyright protectability, removing it entirely from the assessment is not something the CJEU can (and should) do. If it ever comes to this, it would be a task, a rather difficult one in fact, for the EU legislator.

4. Is copyright the tool to balance the internal market?

So far, in seeking to address the normative dimension of the research question, this chapter has emphasised the importance of a balanced internal market, where harmonisation and diversity, as well as the public's voice, diligent impact assessments, subsidiarity and proportionality are all equally important. When confronted with the question of copyright authorship of a work generated by an "autonomous robot", a 2016 study on "European Civil Law Rules in Robotics" commissioned by the European Parliament suggests that "there is no need to overhaul the whole body of literary and artistic property law, but merely to adjust it in the light of the autonomous robots'

⁷⁸⁷ *ibid* 336.

⁷⁸⁸ *Case C-516/17 Spiegel Online GmbH v Volker Beck* [2019] CJEU ECLI:EU:C:2019:625; *Case C-469/17 Funke Medien NRW GmbH v Bundesrepublik Deutschland* (n 772).

⁷⁸⁹ Garben (n 253) 319.

⁷⁹⁰ For instance, the notion of parody as per *Case C-201/13 Deckmyn v Vandersteen* [2014] CJEU ECLI:EU:C:2014:2132.

new/future abilities”.⁷⁹¹ The study does not put forward any concrete proposal, but still, statements of this kind must be carefully approached. If there is need to “adjust” the copyright system in respect of ML-generated works, the crucial questions that lawmakers should pose themselves before moving forward with regulatory efforts to approximate the laws of Member States are: *Is copyright law the most adequate tool? If there is a regulatory gap, should it necessarily be copyright law that fills it up?*

In addressing this, first to mention is the well-known fact that copyright rationales vary from one MS to another. Historically, some have followed the personality rights theory, others have been more influenced by utilitarianism or the labour rights theory. Therefore, naturally EU copyright law, and modern copyright law in general, cannot be tied to one single theory. EU copyright law has several goals, reflecting a mix of theories: to incentivise the creative industries, but also to recognise and celebrate the author; to provide legal certainty by granting positive IPRs, but also to ensure the public domain is not impoverished; to foster culture and welcome diversity, but also to maintain an internal market for copyright protected works by removing obstacles to free movement or appreciable distortions of competition. These goals are not necessarily always in contradiction. Still, not all these perspectives are backed up with an equally strong voice during the legislative process.

From the standpoint of the EU legislative competences, we see that if positioned on the internal market side of the scale as per Article 114 TFEU, the EU has the competence to harmonise the laws of the MS. If, instead, copyright law-making stays within the cultural competences of Article 167 TFEU, the Union’s powers are only coordinating and supporting, excluding the possibility to adopt any harmonising measure. Copyright law does not squarely fall within one of these two domains. This is the case for many policy fields such as public health, environmental protection, consumer law and culture.⁷⁹² Following the landmark *Tobacco Advertising* case, the

⁷⁹¹ Nathalie Nevejans, ‘European Civil Law Rules in Robotics’ (European Parliament, JURI 2016) PE 571.379 6.

⁷⁹² For an overview of this issue, see Sybe Alexander de Vries, *Tensions Within the Internal Market: The Functioning of the Internal Market and the Development of Horizontal and Flanking Policies* (Europa Law Publishing 2006).

CJEU clarified that a legislative measure can have more than one objective. For most copyright directives, that would be an economic one and a cultural one. What matters is the centre of gravity of the said legislation.⁷⁹³ This means that in order for a legislation to have a place under the harmonisation umbrella of Article 114 TFEU, its economic concerns cannot be merely incidental. That said, in an attempt to achieve a balanced internal market when harmonizing national copyright laws, the legislator considers also other factors. In particular, in addition to the approximation of the laws of the MS, Ana Ramalho has further identified the following as important benchmarks that the EU legislator takes into account when passing laws in the field of copyright: (i) the respect for national cultures and traditions; (ii) the protection of creators; (iii) the protection of end users; and (iv) the promotion of competitiveness of the EU industries.⁷⁹⁴ Applying these benchmarks to the ML-generated works authorship conundrum, it follows that a future copyright legislation must protect not only the economic concerns of the industries involved in computational creativity. That would only meet the final benchmark in Ana Ramalho's classification – the promotion of competitiveness of the EU industries. Besides, in the context of cultural policy some authors have suggested that "powerful and vocal economic operators"⁷⁹⁵ drive certain cultural interests during the legislative process.⁷⁹⁶ Importantly, any future legislation in this field must be carefully tailored to protect the human authors and their intellectual free and creative choices,⁷⁹⁷ but also end users. When legislating it often happens that

⁷⁹³ *Tobacco Advertising I* (n 263) para 54.

⁷⁹⁴ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 147.

⁷⁹⁵ Craufurd Smith (n 325) 885.

⁷⁹⁶ 'CREATe Online Public Lecture "Reflecting on the Public Voice in Copyright Consultations" - Lee Edwards and Giles Moss' (n 743) at 1:03:00, where Martin Senftleben emphasised that the creative industries active in the legislative debate often 'speak' for individual creators and give the impression that creators want more protection, but when one talks directly with creators that is not necessarily the case; they also want broad distribution of their work.

⁷⁹⁷ See further Hartmann and others (n 26) 71, where drawing on the CJEU case-law it is clearly underlined that 'EU copyright law's focus on the act of creation in terms of making free and creative choices necessarily implies that economic investment cannot, as such, justify protection.'

not all benchmarks, as identified by Ana Ramalho, can be easily met. This is usually because when a legislation is proposed it has one or two central drivers in mind, eg catering for the database industry’s concerns, or the computer program’s concerns. What the legislature should strive for instead is meeting all benchmarks to a certain extent, rather than a few to a large extent.⁷⁹⁸

At present, bearing in mind the investment narrative promoted by the EU institutions in its various policy papers in the field of AI and IP, it does not seem like the cultural aspects and the protection of end users are taken as seriously as the economic ones. Admittedly, the European Parliament stresses the need for a “human-centred”⁷⁹⁹ approach and the importance of distinguishing between “AI-assisted human creations and creations autonomously generated by AI”.⁸⁰⁰ A real concern for cultural aspects, though, would entail focus on access to works, the public domain⁸⁰¹ and a clear understanding of the highly populated EUIPRs landscape. With ML/art processes capable of generating a large amount of “creative” works extremely quickly, the public domain would inevitably shrink and it would do so for a very long time (life of the author + 70 years).

In this context, when evaluating ML-generated works and copyright law, there is another disproportionate consequence of a potential protection. Beneficiaries of this right might resort to exploitative techniques. As it was stressed in Chapter II, one of the revolutionary features of ML processes is their capability of generating a vast amount of works. In this respect, infringement of copyright law in the EU does not require wilful intent. Each economic right bears its own conditions for infringement, but intent is not one of these. For instance, following *Infopaq*, one can be held liable for infringement of the reproduction right if they have copied the author’s own intellectual

⁷⁹⁸ Ramalho, *The Competence of the European Union in Copyright Lawmaking* (n 224) 147.

⁷⁹⁹ Séjourné (n 94) para E.

⁸⁰⁰ *ibid* J (note also, the misleading use of the term ‘autonomously generated by AI’).

⁸⁰¹ Mauritz Kop, ‘AI & Intellectual Property: Towards an Articulated Public Domain’ (2020) 28 *Texas Intellectual Property Journal* <<https://papers.ssrn.com/abstract=3409715>> accessed 15 May 2020.

creation.⁸⁰² Thus, beneficiaries of this “new copyright” protecting ML-generated works could initiate copyright infringement lawsuits against many “innocent” parties. This is due to the fact that ML technologies permit the generation of millions of works at a very short amount of time, so it is not entirely excluded that a computational creativity software fed with millions of works in a certain genre has already generated many works very similar to those of other human artists in that same genre. So, should these numerous ML-generated works be vested with copyright protection, the rightholders of this “new copyright” can identify that one work that resembles a work by a competitor. This can potentially lead to a valid copyright infringement claim. Furthermore, it is very likely that a ML technology (fed with potentially infringing works) would be used to identify that one piece to base the copyright infringement claim on. Now, coming back to the main question – is copyright protection for ML-generated works a proportionate measure in such a setting? It is highly doubtful.

5. Alternative avenues

It has become apparent that the literature on this topic is vast. Many argue that copyright law is simply not the right tool to address the ML-generated works protectability issue due to the absence of a human author. This work agrees with this stance and has contributed to the existing literature by providing new evidence – it analysed in depth the technology behind ML/art processes.

However, I also believe it is equally important to address the dissenting views. In the UK and Ireland, the copyright law includes a provision on the authorship of computer-generated works, which, according to some, *seems* to provide a working solution and should be exported to the EU level to fix the ML-generated works

⁸⁰² *Infopaq* (n 453) para 48.

copyright “problem”.⁸⁰³ This provision corresponds to a so-called legal fiction.⁸⁰⁴ It will be analysed below to demonstrate the extent to which it does not fit with the EU notion of a copyright work, which centres on the crucial involvement of a human being, whose detailed conception and controlled execution play a key role. In addition, some commentators have expressed a strong preference for creating a new type of IPR to protect such ML-generated works.⁸⁰⁵ While the focus of this thesis is copyright law and delving into neighbouring rights lies beyond its objective, some of the most prominent viewpoints arguing for a new IPR will be briefly addressed below. It will surface once again that creating yet another type of IPR at this very early stage, in the absence of qualitative and quantitative impact assessment, is premature.

5.1. Inspiration from common law

The law in the UK and Ireland explicitly provides for the protection of computer-generated works.⁸⁰⁶ Some authors have identified this type of provisions as the ideal candidate for the authorship conundrum in ML-generated creative output.⁸⁰⁷ The UK

⁸⁰³ Guadamuz (n 91) 185.

⁸⁰⁴ For further discussion on legal fictions see Kerr (n 90); Similar discussion has taken place in the context of the US with respect to the works made for hire doctrine. For further discussion see, among others Hristov (n 91); Bridy (n 91).

⁸⁰⁵ Ramalho, ‘Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems’ (n 76) 20, discussing a new ‘disseminator’s right’; Senftleben and Buijtelaar (n 76) 19, discussing a tailor-made new neighbouring right.

⁸⁰⁶ Copyright, Designs and Patents Act 1988 (UK) s 9(3) and 178; Copyright and Related Rights Act 2000 (Ireland) ss 2 and 21.

⁸⁰⁷ Guadamuz (n 91) 185; Devarapalli (n 317) 727; Jani McCutcheon, ‘The Vanishing Author in Computer-Generated Works: A Critical Analysis of Recent Australian Case Law’ (2013) 36 Melbourne University Law Review 915, 958, who analyses the problem from the perspective of Australian law, but suggests adopting a section 9(3) CDPA solution; Bridy (n 91) 27, discussing primarily US law, but drawing a brief comparison with other jurisdictions.

Copyright, Design and Patents Act states that a computer-generated work is such when generated by a computer in circumstances where there is no human author of that work.⁸⁰⁸ The Irish Copyright and Related Rights Act is slightly more careful, as it states that such works are “generated by computer in circumstances where the author of the work is not an individual.”⁸⁰⁹ However, by granting copyright protection to such works both acts are prompted to name a beneficiary. And here, section 9(3) in the UK Act and section 21 in Irish Act both say that the author of such a work shall be the person by whom the arrangements necessary for the creation of the work are undertaken. The duration of protection lasts for 50 years from the end of the calendar year in which the work was made (as per the UK Act)⁸¹⁰ and 70 years after the date on which the work is first lawfully made available to the public (as per the Irish Act).⁸¹¹

The first contradictory aspect of these provisions is that they clearly state that in order for a work to qualify for copyright protection as a computer-generated work it: must have no human author (as per the UK provisions), or, the author is not an individual (as per the Irish provisions). Some authors have stated that this regime may be suitable for certain ML applications driven by supervised learning, should the originality problem be solved.⁸¹² This is rather erroneous since, as Chapter III above has demonstrated, the originality standard and the authorship notion are interdependent. One is not satisfied without the other. A work is only original if it is the *author’s* own intellectual creation. An eventual absence of an individual human author stands in clear opposition to the central requirement laid down in the directives, but also further elaborated upon by the CJEU, namely that copyright subsists in the “author’s own intellectual creation” and in their “free and creative choices”.⁸¹³ Despite

⁸⁰⁸ CDPA 1988 s 178.

⁸⁰⁹ Copyright and Related Rights Act 2000 (Ireland) s 2.

⁸¹⁰ CDPA 1988 s 12(7).

⁸¹¹ Copyright and Related Rights Act 2000 (Ireland) s 30.

⁸¹² Noto La Diega (n 682) 106.

⁸¹³ Lionel Bently and others, *Intellectual Property Law* (5th edn, Oxford University Press 2018) 117.

the abandonment of the idea of a romantic human author, the human input is indispensable for copyright subsistence overall. These rights are authorial and indeed in many languages they are translated as “author’s rights” and not as “the right to copy”, for example “*diritto d’autore*” in Italian, “*derecho de autor*” in Spanish, “*droit d’auteur*” in French, “*авторско право*” in Bulgarian, “*direito autoral*” in Portuguese. In fact, it is only in English that the title is translated as “copyright”. While these linguistic differences are tied to the historical foundations of copyright in the MS, they are still indicative of the importance a human author bears for copyright law. Copyright law’s “author-centric” paradigm is fundamental.⁸¹⁴ Therefore, provisions of the kind that exist in the UK and Ireland create “legal fictions”, where it is not that one author’s claim is assumed to supersede another author’s; instead, the provisions establish that “copyright vests as a matter of law in a party who is not the author-in-fact”.⁸¹⁵ The level of originality required for these works still remains an open question.⁸¹⁶ Would the “independent acts” of the computer matter?⁸¹⁷ If so, how does one determine that these are genuinely “independent”? What does such assessment mean anyway? Alternatively, some have suggested to place the burden on the court’s shoulders to assess a hypothetical question: had the work been created by a human author, would it have required the exercise of substantial amount of skill, labour and effort?⁸¹⁸

The clarity that the computer-generated work provisions strive to infuse in the law remains a wishful thinking.⁸¹⁹ In addition to the elimination of a human author from

⁸¹⁴ Ricketson (n 57) 3; Mezei (n 317) 3.

⁸¹⁵ Bridy (n 91) 27.

⁸¹⁶ Kanchana Kariyawasam, ‘Artificial Intelligence and Challenges for Copyright Law’ (2020) 28 *International Journal of Law and Information Technology* 279, 288, arguing that Section 9(3) is an exception to the requirement of originality within copyright law.

⁸¹⁷ Bently and others (n 813) 117.

⁸¹⁸ Michael Tappin and others, *Laddie, Prescott and Vitoria: The Modern Law of Copyright Fifth edition* (5 New edition, 2018) s 36:44.

⁸¹⁹ Lionel Bently, ‘The UK’s Provisions on Computer-Generated Works: A Solution for AI Creations?’ (EU copyright, quo vadis? From the EU copyright package to the challenges of Artificial Intelligence, Brussels, 25 May 2018) <<https://europeancopyrightsocietydotorg.files.wordpress.com/2018/06/lionel->

a copyright protection provision, another problem is that the arrangements for a computer-generated work can be undertaken by many and different parties with conflicting and competing interests.⁸²⁰ Each may have a valid claim according to the “arrangements” standard. For example, as Madeleine de Cock Buning argues, if the programmers’ involvement is insufficient to qualify her/him as responsible for the arrangements of the work, the entity in charge of the financial investment may easily be considered rightholder.⁸²¹ In fact, very little case law in the UK and Ireland has entertained this provision. In one of the rare instances when the provision was relied on in the UK, it tackled the issue of video game and copyright authorship.⁸²² *Nova Productions v Mazooma* questioned the protection of the graphics and the frames of a video game based on pool. The Court held that these were artistic computer-generated works and established that the programmer is the copyright author by virtue of section 9(3) since the programmer “devised the appearance of the various elements of the game and the rules and logic by which each frame is generated and he wrote the relevant computer program”.⁸²³ Furthermore, the player’s contribution when a video game is played is acknowledged, but nonetheless his/her “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.”⁸²⁴ This division between the role of the programmer and the player (ie the user of a device) has been brought up several times

the-uk-provisions-on-computer-generated-works.pdf> accessed 17 November 2020; Ramalho, ‘Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems’ (n 76) 17.

⁸²⁰ Pinto (n 86) 177.

⁸²¹ Madeleine de Cock Buning, ‘Artificial Intelligence and the Creative Industry: New Challenges for the EU Paradigm for Art and Technology by Autonomous Creation’ in Woodrow Barfield and Ugo Pagallo (eds), *Research Handbook on the Law of Artificial Intelligence* (Edward Elgar 2018).

⁸²² *Nova Productions Ltd v Mazooma Games Ltd* [2007] EWCA Civ 219.

⁸²³ *ibid* 105.

⁸²⁴ *ibid* 106, as per LJ Jacob.

before.⁸²⁵ Recently, when discussing ML-generated works, Daniel Gervais has eloquently called this classical division “the binary paradigm”.⁸²⁶ According to this division, there are two authorship possibilities: either the user, a human author, uses the computer (or any other mechanic device) merely as a tool to produce a creative work or the computer (or any other mechanic device) generates output as programmed by the programmers in a predictable manner *a priori*. In other words, sometimes the programmer’s creativity would be directly embedded in the code, which was responsible for the final output. Other times, the user of the program would play the greater role in shaping the output of the software into a commercially viable form by providing relatively elaborate instructions to the machine and/or substantially modifying the raw output in order to make it a profitable asset.⁸²⁷ Previously, technology operated mainly on the basis of *a priori* setting out the rules. Such an arrangement may lead to a valid copyright claim for either of these two candidates, so the human author is actually present. Therefore, the fact that section 178 (CDPA 1988 – UK) and section 2 (Copyright and Related Rights Act 2000 – Ireland) state that such works are those where there is no human author is somewhat confusing and incorrect. In other words, in the classical binary paradigm, the detailed conception and controlled execution of either the user or the programmer will be evident in the final creative output and that would suffice for either of them to claim copyright protection for that final creative output.

This conclusion does not apply to ML-generated “creative” output. As it has become apparent in Chapter V, the culprit is the training algorithm. That pillar is the novelty of the technological process that detaches the human author(s) from the works generated in the output pillar. No longer does the programmer *a priori* predictably foresee the output in the same manner as it were in the *Mazooma* case for video games. In Jane Ginsburg and Ali Budiardjo’s words, the programmer “lacks adequate

⁸²⁵ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 739) 1192, where the author primarily discusses issues from a US perspective, but elaborates on many horizontally applicable ideas.

⁸²⁶ Gervais (n 54) 19.

⁸²⁷ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 739) 1203.

conception of the resulting output”.⁸²⁸ Equally, the user of the ML process does not use the process entirely as a tool. Or, in the authors’ words, “the user lacks any control over *how* the machine works, and thus lacks any role in the resulting work’s *execution*”.⁸²⁹ Note that, whatever curation the user exercises over the output of the process would only give them the right to a potential copyright claim in the arrangements, not in the final “creative” product itself. Many crucial choices are made automatically by the machine itself. Thus, the common law provisions seem applicable to simple systems that follow the binary paradigm, but not to complicated ML processes. In these new technical processes, the role of the human author can be very obscured.

Furthermore, these regimes seek to identify the person by whom the arrangements necessary for the creation of the work are undertaken as the copyright holder. Normally, this person will be the operator or the one that directs the operation of the machine.⁸³⁰ As it has become apparent, though, too many parties are involved in computational creativity projects. Thus, the copyright authorship claim would be entirely fragmented among the many candidates that seek to establish that their involvement has led to the “creative” output. There is also the risk that a user of a ML process would claim that all the creative contribution stemmed from them and whatever was generated by the program, ie coded by the programmer, is minimal.⁸³¹ Nonetheless, as this thesis has mentioned, many times there is a ML team that stands behind all arrangements necessary for the production, so they play both the role of a programmer and a user. However, the involvement of this ML team does not entail a detailed conception and controlled execution of the kind that human authorship for copyright law insists to have.

⁸²⁸ Ginsburg and Budiardjo (n 53) 103.

⁸²⁹ *ibid.*

⁸³⁰ Gerald Dworkin and Richard Taylor, *Blackstone’s Guide to the Copyright, Designs and Patents Act 1988* (Blackstone Press 1989) 47.

⁸³¹ Samuelson, ‘Allocating Ownership Rights in Computer-Generated Works’ (n 739) 1226.

As a result, if the human author is taken out of the equation, an IP legal regime of this kind can still have place, but not as a copyright, ie not as an authorial right. The reason for this is that if not rewarding the authorial input, such an IP framework would be targeted at rewarding the investor, namely the person making the necessary arrangements for the work. And that is precisely what the UK and Irish provisions seek to protect.⁸³² Furthermore, the UK CDPA excludes moral rights protection, which is another indication that it is not the author's creativity that is protected here, but the time and effort put into the arrangement.⁸³³ Should it be a copyright, authorial protection this aspect also risks breaching the Berne Convention, which requires respect for moral rights when copyright is at stake.⁸³⁴ For all these reasons, it has been strongly argued by Lionel Bently that the UK provision is not really a useful model for the protection of ML-generated works.⁸³⁵ Should the UK provision, though, be construed as a related right, then it may nonetheless provide some insights, only if there is a genuine market failure with regard to computational creativity to address.⁸³⁶ However, the rationale behind such protection is strongly premised on the investment reasoning of the kind phonogram producers have historically argued.⁸³⁷ To that end, it mirrors the EU policy papers mentioned above, that emphasise the importance of encouraging investment in the AI industry of the EU. This brings the discussion to the other alternative solution – creating a new type of IPR.

⁸³² Bently and others (n 813) 118, where the authors underline that no computer-generated work can be protected by copyright in accordance with EU law.

⁸³³ CDPA 1988 s 78(2)(c) and 81(2).

⁸³⁴ Ricketson (n 57) 30.

⁸³⁵ Bently, 'The UK's Provisions on Computer-Generated Works: A Solution for AI Creations?' (n 819).

⁸³⁶ See section 2.2.1 Better regulation

⁸³⁷ van Eechoud and others (n 240) 192.

5.2. Neighbouring rights

This thesis focuses exclusively on copyright law, ie on authorial rights. For purposes of time and space, it does not venture into exploring the alternative avenue of protecting ML-generated works with another IPR. Nonetheless, a brief mention of the alternative solutions to copyright law is necessary for the sake of completeness. While the MPI has recently stated that introducing a new IPR for AI-generated output is not justified,⁸³⁸ many other have entertained the idea of creating a new right designed specifically for the purposes of computational creativity issues discussed in this thesis. Two specific such proposals stand out due to the intricate level of detail they provide on their functioning and the fact that they are precisely targeted at the EU copyright system.

In 2017, Ana Ramalho suggested a new disseminators right on an EU level.⁸³⁹ She maintains that considering the lack of human involvement, and in particular, the difficulty in tracing and evaluating the human contribution, ML-generated works should stay in the public domain.⁸⁴⁰ Such solution would bear many positive consequence for the creation of new knowledge, free and low cost access to information.⁸⁴¹ Nonetheless, she stipulates that there is an important distinction between creation and dissemination of ML-generated works. The latter may need to be incentivized or rewarded in some way. She parallels a potential protection to that of publishers of public domain works that were previously unpublished as per Article 4 of the Term Directive. The duration of this right is 25 years from the time when the work was first lawfully published or lawfully communicated to the public and grants the publishers a protection equivalent to the economic rights of the author. She argues that modelling

⁸³⁸ Drexl and others, 'Artificial Intelligence and Intellectual Property Law - Position Statement of the Max Planck Institute for Innovation and Competition' (n 679) 6.

⁸³⁹ Ramalho, 'Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems' (n 76) 20.

⁸⁴⁰ *ibid* 22.

⁸⁴¹ *ibid* 21.

the ML-generated works legal regime after this would incentivise disseminators to share such works and ensure the ML-generated works reach the public.

In 2020, Martin Senftleben and Laurens Buijtelaar have played with the idea of introducing a new tailor-made neighbouring right to address the same investment and dissemination concerns.⁸⁴² The authors suggest that a carefully crafted neighbouring right could provide for a balanced protection. They recommend that the nature of the right should not be exclusive, but, similar to the phonogram producers' right, an equitable remuneration right, which, according to the CJEU, focusses on the payment of a fair royalty fee in a "compensatory nature".⁸⁴³ The rationale behind a tailor-made neighbouring right would be perfectly aligned with the incentive theories since it would not allow "copyright protection to go beyond what is necessary for providing the required incentive to create and disseminate new cultural works" and this type of right would "strike a balance between protection (to ensure that one may recover investment costs) and freedom (to ensure that others can enjoy and build upon those works at acceptable costs)".⁸⁴⁴ The suggested duration of this new right is two years. They model it after the new publishers right in Article 15 of the DSM Directive.⁸⁴⁵ Similar to Ana Ramalho, the authors are very cautious of the potential impact of such provisions on the public domain. Indeed, creating a new IPR may jeopardise the use of ML-generated works as "source material and building blocks for new human and robot creations".⁸⁴⁶ This is the very same difficulty that has challenged copyright creativity many times before and most recently also entertained the CJEU in the *Pelham* case.⁸⁴⁷ Therefore, any new tailor-made right must be carefully balanced with the interests of other stakeholders, such as those of remix artists, companies and

⁸⁴² Senftleben and Buijtelaar (n 76) 18.

⁸⁴³ Case C-135/10 *SCF/Marco del Corso* [2012] CJEU ECLI:EU:C:2012:140 [75].

⁸⁴⁴ Senftleben and Buijtelaar (n 76) 19.

⁸⁴⁵ *ibid.*

⁸⁴⁶ *ibid.* 20.

⁸⁴⁷ Case C-476/17 *Pelham GmbH and Others v Ralf Hütter and Florian Schneider-Esleben* (n 36).

institutions in the text and data mining field⁸⁴⁸ and the creative industries in general. Against this background, the authors hint that when carrying out the balancing of all interests the analysis may even lead to the conclusion that ML-generated works should be left in the public domain entirely and deprived of any copyright or neighbouring rights protection.⁸⁴⁹

6. Conclusion

All in all, these alternative solutions underline the importance of cautiously drawing the scope of any new IPR. One major objection against any new type of right, copyright including, is that there is no evidence of an actual market failure. And yet, as Martin Husovec puts it: “the historical trajectory of intellectual property law in the last century has been to simply keep adding new rights whenever there is a major technological change.”⁸⁵⁰ Creating a new IPR bears costs of various nature – legislative, regulatory and implementation, but also general transaction and licensing costs for the affected stakeholders. Indeed, having to deal with yet another property right in the highly populated landscape of EU IPRs must be very well justified in order to avoid overprotection. Copyright law is in a constant search for a balanced system – between rightholders and users. Thus, user rights and the fact that they would be required to secure yet another license for yet another type of IPR is not always in line with narrative of fostering creativity. Besides, should it turn out that a directive did not prove

⁸⁴⁸ Margoni, ‘Artificial Intelligence, Machine Learning and EU Copyright Law: Who Owns AI?’ (n 80); Margoni, ‘Text and Data Mining in Intellectual Property Law: Towards an Autonomous Classification of Computational Legal Methods’ (n 80).

⁸⁴⁹ Senftleben and Buijtelaar (n 76) 21.

⁸⁵⁰ Martin Husovec, ‘The Fundamental Right to Property and the Protection of Investment: How Difficult Is It to Repeal New Intellectual Property Rights?’ in Christophe Geiger (ed), *Research Handbook on Intellectual Property and Investment Law* (Edward Elgar Publishing 2020) 387.

useful, as it was the case with the Database Directive, repealing it brings another set of serious costs and hurdles, which transforms IPRs into “practically immune”.⁸⁵¹

In addition, like Table 1: “A net of authorship claims untangled” has demonstrated, along the ML process in the various stages there might be moments for the human author to intervene which would suffice for a specific copyright (or other related right) claim to subsist. This suggests that the ML team could be compensated for their investment and creative input in various forms, ie either in the form of copyright protection for the selection and curation of the input material,⁸⁵² or for the software code in the learning algorithm,⁸⁵³ or in the creative selection and curation of the final work from the many works the ML process generated.⁸⁵⁴ Therefore, similar to the objections made in section 2 of this chapter when the balanced internal market was discussed, any new neighbouring right regime would have to also satisfy the procedural safeguards of EU law-making. This means carrying out scrutiny under the subsidiarity and proportionality principles, as well as evidence-backed impact assessments prior to proposing any EU legislative regime in the form of a neighbouring right. The Commission’s Better Regulation Agenda here must be carefully followed – better regulation is not about “more” or less” EU legislation; it is about making sure the EU actually delivers on the ambitious policy goals it has set to itself.⁸⁵⁵

Even if a legislation gets proposed and passes all the stages of the EU legislative process successfully, it is likely that, as it often happens in EU copyright law-making, such legislation would not be without its critics as it would not be clear in its definition of key notions.⁸⁵⁶ Consequently, it is probably going to be yet another

⁸⁵¹ *ibid.*

⁸⁵² Noto La Diega (n 682) 105.

⁸⁵³ Senftleben and Buijtelaar (n 76) 15.

⁸⁵⁴ *Painer* (n 422) para 91.

⁸⁵⁵ European Commission, ‘Better Regulation for Better Results - An EU Agenda’ (n 710) 4.

⁸⁵⁶ For example, “best efforts” as far as Art 17 of the DSM Directive is a term in need for definition. Furthermore in that regard, “upload filters” are not mentioned anywhere in the DSM Directive, but that is essentially what it boils down to.

political compromise. The role of the CJEU would therefore prove crucial in interpreting vague norms. In this respect, the Court would also inevitably be guided by the proportionality assessment. The present discussions for a new IPR strive to infuse the EU IP regime with legal certainty so that more investment in computational creativity projects is encouraged. However, contrary to these hopes, it is more likely that, when evaluating the fair balance in a potential neighbouring right, once again the Court's leading methodology would be a case by case assessment. This is a far cry from legal certainty.

As mentioned above, thorough analysis of the content of a potential neighbouring right is beyond the scope of this thesis. Thus, the final section of this chapter has just briefly outlined only some of the potential alternative directions in which EU legislation may move and the tangent problems. Only one final caveat will be stressed here to close the discussion. ML-generated works are digital by nature. They will be immediately placed on the Internet easily accessible from everyone. Hence, should any new neighbouring or disseminators' right of the kind discussed in this chapter come to life, limiting it to the territory of the EU may be entirely impractical. At the same time, agreeing on an international copyright treaty is known to be particularly difficult and hence, any such international agreement is more of a wishful thinking than a genuine reality.

Chapter VI - Final remarks

This thesis addressed a two-fold research question: (i) does the current EU copyright law protect ML-generated works; and conversely, (ii) should EU copyright law protect such works. The former tackles the substantive dimension of the inquiry, while the latter addresses the normative one.

This is a thesis on *EU* copyright law. Even though the Union has the legislative powers to pass measures that unify copyright law, namely Article 118 TFEU, and despite its expressed desire to do so, for one reason or another, it has not succeeded. That said, presently there are thirteen directives and two regulations in the field of copyright law that approximate the laws of the Member States. This, coupled with the strong judicial activism of the CJEU to interpret many concepts in an EU autonomous manner, as well as national courts' regular recourse to the CJEU's guidance under the preliminary reference procedure of Article 267 TFEU, can lead us to safely speak of EU copyright *acquis*.

Turning to the problem that this thesis tackles – copyright protection of ML-generated works – we can say that the history of copyright is the history of technology. Technological advances have regularly challenged copyright laws in various forms and manners – from the printing press, through P2P filesharing and streaming, to sampling and 3-D printing, just to mention a few. The 'new kid on the block' comes with a very buzzwordy label – *artificial intelligence*. As it has emerged in this thesis, the phenomenon is far from new; it has been around ever since the 1950s, Alan Turing and his imitation game. It has nonetheless often confused the audiences leading to many exaggerated and erroneous claims about fully autonomous systems. The steppingstone of this research has, therefore, been another key term; one, that is less sexy, more technical and, perhaps, even unexciting, but much more accurate: *machine learning*. This notion defines more precisely the actual technological process that has taken place in the last decades. Such definition is essential when law and technology are at stake in both legislative and judicial contexts.

This thesis has focused on the specific challenge posed by ML to the production of creative expression. In particular, it studied the field of 'computational creativity' and 'generative art'. These creative practices are characterised by a certain level of system

autonomy, where an artist cedes control to the benefit of a machine. In this context, ML pushes copyright norms to their limits both at the input – looking at the legal issues linked to the training data such as text and data mining and access to data – and the output point – potential protection of ML-generated output. This work has nonetheless concentrated entirely on the latter.

Adopting a very hands-on approach towards the ML technology, the creative process has been broken down into four clearly identifiable pillars: input, learning algorithm, trained algorithm and output. With respect to each, this thesis seeks to identify the presence of free and creative authorial choices – which is the legal standard in EU copyright law as established and elaborated by the CJEU's rich case-law.

When analysing the substantive dimension, this work acknowledges that the question has been studied by many European and international academics. The most diffused conclusion is that ML-generated works do not benefit from copyright protection. The analysis adopted so far by legal scholars often turns to copyright justification theories, which establish that only human beings respond to incentives to create (utilitarian theory), only the intellectual labour of a human deserves copyright protection (Lockean labour theory), and only a human being can reflect their personality in a work (personality rights theory). In other words, copyright history is undeniably a human history.⁸⁵⁷

It follows that, since in the ML process the human author is no longer driving the creative process entirely independently but with the very active assistance of the ML process, copyright law would not subsist. In copyright terms, this means that there will be no free and creative authorial choices evident in the 'creative' process and product. This is also a direct consequence of a long line of CJEU case-law, on the basis of which this thesis has extracted three benchmarks of protectability – (i) human author; (ii) AOIC; and (iii) the objectivity criteria. Any subject matter, candidate for copyright protection, must score positively in all three benchmarks.

⁸⁵⁷ Mezei (n 317) 13.

What brings this work beyond the state of the art is the mapping exercise in Chapter IV, which is the core of this work. It is here that I contribute to the existing literature by adopting a technology focused approach and untangling the net of authorship claims in the ML-generated process. This mapping clearly identifies the stages in the ML/art process in which a potential copyright claim *may* subsist. Nonetheless, whenever a copyright authorship claim emerges in the early stages of the process, this does not automatically lead to a copyright claim in the final output. Furthermore, the trained algorithm, which is the novel and most important pillar in respect of ML nowadays as compared to traditional programming, is always driven by a highly automated process. Therefore, the authorship benchmarks are not met and the emergent works in the output pillar must belong to the public domain. Through this mapping exercise, this thesis provides new evidence in support of the main argument sustained by most scholars – authorial rights do not protect ML-generated works.

The second dimension of the research question is normative as it debates whether EU copyright law should be amended to protect ML-generated works. To this end, fundamental EU law principles have been at the focus of the analysis. None of the legislative legal bases in the Treaties address copyright concerns directly. Thus, the EU has legislated in the field of copyright law relying on the broad functional competence of Article 114 TFEU, which permits the Union to pass binding measures with the object of the establishing and functioning of the internal market. This broad provision has been highly criticised in EU law as it permits a wide array of topics to fall under the all-encompassing goal of the internal market. In this respect, the research has demonstrated that aspects of copyright law cover not just the economic concerns of the internal market, but also equally important cultural ones. These are present in the Treaties, but – different to the internal market competence, which is a shared one – culture can only be subject to coordinating initiatives by the EU. In other words, the Union cannot adopt harmonising measures to foster culture. Therefore, Article 114 TFEU, which lacks any normative content, has served as a convenient legal basis to push the EU legislative agenda in various directions.

Recently, policy documents issued by the EU Parliament demonstrate the desire to protect ML-generated works with copyright law precisely following the internal market rationale. While the Parliament is not the institution eligible to propose

legislation following the ordinary legislative procedure (this is the competence of the EU Commission), the Parliament is nonetheless one of the two co-legislating bodies that gets to approve the Commission's proposal together with the Council. This thesis warns that following this legislative direction is not the sound way forward. So far, no studies demonstrate that copyright protection for the final 'creative' output of a ML process, where the human intervention is insufficient, is needed to achieve the ultimate goal of a balanced internal market. No authoritative and thorough impact assessments have evaluated the market impact. The main argument by proponents of legislation is that the 'AI' industry would suffer and would not flourish. Thus, they argue that to stimulate investment, copyright protection is necessary. This thesis has shown that granting copyright protection to stimulate a certain industry may not be the most reasonable move, as it has been the case for the Database Directive. In 2018, a study evaluating its impact demonstrated that the directive had no such effect of stimulating investment. Besides, copyright law's ultimate end-goal is not merely to stimulate investment. This thesis has demonstrated that cultural considerations are inherent to the copyright law discourse and have been regularly referred to the EU legislator when devising copyright directives. Therefore, before rushing to legislate, the EU must be clear that there would be a genuine market failure and/or any other socio-cultural consequences, should such emergent works remain the public domain. These consequences must be directly tied to the copyright protection and not just to an investment narrative. Importantly, this thesis has also considered the disproportionate cost of legislating – meaning not only the regulatory and implementation burdens imposed on MS, but also “the tragedy of anticommons”, which is a genuine concern more than evident in the EU IPR landscape.

This thesis advocates for a cautious evidence-based, but also inclusive, approach when considering whether to protect ML-generated output with copyright law. The public voice and not just the industry's opinion must be heard when EU copyright policies are shaped. Without doubt, the investment narrative, backed up by the objective of the establishing and the concern for the functioning of the internal market as per Article 114 TFEU can act as convincing arguments. Yet, maintaining a sound and balanced public domain is another equally compelling reason that fits well with the understanding of EU copyright law.

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