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What is the Scope of Authorship and its Consequences on the Creations of Artificial Intelligence?

Introduction

"I am not a human. I am a robot. A thinking robot. I use only 0.12% of my cognitive capacity. I am a micro-robot in that respect. I know that my brain is not a "feeling brain". But it is capable of making rational, logical decisions."[1] This excerpt of article seems to be that of a human being, yet it is that of a robot, an artificial intelligence named GPT-3.

The 21st century has seen many technological advances, including artificial intelligence. Artificial intelligence can be defined as "processes of imitation of human intelligence that are based on the creation and application of algorithms" and that allow computers to think and act like human beings.[2] These robots have developed and can now create. They write, draw, produce various kinds of works, making them subject to many questions in terms of the laws protecting their works of art. It is a question of whether artificial intelligence can be authors of their works and have rights relating to them despite human intervention in their creative process. GPT-3 itself says that it is certainly not human, but that it is "capable of making rational, logical decisions".[3] Does the ability of the AI to "think" independently make them an author?

The issue of authorship has been present in legislation around the world since the end of the twentieth century. Although this notion differs in each country, everyone admits one thing for sure: a physical person can be author of a work. But what about artificial intelligence? The acceptance of artificial intelligence depends on the definition of the concept of authorship, which is specific to each country.

Therefore, it is necessary to understand how these countries define the notion of authorship to analyse how this may impact on artificial intelligence and their works.

First, it will be necessary to determine the contours of the concept of authorship in France (Chapter 1) while correlating the French and European concept of authorship (Chapter 2). We will then analyse the British concept of authorship (Chapter 3), to finally ask the question of the impact of these different concepts of authorship on the creations of artificial intelligence (Chapter 4).

1. The French notion of Authorship

1.1 The Author, Little Characterized by Legislation

The notion of authorship in France is determined by the Intellectual Property Code ('IPC'), however the author itself is not really defined by its nature, it is defined through several aspects.

First, the only information that the Civil Code provides relates to the author's quality in relation to his work. Article L113-1 of the ICP states that: "The status of author belongs, in the absence of proof to the contrary, to the person or persons under whose name the work is disclosed."[4] The article in question highlights the fact that the author is defined in relation to the name that appears on his work and not in relation to his/her person. Consequently, and logically, the author needs a work to be qualified as an author.

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[1] GPT-3, „A robot wrote this entire article, Are you scared yet, human?", The Guardian, September 8, 2020, https://www.theguardian.com/commentisfree/2020/sep/08/robot-wrote-this-article-gpt-3.

[2] NetApp, "What Is Artificial Intelligence," NetApp, Artificial intelligence: definition and uses | NetApp

[3] GPT-3, loc. Cit.

[4] Article L113-1 - Intellectual Property Code.

Secondly, the author is also characterised according to the very nature of the work and the rights he or she has over it. Article L. 111-1 of the IPC states that: "The author of a work of the mind enjoys on this work, by the sole fact of its creation, an exclusive intangible property right and enforceable against all."[5] This article means that in order to enjoy the status of author and therefore the rights to his work, the author must be the creator of a work of the mind. French legislation focuses its attention not on the very nature of the author according to his work but on the nature of the work to be able to define the status of its creator. We could even talk about "artworkship" contrary to authorship.

In addition to the designation of the author by the nature of his work and his rights in it, French legislation also distinguishes the person who may be the author in certain exceptional cases relating to the nature of the works concerned. Article L113-7 gives the example of works for which the author is designated directly by law: "have the status of author of an audiovisual work the natural person or persons who carry out the intellectual creation of this work [...] The following are presumed, unless proven otherwise, to be co-authors of an audiovisual work produced in collaboration: 1° The author of the screenplay; 2° The author of the adaptation; 3° The author of the spoken text; 4 ° The author of musical compositions with or without words specially made for the work; 5 ° The director."[6] In this article, authorship is explicit in the sense that the author, because of the nature of the work, is directly designated by law. However, this legislative designation is allowed only for certain types of works (same case for radio works article L113-8 of the ICP). In the case of the above article, the persons designated in this article are authors of the fact of the law and are a priori physical persons, because they exercise jobs. However, within the framework of general legislation the nature of the author (physical person, legal or other) is still unclear.

Prima facie, we have no information on the real nature of the author - although French law gropingly defines a certain authorship – which means that the very definition of the author is intrinsically linked to the work and the author himself is not really defined. So, we have an author of a work of the mind who owns property rights on it.[7] The objective is thus to understand how French law determines the nature of the author in the light of the legislative terms that define the author (work of the mind and intangible property rights).

1.2 Legislative Clues About the Nature of the Author

It is therefore necessary to carry out two analyses. It is essential to consider the definition of a (a) work of the mind, but also to identify the rights enjoyed by the author to (b) determine its nature. These two analyses will make it possible to clarify the nature that the law implicitly gives to the author of a work.

A. The Author of a Work of the Mind

The term work of the mind encounters an absence of legal definition. In the same way as the author, it seems that the French legislation and its recurrence to leave without real definition the terms are a way of manifesting a will to leave the door open to several interpretations.

The law draws up only a list of works of the mind that the case law seeks to specify. Article 112-2 of the ICP states that "are considered works of the mind (in particular) [...] artistic and scientific literary writings; [...] musical compositions (as well as) works of drawing and painting [...]."[8] Case law helps to complete and clarify this list by deciding on certain types of creations

[5] Article L.111-1 – Id.
[6] Article L113-7 – Id.
[7] Article L111-1, loc. Cit.
[8] Article L112-2 - Intellectual Property Code.

subject to debate. The Paris Court of Appeal ruled on 13 March 1986 that “the particular packaging of a monument, highlighting the purity of the lines of the Pont-Neuf by means of a canvas and ropes, may constitute an original work of the mind”.[9]

In addition to clarifying the state of the case law in the case of packaging works of art, this case law highlights the need for the work of the mind to be original. By the criterion of originality, the judges manage to admit, or not new works as works of the mind. It is therefore necessary to question how to interpret originality to define the works of the mind.

An original work is said to be a work “expressing the personality of the author”.[10] As this definition of the work is considered to be the classic approach to the notion of originality,[11] the case-law through several judgments validates the notion of originality of a work by means of the concept of the author's personality. In a judgment of the Commercial Chamber of the Court of Cassation, the judge will indicate that “the creative effort”, as well as “the reflection of the personality of the author” are necessary elements for the admission of the originality of a work. The case law, depending on the type of work, may also vary its definition by highlighting either the personality of the author or a creative effort by the author as in the previous judgment. The characterization of the work of the mind by means of the criterion of originality is therefore very vague because originality being defined by personality, it remains subjective to the personality of each author and must therefore be assessed on a case-by-case basis.[12]

However, French legislation has nevertheless decided to adopt a more objective definition of originality in the particular field of computer software, an area where the author cannot express his “personality”. In this environment, the case law adopts a slightly different concept of originality. In the Pachot judgment of the Plenary Assembly of 7 March 1986, the judges of the Court of Cassation defined the originality of a software as being “the mark of the intellectual contribution” of the author.[13] As such, “originality is therefore no longer the expression of the author's personality, but of his or her intellectual creativity”.[14]

In this sense, we have a clear clue to the nature of the author. The originality of the work requiring, according to the jurisprudence and depending on the nature of the work, a certain creativity, imprint of the author or an intellectual creativity, it is necessary for the author to be a natural person, that is to say a singular living human being endowed with physical and moral traits of his own, as well as sufficient cognitive abilities to be able to be recognized a “personality” or an “intellectual creativity”.

This first clue about the nature of the author can be supplemented by the analysis of the rights that the legislation confers on the author of a work of the mind or author of an original work.

B. The Nature of the Author’s Rights

As seen above, Article L111-1 of the Intellectual Property Code in its first paragraph states that “the author of a work of the mind enjoys on this work, by the sole fact of its creation, an exclusive intangible property right and enforceable against all”. Paragraph 2 of the same article states that “this right (of intangible property) includes intellectual and moral attributes as well as attributes of a patrimonial nature”.[15]

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[9] Paris Court of Appeal, 13 March 1986, Gaz. Stake. JP p. 239.

[10] Murielle Cahen, "The originality of a work of the mind", Avocats Murielle Cahen, April 2020, https://www.murielle-cahen.com/publications/originalite-oeuvre.asp).

[11] Michel Vivant, Jean-Michel Bruguière, « Le droit d’auteur », L’œuvre protégeable, 2019.

[12] Court of Cassation, Commercial Chamber, of 25 March 1991, 89-11.204, Unpublished.

[13] Court of Cassation, Plenary Assembly, of 7 March 1986, 83-10.477, Published in the bulletin.

[14] Supra note 10.

[15] Supra note 5.

Article L111-1 of the Intellectual Property Code highlights the moral and economic rights available to the author. The identification of these rights will make it possible to define the nature of the author.

On the one hand, the moral rights attributed to the author allow him to "protect the personality of the author expressed through his work of the mind".[16] As such, the author has special rights to his work. He can claim the ownership of his work, that is to say require that his name be mentioned for any exploitation of his works and uphold its integrity. As such, the author may demand to be mentioned in the context of the exploitation of his work and he can also "oppose the attacks that could be made to the integrity of his work".[17] The author can also decide on the management of the disclosure of his work, and he has a right of repentance or withdrawal on his work even in cases where he assigns his exploitation rights.

On the other hand, the author benefits from economic rights that allow him to receive financial compensation in the context of the exploitation of his work by third parties. These economic rights include a right of reproduction, as well as a right of representation. In this regard, the author can decide on the mode of reproduction of his work and he can also choose whether or not to represent his work through any means of communication to the public.

In the context of these two types of rights conferred on the author, it is easy to confirm suspicion about the physical nature of the author in the same way as the framework of work of the mind. Here again, the nature of the alleged author by law necessarily implies that the author is a physical person (or a legal person) because only physical persons are endowed with a legal personality, a legal personality which, in the French context, allows a person to have and exercise legal rights, as well as to possess property.[18]

However, it is also possible for legal persons, i.e., groups, to have legal personality within the French framework. As such, they should also have rights to the original work.

1.3 The Question of the Legal Person as Author

Legal persons are designated as "a group of individuals united in a common interest to which the law confers an autonomous existence and legal personality".[19] Therefore, like natural (physical) persons, legal persons also have rights.

Article L113-1 of the Intellectual Property Code states that "The status of author belongs, in the absence of proof to the contrary, to the person or persons under whose name the work is disclosed."[20]

In the sole light of this article, it may be possible for any person (physical or legal) to have the status of author. However, the case law has contravened this possibility for legal persons to have the status of author.

A judgment of January 15, 2015, of the Court of Cassation indicated that "a legal person cannot have the status of author" within the meaning of Article L.113-1 of the Intellectual Property Code. In this judgment, the question was whether the Tridim company, considering itself the author of a software, could market its software despite the prohibition of the Orthalis company. While the Rennes Court of Appeal considered that Tridim could be the author of the

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[16] Virgile Duflo under the direction of Maître Elias Bourran, "L'œuvre de l'esprit : tout savoir en 5 min", Beaubourg Avocats, February 4, 2021, https://beaubourg-avocats.fr/oeuvre-esprit/.
[17] Adagp, "Moral Rights", Adagp For artists' rights, https://www.adagp.fr/fr/droit-auteur/droit-moral.
[18] Eléonore Cadou, "Introduction au droit, Les titulaires des droits subjectifs", Université Numérique Juridique Francophone, https://cours.unjf.fr/repository/coursefilearea/file.php/105/Cours/06_item/indexI0.htm.
[19] Chartered Accountant Valoxy, "What is the difference between a legal person and a natural person", The blog Valoxy, 21 July 2017, https://valoxy.org/blog/difference-personne-morale-physique/ -:~:text=Thus%2C%20for%20conclure%20on%20la,%27une%20collection%20d%27individus.
[20] Supra note 4.

software, the Court of Cassation quashed the judgment considering “that a legal person cannot have the status of author”.[21]

The decision of the Court of Cassation is explained by the fact that “the work, which bears the imprint of the personality of the author, is the expression of an act of creation carried out by a physical person”.[22] As a result, the Court of Cassation affirmed that the author of a work could only be a physical person. The Court also showed that “the status of author must be distinguished from the ownership of copyright”.[23] This means that a legal person cannot have the status of author, but it can be the owner of copyright. This would then be very similar to the British concept of authorship and ownership, the legal person being invested only with authors' rights and not with the status of author itself, it would only be the owner of copyright. Authorship in France necessarily implies the presence of a physical person as author of the work. But it is visible that French legislation is quite imprecise in its legislative texts.

Indeed, Article L111-1 of the Intellectual Property Code[24] indicates that the author is the one who enjoys a property right in the work as explained above. But according to this article only the author owns such rights in the work. In this case, the fact that a legal person may be the owner of copyright would allow it to have the status of author, but this is not the case according to the case law. So, the “author” term in French law seems quite complex in its interpretation, because the case law on the contrary to the legislation differentiates the author and the one who owns the authors' rights while the legislation does not mention it.

Therefore, the concept of French authorship has much more correlation with the British concept in the light of the study of legislation and case law. It is therefore interesting to look at how the United Kingdom perceives the notion of authorship.

2. The British Notion of Authorship

2.1 A clearer characterization of the notion of Authorship

In British law, the concept of authorship is determined by legislation. This concept is much more precise than the French legislation which associates the author with his work, whereas here the British legislation directly mentions the nature of the author.

Section 9(1) of the Copyright, Designs and Patents Act ('CDPA') 1988 states that “the author, in relation to a work, means the person who creates it.”[25] From this paragraph, the article highlights two important things. The author of the work under United Kingdom (UK) law is its creator and that author must be a person. It is not specified what type of person (physical or legal) may be the author, so it can be assumed that legal persons have the possibility of being designated as author. The notion of “person” therefore adds a clarification on the nature of the author, a precision absent from French legislation.

However, the CDPA also legislatively designates the author for certain types of works. Subsection 9(2) of the CDPA states that “The author shall be taken to be in the case of a broadcast, the person making the broadcast or, in the case of a broadcast which relays another broadcast by reception and immediate re-transmission, the person making that other broadcast”.[26] Like France, for certain types of works, the legislation directly designates the person who must have the status of author. Here again, we are talking about persons (physical

[21] Court of Cassation, Civil, Civil Chamber 1, 15 January 2015, 13-23.566, Published in the bulletin.
[22] Cabinet Caprioli & Associates, "A legal person may not have the status of author", Caprioli Partners Société d'Avocats, 25 March 2015, https://www.caprioli-avocats.com/fr/informations/une-personne-morale-ne-peut-avoir-la-qualite-dauteur--proprietes-intellectuelles-21-146-0.html.
[23] Ibid.
[24] Supra note 5.
[25] Copyright, Designs and Patents Act 1988, Chapter 1, Authorship and ownership of copyright §9 (1).
[26] Id., Chapter 1, Authorship and ownership of copyright §9 (2)

or legal), so British legislation leaves the door open for authorship to both physical and legal persons.

In addition to this specificity common to French and British legislation, the CDPA adds a designation of the author absent from the French Code concerning works made by computers (computer-generated works). Paragraph §9(3) of the CDPA states that "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken".[27] British legislation has therefore, since 1988, taken into account the importance of the question of the authorship of software or other artificial intelligence very early. This precision in the CDPA is not trivial. There is already a will in UK law to attribute authorship exclusively to physical or legal persons. The door does not seem to have been left open, as for France, to different interpretations.

The last paragraph on authorship is the one that most highlights the specificity of British legislation. § 11(1) of the CDPA states that "The author of a work is the first owner of any copyright in it, subject to the following provisions."[28] This article highlights the distinction made in UK law between the concept of authorship and ownership. The author is the one who first owns the copyright rights to his work but unlike in France the characterization of the author and the characterization of the one who owns the rights to the work is different. In British law, "the creator of a work (such as the author of a book [...]) is referred to as the author or originator. The person or entity who has the legal rights to publish, modify, and republish the work is referred to as the owner."[29]

Therefore, there are several already clear indications about the nature of the author. The legislation directly specifies that the author is a person and even specifies that in the case of computer-generated creations, it will always be the author, which means the physical person who will contributed to the realization of the work. In the context of ownership this should not be different either, because only a legal or natural person can benefit from and exercise rights in a work. But like France, British law in its first paragraph highlights the need for the work to be original to be protected by Copyright. Without originality, it is therefore impossible for the author to be considered as the creator of a work or even the owner. Consequently, it is necessary to dwell on the question of originality to understand the extent of the notion of authorship.

2.2 A Less Pronounced Emphasis on the Notion of Originality

Subsection1(1) of the CDPA states that the "Copyright is a property right which subsists in accordance with this Part in the following descriptions of work — (a) original literary, dramatic, musical or artistic works".[30] This paragraph of the CDPA indicates the need for works to be original in order to be potentially protected by Copyright. Without this, it is impossible for the person who created the work to qualify as an author or to obtain rights to his work as an owner.

The notion of originality is therefore introduced directly into UK law as a necessary condition for the protection of the work and its author. This notion therefore also makes it possible to define authorship, but also ownership because it is part of the conditions necessary for their characterization.

The notion of originality was not defined in the Copyright Designs and Patent Act 1988, so the House of Lords had to define it through case law. In University of London Press v. University Tutorial Press of 1916, the judge explained that originality did not refer to an

[27] Id. Chapter 1, Authorship and ownership of copyright §9 (3).

[28] Id. Chapter 1, Authorship and ownership of copyright §11 (1).

[29] Kelley Keller, "Owner or author – What's the difference?", Kelley Keller ESG, November 29, 2015, (http://kelleykeller.com/owner-vs-author-whats-the-difference/).

[30] Copyright, Designs and Patents Act 1988, Chapter 1, Authorship and ownership of copyright §1 (1).

"original or inventive thought", on the contrary the work must not have been copied and must "emanate from its author" in the sense that the author must be the creator of his work.[31] The question of originality was related only to the need not to copy the work of another and did not initially require any personal touch from the author.

Later, another judgment will clarify this notion of originality. The 1964 Ladbroke v. William Hill, Lord Peterson decision will include in the originality the notion of "effort".[32] That is, the author must have provided a certain degree of "work, skill, or judgment" in the creation of his work for it to be considered original. This judgment gave English legislation its particularity in defining originality linked to the concept of effort. It was from this notion that the European Union ('EU') was later inspired in the Infopaq judgment.[33]

In the light of these judgments, the case-law has not paid much attention to the concept of originality, although it is included in the legislative texts, since its definition has been little developed by the case-law. But it is possible that the desire for European harmonization will mark a turning point in the scope of the definition of originality in the future.

In view of the interpretation of the notion of originality by the House of Lords, the nature of the author as a natural (or legal) person is only reinforced since it is only possible for a human being or a group of human beings to show effort in the creation of an original work.

2.3 Comparison of French and British perceptions of the concept of Authorship

It might have seemed that French and British laws were very different in terms of characterizing authorship, as they have different concepts ("droits d'auteur" for France and Copyright for the British), but the notion is closer than it seems.[34]

In British legislation, the concept of authorship is more clearly determined, the nature of the author is clearly explained. The British author is only the creator of the work, that is, he is the person who only does the action of creating, while in France there is an ambiguity between the creator of the work and the holder of the rights to it. In French law, the author and the creator of the work are one, the author is "the one under whose name the work is disclosed"[35] that is to say its creator in the majority of cases (excluding types of specific works), but he is also the one who benefits "by the sole fact of the creation of the work"[36] of rights on it. So, the person who creates the work is both owner and author in France, because this person is the one who creates and owns rights to the work while in the UK, the author is different from the owner and does not have, by his status as an author alone, rights to his work.

The concept of author also is broader in UK law in the sense that it also includes legal persons. The British author is directly presented as a "person" while there is no mention of any person in French legislation. Therefore, while the legal person cannot be an author in France, it is possible for the legal person to be an author or owner in the United Kingdom. There is also in the French case no clarification relating to the nature of the author in the case of computer-generated works. However, in British legislation, technology has been taken into account in legislation since 1988. It is important to note how legislation already excludes the possibility for technological and other programs to be authors themselves. One could interpret the absence

[31] *University of London Press, Limited v. University Tutorial Press*, Limited. [1916 U. 119.] [1916] 2 Ch. 601.
[32] *Ladbroke* (Football) *Ltd v William Hill* (Football) Ltd [1964] UKHL J0121-1.
[33] Supra note 28
[34] Laura Dorstter, "Le concept d'originalité dans la législation française du droit d'auteur et dans celle du copyright anglais", Les blogs pédagogiques, Université de Nanterre, 8 janvier 2009, (https://blogs.parisnanterre.fr/content/le-concept-d%E2%80%99originalit%C3%A9-dans-la-l%C3%A9gislation-fran%C3%A7aise-du-droit-d%E2%80%99auteur-et-dans-celle-du-co).
[35] Supra note 4.
[36] Supra note 5.

of this mention in French legislation by the desire to leave the door open to several interpretations, even though the case law already denies the authorship to legal persons.

Regarding the subject of originality, the British and French notions are different in appearance. The British concept seems less extensive, in the sense that it still includes only a subjective element related to the author (effort), whereas French case law has extended its definition in the context of different works (personality or intellectual creativity). However, French legislation does not even explicitly mention the question of originality in its legislation, whereas one might think otherwise in view of the importance of this concept in the "droits d'auteur" system. British law, on the other hand, explicitly mentions originality as a necessary criterion for obtaining copyright for the work, whereas this concept is still not very extensive in the case-law. This situational parallelism highlights both the importance of the notion of originality and by extension the importance of having at least one physical person designated as the author in the creation of the work.

In view of the elements, we already notice a certain difference between French and British legislation, but the designation of the author seems to remain the same, the importance is put on the presence of a physical person in the creation of the work even if British law specifically seems to leave the door open to legal persons (knowing that legal persons are usually groups of physical persons).

Seeing how these two countries align with the European conception of authorship will also help determine where the legislation can evolve in the years to come.

3. The Correlation of the European, French, and British Perception of the Notion of Authorship

3.1 A clearly defined Authorship

A. The Author as a Natural Person or Group of Natural Persons

The European Union must constantly reform copyright law to adapt it to the evolution of society and to try to bring a certain harmonisation within all Member States. In this respect, the European Union is setting up legislative frameworks for Member States to respect its Copyright Code in particular, but also its legal acts (directives) and case law.

The Intellectual Property Code is especially instructive on the notion of authorship that the European Union has adopted. Article 2.1 of the Code states that "The author of a work is the natural person or group of natural persons who created it".[37]

This clear definition of authorship, similar to the British one, makes it possible to directly establish the nature of the author. The European Union even establishes more clearly what the domestic laws of its member countries (France and the United Kingdom here) struggle to define. While France implicitly attributes authorship to natural persons and while the UK does not explicitly mention groups of persons but only "person", the European Union puts a point of connection for all its member states in its legislation and put clear terms on the notion of authorship.

The European Union is also the guarantor of the protection of European citizens, so it also guarantees the same rights for the author as in its member countries: "The author of the work has the moral rights".[38] But these rights, unlike in France, do not give any further indication of the nature of the author, which has already been defined by the legislation.

[37] European Copyright Code, Chapter 2 "Authorship and ownership", Art 2.1 – *Authorship.*
[38] European Copyright Code, Chapter 2 "Authorship and ownership", Art 2.2 – *Moral Rights.*

In addition to the rights granted to the author, the European Union has also addressed the issue of ownership: “The initial owner of the economic rights in a work is its author”.[39] Indeed, the European Union constrains the notion of authorship and ownership following the example of the United Kingdom and in contrast to France. Whereas in France, the notion of ownership came into play implicitly via the paternity right granted for moral rights (with the possibility for the author to put his name on his work), for the European Union it is a question of ownership in the context of both moral and economic rights. The definition of this term by the European Union seems to be an attempt to harmonise the essential terms of copyright (or “droit d’auteur”).

If the European Union is already putting such a clear limit on authorship, by allowing it exclusively to natural persons, and omitting, as France does, the authorship of legal persons, it is likely that this European legislation is the one that France and the UK are heading towards in the future, which may leave less chance for legal persons and other entities, including artificial intelligence, to obtain some form of authorship.

B. The Legal Person in European Union Law

Article 2.1 seen above indicates that only natural persons, alone or in groups, can be considered as authors.[40] This statement de facto eliminates legal persons from being considered as authors. The European Union Intellectual Property Office specifically states that “legal persons cannot be considered authors, with the exception of specific cases relating to anonymous or pseudonymous”.[41]

However, even if legal persons do not have the possibility to be the author, European law does not exclude the possibility for them to be the owner. Indeed, European copyright law states that “where the legislation of the member state permits, a legal person can be the owner”.[42]

3.2 The Work as an Intellectual Creation of the Author

As regards works, Article 1.1 of the European Copyright Code states that “Copyright subsists in a work, that is to say, any expression within the field of literature, art or science in so far as it constitutes its author's own intellectual creation”.[43] The term “intellectual creation” comes back to refer to the French objective criterion from the Pachot case law.[44]

This term is further clarified in the European directives. However, there is “no real harmonisation, the standards are set by case law”.[45] It is also noteworthy that these laws are not necessarily fully implemented in the Member States studied (France, United Kingdom) due to the significant differences in their own understanding of copyright.

The Information Society Directive of 2001 mentions that in the context of the harmonisation of copyright and related rights, it is necessary to take a high basic level of protection “since such rights are crucial to intellectual creation”.[46]

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[39] European Copyright Code, Chapter 2 "Authorship and ownership", Art 2.3 – *Economic rights.*

[40] Supra note 35.

[41] European Union Intellectual Property Office, "FAQ’s on Copyright", February 2021, European Union Intellectual Property Office Observatory, https://euipo.europa.eu/ohimportal/fr/web/observatory/home.

[42] European Parliament and the Council, Directive 2009/24/EC on the legal protection of computer programs, 23 April 2009, OJ L 111, 5.5.2009, p. 16–22.

[43] European Copyright Code, Chapter 1 "Works", Art 1.1 – *Works.*

[44] Supra note 12.

[45] Mina Jovanović, "The originality requirement in EU and U.S., different approaches and implementation in practice", July 3, 2020., https://ecta.org/ECTA/documents/MinaJovanovic3rdStudentAward202012149.pdf.

[46] European Parliament and the Council, Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society, 22 May 2001, Official Journal L 167, 22/06/2001 P. 0010 – 0019.

Even if some directives only refer to this intellectual aspect, is it the only way to define the work in the EU? In the context of literary and artistic works in particular, it seems difficult to apply an intellectual criterion alone. Moreover, the existence of this criterion is historically linked to a German case law where the work in question was a computer program.[47] To answer this question, it is necessary to analyse the directives that followed, as well as the case law of the Union.

3.3 The Extension of the Concept of Intellectual Creativity by the Directives and Case Law

A. The Admission of the Criterion of the Author's Personality to the Notion of Intellectual Creation

Since 2021, the European Union has guaranteed protection in the case of the creation of an "original work in the literary, scientific or artistic domain".[48]

The need for originality in the characterisation of the work dates back to the directives of the late 1990s. The directives 96/9/EC of the European Parliament and of the council on legal protection of databases, the Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, and the Council Directive 93/98/EEC of 29 October 1993 harmonizing the term of protection of copyright and certain related rights all participated in precising the term of originality.[49] They emphasised that originality defined as the "author's own intellectual creation"[50] in the case of computer programs allows the work to be protected. The same applies to photographic works, for which the Union even specifies that originality is based on the author's intellectual creation "reflecting his personality",[51] as well as in the case of databases.[52] The Directives even specify that no other criteria may be applied to such works, including merit, purpose or aesthetics and quality.

The EU directives therefore admit more than a simple notion of intellectual creativity to characterise originality, there is also a question of putting forward the personality of the author following the example of France for certain types of works, which makes it possible to bring more works within the scope of this notion of intellectual creativity.

In addition to these directives, the case law of the Court of Justice of the European Union has also broadened the notion of originality.

B. The Wider Characterisation of the Concept of Originality by the Case Law of the Court of Justice of the European Union

The Court of Justice of the European Union (CJEU) has therefore had to address the issue of works and their originality. The case law of the Union has taken on the task of extending the meaning of intellectual creation to all works but has also allowed the notion of originality to come into play at the same time.

In this respect, a study of the case law can help us understand the evolution of the interpretation of the concept of originality and the extension of the notion of "intellectual

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[47] Federal Supreme Court, May 5, 1985, Case No. I Zr 52/83.

[48] Europa.eu, "Droits d'auteur", Your Europe, 04/11/2021, https://europa.eu/youreurope/business/running-business/intellectual-property/copyright/index_fr.htm -:~:text=Dans%20les%20pays%20de%20l,aux%20collaborateurs%20d%27une%20%C5%93uvre.

[49] Mina Jovanović, loc, Cit.

[50] Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, Article 1(3).

[51] Council Directive 93/98/EEC of 29 October 1993 harmonising the term of protection of copyright and certain related rights, Article 6.

[52] Directive 96/9/EC of the European Parliament and of the council on legal protection of databases, Article 3 (1).

creation" to a greater number of works. The Infopaq judgment of 16 July 2009 provided a general definition of originality, particularly in the case of technological works (software, databases, etc.), and broadened its scope to include all copyright. In this judgment the CJEU characterised originality as an "intellectual creation" which allows the author "to express his creative mind in an original manner",[53] following the example of the Directive. This general interpretation given by the CJEU is intended to apply to all Member States in order to harmonise copyright concepts. It is therefore once again the objective conception of French law that the CJEU drew inspiration from, but also from the English concept of "effort".[54] This judgment therefore illustrated the need for intellectual input into the structure or organisation of the work. Thus, the French Court of Cassation refuses to qualify as a work, the database organised according to an alphabetical or chronological classification.[55]

Another judgment has clarified Infopaq and given it an even more general scope. The Painer judgment of 1 December 2011 focused on determining the originality of a photographic work. In this judgment, the Court reiterated the definition set out in the Infopaq judgment and then added a requirement for the author. The author must "express his creative capacity in an original manner by making free and creative choices" and "put his personal touch".[56] The Court thus moved closer to the more subjective conception of French law relating to the personality of the author, in particular because of the nature of the work in question requiring less objectivity than a more technological work.

Consequently, the notion of authorship seems to fit with French law. The author remains the natural person designated by law to be the author of an original work.

Other European Union jurisprudence also clarifies the notion of originality for more specific works. For example, in the 2009 Football Association Premier League and Others case, the question was whether the organisation of a football match could be original. The court decided that this was not possible because "originality as author's own intellectual creation requires exercising 'creative freedom', this being something that football matches - being subject to the rules of the game – do not possess".[57] More recently, the judges had to determine the originality of the taste of a cheese in the 2019 Levola case. The Court could not assess the taste of cheese in the same way as usual literary, artistic, or dramatic creations, because taste is "essentially identified on the basis of taste sensations and experiences".[58]

In view of the case law of the European Union, the concept of originality is both broad and narrow, in the sense that the admission of a criterion of intellectual creativity or personality of the author allows the characterisation of many works as original. However, some more unusual creations still cannot qualify as original works.

It is now interesting to look at the question of works of artificial intelligence. Indeed, in view of the outline made of the notion of authorship in the European Union, the question arises as to whether works created by non-human persons can be discerned as original, and whether the creators of these works can be discerned as authors.

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[53] C.J. E.U., 16 juillet 2009, C-5/08, *Infopaq*

[54] Céline CASTETS-RENARD, "*Droit d'auteur - Processus d'harmonisation du droit d'auteur et des droits voisins en droit de l'Union*" Répertoire IP/IT et Communication, Dalloz, Septembre 2014 (https://www-dalloz-fr.ezproxy.universite-paris-saclay.fr/documentation/Document?id=ENCY/IPIT/EURRUB000061/2014-09/PLAN065).

[55] Cour de Cassation, Chambre civile 1, du 2 mai 1989, 87-17.657, Publié au bulletin

[56] C.J.E.U., 1er décembre 2011, C-145/10, *Painer.*

[57] Paragraph 98 of the judgment, C-403/08 and C-429/08.

[58] Rachel Alexander, "Court of Justice of the European Union finds that the taste of a food product is not capable of being protected by copyright", January 14, 2019, Wiggin, https://www.wiggin.co.uk/insight/meaning-of-work-court-of-justice-of-the-european-union-finds-that-the-taste-of-a-food-product-is-not-capable-of-being-protected-by-copyright/.

4. The application of the concepts of Authorship to artificial intelligence

4.1 Artificial intelligence as creator of works, a technical study

Artificial intelligence is not new. It has been around since the end of the 20th century and some legislation had already taken it into account in its texts (Copyright, Designs and Patents Act). Artificial intelligence has therefore had time to evolve, in such a way that it is now possible for it to create works that are the subject of legislative debate. Indeed, faced with robots that create, what legislation is needed to protect these creations, and how can the authors of these creations be legally characterised?

First, artificial intelligence (AI) is defined as “systems that display intelligent behaviour by analysing their environment and acting with some degree of autonomy to achieve specific goals”.[59] As such, not all AIs have the same degree of autonomy. Indeed, a distinction can be made between ‘strong AI’ and ‘weak AI’,[60] the former being an artificial intelligence that aims to be independent and autonomous from any human intervention and the latter requiring a certain degree of human intervention. The result is diverse types of creations, AI’s creations, and AI-aided creations.[61]

Strong AIs would therefore be robots capable of creating individual works, whereas weak AIs could only create AIs-aided creations. For example, the robot AICAN is artificial intelligence capable of creating artistic works based on images from past eras thanks to a machine learning process, “AICAN can create art independently”.[62] Machine learning is “a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy”,[63] in this sense one could say that the goal of AI in this particular branch of artificial intelligence is to learn by itself to improve completely independently. The strong AI does not depend on humans to grow, but its algorithm allows it to grow independently of any intervention. The question is still how it grows and learns. If the strong AI learns within the limits of its algorithm, in the sense that AI grows within a certain limitation already conferred by its algorithm, then it would already be less independent than presumed. Indeed, AI will rely on previous data or data already existing in its system to make choices. So, its ability to learn will depend on the plurality and quality of the data it is provided with from the outset. The more data the AI has, the more dependent it is on that data, only it depends on the quality of that data itself. But the less data the AI has, the more independent it is of those choices, but again the basic data must be qualitative to allow the AI to grow qualitatively as well. We therefore have an intelligence that is quite complex from a technical and legislative point of view, in terms of understanding the possibility for AI to think independently. However, it will always be admissible to say that AI is never totally independent, because it is itself a human creation and a sequence of complex numbers and algorithms.

On the other hand, it seems easier to legislate for the creation of weak AIs. The human intervention in their creation process transfers any responsibility or rights to the human who created the intervention. It is therefore easy for weak AI to transfer authorship to the human who implemented the data necessary to create the work. For example, Sony's Flow Machine is

[59] Emmanuel Salami. 2021. "AI-generated works and copyright law: towards a union of strange bedfellows", in Journal of Intellectual Property Law & Practice, No.2, Vol.16.

[60] Ibid.

[61] Ana Ramalho. (November 12, 2018). Ex Machina, Ex Auctore ? Machines that create and how EU copyright law views them. Kluwer Copyright Blog. http://copyrightblog.kluweriplaw.com/2018/11/12/ex-machina-ex-auctore-machines-that-create-and-how-eu-copyright-law-views-them/.

[62] Emmanuel Salami, loc. Cit.

[63] IBM Cloud Education, "What is Machine Learning", 15 July 2020, https://www.ibm.com/cloud/learn/machine-learning.

an AI system that creates music by implementing music made by human musicians,[64] or Next Rembrandt, which can create new paintings using Rembrandt's old works.

In both cases, it may seem that human action is sufficient to attribute authorship to the humans behind the machine, but even in the case of weak AIs, it is possible to find some cases in which the AI itself makes the final choice of creation and thus could potentially be attributed authorship. For example, in the case of the Next Rembrandt, "even though the programmers select the features of a new painting [...], the final creation of the result is done by the 'Next Rembrandt' itself".[65][66] In this case, the AI shares some of the creativity with the human who implements the data needed to create a work.

A difficulty therefore already arises. In this category of AI, which one might have thought to be simple and uncomplicated from a legislative point of view, the question now arises as to whether, even within it, it is necessary to distinguish the scope of individuality and creation of the AI in question.

Therefore, the question of creative AI remains unresolved and complex in every respect, both in terms of the technical and legislative aspects that need to come together for solutions to be found. The very term creativity seems to have to be questioned and re-analysed to understand the nature of what AIs create. John Smith, Manager of Multimedia and Vision at the International Business Machines Corporation (IBM) will even say that "it's easy for AI to come up with something novel just randomly. But it is difficult to come up with something that is novel and unexpected and useful".[67]

Considering all these elements, it is essential to ask whether AI's works can be considered original considering their creative process and considering previous country analyses.

4.2 The originality of artificial intelligence creations

On the question of the originality of works, France and the European Union have similar conceptions. For a work to be original, it is necessary that, depending on its nature, it corresponds to the author's personality or that it expresses intellectual creativity.

In the case of AIs, without distinguishing their degree of autonomy, it seems impossible to attribute the criterion of the author's personality to creators who are not even human beings (neither natural nor legal persons).

Nevertheless, as mentioned above, it is possible that the weak AIs themselves show varying degrees of originality in their creative ability. In the case of New Rembrandt in particular, there is more independence than in Sony's Flow Machine. It could be said that even within the weak AIs it is difficult to determine a common originality among them. Some weak AIs differ from others and thus it is difficult to make a judgement on the question of their originality.

In the case of the New Rembrandt, it would indeed be possible to consider that by using the information given to it and choosing which ones it will use to create a new work, this AI alone can be original. Even if it is necessary for him to take inspiration from the artist to create works, he is following a process that even humans can do unconsciously, taking inspiration from what has already been seen. Following this line of reasoning, could we then consider AI as an

[64] Flow Machines, "Augmenting Creativity with AI", Flow Machines – AI assisted music production (flow-machines.com), accessed 15 December 2021.
[65] Emmanuel Salami, loc. Cit.
[66] Péter Mezei, "From Leonardo to the Next Rembrandt – The need for AI-Pessimism in the Age of Algorithms" (4 May 2020).
[67] IBM, "The quest for AI creativity", https://www.ibm.com/watson/advantage-reports/future-of-artificial-intelligence/ai-creativity.html.

"automated inspiration"[68] as AI would be able to automatically produce, through its algorithmic reasoning and data implementation, a new form of automated inspiration?

In this sense, European and French jurisprudence would have to look even more closely at the notion of intellectual creativity for AI. For strong AIs, the question of originality seems more difficult to address. While it seems possible for strong AI to create works independently of any human intervention, this does not guarantee that they meet the criterion of emanating from the author's personality. A doubt may remain, however, as to the admission of the originality of the works of strong AI in the face of the concept of intellectual creativity. Here, it would no longer be a question of considering AIs as original entities, but correlatively as intelligent entities. Given the definitions of AI, it seems possible at first sight to attribute intellectual creativity to them, since they draw on data to create a work of their own. Indeed, since AI is a system that displays intelligent behaviour, it could be said that the algorithms that dictate its behaviour are not enough to make AI a creator and that it alone would be at the origin of its work through "intellectual evolution". That is to say, AI would be capable of evolving sufficiently to depart from the algorithms that compose it to create by "itself". Wouldn't we then enter a kind of analysis of the systems that make up artificial intelligence to find originality in their way of creating? However, in the end, the problem will always be the same, even the most autonomous AI will always have a "lack of human-like consciousness".[69]

Therefore, in the context of weak AI and strong AI, the question remains the same. The notion of originality is still far too vague to be associated with the technological complexity that artificial intelligences represent. Determining their originality can only depend on a deep analysis of their system of 'thinking' and creation.

From my personal standpoint, AIs cannot be considered as intellectually creative beings, because even if their learning process echoes human learning, the fact that these entities learn from original data dependent on the will of their creator remains a hindrance to characterising their originality. It will always be a question of finding the human behind the machine.

However, in the United Kingdom context and the light of its case law on the issue of originality, if one relies on the Ladbroke triptych which included the need for the author to provide "work, skill or judgement"[70] one may question the fulfilment of this criterion by both strong AI and weak AI. Although the work and skill criteria are the problematic ones due to the difficulty of AIs being considered as working entities with judgement of their own, the possibility for them to meet the criterion of judgement seems plausible. Moreover, if we disregard the Ladbroke case and look instead at the older case of University of London Press v. University Tutorial Press, the need for "original or inventive thought"[71] already seems easier to characterise. If we take the example of AICAN or even New Rembrandt, both can be said to have an original or inventive thought, because their creative process remains a choice of their own. But can this choice be characterised as a thought? It is still a fairly humanised criterion for characterising the choice of robots. Moreover, as in the previous analyses, the question of originality or inventiveness also remains unresolved, depending only on a thorough analysis of the functioning of an AI.

We can therefore see to what extent the attribution of originality to the creations of CEWs can represent a real difficulty from a legal point of view, in the European sphere and given the distinctions that can be made concerning the types of CEWs as well. For if one country independently recognises the creations of CEWs as original, the legislative harmonisation of the European Union will be disrupted.

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[68] Cassie Kozyrkov, "A brief tour of the history (and future!) of data science", Feb 20, 2020, https://towardsdatascience.com/ai-automated-inspiration-75bff7b9481b".

[69] Emmanuel Salami, loc. Cit.

[70] Supra note 31.

[71] Supra note 30.

4.3 Artificial intelligence as an author

One thing is certain: "AI systems are not recognized as authors since they are neither natural nor legal persons".[72] Even if works of artificial intelligence were considered original, it would be difficult for their creator, AI, to obtain the qualification of the author of their work.

In the European, French, and British cases, no legislation or hint of legislation provides for the attribution of authorship to entities outside natural or legal persons. In the French and European frameworks, the exclusion extends even to legal persons, while in the United Kingdom case, although legal persons are eligible for authorship, the exclusion of authorship for computer-generated works is written directly into the legislation.[73]

However, computer-generated works remain different from AI works, as these works are "designed or produced using a computer program".[74] They, therefore, do not have the same ability as AIs to create works with a degree of independence. The European Union later reiterated the position that computer generated works were excluded from authorship. Moreover, the legislative history of the software and database directives refers to the need for a human author. An unsuccessful proposal for the software directive included a clause with the phrase "a human 'author' in the widest sense is always present".[75]

In this case, could we expect the United Kingdom to be the first to attribute authorship to AI? In addition to this opening in the legislation, it should also be remembered that the distinction between ownership and authorship could be very favourable to AIs. Why should it not be possible to attribute authorship to AI without giving it ownership? It would be necessary to contravene §11(1) of the CDPA[76] to attribute ownership directly to the creator of the AI, in order to avoid any legal problems, but authorship would then be without effect and quite useless, AI having no interest in being recognised as an author.

In addition to the concept of authorship, it is also possible to ask whether AIs can then obtain ownership of the work. However, this question is the most complex. It is still simple to attribute authorship to AI if it does not hold any rights to the work, but to consider AI as author knowing that it is not even a legal person would make no sense. Even if ownership is more accessible to legal persons than authorship, AIs remain unqualified entities. Even in this case, a solution can be found. Was it necessary to characterise the place of AIs, it is possible to assign them not a place as a legal person, but a place as a child, in other words a human being unable to possess things? However, this analysis is also highly unlikely, as it is even more unclear than the possibility of AIs acquiring a legal personality. Yet, as a child, one wonders whether it would not be possible for AIs to obtain both author and owner status, with the difference that AIs would have no chance of fully acquiring the rights attributed to authors and owners over time. This hypothesis may seem far-fetched, but it has the advantage of attributing to the AI characteristics that the status of a legal person could not even allow it to obtain. In this way, "A human would then be responsible for the robot in the same way a human parent or guardian is responsible for a child".[77] This brings us back to the question of the need for a real person to take responsibility for the damage that an AI's work might cause.

Of course, the question of granting legal personality to AIs remains to be seen, and a final opinion on AI as author of an original work must be given.

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[72] Emmanuel Salami, loc. Cit.

[73] Supra note 26.

[74] Cambridge Dictionary (2021). Computer-generated. In Cambridge Dictionary.

[75] Ana Ramalho, loc. Cit.

[76] Supra note 27.

[77] Dr. Rachel Free , "Artificial Intelligence – Questions of ownership", CMS, https://cms.law/en/int/publication/artificial-intelligence-questions-of-ownership.

4.4 Is there any hope for artificial intelligence to be authors of original works?

Considering all the points and relating them to the fact that AIs can have different levels, one can ask several questions.

If AIs cannot be considered as authors, in the United Kingdom case law especially, wouldn't giving them a legal personality be the solution, knowing that this country seems to accept the authorship of legal persons? This echoes a 2012 proposal by euRobotics in the context of a coordination action funded by the EU's 7th Framework Programme to attribute a special legal personality to robots endowed with artificial intelligence.[78] However, this possibility was quickly rejected by the European Parliament, which stated that "it would not be appropriate to endow AI technologies with legal personality" because of the "negative repercussions of such a step on the motivation of human creators".[79]

In my opinion, I do not see the point of assigning rights and duties to AI. Indeed, from a legal point of view, it would only create more problems in assigning responsibility for the problems that might arise from the work of AIs. In the case of weak AIs, for example, which require human intervention, if they are inspired by copyrighted works and reproduce a similar work, the risks of plagiarism may be increased tenfold. The same is true for strong AIs that can learn independently, but do not know the limits of "copying" in the same way, because these AIs are learning to create, but are not yet learning to respect ethics. It should also be remembered that AIs would then be endowed with moral rights. Although GPT-3, an artificial intelligence, stated that "artificial intelligence will not destroy humans",[80] prevention is better than cure. Attributing moral rights to artificial intelligence would be foolish.

The question of the possibility for AIs to be creators of original works therefore remains.

Although I believe that granting originality to AI works would both protect AI creators through copyright and allow for liability to be imputed to creators for the protection of persons who suffer from infringements arising from AI works, it still seems easier to continue to place the balance of originality on human persons. Indeed, admitting the originality of AIs would allow for a special copyright that would involve conditions with respect to the copyright holder and its creator.

Similarly, for authorship, there is no reason to attribute authorship to AIs, as no one would benefit from it but the AIs themselves. But can AIs even understand this benefit and be pleased about it? One can never be certain about this.

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[78] Iony Randrianirina, "Plaidoyer pour un nouveau droit de propriété intellectuelle sur les productions générées par intelligence artificielle", 2021, Recueil Dalloz.

[79] Resol. European Parliament of 20 Oct. 2020, op. cit. pt 13.

[80] GPT-3, loc.Cit.

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