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To whom it may concern,

This submission is made in my capacity as Professor at Université libre de Bruxelles where I hold the *Chair in Intellectual Creation and Innovation* and serve as Director of JurisLab, and Associate Professor at Université de Liège where I teach *Intellectual Property and Competition Law* and *Copyright Law*.

In response to the call for contributions on competition and generative AI, I considered appropriate to share a recent paper of mine related to the competition rationale underlying the originality requirement of copyright law, and its impact on the copyright status of AI-generated/assisted production.

To summarize the argument, it is showed in this paper that the requirements of protection of copyright law under CJEU case law internalize competition aspects, which run encounter the protection of AI-generated/assisted output through copyright law. Especially, it is showed that the mathematics, statistics, and probabilities governing the functioning of Generative AI models meet the rationale justifying the exclusion of copyright protection for their output, given the entitlement of exclusive right on such output would entail the possibility to exclude competition on the market for that type of output.

These arguments have never been brought in the literature worldwide, despite their significance for both US and EU Law, given they are based in part on the US copyright *merger doctrine* that was transplanted in the EU through the CJEU case law.

The general unawareness of the competition aspects underlying copyright is critical, as the IP literature generally admits that only AI-generated outputs would be excluded from copyright.

Conversely, according to the same literature, AI-assisted outputs could be protected. I challenge this general understanding, showing that the competition rationale and the associated risks apply equally to both type of outputs.

From a competition law standpoint, the importance of my argument lies in the fact that failing to consider it will offer room for undertakings with high market shares (possibly holding a dominant position) to refuse licensing AI-generated/assisted outputs, based on their exclusive IP Rights. The consequence will be that restoring competition in such cases could be possibly done only *ex post*, subject the demonstration of exceptional circumstances according to the CJEU case law (*Magil, IMS Health, Microsoft*). Conversely, duly taking into consideration this argument will make possible to prevent competition law *ex ante*, through appropriate limitations on the possibility for such AI output to be protected through exclusive IP Rights.

I remain at your disposal for any further information.

Yours sincerely,

Julien Cabay

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Going Deep : EU Copyright, Generative AI and the Competition Rationale Underlying Originality

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In the current debate on the copyrightability of artificial intelligence [AI] production, several arguments were brought in relation to the foundations and rationales of copyright law. Against this theoretical background, a clear line was drawn between AI-generated and AI-assisted production. Whereas it seems now generally admitted that copyright will not vest with the former because of its complete lack of authorship, the latter seems eligible to such protection as there is here room for human intervention. Though human authorship is a bedrock requirement of copyright, it does not however suffice to conclude in general that AI-assisted productions would fall within its realm. Other rationales justify the grant or denying of this protection. Amongst those, the one underlying the US merger doctrine, and that can be found in the CJEU case law (Copyright, Design, Trademark), shows that copyright protection is probably not fit for AI-assisted productions per se. This idea, that connects the competition foundations of copyright and the basic technical features of Generative AI, was apparently left unexplored. Enshrined in Intellectual Property theory, it exemplifies that the New Digital Rule of Law is not simply a New Rule of Law in the Digital.

1 - In recent times, the greatest advancement of artificial intelligence [AI] was made possible thanks to deep learning. The multilayer architecture that characterizes deep learning inspired me the structure of the analysis I propose here of the possibility for an AI output to qualify for copyright protection.

Indeed, between the input (AI production) and the output (copyright status) layers, I think there are many hidden layers (copyright architecture), some of which remained unveiled in the literature.

In the current debate on the copyrightability of AI production, several arguments were brought in relation to the foundations and rationales of copyright law. Against this theoretical background, a clear line was apparently drawn between AI-generated and AI-assisted production.

Whereas it seems now generally admitted that copyright will not vest with the former because of its complete lack of authorship, the latter seems eligible to such protection as there is here room for human intervention. Though human authorship is a bedrock requirement of copyright, it does not however suffice to conclude in general that AI-assisted productions would fall within its realm. Other rationales justify the grant or denying of this protection.

Amongst those, the one underlying the US *merger doctrine*, and that can be found in the CJEU case law (Copyright, Design, Trademark), shows that copyright protection is probably not fit for AI-assisted productions per se. This idea, that connects the competition foundations of copyright and the basic technical features of Generative AI, was apparently left unexplored.

The aim of this contribution is to raise awareness of this inner competition rationale and its application, through diving into the EU copyright foundations. Somewhat of a deep learning of AI and EU Copyright.

1. Looking at the Surface : Deep Learning, Generative AI and EU Copyright

2 - Deep Learning methods have dramatically improved the state-of-the-art in various tasks traditionally addressed by AI technologies. As LeCun, Bengio & Hinton emphasizes, " it has turned out to be very good at discovering intricate structures in high-dimensional data and is therefore applicable to many domains of science, business and government " [1].

Deep learning as a machine learning process and architecture can be described as such :

> Representation learning is a set of methods that allows a machine to be fed with raw data and to automatically discover the representations needed for detection or classification. Deep-learning methods are representation-learning methods with multiple levels of representation, obtained by composing simple but non-linear modules that each transform the representation at one level (starting with the raw input) into a representation at a higher, slightly more abstract level. With the composition of enough such transformations, very complex functions can be learned [2].
> (...)
> A deep-learning architecture is a multilayer stack of simple modules, all (or most) of which are subject to learning, and many of which compute non-linear input-output mappings. Each module in the stack transforms its input to increase both the selectivity and the invariance of the representation [3].

As Goodfellow *et al.* mentioned :

1. Y. LeCun et al., *Deep learning*, Nature, 2015, Vol. 521, p. 436.
2. *Ibid.*
3. *Ibid.*, p. 438.

> The promise of deep learning is to discover rich, hierarchical models that represent probability distributions over the kinds of data encountered in artificial intelligence applications, such as natural images, audio waveforms containing speech, and symbols in natural language corpora [4].

Still according to Goodfellow *et al.*, deep generative models have however had less of an impact due to several difficulties, which led those authors to propose a new generative model called Generative Adversial Networks (GANs). GANs had impressive results in various applications [5] and eventually drew general public attention in 2018 when the portrait of Edmond de Bellamy [6], created by the French collective Obvious with the use of GANs, was auctioned at Christie's and sold 432.500 $. Since then, interest from the general public has grown even more for Generative AI, with the releasing of applications based on Large Language Models such as ChatGPT, Dall-E, Midjourney, Stable Diffusion, etc. In the art (and copyright) community, Midjourney attracted special attention in 2022 after a picture it generated, entitled *Théâtre d'opéra spatial*, won a prize at the Colorado State Fair's annual art competition [7].

Generative models have actually a long history in AI. But core advancements in the field were recently made possible thanks to " training more sophisticated generative models on larger datasets, using larger foundation model architectures, and having access to extensive computational resources (...) [in addition to researchers] exploring ways to integrate new technologies with [Generative AI] algorithms " [8]. According to Cao *et al.*, the nowadays " dominant backbone for many generative models in various domains " is the " transformer architecture ", that was first introduced for Natural Language Processing tasks in 2017, and later applied in Computer Vision [9].

The flourishing of Generative AI impressive achievements and user-friendly applications did not only attract the attention of the public in general, but became an object of great interest for many copyright scholars and practitioners as well. Over the past years, countless of scientific and position papers have been published over the copyrightability of AI generated products [10], and it seems the stream is not about to stop. Certainly not as long as the law will remain uncertain.

At the policy level, the EU institutions first approached the Generative AI through the lens of copyright law, in an evanescent suggestion made in a *Report with recommendations to the Commission on Civil Law Rules on Robotics* by the European Parliament. In the explanatory statement, the Parliament called on the Commission for the " elaboration of criteria for " own intellectual creation " for copyrightable works produced by computers or robots (...) " [11]. That demand was removed from the resolution finally adopted and the Commission never moved on, remaining silent in most of its subsequent communications [12]. It limited itself to stressing in very general terms the need to think of the interactions between AI and intellectual property [13], including a " reflection on how and what is to be protected " [14]. In particular, it emphasized that :

> AI technologies are creating new works and inventions. In some cases, for instance in the cultural sector, the use of inventive machines may become the norm. These developments raise the question of what protection should be given to products created with the help of AI technologies (...) [15].

Given those very few statements, it was not surprising that the AI Act Proposal [16] published in 2021 did not contain any provision related to the copyright status of such products. Amendments adopted by the Parliament did not add much to this, though Generative AI came under closer scrutiny (ChatGPT having been released in the meantime), eventually leading to more detailed obligations upon their providers [17].

The question of the copyright status of their products remains however fully open.

2. Beneath the Surface : The " Result " and " Process " Approaches to Artificial Intelligence and Copyright

3 - For those who are not skilled in the art – such as most of us, simple copyright lawyers –, understanding deep learning and AI is quite challenging, especially when confronted to the technical differences between all models. As a consequence, discussing the status of the output of an AI seems delicate.

There are, however, essentially two ways to address this difficulty.

On the one hand, our inability to cope with the underpinnings of the technology might be completely disregarded. We could consider the " technological neutrality " [18] or the " one size fits all " [19] principles that govern copyright law as appropriate answers to this problem, the technical features being irrelevant and therefore left out of the discussion.

Following this reasoning, only the result would matter. In other words, if the AI output resembles the subject matter of copyright

4. I. Goodfellow *et al.*, *" Generative adversarial nets "*, in Advances in neural information processing systems, 2014, Vol.27 (pp. 2672-2680), arXiv :1406.2661v1 [stat.ML] (at p. 1).
5. Y. Cao *et al.*, *A Comprehensive Survey of AI-Generated Content (AIGC) : A History of Generative AI from GAN to ChatGPT*, 2023, arXiv :2303.04226v1 [cs.AI] (at p. 4).
6. GANs Algorithm, Inkjet printed on Canvas, 70x70cm [https ://obvious-art.com/portfolio/edmond-de-belamy/].
7. K. Roose, *An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy*, The New York Times, September 2nd 2022 [https ://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html].
8. Y. Cao *et al.*, *op. cit.*, p. 2.
9. *Ibid.*, p. 4.
10. I do not intent here to carry out the impossible task to cover this very broad literature and will in part rely on previous work of mine (and supporting references), J. Cabay, *Droit d'auteur et intelligence artificielle : comparaison n'est pas raison*, Entertainment & Law, 2019, 307-325 ; J. Cabay, *Mort ou résurrection de l'auteur ? A propos de l'intelligence artificielle et de la propriété intellectuelle*, Revue de la Faculté de Droit de l'Université de Liège, 2019, pp. 179-190. In addition, I would suggest reading as a great overview of the current state of the art (and providing additional and more recent references) G. Frosio, " Four theories in search of an A(I) Author ", *in* R. Abbott (ed.), *Research Handbook on Intellectual Property and Artificial Intelligence*, Cheltenham, Edward Elgar, 2022, pp. 155-177.
11. Report with recommendations to the Commission on Civil Law Rules on Robotics, European Parliament, 2017, 2015/2103(INL).
12. EU Commission White Paper, *On Artificial Intelligence – A European Approach to Excellence and Trust*, 2020, COM(2020) 65 final ; EU Commission Communication, *A European strategy for data*, 2020, COM(2020) 66 final ; EU Commission Communication, *Shaping Europe's digital future*, 2020, COM(2020) 67 final ; EU Commission Communication, *Fostering a European Approach to Artificial Intelligence*, 2021, COM(2021) 205 final.
13. EU Commission Communication, *Artificial Intelligence for Europe*, 2018, COM(2018) 237 : *" Reflection will be needed on interactions between AI and intellectual property rights, from the perspective of both intellectual property offices and users, with a view to fostering innovation and legal certainty in a balanced way "*.
14. EU Commission Communication, *Making the most of the EU's innovative potential – An intellectual property action plan to support the EU's recovery and resilience*, 2020, COM(2020) 760 final.
15. *Ibid.*
16. Proposal for a Regulation of the European Parliament and of the Council laying down harmonized rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, European Commission, 2021, COM(2021) 206 final.
17. *See* Article 28(b)(4) of the version of the Artificial Intelligence Act adopted on 14 June 2023 by the European Parliament.
18. *See* for example, interpreting the private copying exception in light (to encompass saving in a cloud computing services) of this principle : CJEU, *Austro-Mechana Gesellschaft zur Wahrnehmung mechanisch-musikalischer Urheberrechte Gesellschaft mbH v Strato* AG, C-433/20, 24 March 2022, § 27.
19. *See* for example, clarifying that objects that qualify for design protection are subject to the same copyright requirement of protection that applies to all works : CJEU, *Cofemel – Sociedade de Vestuário SA v G-Star Raw* CV, C-683/17, 12 September 2019.

law, then it could attract copyright law protection. Accordingly, even an output entirely generated by an AI could qualify for protection [20]. Though this radical view is in a very minority because of the complete lack of authorship, it seems widely admitted that an AI generated output could be protected when there is at least some human intervention in the process [21]. It is true that this second view takes into account the fact that human intervention is in the loop. Yet, the focus remains on the result.

On the other hand, one could try to alleviate the burden of entering into the complexities of the technology through focusing on a low rather than a high level of granularity. Whatever type of AI we consider, the models are entrenched in mathematics, statistics and probabilities [22]. And this is by no means irrelevant. Following this approach, the focus would not be on the specific result anymore. It would consider instead the basic technical features of the process to achieve that type of results.

The place we give to the human intervention in the production of a hypothetical " work " with the assistance of a Generative AI appears differently according to each of those two approaches.

If we consider the human intervention in relation to the result (first approach), the situation of AI is actually very similar to that, for instance, of photography, where one can find room for " free and creative choices " in the preparation phase, the setting up or the editing stage [23]. The question then is whether the author, by making those choices, could stamp the result with his " personal touch ", making it a " work " that is " original " [24]. That is, the typical copyright question.

But if we consider the human intervention in relation to the process (second approach), then we should probably address the question differently. According to its usual meaning, a " choice " is " an act of choosing between two or more possibilities " [25]. A camera does certainly not make such choices, in particular the type of camera that were in use in the late 19th century and triggered the copyrightability issue of photographs, back in the times [26]. It is however less clear with an AI, since its output stem from a machine learning process based on mathematical, statistical and probability rules. Then, one can wonder whether the application of those rules is not, to some extent, comparable to making a choice between two or more possibilities.

In such context, it is not much a matter of the choices made by the human being that we should address, but rather of the " choices " that can be made by the AI. The relevant question would be then whether the human being, by making choices, has produced a result that could or could not have been generated by the AI. Indeed, if the maths, statistics and probabilities underlying the model could trigger an identical or similar result, it is questionable whether the result achieved (only in part) by the human being can be deemed the " author's own intellectual creation " bearing his " personal touch ".

To address this question, we must deepen our analysis of copyright law.

3. Shallow Copyright : The First Layers (Human Authorship)

4 - Much has been written about what I call here the " first layers " of the analysis and it is not the purpose of this contribution to describe the state of the art [27]. We can however shortly summarize the main arguments and opinions. Basically, they all revolve around the " human authorship " requirement, which importance can be evidenced by the recent refusal by the US Copyright Office to register as a copyrighted work the *Théâtre d'opéra spatial* mentioned above [28]. In support of that rejection, it put emphasis on the fact that " human authorship is a bedrock requirement of copyright " [29].

In short [30], firstly, the justifications for copyright protection are not met with AI generated contents. The AI must not be incentivized to produce outputs and there is no personality to be rewarded for its work.

Secondly, copyright protection is subject to the requirement of an author, being a natural person involved in the creation of the work. Absent this person, there is no room for copyright protection.

Thirdly, the originality requirement supposes that the author expresses his personality in the work. With no human being originating the output, then it can be found no traces of originality therein.

Obviously, those arguments are true only if we consider a result entirely generated by an AI. The problem remains with the vast array of outputs that were not entirely generated by AI.

With regard to those outputs, several proposals were made but they seem to mostly conclude the same way : copyright protection is likely when there is room left to the human intervention, making the contribution possibly original [31].

If we try to frame those arguments and opinions into the two approaches I identified in the previous section, we see that they mostly relate to the first one. The problem with this " first layers " analysis is its assumption that the distinction between AI-generated and assisted works is a dichotomy [32], whereas it should be rather

20. *See* in particular R. C. Denicola, *Ex Machina : Copyright Protection for Computer-Generated Works*, Rutgers University Law Review, 2016, Vol. 69, pp. 251-287.
21. *See* for example the AIPPI Resolution on Copyright in artificially generated works adopted on 18 September, 2019 at AIPPI World Congress in London [https ://www.aippi.org/content/uploads/2022/11/Resolution_Copyright_in_artificially_generated_works_English.pdf]. See also recently for examples in the EU the answers in national reports (available here : https://www.alai.org/en/assets/files/2023-congress-paris.zip) to question 4.2 of the questionnaire for the ALAI 2023 Paris Congress on *Copyright, Related Rights and Artificial Intelligence* by Germany of Greece.
22. *See* in general A. Gelman & A. Vehtar, " *What are the most important statistical ideas of the past 50 years ?* ", 2021, arXiv :2012.00174v5.
23. CJEU, E*va-Maria Painer v Standard VerlagsGmbH and Others*, C-145/10, 1 December 2011, § 91 : " *In the preparation phase, the photographer can choose the background, the subject's pose and the lighting. When taking a portrait photograph, he can choose the framing, the angle of view and the atmosphere created. Finally, when selecting the snapshot, the photographer may choose from a variety of developing techniques the one he wishes to adopt or, where appropriate, use computer software* ".
24. *Ibid*., § 92.
25. Oxford Learner's Dictionary of Academic English, [https ://www.oxfordlearnersdictionaries.com/definition/academic/choice].
26. The arguments at the time were somewhat related to the contemporary discussion and are worth the comparison. On this debate, see in particular E. Pouillet, *Traité théorique et pratique de la propriété littéraire et artistique et du droit de représentation*, Paris, Marchal, Billard et C[ie], 1879, pp. 91-99. It must also be emphasized that the United States Supreme Court decision that upheld the power of Congress to extend copyright protection to photography (*Burrow-Giles Lithographic Co. v. Sarony*, United States Supreme Court, 111 US 53, 1884) has proved an important precedent in support of rejecting copyright protection for AI-generated works. *See also Thaler v. Perlmutter*, United States District Court, District of Columbia, 2023 WL 5333236, 2023, §§10-11.
27. *See* recently for a good overview G. Frosio, *Four theories in search of an A(I) Author, in* R. Abbott (ed.), Research Handbook on Intellectual Property and Artificial Intelligence, 2022, pp. 155-177.
28. *See* the Letter of the U.S. Copyright Office Review Board, 5 September, 2023 [https ://acrobat.adobe.com/link/review ?uri=urn%3Aaaid%3Ascds%3AUS%3Aea3099df-32[e]2-3767-b953-58cc252de9be].
29. As it was stated in another recent decisions by the District Court of Columbia involving another AI-generated work entitled *A Recent Entrance to Paradise* (*Thaler v. Perlmutter, op. cit.,* § 4).
30. *See* for an easy access to the basic arguments that have been further developed in the subsequent literature, A. Ramalho, *Will Robots Rule the (Artistic) World ? : A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems*, Journal of Internet Law, 2017, Vol. 21, pp. 12-26.
31. AIPPI Resolution on Copyright in artificially generated works, *op. cit.*
32. *See* for examples in the EU, the answers in national reports (available here : https ://www.alai.org/en/assets/files/2023-congress-paris.zip) to question 4.3 of the questionnaire for the ALAI 2023 Paris Congress on *Copyright, Related Righs and Artificial Intelligence* (" How can we distinguish between AI-assisted

considered a *continuum* [33] [34]. It therefore fails to take into account the fact that the risks associated with undesirable outcomes of a protection for AI-generated outputs might be equally present in case of a protection given to some AI-assisted outputs. For that reason, I already suggested that this approach was flawed [35].

To overcome this flaw, I consider necessary to adopt the second approach identified in the previous section, which supposes to deepen the analysis of the subject matter and requirements for protection of copyright.

Indeed, from an EU normative standpoint, this " first layers " analysis is exclusively based on a literal interpretation of those subject matter and requirements for protection according to EU law. Yet, the CJEU has consistently held that the meaning and scope of a term must be determined not only by considering its usual meaning in everyday language, but also by taking into account the context in which it occurs and the purposes of the rules of which it is part [36].

Since all those terms related to " work " and " originality " were pulled out from the EU directives by the CJEU itself, starting with *Infopaq* [37], a correct understanding thereof should take into consideration its broader case law.

4. Deep Copyright : The Bottom Hidden Layers (Competition Rationale)

5 - At the EU level, it is settled case-law that the concept of " work " is :

> An autonomous concept of EU law which must be interpreted and applied uniformly, requiring two cumulative conditions to be satisfied. First, that concept entails that there exist an original subject matter, in the sense of being the author's own intellectual creation. Second, classification as a work is reserved to the elements that are the expression of such creation [38].

Besides the endorsement of the personalist approach [39], those two requirements for protection have been refined by the CJEU, through the development of the " free and creative choices " criteria for assessing originality [40], and the precision that the expression shall make the subject matter " identifiable with sufficient precision and objectivity " [41].

Though the CJEU did not adopt an explicit normative approach to support those interpretation, careful scrutiny seems to evidence an underlying rationale.

Three cases in particular exemplify this rationale.

First, in *Football Dataco*, the CJEU explicitly stated that neither the " significant labour and skill of its author " in the creation, selection or arrangement of data, nor the fact " that selection or arrangement includes " adding important significance " to that data " are relevant for that creation, selection or arrangement of data to be considered original [42]. In other words, the " added value " of the output with regards to the input does not justify, as such, copyright protection. As the facts of this case were concerned with a database, one can certainly trace back the underlying rationale in the *Magil* [43] and *IMS Health* [44] cases. In *Magil*, the CJEU found that, under particular circumstances, the use of exclusive rights which are entitled to the copyright holder on the data of which he is the sole source (*Magil*) would constitute an abuse of dominant position. In *IMS Health*, the CJEU further constructed the law to reach the same conclusion with regards to an arrangement of data that has become a *de facto* standard. Putting it simply, in those two cases competition law was used as a redress mechanism of copyright law to limit exclusive appropriation of the added value associated with the creation, selection or arrangement of data. As it appears in *Football Dataco*, competition law concerns are somehow internalized to strike an appropriate balance within copyright law through the interpretation of its requirements for protection.

Second, in *Levola*, the CJEU explicitly justified the exigence of " sufficient precision and objectivity " of the expression on the basis of competition concerns. Especially, the CJEU explained that :

> Individuals, in particular economic operators (...) must be able to identify, clearly and precisely, what is the subject matter of protection which third parties, especially competitors, enjoy [45].

In other words, the output must be clearly outlined, in order to ensure " legal certainty " [46]. The borrowing by the CJEU to the *Sieckman* [47] case in trademark law is evident [48]. And when one reminds that following numerous decisions of the CJUE, trademark has an " essential role in the system of undistorted competition which the EC Treaty seeks to establish " [49], it seems then clear that the underlying rationale *Levola* is similarly a balancing of copyright law through internalization of competition concerns. This is even more obvious when we have in mind the *SAS Institute* case, in which the CJEU stated that " ideas " (as opposed to " expression ") cannot be protected since it would be " to the detriment of technological progress and industrial development " [50], the promotion of which is traditionally devoted to competition.

Third and foremost, in *Brompton*, the CJEU made clear that not every " choice ", even being " free ", triggers originality. In this case, the CJEU rejected the so-called " multiplicity of forms " doctrine [51], through stating that :

> Even though there remains a possibility of choice as to the shape of a subject matter, it cannot be concluded that the subject

outputs and outputs generated by an AI ? ") by Croatia, Germany, Greece or Portugal. *See* also the more nuanced answers by France or Poland.

33. J. McCutcheon, *The Vanishing Author in Computer-Generated Works : A Critical Analysis of Recent Australian Case Law*, Melbourne University Law Review, 2013, Vol. 36, p. 929.
34. *See* for examples in the EU, the answers in national reports to question 4.3 of the questionnaire for the ALAI 2023 Paris Congress on *Copyright, Related Righs and Artificial Intelligence* (mentioned above) by Belgium (envisaging a " spectrum " with at the one extreme " AI systems that function as a tool to assist and/or enhance human creativity " and at the other extreme " more autonomous AI, having transcended its role as an instrumentality and having independently created a work that exhibits the requisite creativity, which experts and non-experts alike cannot distinguish from a work generated by a human "). *See also* the answer by the Netherlands (considering " it is a matter of degree ").
35. J. Cabay, *Droit d'auteur et intelligence artificielle : comparaison n'est pas raison*, *op. cit.*, p. 325.
36. *See* for one copyright example CJEU, *Johan Deckmyn and Vrijheidsfonds VZW v Helena Vandersteen and Others*, C-201/13, 3 September 2014, § 19.
37. CJEU, *Infopaq International A/S v Danske Dagblades Forening*, C-5/08, 16 July 2009.
38. *See* for example CJEU, *Cofemel – Sociedade de Vestuário SA v G-Star Raw CV*, *op. cit.*, § 29.
39. CJEU, *Eva-Maria Painer v Standard VerlagsGmbH and Others*, *op. cit.*, § 92.
40. *Ibid.*, §§ 87-94. *See also* CJEU, *Football Association Premier League Ltd and Others v QC Leisure and Others / Karen Murphy v Media Protection Services Ltd*, joined cases C-403/08 and C-429/08, 4 October 2011, §§96-99.
41. CJEU, *Levola Hengelo BV v Smilde Foods BV*, C-310/17, 13 November 2018, § 40.
42. CJEU, *Football Dataco Ltd and Others v Yahoo ! UK Ltd and Others*, C-604/10, 1 March 2012, §§ 41-42.
43. ECJ, *Radio Telefis Eireann (RTE) and Independent Television Publications Ltd (ITP) v Commission of the European Communities*, joined cases C-241/91 P and C-242/91, 6 April 1995.
44. ECJ, *IMS Health GmbH & Co. OHG v NDC Health GmbH & Co. KG*, C-418/01, 29 April 2004.
45. CJEU, *Levola Hengelo BV v Smilde Foods BV*, op. cit., § 41.
46. *Ibid.*
47. ECJ, *Ralf Sieckmann v Deutsches Patent– und Markenamt*, C-273/00, 12 December 2002, § 37 and § 51.
48. *See* for further details J. Cabay & F. Gotzen, *Une saveur n'est pas une œuvre : " Cette leçon vaut bien un fromage, sans doute "*, Revue de Droit Commercial Belge, 2019, Vol. 6, pp. 793-811.
49. *See for example* ECJ, *Ralf Sieckmann v Deutsches Patent– und Markenamt*, *op. cit.*, § 35.
50. CJEU, *SAS Institute Inc. v World Programming Ltd*, C-406/10, 2 May 2012, § 40.
51. CJEU, *SI and Brompton Bicycle Ltd v Chedech / Get2Get*, C-833/18, 11 June 2020, § 32.

matter is necessarily covered by the concept of " work " within the meaning of Directive 2001/29 [52].

The justification is clear, and reflects that of *SAS Institute* :

> The criterion of originality cannot be met by the components of a subject matter which are differentiated only by their technical function (...) [because stating otherwise] would amount to making it possible to monopolise ideas, to the detriment, in particular, of technical progress and industrial development [53].

In other words, not every output can qualify for copyright protection, despite being the result of a free choice (and therefore entailing some " added value "). It is also in line with the justification of the rejection of the same " multiplicity of forms " doctrine in the CJEU case law on the exclusion of technical shapes under design [54] (*DOCERAM* [55]) and trademark [56] laws (*Philipps* [57]). Under those two laws, the CJEU excluded the said doctrine in light of the aim to preserve competition as to the features dictated solely by the technical function of a product, for the sake of " technological innovation " [58]. Only the granting of a patent, subject to stringer requirements and shorter duration, would allow an economic operator to capture the added value of such technical shape on a proprietary basis [59].

As it appears clearly from those cases, the extent of copyright subject matter and requirements for protection is actually defined in consideration of the potential impact on competition, which preservation operates as an underlying rationale. Therefore, the question of the copyrightability of AI-generated or AI-assisted output should certainly be addressed in light of competition concerns. Indeed, competition concerns can arise in relation to both equally.

Frosio recently suggested that " legal incentives for AI-generated creativity should be dealt with care for the potential disruption it may bring to the creative market " [60]. And the DG Competition of the European Commission recently acknowledged that potential competition issues may arise in the field of Generative AI, that hence will be subject to further inquiry [61].

But next to this external approach, an analysis of the inner balance of copyright shall be performed as well. Indeed, in light of the systematic and teleological interpretation of the subject matter and requirements for protection of copyright in *Football Dataco*, *Levola* and *Brompton*, one would certainly understand that the literal interpretation or originality that underpins the " first layers " analysis referred to in previous section comes a bit short. Yet, the analysis we carried out so far is not decisive for answering my main question. To do so, we need to deepen even more our understanding of the originality criterion.

5. Deepest Copyright : The Top Hidden Layers (*Merger Doctrine*)

6 - *Brompton* is of significant importance to answer the question whether the choices made by a human being assisted by an AI can qualify as " free and creative ", and so original, in the event this AI could generate an identical or similar result (through assisting this human being, or any other).

Indeed, the CJEU stated in that case that there can be no originality " where the realisation of a subject matter has been dictated by technical considerations, rules or other constraints which have left no room for creative freedom or room so limited that the idea and its expression become indissociable " [62].

That last part, that was to be found in previous cases [63], borrows from the *merger doctrine* under US copyright law [64]. Following the seminal case *Herbert Rosenthal Jewelry Corp. v. Kalpakian* (9th Cir.) :

> When the " idea " and its " expression " are thus inseparable, copying the " expression " will not be barred, since protecting the " expression " in such circumstances would confer a monopoly of the " idea " upon the copyright owner free of the conditions and limitations imposed by the patent law [65].

And as emphasized in this case, the *merger doctrine* precisely internalizes " the preservation of the balance between competition and protection reflected in the patent and copyright laws " [66]. The competition law rationale envisaged in previous section is blatant.

It is even truer when one considers the further refinements of this doctrine. In particular, as Samuelson suggested, whereas a minority view in the US merger case law would strictly " reserve merger for circumstances in which there is a true unity of expression and ideas (...) the now prevalent, event if not universally accepted, view is that merger can and should be found when there are some, albeit a limited number, of alternative ways to express certain ideas, facts, of functions " [67]. As a matter of fact, only such a broad understanding of the *merger doctrine* would strike the appropriate " balance between competition and protection " which it aims.

This broader conception of the *merger doctrine* is rooted in *Morrissey v. Procter & Gamble Co.* (1st Cir.), in which the Court held that :

> When the uncopyrightable subject matter is very narrow, so that " the topic necessarily requires, " if not only one form of expression, at best only a limited number, to permit copyrighting would mean that a party or parties, by copyrighting a mere handful of forms, could exhaust all possibilities of future use of the substance. In such circumstances it does not seem accurate to say that any particular form of expression comes from the subject matter. However, it is necessary to say that the subject matter would be appropriated by permitting the copyri-

52. *Ibid.*
53. *Ibid.*, § 27.
54. Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs, Art. 8(1) ; Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs, Art. 7(1).
55. CJEU, *DOCERAM GmbH v CeramTec GmbH*, C-395/16, 8 March 2018, § 29.
56. Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark (codification), Art. 7(1)(e)(ii) ; Directive (EU) 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 (recast), Art. 4(1)(e)(ii).
57. *See* originally CJEU, *Koninklijke Philips Electronics NV v Remington Consumer Products Ltd*, C-299/99, 18 June 2002, §§ 81-84. *See also* in particular CJEU, *Lego Juris A/S c. OHMI*, 14 September 2010, C-48/09 P, §§ 53-58.
58. CJEU, *DOCERAM GmbH v CeramTec GmbH*, *op. cit.*
59. *See* in particular the Opinion of Advocate General Saigmandsgaard Øe delivered on 19 October 2017 in the case *DOCERAM GmbH v CeramTec GmbH*.
60. G. Frosio, *Should We Ban Generative AI, Incentivise it or Make it a Medium for Inclusive Creativity ?, in* E. Bonadio & C. Sganga (eds.), A Research Agenda for EU Copyright Law, Cheltenham, Edward Elgar, 2024 (forthcoming), p. 15.
61. See the recent call for contribution on competition and generative AI : https ://competition-policy.ec.europa.eu/system/files/2024-01/20240109_call-for-contributions_virtual-worlds_and_generative-AI.pdf.
62. CJEU, *SI and Brompton Bicycle Ltd v Chedech / Get2Get, op. cit.*, § 31.
63. CJEU, *Bezpecnostní softwarová asociace – Svaz softwarové ochrany v Ministerstvo kultury*, C-393/09, 22 December 2010, § 49. See also CJEU, *Funke Medien NRW GmbH v Bundesrepublik Deutschland*, 29 July 2019, C-469/17, § 24.
64. See for further details J. Cabay, *L'originalité, entre merger doctrine et multiplicité des formes (ou : Quand la Cour de justice fait l'expérience de l'équilibre sur un vélo pliable)*, Revue de Droit Intellectuel – Ingénieur Conseil, 2020, Vol. 3, pp. 617-650.
65. United States Court of Appeals for the Ninth Circuit, *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738 (9th Cir. 1971), § 742.
66. *Ibid.* ; United States Court of Appeals for the Third Circuit, *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240 (3rd Cir. 1983), § 1253. Following Pamela Samuelson, " [t]he merger doctrine in U.S. copyright law performs a significant number of important functions. Foremost among them has been preservation of opportunities for meaningful competition ", see P. Samuelson, *Reconceptualizing Copyright's Merger Doctrine*, Journal of the Copyright Society of the USA, 2016, vol. 63, pp. 459-467.
67. *Ibid.*, pp. 425-426.

> ghting of its expression. We cannot recognize copyright as a game of chess in which the public can be checkmated [68].

It is clear from the wording in *Brompton* that the CJEU did adopt the *merger doctrine* under the originality requirement. It is also clear that the Court embraced the broad conception of the doctrine, since its application is not limited to the situation where there is " no room for creative freedom ", but also where the " room [is] so limited " [69].

Furthermore, reading *Brompton* in light of the previous CJEU case law on the exclusion of technical shapes under design and trademark laws comfort the idea of a borrowing from the broad US *merger doctrine*, for the sake of preserving competition. In particular in *DOCERAM*, the CJEU arguably adopted the same view that the 1st Cir. Court of Appeal in *Morrisey v. Procter & Gamble Co.*, holding that :

> If the existence of alternative designs fulfilling the same function as that of the product concerned was sufficient in itself to exclude the application of Article 8(1) of Regulation No 6/2002, a single economic operator would be able to obtain several registrations as a Community design of different possible forms of a product incorporating features of appearance of that product which are exclusively dictated by its technical function. That would enable such an operator to benefit, with regard to such a product, from exclusive protection which is, in practice, equivalent to that offered by a patent, but without being subject to the conditions applicable for obtaining the latter, which would prevent competitors offering a product incorporating certain functional features or limit the possible technical solutions, thereby depriving Article 8(1) of its full effectiveness [70].

Applied to the choices made by a human being, it derives clearly from this case law that they will not qualify as " original " when they are dictated by constraints that have left no or limited room for free and creative expression. To trigger originality, the amount of choices available shall therefore not be one only. Neither can it be two or three, probably. But what about five, ten, hundreds, thousands ? There is no correct (and general) answer as to the threshold, and this must be addressed through a case by case analysis.

What however seems clear is that the capabilities of a human being to explore the amount of choices available is not comparable to the capabilities of an AI. As Degli Esposti, Lagioia and Sartor emphasized :

> Extended automated reuse would affect authors to a greater extent than human reuse, given AI-generation of new creation based on a training set can be unleashed with little marginal costs, and can explore any kind of combinations and variations [71].

As a consequence, if we were to apply the *merger doctrine* rationale to the situation where the work has been created by a human being with the assistance of a Generative AI, arguably the hypothetical threshold would be much higher. Whereas imagining and exploring thousands of possibilities might be elusive for a human being in a lifetime, such an AI might be able to do so in a few minutes. What would then be the limits to the " choices " this AI can make, " with little marginal cost " : thousands, millions, billions ? If we were to leave this AI running " unleashed ", disclosing every generated output, would it exhaust all possibilities for human beings to express the same idea and enjoy copyright protection for their true creation ? If all the outputs (or the most interesting ones) could be appropriated by one single economic operator, claiming copyright protection (which, quite conveniently, is not subject to any registration requirement), what would be the consequences on competition and associated benefits, such as innovation ?

The functioning of GANs might serve exemplifying those concerns. As Goodfellow *et al.* explained, the basic idea underlying its functioning is the following :

> In the proposed adversarial nets framework, the generative model is pitted against an adversary : a discriminative model that learns to determine whether a sample is from the model distribution or the data distribution. The generative model can be thought of as analogous to a team of counterfeiters, trying to produce fake currency and use it without detection, while the discriminative model is analogous to the police, trying to detect the counterfeit currency. Competition in this game drives both teams to improve their methods until the counterfeits are indistinguishable from the genuine articles [72].

In a sense, all the attempts by the generative model to fool the discriminative model trough creating output mimicking the inputs are akin to " choices " made amongst a myriad of possibilities. Depending of the quantity/quality of the data and of the model, if all those attempts were to be appropriated to the benefit of one single operator though an exclusive right, there could be an exclusion of all competition on the same output market. And according to the settled CJEU case law, unless there are present exceptional circumstances (as already mentioned), " the exercise of such right, even if it is the act of an undertaking holding a dominant position, cannot in itself constitute an abuse of a dominant position " [73].

So, rather than entirely leaving the potential competition issues to competition law and the uneasy demonstration of exceptional circumstances, *ex post*, it could be concluded that those " choices ", despite being numerous, cannot give rise to originality, which factors competition concerns into copyright law, *ex ante*. This conclusion is strongly supported by the *merger doctrine* and must be general, whoever makes the choice, being the user of the AI or the AI itself. It is also a conclusion that might not be limited to the sole " *droit d'auteur* " EU law, but could apply to common law copyright, given the US origin of the doctrine. It seems however that so far, the argument was not brought in the US literature [74]. Actually, as far as I know, the *merger doctrine* argument was never discussed in the literature on AI and copyright.

So, turning to my initial question, I posit that in the context of AI-assisted production, it is not much a matter of the choices made by the human being, but rather of the " choices " that can be made by the AI. If the author assisted by a Generative AI has been making choices which could have been equally done by this AI, then the result cannot be deemed the " author's own intellectual creation ", bearing his " personal touch ". Such a conclusion is not based on a plain reading of the originality requirement, but is supported by its contextual and teleological interpretation, duly taking into account the competition underlying rationale.

68. United States Court of Appeals for the First Circuit, *Morrissey v. Procter & Gamble Co.*, 379 F.2d 675 (1st Cir. 1967), §§ 678-679.
69. CJEU, *SI and Brompton Bicycle Ltd v Chedech / Get2Get, op. cit.*, § 31.
70. CJEU, *DOCERAM GmbH v CeramTec GmbH, op. cit.*, § 30.
71. M. Degli Esposti *et al., The use of copyrighted works by AI systems : Art works in the data mill*, European Journal of Risk Regulation, 2020, Vol. 11, p. 67.
72. I. Goodfellow *et al., op. cit.*, p. 1.
73. See for example CJEU, *Huawei Technologies Co. Ltd v ZTE Corp. and ZTE Deutschland GmbH*, C-170/13, 16 July 2015, § 46.
74. The *merger doctrine* is not mentioned in the US national report to the questionnaire on *Copyright in artificially generated works* submitted to the AIPPI 2019 World Congress in London, nor in the US national report to the questionnaire on *Copyright, Related Rights and Artificial Intelligence*, submitted to the ALAI 2023 Congress in Paris.

6. Conclusion : Parrots and Copyright

7 - One basic assumption of mine is that the main reason why we started discussing copyright protection for Generative AI lies in the similarities between its production and works created by human beings [75].

It is true that it is sometimes hard to distinguish amongst the results brought by a human being and an AI. Yet, we should not overlook that despite those similarities, the underlying processes are completely different which, in turn, questions the relevance of those similarities and the conclusion we can draw from there.

In a paper discussing actual and potential risks of developing ever larger language models, Bender, Gebru, *et al.* suggested that some of the value we associate with the output (here the generated text) is biased " by our own linguistic competence and our predisposition to interpret communicative acts as conveying coherent meaning and intent, whether or not they do ". Such value (coherence here), they say, is " in the eye of the beholder " [76]. To raise awareness on this aspect, they coined the " stochastic parrot " metaphor to remind us what we are actually talking about :

> Contrary to how it may seem when we observe its output, an LM [Language Model] is a system for haphazardly stitching together sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning : a stochastic parrot [77].

Confronted with such output, we should avoid parroting traditional and superficial copyright doctrine and wording to simply concluding that, provided there was so room for human choices, the way to get to that result does not make a change. It does make a change. Actually, it changes everything.

As suggested by Bender, Gebru, *et al.*, scaling up with language models is incurring new kind of risks of harmful behavior [78]. And Gugli, Henandez, Lovitt *et al.* emphasized that it can be difficult to study those risks on smaller models [79]. The same goes with copyright analysis. Copyright is anthropocentric, and its design is entirely based on the capabilities of a human being [80]. Applied equally to works created by human beings and generated or assisted by AI, it will not produce the same (possibly desirable) outcomes, because of the change of scale.

To put this idea in simple words and make my point clear, we can compare creation to water. Water does not behave the same way depending on the temperature. Below 0 °C, it is solid. Above 100 °C, it is gas. Within this range, it is liquid. If I want to encapsulate water at these different temperatures, I won't use the same container. It is true that the development of technologies since the early printing had already significantly " raised the temperature " (with the radio, television, satellite, internet, etc.). But creation remained " solid " or " liquid " and could be captured with the same type of copyright containers we used for decades. With the advent of Generative AI, creation became like gas and behaves a completely different way. The " copyright bottle " is certainly not appropriate to fully get it.

In my view, prompting to generate an output and tweaking it to make it resembles a work of art can by no means be considered equivalent to taking a pencil to write down a novel based on one's life experience, a chisel to carve out of marble an idealized representation of mankind, or sheet music paper to compose a symphony for posterity. Neither can it be compared to creating the so-called " small changes ", such as drafting contractual terms and conditions [81], designing a handbag [82], or playing a catchy melody on simple chords [83]. It is because it does not take the same amount of time, effort, or investment, nor supposes the skills, qualification, or education, from the human being originating the alleged work.

This is why we must distinguish.

The " one size fits all " approach of copyright does not discriminate against amongst human creations based on " quality ", " merit ", " aesthetics " or " purpose " [84], and accordingly protects equally the masterpieces and the " small changes ".

It does not imply however that we cannot distinguish between genuine human works, purely AI-generated outputs, and human productions assisted by an AI. As the CJEU stated in *Cofemel* :

> It is apparent from the wording of [Article 17(2) of the Charter of Fundamental Rights of the European Union] that subject matter constituting intellectual property qualifies for protection under EU law. However, it does not follow that such subject matter or categories of subject matter must all qualify for the same protection [85].

We must then consider the underlying technology, accept that it is not neutral and discriminate against accordingly to give the AI assisted productions another status. Concluding otherwise would run counter to the aim of the " technological neutrality " which, according to the CJEU, " requires that the interpretation of the provisions at issue does not hold back innovation and technological progress " [86].

Hence, even the " one size fits all " and " technological neutrality " principles that underpin what I referred to as the " result " approach, and that is prevalent in the literature, suggest that such approach is not appropriate. This is why I recommend adopting the " process " approach.

Following this approach, the underlying competition rationale of copyright law and its concrete inner application through the broad *merger doctrine* adopted by the CJEU seriously pleads against the copyrightability of such productions. It is also preferable because it goes beyond a literal interpretation of the originality requirement, and equally considers the contextual and teleological methods.

In my opinion, this is a deep argument that we should carefully consider. Certainly, it offers perspective for further research. We can always go deeper.■

75. See for further details on my opinion, J. Cabay, *Droit d'auteur et intelligence artificielle : comparaison n'est pas raison, op. cit.*, pp. 307-325 ; J. Cabay, *Mort ou résurrection de l'auteur ? A propos de l'intelligence artificielle et de la propriété intellectuelle, op. cit.*, pp. 179-190.
76. E. M. Bender *et al., On the Dangers of Stochastic Parrots : Can Language Models Be Too Big ?, in* Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (FAccT " 21), Association for Computing Machinery, New York (NY, USA), 2021, p. 616, [https ://doi.org/10.1145/3442188.3445922].
77. *Ibid.*, p. 617.
78. *Ibid.*, p. 612.
79. D. Ganguli *et al., Predictability and Surprise in Large Generative Models, in* Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency (FAccT " 22), Association for Computing Machinery, New York (NY, USA), 2022, p. 1742 [https ://doi.org/10.1145/3531146.3533229].
80. As I suggested elsewhere, *see J. Cabay, Droit d'auteur et intelligence artificielle : comparaison n'est pas raison, op. cit.*, p. 315.
81. *See* for an example of copyright protection for such work in Belgium : Antwerp Court of Appeal, *Auteurs & Media*, 5 February 2007, p. 352.
82. *See* for an example of copyright protection for such work in Belgium : Brussels Court of Appeal, *Revue de droit intellectuel – Ingénieur conseil*, 26 July 2018, p. 488, *Intellectuele Rechten – Droits intellectuels*, 2019, p. 211.
83. *See* for an example of copyright protection for such work in Belgium : Brussels Court of Appeal, 18 December 2008, *Auteurs & Media*, 2010, p. 22.
84. *See* in general S. Van Gompel & E. Lavik, *Quality, merit, aesthetics and purpose : An inquiry into EU copyright law's eschewal of other criteria than originality*, Revue international du droit d'auteur, 2013, Vol. 236, pp. 100-295.
85. CJEU, *Cofemel – Sociedade de Vestuário SA v G-Star Raw CV, op. cit.*, § 38.
86. CJEU, E*utelsat SA v Autorité de régulation des communications électroniques et des postes (ARCEP) and Inmarsat Ventures SE*, C-515/19, 15 April 2021, § 48. *See* also the Opinion of Advocate General Hogan delivered on 23 September 2021, *Austro-Mechana Gesellschaft zur Wahrnehmung mechanisch-musikalischer Urheberrechte Gesellschaft mbH v Strato, op. cit.*, footnote 13.