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Human Creativity Threshold for AI Generated Works: Rethinking Copyright Law in the Age of Generative Artificial Intelligence

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ABSTRACT

The advent of generative artificial intelligence has posed significant challenges to the basic concepts that lie at the heart of copyright law, such as originality, authorship, and creativity. Current AI technologies can independently create literary, artistic, musical, software and audiovisual works without significant human input. This technological progress poses new questions on whether it is possible and permissible for the current copyright regime to protect works which have been produced independently or substantially using generative AI technology. Traditionally, copyright jurisprudence has always taken a stance that creativity comes from human intellect and personality alone. This paper tries to look into the concept of 'human creativity threshold' within the context of copyright law and analyses whether the works produced through AI meet contemporary requirements of originality and authorship. The paper analyses the Indian legal scenario in comparison with the laws in other major economies such as the USA, UK, and EU. The paper contends that AI-generated work, which is completely autonomous from any human contribution, should not be awarded copyright. Nevertheless, work generated by an AI system that involves substantial input from a human creator through prompting or selection can meet the required standard of originality. The paper concludes that there is a need for a more nuanced approach to addressing such problems, known as the human contribution test.

Keywords: Generative AI; Authorship; Copyright; Human Creativity; Ownership; Copyright Jurisprudence.

I. INTRODUCTION

The nature of artificial intelligence has changed radically to become an intelligent and creative contributor in addition to its role as a support tool used in computations. Today's generative AI tools are able to compose music, create literature, paint pictures, produce films, write computer

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codes, and generate sophisticated texts within seconds. Technologies like ChatGPT, DALL-E, Midjourney, Gemini, and Stable Diffusion have revolutionised the process of content creation by offering innovative capabilities to create highly original content using algorithms and machine training processes. This innovation, in turn, has led to the disruption of the concept of creativity, and thus of copyright law itself. For years, copyright law was based on the idea that the intellectual contributions necessary for copyright protection can come from humans only. Copyright law is built on the principles of originality and authorship, both of which necessarily involve human intellectual input. Modern copyright law is founded on the belief that it exists in order to encourage innovation by providing the creator with exclusive rights to an original work based on intellectual investment. This long-held notion, however, has been challenged by the emergence of generative AI technology, which produces works that closely resemble those created by human beings even though they lack consciousness, intentions, legal personhood, or morality. It can be argued that the emergence of sophisticated generative AI has created one of the most challenging issues facing intellectual property law today, namely the question of whether artificial works deserve copyright protection.

This debate goes beyond technology and reaches deep down to the philosophic roots of copyright law. Since copyright protection aims at encouraging human creativity, there is a serious problem regarding whether the use of computers running automated processes is enough to reward the effort of a person. Therefore, courts, policymakers, copyright offices, and academics around the world face difficult problems involving issues like authorship, ownership, originality, liability, infringement, and the extent to which human input is needed for copyright protection of computer-generated works. The problem here is not only whether artificial intelligence systems have the capacity of producing creative works but whether such works meet the ‘human creativity threshold’ that characterises copyright law. The difficulty involved is figuring out what degree of human intervention is necessary in order for an AI-generated work to qualify as copyrighted material. Although some academics and policymakers consider acts like prompt engineering, creative directions, editing, selection, and arrangement to be intellectual contributions sufficient to justify copyright protection of AI-generated content, others believe that AI-generated works created autonomously cannot meet the originality requirements traditionally assigned to human-created works. In light of the above background, the objective of this paper is to explore the developing relationship between artificial intelligence and copyright laws through the lens of the ‘human creativity threshold’ in AI-generated works. This paper will discuss the theoretical foundation of originality and authorship; differences between AI-assisted creation of works and AI-generated works; and the

comparative jurisprudence on the issue of copyrighting AI-generated works across Indian, American, British, and European legal systems. In addition, the paper will discuss the emerging judicial trend, copyright offices' practice and policies with respect to copyrighting AI-generated works. In this context, the paper attempts to answer some important questions: what does the 'human creativity threshold' mean in copyright law? Can AI-generated works satisfy the tests of originality and authorship? What legal regimes exist in different countries for protecting such creations? Should copyright law distinguish between AI-assisted works and AI-generated works? Does any legislative change need to address authorship and ownership issues in the era of generative AI?

The approach taken in this paper is that of doctrinal and comparative research. This study will mainly depend on statutes, judgments, practice of the copyright office, policy documents, and academic material related to copyright law and AI. For comparative analysis, laws from India, the USA, Britain, and Europe have been used for the critical examination of current trends in regard to AI-generated works and future developments in copyright law.

II. HUMAN CREATIVITY AS THE FOUNDATION OF COPYRIGHT LAW

Copyright law, throughout its history, developed as a law which is intended to safeguard and reward human intellectual labour, effort, and creativity. Philosophically, theories which underlie copyright jurisprudence place great importance on the role played by humans in the process of producing original works. One of the influential theories among others is the labour theory of John Locke, according to which individuals have property rights over their labour on unclaimed resources.¹ In the case of copyright law, this theory implies that creators are granted exclusive rights in their creations because these creations contain their intellectual labour and efforts. Personality theory, on the other hand, is inspired by Hegelian philosophies according to which creative works are considered to be extensions of human personality, individuality, and autonomy.² In other words, artistic and literary creations are not only goods of economic significance but also expressions of human personalities which must be protected under copyright laws. Besides these natural rights theories, utilitarianism and economic theories also justify copyright protection on the ground that copyright laws are necessary incentives to promote creativity and distribution of knowledge for social benefit.³ These theories combined

¹ JOHN LOCKE, SECOND TREATISE OF GOVERNMENT 27–29 (C.B. Macpherson ed., Hackett Publ'g Co. 1980) (1690).

² Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 330–35 (1988).

³ William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326–27 (1989).

make it clear that copyright laws have always had an anthropocentric approach, meaning they have been based on the belief that creativity stems from the intellect of humans.

In such a philosophical framework, the notion of originality has always been a key concept for copyright laws. Originality usually means intellectual production by the author, and it has always required some degree of creativity, skill, or labour. It is worth noting that courts worldwide have stated many times that there can be no copyright without human intellectual activity. In the landmark case of *Eastern Book Co. v. D.B. Modak*, the Indian Supreme Court discarded the traditional ‘sweat of the brow’ doctrine.⁴

The Court ruled that for an expression of an idea to be considered an original work there must be an involvement of skill and judgment together with some element of creativity. This ruling brought copyright law in India closer to the international standard that highlights intellectual creation as compared to mere collection and diligence in information gathering. Additionally, the Court of Justice of the European Union has repeatedly stated that copyright is available only for works that are based on ‘the author’s own intellectual creation.’⁵ In *Feist Publications, Inc. v. Rural Telephone Service Co.*, the United States Supreme Court established that originality involves not only independent creation but also a minimal level of creativity, such that copyright cannot be claimed for compilations consisting only of facts.⁶ These decisions have shown that human intellectual effort serves as the normative and philosophical basis for copyright. Nonetheless, the advent of generative AI creates complications with respect to these long-standing assumptions due to the ability of AI technologies to generate outputs through autonomous operations even without having consciousness, personality, intent, and human intellect.

III. UNDERSTANDING GENERATIVE ARTIFICIAL INTELLIGENCE

Generative artificial intelligence involves the application of highly sophisticated AI tools that are capable of creating novel and original content using the machine learning approach in which the system learns on huge datasets. Generative AI tools rely on neural network architecture and deep learning algorithms for recognising patterns and structure of information within huge amounts of data before generating results that look like those created by humans. In contrast with conventional programming approaches where the computer simply follows instructions programmed into it, generative AI systems use the technique of probabilistic predictions in

⁴ *Eastern Book Co. v. D.B. Modak*, (2008) 1 S.C.C. 1 (India).

⁵ *Infopaq Int’l A/S v. Danske Dagblades Forening*, Case C-5/08, ECLI:EU:C:2009:465 (2009).

⁶ *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991).

which the system uses autonomous computations to come up with outputs without necessarily being programmed for doing so. The current state of generative AI allows creation of literature, artworks, music compositions, computer code, cinematic productions, voice mimicry, and multimedia content among others with remarkable precision. Generative AI technology has thus disrupted conventional thinking about creativity and authorship because the outputs generated by AI tools are usually not predetermined by the user.

One can say that the copyright problem regarding generative AI stems from the fact that AI does not have consciousness, legal personality, intent, or moral agency. Contrary to what is true for human authors, AI does not possess property ownership, the right to claim moral rights, legal judgment, and as such, liability for infringement. As a result, modern copyright discussions revolve around the question of whether copyright should be granted to those who have taken part in the generation of an AI-generated product, i.e., programmers, developers, prompt writers, or users. This discussion has led to a new concept of AI-assisted versus AI-generated works. Specifically, in AI-assisted works, human creative input is significant, while the role of artificial intelligence is limited to the provision of technical help in expressing ideas. In this context, humans actively participate in the process of generating ideas, suggesting prompts, arranging elements of the work, selecting certain options, and exercising aesthetic judgment. For example, in such instances, artists may utilise designs created by AI and make a series of changes to create an artwork. On the other hand, fully autonomous AI-generated creations are those in which there is little or no human intervention aside from triggering the creation process by using the machine or providing simple prompts. In such a scenario, the AI is entirely responsible for selecting the expressive aspects that would go into the output and generating it, with little or no human input in the actual formation of the expression. These types of creations pose a dilemma in regard to existing copyright laws, as there may not be any author who exerts enough intellectual control over the creative process.

IV. COMPARATIVE APPROACH TOWARDS AI-GENERATED WORKS: UNITED STATES, UNITED KINGDOM, AND EUROPEAN UNION

Various jurisdictions have taken up various positions regarding copyright protection of works generated by artificial intelligence (AI). These different positions reveal underlying philosophical disputes regarding what constitutes originality and human creativity. One of the most stringent positions in this regard is that of the United States. US copyright law has always stressed that copyright protects only those works which are made through the application of human creativity and intellect. In the famous ruling of *Feist Publications, Inc. v. Rural*

Telephone Service Co., it was made clear that ‘originality’ means independent creation as well as some minimum amount of creativity.⁷ While the ruling had no direct relation with artificial intelligence, it has played a very important role in modern debates regarding copyright of AI-generated works, since it establishes a fundamental principle that originality demands human involvement. Human authorship of copyrighted material has been even more clearly expressed in the well-known Monkey Selfie Case of *Naruto v. Slater*.⁸ Here, the plaintiff monkey set off the camera, resulting in multiple images being taken. As per the decision made by the United States Court of Appeals for the Ninth Circuit, animals have no standing under copyright law since only human authors are protected under the Copyright Act. This decision reinforced the notion that copyright cannot be awarded to entities that are not human.

It was subsequently observed that the United States Copyright Office denied any copyright registration for works created predominantly through the help of artificial intelligence. With respect to the case relating to the AI-generated art piece titled *Théâtre D’Opéra Spatial*, which had been created using Midjourney, the office found that the part of the creation generated autonomously by the machine was not sufficiently controlled by a human author.⁹ Equally so, in *Zarya of the Dawn*, the Copyright Office granted copyright protection only for the textually created and arranged components of a graphic novel but denied protection for AI-created images in the same graphic novel.¹⁰ In totality, such developments have shown the preference of the United States for the contribution of humans in the creative process and lack of copyright protection for AI-generated works.

The United Kingdom takes a slightly different stance when it comes to computer-generated works. According to Section 9(3) of the Copyright, Designs and Patents Act 1988, when referring to any computer-generated literary, dramatic, musical or artistic work, ‘the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.’¹¹ This provision was made well before generative AI became prevalent in society; hence, it aimed at computer-generated works produced using computer automation processes. Nonetheless, it provides a basis for copyright protection for some computer-generated works irrespective of the absence of direct human input in the creative process. Nevertheless, the provision has led to confusion regarding generative AI because of the question ‘by whom are such arrangements undertaken?’ Questions also exist as to whether authorship lies with the

⁷ Feist Publ’ns, Inc., *supra* note 6, at 345.

⁸ *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

⁹ Letter from U.S. Copyright Office Review Bd. to Jason M. Allen (Sept. 5, 2023).

¹⁰ Letter from U.S. Copyright Office to Kris Kashtanova (Feb. 21, 2023).

¹¹ Copyright, Designs and Patents Act 1988, c. 48, § 9(3) (UK).

programmer, user, software developer, or platform owner. More criticism targets the inadequacy of Section 9(3) concerning the current generative AI technology in view of the high level of independence, uncertainty, and computational processes in such AI systems that go well beyond what the law intended.

The EU, on the other hand, follows a model with a firm belief in the essentialness of human intellectual input in any copyrightable creations.¹² The European copyright tradition relies heavily on the ‘author’s own intellectual creation’ doctrine. This doctrine, which has been established through the case law of the Court of Justice of the European Union, holds that for a work to be copyrighted, it must express the personality and individuality of the author in terms of his or her creative and intellectual freedom. As such, purely machine-generated works would fail the originality test because of the lack of human intellectual inputs. Policy-makers in the EU have thus been reluctant to treat AI systems as copyright owners for similar reasons. Nevertheless, EU policy considerations have also started to look into the balance between technological development and human-centric copyright.¹³

V. INDIAN COPYRIGHT LAW AND AI-GENERATED WORKS

There currently does not exist a statute that explicitly considers the ramifications of generative artificial intelligence with regard to authorship and originality under Indian copyright law. The Copyright Act, 1957 was drafted at a time when creation and expression of works was believed to be a result of human intellectual labour, and hence no mention is made in the Act of autonomous machine generation of works. That being said, some provisions in the Act may be applicable while determining the copyrightability of works generated by AI in India. Under Section 2(d)(vi) of the Copyright Act, in respect of computer-generated works, the author shall be considered as ‘the person who causes the work to be created’.¹⁴

On superficial analysis, the above clause is broad enough to cover some instances of computer or AI-generated content. However, it must be noted that the clause was added years before modern-day generative AI systems came into existence and thus is unlikely to provide any practical guidance on the issue at hand. The question here is who precisely ‘causes’ an AI-generated work to come into existence. The functioning of modern generative AI involves complicated processes entailing programmers, developers, platform operators, users, training datasets, and machine learning algorithms. As such, there may be more than one potential

¹² Infopaq Int’l A/S, *supra* note 5.

¹³ Eur. Parl. Res. of Oct. 20, 2020 on Intellectual Property Rights for the Development of Artificial Intelligence Technologies, 2020/2015(INI).

¹⁴ Copyright Act, No. 14 of 1957, § 2(d)(vi), Acts of Parliament, 1957 (India).

claimant seeking attribution for copyright in an AI output, which could include the person who fed the prompts to the computer, the developer of the AI software, the company running the platform, or even parties involved in preparing training datasets and computational infrastructures. This vagueness in the statutory provision under Section 2(d)(vi) is inadequate in dealing with competing claims when AI generates outputs automatically without any significant human input.

There are no precedents from Indian courts relating to copyright claims with respect to the outputs of generative AI systems. However, current originality law in India suggests that the contribution of human intellect continues to play a crucial role in copyright. In *Eastern Book Co. v. D.B. Modak*, the Supreme Court of India, while rejecting the ‘sweat of the brow’ concept, stated that originality implies exercising skill and judgment along with some creativity.¹⁵ It is important to understand that copyright cannot be claimed if an artwork has been made without any intellectual effort. In relation to AI-generated artworks, this means that the absence of any human intellect involved in the process of creation will make it impossible for such artworks to claim copyright protection. At the same time, there is a possibility that AI-assisted works might claim copyright as they do include some amount of human intervention. In the situation where the human creator is actively engaged with the creation of the AI-based artwork by conceiving, creating prompts, editing, arranging, selecting, modifying, or making decisions in relation to the appearance of a particular artwork, the work created could very well be protected by copyright. Although there are no specific provisions of law in Indian legislation regulating copyright issues in case of AI-generated artworks, the analysis of previous jurisprudence reveals that human creativity remains at the centre of copyright law.

VI. THE HUMAN CREATIVITY THRESHOLD AND THE RISE OF AI-GENERATED WORKS

Indeed, the advent of generative artificial intelligence has radically undermined the premises on which copyright law traditionally rested, especially those concerning originality, authorship, and human creativity. Traditionally, copyright law was based on the premise that creativity is derived from the mind, labour, skills, judgments, and personalities of humans only.¹⁶ The current generation of generative AI is already able to generate literary and artistic works, music, software codes, cinematographic works, and multimedia content independently and with limited

¹⁵ *Eastern Book Co.*, *supra* note 4.

¹⁶ JOHN LOCKE, TWO TREATISES OF GOVERNMENT bk. II, ch. V (Peter Laslett *ed.*, Cambridge Univ. Press 1988) (1690); GEORG WILHELM FRIEDRICH HEGEL, PHILOSOPHY OF RIGHT 36–45 (T.M. Knox *trans.*, Oxford Univ. Press 1952).

involvement of humans.¹⁷ Thus, modern copyright law is confronted with the question whether AI-created works meet the criteria of the human creativity threshold and should therefore be recognised as copyrighted works.

The human creativity threshold stands for the minimum amount of human creative activity necessary to establish copyright protection. Copyright law has previously distinguished clearly between the creativity of humans and mechanical processes.¹⁸ However, as modern generative AI tends to blur the boundaries between creativity and mechanical production, such distinctions fade away. The main point at issue is not about whether artificial intelligence was involved in producing a piece of art but about whether human creativity was the primary driver in the overall creative process.

The engagement of humans in the creation of AI-generated works can be understood as conceptualising, prompt engineering, editing, making judgments about aesthetics, selecting, arranging, curating, and manipulating the AI's outputs. Such actions can entail a significant amount of intellectual exertion and creativity. The question that emerges from this situation is whether or not prompt engineering qualifies as authorship. Proponents claim that prompt engineering requires creativity, concept formation, narration, style experimentation, and artistic judgment, among other things. Prompt engineering could therefore be highly intellectually creative in the way of artistic direction and conception of art.

On the other hand, opponents state that prompts are nothing more than commands. Considering that AI systems produce results through independent computation, prompting may not qualify as original content for purposes of originality. This situation becomes even more complicated because of the unpredictable nature of generative AI; users are unlikely to know what the AI will produce before the fact. As such, many experts have noted that mere prompting on its own is not enough for the assignment of copyright, as the act should also involve significant human intervention into the creation process through editing, refining, modifying, or curating the final output.

This has led copyright legislation to reassess the nature of creativity, originality, and authorship due to the growing capabilities of AI technology in generating material where machines play an ever-increasing role in the creative process. Even though machines can become highly advanced technology tools, intellectual input from human beings still holds significant importance.

¹⁷ Andres Guadamuz, *Artificial Intelligence and Copyright*, 41 WIPO MAG. 14, 16–18 (2017).

¹⁸ Jane C. Ginsburg & Luke Ali Budiardjo, *Authors and Machines*, 34 BERKELEY TECH. L.J. 343, 357–60 (2019).

VII. CHALLENGES OF COPYRIGHT PROTECTION FOR FULLY AI-GENERATED WORKS

Copyright for works created by artificial intelligence on their own creates multiple philosophical, legal, economic, and ethical problems. One of the fundamental objections to copyrighting AI works is that such an approach could jeopardise the foundations of the very concept of copyright law. The traditional approach to copyright regulation was built around the idea of promoting human creativity and intellectual work. However, machines cannot be considered conscious entities, nor can they be regarded as independent, economically motivated, morally responsible agents or creative personalities. Thus, copyrighting outputs generated by machines undermines the normative basis of copyright jurisprudence since the purpose of copyright is traditionally understood as promoting human rather than machine creativity.

Another crucial objection deals with overproduction and monopolisation of creative markets. Artificial intelligence generators can create thousands of original outputs within just seconds at virtually no cost. Allowing copyright for those outputs may lead to the flooding of creative markets with monopoly-owned material. Such a possibility would not only limit access to knowledge and creativity but also adversely affect chances for human creators who are struggling in the face of automation.

Ownership becomes another challenge, since there will be a number of issues associated with determining authorship and ownership of AI-generated content. Several different parties can possibly have a right to ownership of generated output. This includes people submitting requests, software designers, owners of the platforms on which such systems are running, companies providing financial backing for the development of AI tools, and copyright holders of datasets that might have been used to train these systems. Furthermore, there are ethical and societal issues involved in how these AI tools work. Generative models are often trained with huge datasets composed of copyrighted books, music, photos, artworks, and other types of online content.¹⁹

These issues give rise to concerns about unapproved training, derivative works, style stealing, and human artists being exploited because their creations are used by the machines for training without their approval and compensation. The increased automation of the creative sector also gives cause for fear that there will be an increasing replacement of human beings by automation in the workplace, leading to a devaluation of human creative labour. However, despite the

¹⁹ WORLD INTELLECTUAL PROP. ORG., *WIPO Conversation on Intellectual Property and Artificial Intelligence* 8–12 (2019).

aforementioned concerns, there is also a valid reason for extending copyright protection to creations that result from the use of artificial intelligence in cases where the creation involves considerable human creativity. Artificial intelligence is increasingly becoming more than just a tool; it has become like a camera, graphic editor, instrument, or computer programme designed to help creative individuals in their work. Copyright laws have evolved alongside technological advancements without taking away the protection afforded to the creators.

VIII. TOWARDS A HUMAN CONTRIBUTION TEST AND THE NEED FOR REFORM

Considering the constraints in the present copyright regime, a suitable remedy for a viable legal solution can be the use of a ‘human contribution test’ to decide on issues of copyright protection for AI-generated products. In this context, copyright protection shall be granted only if the human contributor played a vital role in exercising the necessary amount of creativity in generating the expressive content of the work. Unlike the traditional approach which only emphasises the presence of AI-generated components, the focus will be shifted to the nature of the intellectual input contributed by humans. Factors such as the originality and sophistication of prompts, the amount of conceptualisation, editing or modifications done, curatorial selections made, aesthetic judgment, predictability of AI-generated outputs, and the dominance of human creativity shall all play a critical role in determining issues of copyright protection for the concerned works. This approach thus helps avoid the extremes of refusing copyright protection for all AI-related works or granting monopoly over purely machine-generated content which lacks any input from human beings at all. The need for legislative intervention has hence become imperative.

Most of the existing copyright laws throughout the world have been framed before the dawn of generative AI and thus lack the requisite ability to deal with authorship, ownership, originality, and liability issues associated with AI-generated content. As far as India is concerned, it does not currently possess any specific legislation relating to AI and copyrights, any judicial guidance relating to generative AI, nor adequate standards with regard to generative AI. The future may bring about statutory provisions wherein copyright subsistence may be defined on the basis of the existence of human intellect.²⁰ The legislatures will have to clearly differentiate between works that are assisted by AI but essentially made by human creativity and those which are completely generated by autonomous AI. There may also be a necessity for introducing transparency in respect of such AI-related content through legal provisions mandating its

²⁰ Ginsburg & Budiardjo, *supra* note 18, at 357–60.

disclosure. A sui generis approach to protecting AI-generated content through legislation may also become necessary.

In summary, generative artificial intelligence is among the greatest challenges to the evolution of copyright laws in history. The core problem is not the ability of AI to produce creative works, but whether the production of these works satisfies the requirement of human creativity for copyright purposes. Comparative jurisprudence in various jurisdictions has shown that there is still a strong preference for human involvement as authors of creative works under copyright laws. As a result, copyright law cannot cover AI-generated works without any form of human intellectual input. Works produced by human-AI collaboration can, however, be eligible for copyright.
