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Protection of Software Under Copyright vs Patent: Analyzing the Doctrinal Uncertainty in Indian IP Regime

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ABSTRACT

The growing importance of the digital economy has further fueled the debate about the proper scope of intellectual property protection for computer software in India. This paper discusses the doctrinal ambiguity arising from the coexistence and distinctness of copyright and patent laws under the Copyright Act of 1957 and the Patents Act of 1970. Although software is specifically protected as a literary work under copyright law, patent protection is still a matter of debate under Section 3(k) of the Patents Act, which provides that "computer programs per se" are not patentable. By carrying out a doctrinal analysis of the relevant statutory provisions, judicial decisions, and Patent Office guidelines, this study assesses the manner in which Indian courts and authorities have been interpreting the "technical effect" and "technical contribution" threshold in computer software inventions. This paper finds that the current regime is a manifestation of conceptual tension between innovation policy and statutory exclusion, which requires legislative clarification or judicial consistency to ensure certainty and alignment with international technological advancements.

KEYWORDS

Intellectual Property Law; Software Patentability; Copyright Protection; Section 3(k); Technical Effect Doctrine; Indian Patent Jurisprudence

INTRODUCTION

The increasing digitalization of economies has caused software to evolve from a technology product to the spine of the economy, government, and innovation. From fintech to artificial intelligence, software applications have come to fuel the vital components of the Indian economy. However, paradoxically, the legal framework surrounding the protection of software in India continues to be characterized by doctrinal uncertainty. The long-standing debate over whether software should be protected by copyright or patent laws has created a great deal of uncertainty for all concerned. This uncertainty is most apparent in the interpretation of Section 3(k) of the Patents Act, 1970, which provides that "computer programs per se" are not patentable[1], while the Copyright Act, 1957 clearly includes computer programs within the definition of "literary works[2]." The conflict between these two provisions is at the root of the software protection problem in India[3]. The research problem studied in this paper is about the doctrinal inconsistency and instability in the interpretation of software protection in India. Although copyright law provides automatic protection to the source and object code of a computer program, it does not protect the technical effect or functionality of the software[4]. On the other hand, patent law, which aims to protect inventions that have a technical effect, may potentially protect functional innovations in software. However, due to various statutory exceptions and ever-changing examination guidelines, uncertainty has been created. There have been inconsistencies between judicial decisions and Patent Office decisions, making it difficult to determine the "technical effect" or "technical contribution" required for patent protection[5]. This has resulted in uncertainty for stakeholders in formulating intellectual property strategies, which has a direct impact on innovation policy and India's position in the international technology market.

The main aim of this paper is to study the doctrinal basis of copyright and patent protection of software in India and critically assess the scope and limitations of both regimes.

[1] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India).
[2] Copyright Act, 1957, & 2(o), No. 14, Acts of Parliament, 1957 (India).
[3] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867.
[4] N.S. Gopalakrishnan & T.G. Agitha, *Principles of Intellectual Property* 233–36 (Eastern Book Co. 2d ed. 2014).
[5] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867; *Comviva Techs. Ltd. v. Assistant Controller of Patents & Designs*, 2024 SCC OnLine Del 8096.

Structurally, the paper starts with a conceptual introduction to software as intellectual property and the rationale for its protection. It then moves on to discuss the extent of copyright protection for computer programs under Indian law, followed by a discussion on patent law and the implications of Section 3(k). The next part of the paper delves into important judicial pronouncements and policy evolution that have led to the current state of affairs. Finally, the paper concludes by assessing the doctrinal ambiguity in the Indian IP regime and provides some thoughts on the need for more definitive legislative or judicial pronouncements

LITERATURE REVIEW

The issue of software protection under intellectual property law in India has been an area of constant debate among academics and the judiciary, especially in terms of the balance to be achieved between copyright and patent laws. The literature review shows that there has been a constant tension in the literature, which has been driven by the interpretation of the law, the underlying policy, and technological developments**.**

Legislatively, authors have often juxtaposed the straightforward definition of computer programs as "literary works" under the Copyright Act, 1957 with the limited definition of Section 3(k) of the Patents Act, 1970, which states that "a mathematical or business method or a computer programme per se or algorithms" cannot be patented[6]. It has been suggested that although copyright law automatically protects source and object code, it does not protect the technical and functional innovations contained in software. On the other hand, patent law, which is well-equipped to protect functional inventions, is apparently limited by legislative policy against monopolization of abstract ideas. The word "per se" has been the subject of interpretive debate, with academic literature split on whether it permits patents for software with technical effects[7].

Judicial pronouncements have played a major role in this regard. In Tata Consultancy Services v. State of Andhra Pradesh, the Supreme Court held software to be "goods" under sales tax, thereby indirectly supporting its commercial and proprietary nature[8]. While not a

[6]Copyright Act, 1957, & 2(o), No. 14, Acts of Parliament, 1957 (India); Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India).
[7] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867.
[8] *Tata Consultancy Servs. v. State of Andhra Pradesh*, (2005) 1 SCC 308.

decision on intellectual property law per se, this decision is often cited in literature to illustrate the recognition of software as a valuable commodity by the legal system. More on point is the decision in Ferid Allani v. Union of India, where the Delhi High Court held that computer programs with a "technical effect" or "technical contribution" are not excluded under Section 3(k)[9]. This decision has been hailed as progressive by scholars, who also note its imprecision in definitional terms, which can lead to patent examiners' inconsistent application of the provision. Also relevant to this discussion is Microsoft Technology Licensing LLC v. Assistant Controller of Patents and Designs, which has been cited in recent literature to support the purposive interpretation of Section 3(k), and the need for innovation not to be denied protection simply because it is delivered via software.

The regulatory bodies have also played their part in shaping the framework. The Computer Related Inventions (CRI) Guidelines, published by the Indian Patent Office, particularly the 2016 and later revised guidelines, have been widely analyzed in academic literature[10]. Some critics have suggested that the earlier guidelines took a very narrow approach, effectively denying most software patents, while the later revisions seem to be more in line with judicial interpretations that allow patentability if technical progress can be shown. However, academic literature suggests that there is a lack of uniformity in the examination process, indicating a mismatch between the guidelines and their implementation[11]. Comparative studies also add to the literature. Some authors have compared the more conservative approach in India with the general standards of patentability in other countries such as the United States and the European Union. While some authors have argued in favor of the more restrictive approach in India as a necessary measure to maintain public access and avoid overly broad patents, others have suggested that too much rigidity in the system will only act as a deterrent to innovation in high-tech industries, both domestic and foreign.

However, certain gaps in the debate have persisted. Firstly, a major part of the debate has proceeded on the assumption that copyright and patent protection are two mutually exclusive regimes, and not examined the possibility of complementarity in a layered protection regime. Secondly, while the evolution of the judicial system has been thoroughly analyzed, there has been a dearth of empirical research on the application of the "technical effect" test by patent examiners. Thirdly, the constitutional dimensions of intellectual property in India,

[9] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867.
[10] Office of the Controller General of Patents, Designs & Trade Marks, *Guidelines for Examination of Computer Related Inventions* (2017
[11] *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772

particularly the interface between innovation and public interest under Articles 14 and 19(1)(g) of the Indian Constitution, have not been adequately addressed.

This research paper seeks to fill these gaps by offering a doctrinally coherent analysis of copyright and patent regimes, examining judicial logic and administrative practice, and situating the debate within the context of constitutional imperatives. By offering an integrated analysis of statutory interpretation, judicial trends, and regulatory development, this paper seeks to offer a better understanding of the Indian software protection regime and critically evaluate whether the current balance is adequate to address innovation and public interest.

METHODOLOGY

The proposed research will employ a mainly doctrinal approach, together with comparative and empirical components, to analyze the doctrinal ambiguity in the software protection area under Indian intellectual property law.

1. Doctrinal Research

The research methodology that will mainly be employed is that of doctrinal legal research, which entails a close analysis of the relevant statutory provisions, judicial precedents, and administrative rules[12]. The research will undertake a close analysis of the Copyright Act, 1957 and Patents Act, 1970, specifically Section 3(k) and the expression "computer programme per se." The judicial precedents in the decisions of Tata Consultancy Services v. State of Andhra Pradesh, Ferid Allani v. Union of India, and Microsoft Technology Licensing LLC v. Assistant Controller of Patents and Designs will be critically analyzed to trace the evolution of the "technical effect" and "technical contribution" doctrines[13]. The Computer Related Inventions Guidelines issued by the Indian Patent Office will also be analyzed to trace the administrative interpretation and practice.

2. Comparative Analysis

[12] Copyright Act, 1957, & 2(o), No. 14, Acts of Parliament, 1957 (India); Patents Act, 1970, § 3(k), No. 39, Acts of Parliament, 1970 (India).
[13] *Tata Consultancy Servs. v. State of Andhra Pradesh*, (2005) 1 SCC 308; *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867; *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772.

In order to understand the Indian perspective, this paper conducts a comparative analysis of the standards of software patentability in countries like the United States and the European Union. A comparative analysis will enable an assessment of whether the Indian restrictive approach under Section 3(k) is in line with the global innovation trend or if it is a different public policy approach. A comparative analysis is necessary in this context because of the transnational nature of software development.

3. Limited Empirical Reference

Though the paper is not empirical in nature, it does make a reference to the available data and observations about the application of the "technical effect" test by patent examiners. This helps to establish the fact that inconsistencies are not only present in theory but also in practice. On the whole, the combined methodology is appropriate as it enables a structured critique of the doctrine while also locating the debate in the realm of comparative realities, thus achieving the research objective of evaluating the doctrinal uncertainty and suggesting a greater degree of coherence in the software protection regime of India.

ANALYSIS

Conceptual Foundations: Nature of Software and the Need for Protection

Software is a unique area in intellectual property law because it is both an expression and a functional product. On the one hand, source code is written in programming language and is akin to literary works. On the other hand, software is a functional product because it does technical work such as controlling hardware, processing data, or automating business systems. This ambivalence is the cause of the controversy between copyright and patent protection in India[14].

Computer programs are specifically included within the definition of "literary works" under the Copyright Act of 1957[15]. Copyright protection is automatic, and it protects the expression of code, whether source code or object code. However, copyright protection does not extend to ideas, procedures, or methods of operation. This implies that literal copying is not permitted, but the development of similar software independently is permitted.Patenting

[14] N.S. Gopalakrishnan & T.G. Agitha, *Principles of Intellectual Property* 233–36 (Eastern Book Co. 2d ed. 2014).
[15] Copyright Act, 1957, & 2(o), No. 14, Acts of Parliament, 1957 (India).

protects functionality and technical approaches. However, under Section 3(k), "a mathematical or business method or a computer programme per se or algorithms" are not considered patentable[16].The use of the phrase "per se" introduces a level of ambiguity in the interpretation process. On the one hand, it fully excludes software patents. On the other hand, it only excludes abstract or non-technical software programs[17]. The major doctrinal issue is whether software that produces a tangible technical effect can be considered outside the scope of this exemption.

This conceptual divide is a result of the conflict between two policy objectives: the need to exclude the patenting of abstract knowledge and the need to encourage technological innovation. The Indian regime aims to achieve a balance between these two policy objectives, but the absence of legislative clarity has led to the transfer of this interpretive task to the courts and patent officers.

Scope and Limitations of Copyright Protection for Software

The right is automatically acquired as soon as the work is created and is valid for sixty years from the date of the author's death.The proprietary and commercial nature of software was again reinforced by the Supreme Court's classification of software as "goods" in the case of Tata Consultancy Services v. State of Andhra Pradesh, although in a taxation case. It did not involve intellectual property rights, but it again reinforced the economic value of software and its status as a legitimate article of trade.

Functional Limitations

Despite the benefits, the scope of copyright protection is necessarily limited. It fails to safeguard:

1. Algorithms underlying
2. Functional logic
3. Technical effects
4. Methods of operation

Accordingly, a competing party is free to develop functionally similar software provided that there is no copying of expression. This limitation gives rise to a problem of under-protection

[16] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India)
[17] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867; *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772.

in industries where innovation is focused on technical functionality rather than code organization.

Critical Assessment

Copyright protection is suited for preventing piracy and direct copying but not suited for safeguarding complex technological innovations such as AI-based optimization algorithms or encryption schemes. In these scenarios, the innovation is in the technical solution rather than its textual form.The literature has traditionally presented copyright and patent protection as mutually exclusive systems. Yet, they can complement each other—copyright protecting expression, patent protecting function. This layered protection approach has not been adequately examined in the Indian context

PATENT LAW AND SECTION 3 (K): EXCLUSION AND INTERPRETATION

A**. Statutory Exclusion**

Section 3(k) of the Patents Act, 1970 excludes "computer programme per se" from patentability[18]. The legislative intent seems to be that of avoiding monopolization of abstract software or algorithms, unconnected with hardware or technical implementation. The challenge is in understanding what "per se" means. The section does not define the expression, and its ambit is thus subject to judicial and administrative interpretation[19].

B. Judicial Interpretation

In Ferid Allani v. Union of India, the Delhi High Court held that inventions with "technical effect" or "technical contribution" cannot be excluded from patentability merely because they relate to software. The Court held that innovation in computer technology cannot be excluded merely because of the medium of implementation.

In Microsoft Technology Licensing LLC v. Assistant Controller of Patents and Designs, a similar purposive approach was adopted. The Court cautioned against a too-narrow construction of Section 3(k). The Court held that true technical innovations, even if implemented through software, cannot be denied patentability. These judgments indicate a

[18] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India).
[19] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867.

judicial willingness to restrict the scope of exclusion. However, neither of these judgments defines "technical effect" with any degree of specificity.

C. Administrative Practice: CRI Guidelines

The Computer Related Inventions (CRI) Guidelines, published by the Indian Patent Office, are an effort to make the examination process clearer. The 2016 Guidelines were criticized for being too narrow, thus disallowing most software patents. Later changes brought them more in line with judicial thinking, allowing patentability if the technical contribution can be shown[20]. However, there is still a lack of consistency in the examination process. The patenting authority uses different standards for the assessment of technical effect, thus making it unpredictable.

D. Critical Analysis

The judicial expansion of patentability through judicial interpretation may be seen as bordering on the legislative domain. On the other hand, too narrow an administrative interpretation may hinder innovation. This internal conflict is reflective of the instability of the doctrine as a whole.

E. Technical Effect Doctrine: Conceptual Ambiguity

The "technical effect" test has become the most important filter in software patentability[21]. However, its scope is still not clear. Judicial decisions have referred to the following examples:

- Processing speed enhancement
- Memory management enhancement
- Hardware performance enhancement
- Security architecture enhancement

However, the lack of legislative definition makes it unclear. Does it merely need to improve processing speed? Or must it interface with hardware in a new manner?

[20] Office of the Controller General of Patents, Designs & Trade Marks, *Guidelines for Examination of Computer Related Inventions* (2017); *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772.
[21] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867; *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772

COMPARATIVE PERSPECTIVES: UNITED STATES AND EUROPEAN UNION

A. United States

The U.S. system, especially after the judicial development in cases such as *Alice Corp. v. CLS Bank*, emphasizes the assessment of abstract ideas and the requirement of an "inventive concept[22]." Although quite restrictive, the U.S. system does not completely ban software patents.[23]

Unlike the Indian system, the U.S. system has a judicially developed test that is not statutorily excluded. The statutorily excluded provision in the Indian system indicates a more conservative legislative approach.

B. European Union

The European Patent Convention excludes patents for "programs for computers as such[24]." However, the European Patent Office permits patents if there is a "further technical effect." This is similar to the technical effect doctrine in the Indian system.The Indian system seems to have a conceptual compatibility with the European system but lacks the degree of jurisprudential specificity that is present in the European system. The European system has developed its standards through a body of case law, while the Indian system is in its nascent stage.

C. Implications for India

In the globalized software industry, the absence of consistency in patent protection could have a negative effect on Indian innovators seeking global protection. A global standard could improve competitiveness while ensuring adequate protection against overly broad patents.

D. Constitutional and Policy Dimensions

Intellectual property rights must be subject to constitutional constraints. The Indian Constitution's Articles 14 and 19(1)(g) provide equality and freedom of trade[25]. Overly broad patents could affect competition and entry into the market.

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[22] *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 217–18 (2014)
[23] *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 223–24 (2014)
[24] Convention on the Grant of European Patents art. 52(2)(c), Oct. 5, 1973, 1065 U.N.T.S. 199.
[25] INDIA CONST. arts. 14, 19(1)(g)

On the other hand, a lack of adequate protection could affect innovation and investment. The constitutional structure demands proportionality, ensuring that exclusive rights are for the public benefit and technological advancement.

The Indian structure is a balanced approach to monopolizing abstract ideas. Nevertheless, on its own, ambiguity could be unconstitutional because it leads to arbitrary results in patent protection[26].

E. Complementarity or Conflict? Rethinking the Binary

The traditional approach views copyright as a conflict with patent protection. Nevertheless, a more complex approach to layered protection might be more real:

Copyright protects code expression.

Patents protect technical functionality.

This complex approach might better capture the reality of technological innovation. The Indian paradox is not one of over-protection but rather ambiguity in lines of doctrinal demarcation.

F. Synthesis and Implications

The Indian software protection regime is characterized by a certain conceptual tension between exclusion and innovation policy. Judicial interpretations have gradually increased the scope of patentability, but there is still a certain degree of ambiguity owing to the absence of clear standards.

Copyright protection per se is not sufficient to protect functional innovation. Patent protection, although theoretically possible, is uncertain owing to Section 3(k)[27]. A comparative study indicates that the Indian experience is not unique in terms of software patentability; however, there is a need for greater doctrinal clarity to align Indian innovation policy with international technological advancements.The primary research aim—to evaluate doctrinal uncertainty—indicates that ambiguity is not only a product of the statute but also a consequence of the interplay between the judiciary, the Patent Office, and innovation policy. Until such time that consistency is achieved through legislation or judicial pronouncements,

[26] INDIA CONST. art. 14; *Maneka Gandhi v. Union of India*, (1978) 1 SCC 248

[27] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India); Office of the Controller General of Patents, Designs & Trade Marks, *Guidelines for Examination of Computer Related Inventions* (2017).

software innovators in India will continue to function in a regime characterized by ambiguity rather than certainty.

DISCUSSION

Analysis shows that the research question itself—the extent to which India's dual copyright and patent system offers doctrinal clarity and sufficient protection for software—is to be answered with "skeptical assent." Although the system of law under the Copyright Act of 1957 and the Patents Act of 1970 shows a careful weighing of innovation and public access, the lack of clarity in Section 3(k) of the Copyright Act remains a source of concern[28].

On the positive side, the current system of law is careful. The exclusion of "computer programme per se" is a way of avoiding the monopolization of abstract ideas and algorithms. This is a way of safeguarding competition and ensuring that basic digital knowledge is in the public domain. The judicial evolution, especially in the cases of Ferid Allani v. Union of India and Microsoft Technology Licensing LLC v. Assistant Controller of Patents and Designs, indicates a progressive attempt to align the statutory exclusion with technological advancements through the recognition of the "technical effect" doctrine[29].

However, the main weakness of the regime is found in inconsistency and lack of clarity. The lack of a clear statutory definition of "technical effect" means that patentability is largely subject to administrative discretion. Inconsistent examination practices under the CRI Guidelines mean that applicants, especially start-ups and small businesses, cannot afford to engage in protracted litigation. From a policy point of view, lack of clarity could act as a deterrent to research and development, foreign investment, and innovators seeking trade secret protection. Conceptually, a two-tiered protection system, in which copyright protects expression and patents protect technical contributions, is coherent. However, the lack of clarity on thresholds means that this complementarity is inherently unstable.

First, there is a need for legislative illumination of Section 3(k). The parliament can articulate an "objective technical contribution" test, guided by the jurisprudence of Europe, and specifically carve out the section for abstract ideas and business methods. Second,

[28] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India)
[29] *Ferid Allani v. Union of India*, 2019 SCC OnLine Del 11867; *Microsoft Tech. Licensing, LLC v. Assistant Controller of Patents & Designs*, 2023 SCC OnLine Del 2772.

harmonized and binding examination guidelines should be formulated to ensure a uniform approach by all patent offices. Third, capacity-building programs for patent examiners and IP benches may be helpful.Lastly, the reform should be constitutionally informed.. A balanced and publicly visible standard is required.

The software protection regime in India has conceptual foundations for consistency but requires legislative illumination and judicial consistency to ensure doctrinal consistency and relevance to the digital economy.

CONCLUSION

This paper has examined the doctrinal ambiguity surrounding the protection of computer software under Indian intellectual property law, particularly in the context of the Copyright Act, 1957 and the Patents Act, 1970. The key takeaway of this paper is that while the Copyright Act provides automatic and straightforward protection to the expressive part of software, the extent of patent protection remains ambiguous in light of the unclear meaning of Section 3(k), particularly the phrase "computer programme per se[30]."

From the above analysis, it is clear that the Indian judiciary, particularly in the Ferid Allani v. Union of India and Microsoft Technology Licensing LLC v. Assistant Controller of Patents and Designs cases, has been gradually adopting a purposive approach to patent protection, considering the "technical effect" or "technical contribution" doctrine. These judgments indicate that the judiciary is trying to ensure that software-based technological innovations are not denied patent protection merely on the ground of the form of expression. However, the absence of a clear statutory definition and consistency in patent protection and enforcement continues to remain a source of ambiguity.

The relevance of this research is in recognizing that the issue at hand is not only one of statutory drafting but one of doctrinal coherence. Software inherently exists at the intersection of expression and functionality. A simplistic dichotomy between copyright and patent regimes does not account for this. Rather, a model of layered protection, whereby copyright protects code expression and patent regimes protect tangible technical contributions, is more equitable and policy-sound.

[30] Patents Act, 1970, & 3(k), No. 39, Acts of Parliament, 1970 (India).

Doctrinal stability, ultimately, will require greater legislative clarity in Section 3(k), standardized examination practices, and continued judicial consistency. In the rapidly growing digital economy of India, a certain degree of intellectual property protection is not merely a legal requirement but an economic imperative. A coherent and predictable regime will more easily align innovation incentives with constitutional imperatives of public interest, competition, and technological advancement, and thus position India in the global technology order.