The "substantial similarity test" in software infringement actions in the USA and UK: Drawing comparable lessons for Nigeria's budding software copyright system.

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Abstract.

There has not been a consensus on the appropriateness of the "Substantial Similarity Test (SST)" as the appropriate test in deciding between original and alleged infringing software in computer software infringement actions. It has thus been argued, among others, that the peculiar nature of software should permit for the development of a sui generis evaluation framework, as opposed to the SST standards applied to other non- software copyrighted works.

However, on the other hand, the classical judicial distrust of expert witness in civil actions has been extended to the case of computer software litigations. This has resulted in divergent holdings, particularly where the determination of the similarity of non-literal elements of software source code is involved.

Using the USA and UK's copyright law on software protection as the basis of comparative legal analysis, this paper calls for greater involvement of experts in proving the allegation of software infringement. By adopting the "Abstraction, Filtration and Comparison" standard developed in the American case of Computer Associates v. Altai, the paper suggest that judges could weed out potentially prejudicial expert opinion at each stage of the infringement proceedings, thus leaving them with only credible experts' testimony.

Furthermore, the application of the "Relative Plausibility Theory" approach would ensure that the resulting outcome aligns with the unique background of each country's national copyright system. The general outcome of this comparative analysis and theoretical framework would prove instructive for developing countries like Nigeria where the case law on software infringement is still scarce.

Keywords: Copyright, software infringement, expert opinions, substantial similarity test, USA, UK, Nigeria.

Contents

Part 1: Overview

1.1 Introduction

There was a sustained international discussion during the 1970s and the first half of the 1980s regarding the propriety of protecting computer programs[1] under the copyright, patent or a sui generis system.[2] These scholarly contributions highlighted the response of the Intellectual Property (IP) system to the nature of computer software[3] as an intangible intellectual asset. The subsequent adoption – by the Committee of Experts[4], national legislations[5], and international treaties[6]- of copyright, in the form of protected literary works, as the preferred protection system for software has now moved the discourse to more specific concerns.

Nowadays, issues like the test to be adopted by courts in infringement actions - where there is an alleged "improper appropriation" of protected software source[7] or object codes[8] - have come to the fore. Courts in the USA and the UK have offered divergent standards but most significant of them have involved a test which involves the comparison of the original and alleged infringing software to determine infringement. This test, known as the "Substantial Similarity Test (SST)"[9], admits of different attitudes to the intervention of expert opinions during the infringement proceedings.

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[1] 'A computer program' is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result". Circular 92: Copyright Law of the United States and Related Laws 2009 (United States Code) s 101.

[2] 'WIPO Intellectual Property Handbook' 436. <https://www.wipo.int/publications/en/details.jsp?id=275&plang=EN> accessed 13 November 2019.

[3] 'Software' includes not only computer programs but also the accompanying documentation such as manuals and operating guides. See, David I Bainbridge, 'The Copyright (Computer Software) Amendment Act (1985)' (1986) 49 The Modern Law Review 214, 223. Note however that the terms "computer software" and "computer program" will be used interchangeably in this paper.

[4] 'WIPO Intellectual Property Handbook' (n 2).

[5] See for example, 'CONTU: Recommendations' ch 1 <http://digital-law-online.info/CONTU/contu2.html> (USA); Copyright, Designs and Patents Act 1988 (Her Majesty's Stationery Off 1988) s 3(1)b (UK); 'Copyright Act' s 51 <http://www.cosonng.com/nigerian-copyright_act.pdf > (Nigeria) accessed 12 November 2019.

[6] 'WIPO Copyright Treaty', Art. 4.

[7] A source code is simply the codes written by the programmer. See, John M Conley and Robert M Bryan, 'A Unifying Theory for the Litigation of Computer Software Copyright Cases' (1984) 63 North Carolina Law Review 563, 565.

[8] The output resulting from the translation of the source code into a version that is readable by the Computer is known as the object code. See, ibid 566.

[9] *'Nichols v. Universal Pictures Corporation*, 45 F.2d 119 (2d Cir. 1930)' (*Justia Law*) paras 122–123 <https://law.justia.com/cases/federal/appellate-courts/F2/45/119/1489834/> (An early American decision where the plaintiff argument centred on the 'substantial similarity' of his play and the alleged infringing play) accessed 13 November 2019.

This paper agrees with the prevailing literature[10] on the need for an enhanced version of the test to be applied to software infringement, particularly where a non-literal element of the software is alleged to be copied. However, it goes further to proffer a standard which could address the prejudicial effect of non-credible expert opinions in such infringement actions. In addition, the comparative analysis of the USA and UK positions on these issues will provide a needed guideline to developing countries like Nigeria[11], when faced with similar infringement cases[12].

Therefore, the paper will concern itself with the following research questions: How effective or otherwise have expert opinions been in resolving the substantial similarity conundrum in computer copyright litigations in the UK and the USA? Could a unifying standard regarding the role of experts in software copyright litigations be formulated from statutory and judicial authorities? If so, what should constitute the standard's building blocks? And could comparable lessons be drawn from the standard developed which could then be developed into a home-grown solution for countries like Nigeria?

The paper will proceed as follows. Following the present part, part 2 undertakes a doctrinal and comparative analysis of judicial decisions in the USA and UK regarding their approach to the SST. Furthermore, the role that experts are allowed to play in determining the similarity or otherwise of litigated software will be reviewed. Part 3 discusses the findings from part 2 and then introduces the "Relative Plausibility Theory" as a building block for filtering experts' opinions. It then concludes by drawing comparative and policy implications for Nigeria's software legal regimes.

1.2. Theoretical/ conceptual framework and data types

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[10] Howard Root, 'Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test Note' (1983) 68 Minnesota Law Review 1264, 1295 (Where the author argued for an 'iterative' variation of the test in which the conduct of the defendant and the quantum of work improperly reproduced becomes the key issues for determination); Conley and Bryan (n 7) 608 (The authors advocated for a judicial focus on the actual conducts of the defendant).

[11] Busa Inem, 'Computer Programs and Nigeria's Copyright Protection.|'(*Lawyard*, 1 July 2018) <https://www.lawyard.ng/computer-programs-and-nigerias-copyright-protection-by-busa-inem-esq/>(Where the author urged Nigerian courts to benefit from the rich legal regime on software protection offered by advanced jurisdictions)accessed 13 November 2019).

[12] Though the Nigerian case law is sparsely developed regarding software infringement cases, the obligation to "reciprocate extension of protection" to foreign works provided in Section 41 of its Copyright Act makes the prospect of a high volume of such cases foreseeable in the future.

One of the grounds upon which copyright is justified is that it is good for the society since it balances the interest of right owners and the general public.[13] This conceptual basis for copyright protection will guide the analysis in this paper. Furthermore, the "Relative Plausibility Theory" which permits a trier of facts to filter evidence using the tripartite tools of oral, physical, and miscellaneous trial observations[14] would also be applied.

The data type would include national copyright legislation, case law and applicable provisions of regional directives/international treaties pertaining to copyright and software protection. Therefore, in the three jurisdictions, overarching legislation [15]; specific copyright subject legislations[16]; implementing rules[17] and IP-related bilateral treaties[18] shall be relied upon.

Furthermore, the three jurisdictions are all signatories of the WIPO administered treaties[19] and are consequently enjoined to enforce the provisions relating to the protection of software copyright[20] in their courts. In addition, the UK - at least until Brexit enforced legal changes takes place - has to comply with the EU-level directives on the protection of Computer programs[21]. In this regard, Article 2 of the WIPO Copyright Treaty is particularly instructive in that it paved the way for doctrines like "merger" and "scènes à faire" to achieve prominence in the UK.[22]

To enrich the legal analysis undertaken in this paper, judicial decisions from the trial courts usually vested with jurisdictions in copyright matters will also be reviewed. However, some notable appellate decisions resulting from these decisions will also be considered. These cases are drawn

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[13] Lionel Bently and Brad Sherman, *Intellectual Property Law* (Oxford University Press 2014) 39.

[14] Ronald J Allen, 'Factual Ambiguity and a Theory of Evidence' (1993) 88 Northwestern University Law Review 604, 616.

[15] 'Copyright Law of the United States | U.S. Copyright Office' <https://www.copyright.gov/title17/>; Copyright, Designs and Patents Act 1988 (n 5); 'Copyright Act' (n 5) accessed 14 November 2019.

[16] Copyright Amendments s 10(USA) (the Act which specifically defines computer programs and listed the permitted exceptions to the exclusive rights granted therein); 'The Copyright (Computer Programs) Regulations 1992'(UK) <https://www.legislation.gov.uk/uksi/1992/3233/contents/made> accessed 9 November 2019.

[17] Copyright Office and Procedures, Part 201 (Code of Federal Regulations) (USA); The Digital Economy Act 2017 ((Commencement No 1) Regulations 2017) (UK); Copyright (Collective Management Organizations) (Nigeria).

[18] These are basically "reciprocal extension of protection" agreements with other Berne Convention countries which have been domesticated as Acts of Parliament in the USA and UK but not in Nigeria.

[19] 'Berne Convention'; 'WIPO Copyright Treaty' (n 6); 'WTO | Intellectual Property (TRIPS) - Gateway' <https://www.wto.org/english/tratop_e/trips_e/trips_e.htm> accessed 15 November 2019.

[20] 'WTO | Intellectual Property (TRIPS) - Gateway' (n 20) Art. 10(1); 'WIPO Copyright Treaty' (n 6) Art. 4; 'Berne Convention' (n 20) Art. 5(2).

[21] 'Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the Legal Protection of Computer Programs (Codified Version) Text with EEA Relevance'.

[22] Stanley Lai, *The Copyright Protection of Computer Software in the United Kingdom* (Hart Publishing 2000) 23.

from legal database[23] using search words like "software copyright", "expert opinions in software litigations", "substantial similarity test" and with the specific names of prominent software litigation cases.

Part 2: Doctrinal/Comparative Analysis of the effectiveness or otherwise of expert opinions in the resolution of the substantial similarity conundrum in software copyright litigations

2.1 Doctrinal Analysis

The comparative nature of this paper necessitates a doctrinal analysis[24] of judicial decisions and copyright legislations in the selected jurisdictions. Thus, the reasoning processes that have underlined the standards formulated in software copyright infringement cases will now be reviewed.

2.2. Judicial Opinions from the USA

The rich judicial interpretations of the copyright statutes in the USA has greatly shaped its software copyright jurisprudence. This is not only evident in the manner the courts have expounded on the "conditions for copyright protection", but also regarding the "nature of rights" as obtainable under the statutes. A cursory look at some decided cases will buttress this assertion.

One of the cardinal conditions for the protection of copyright globally is that the work must be an "original" creation[25]. It must, however, be noted that "originality" - in the specific sense of the word - has not been statutorily defined in the US copyright statutes but rather expounded in case law.[26]

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[23] 'Justia Law' <https://law.justia.com/> (USA); 'Darts-Ip | The Global Intellectual Property Cases Database' (*Darts-ip*) <https://www.darts-ip.com/> (UK); 'Intellectual Property Cases in Nigeria' (*Nigerian Law Intellectual Property Watch Inc.*) <https://nlipw.com/tag/intellectual-property-cases-in-nigeria/> accessed 15 November 2019.

[24] Paul Chynoweth, 'Legal Research' 32–34 <http://www.csas.ed.ac.uk/__data/assets/pdf_file/0005/66542/Legal_Research_Chynoweth_-_Salford_Uni.pdf> accessed 19 November 2019.

[25] 'WIPO Intellectual Property Handbook' (n 2) 42.

[26] See for example, '*Synercom Tech. v. University Computing Co*., 462 F. Supp. 1003 (N.D. Tex. 1978)' (*Justia Law*) paras 1009–1010 (Where the defendant sought to justify its copying of the plaintiff's input manuals on the ground that they were themselves not "original". The court held that "…under copyright law the 30% nonoriginal content does not void the copyright as to the 70%...", <https://law.justia.com/cases/federal/district-courts/FSupp/462/1003/2142929/> accessed 26 November 2019.

Furthermore, concerning the "nature of rights" protected in software copyright, the discussion of the copyright holders' generic right of reproduction[27] and preparation of derivative works[28] is appropriate. The issue here relates to the scope of reproduction and derivative rights that the owner/holder of copyright has on the constituent elements of a software program. For example, while the copyright protection of a software's documentation is assured, there is much uncertainty regarding the case of its "user language".[29]

In essence, would a plaintiff be protected if a defendant translated the former's copyrighted user language into another language, thus creating a form of derivative work[30]? The judicial stance in the USA has shown that the answer is not straight forward as it involves the consideration of many factors, including the social objective goals of copyright protection and the determination of which part of the program is an idea, hence non-copyrightable, and which is the expression of the idea.[31]

Having prepared the ground with this introductory discussion, the paper will now focus on the substantial similarity test as applied to several types of literary works and thereafter to software copyright.

2.2.1. "Substantial Similarity Test" applied to literal/non-literal elements of other works

Historically, case law development has sometimes thrived on the application of rules developed in a specific legal context to that in other areas by the process of analogical reasoning.[32] This is exactly the position with the extension of the "substantial similarity" rules developed in the context of infringement of plays and other literary works to the complex situation of software infringement. Therefore, since most of the software infringement cases were decided based on this analogical reasoning, it becomes necessary to first review these lines of non-software copyrighted works. Indeed, the case law is replete with the consideration of whether works like dolls, fabrics,

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[27] Circular 92: Copyright Law of the United States (n 1) s 106(1).
[28] ibid 106(2).
[29] Conley and Bryan (n 7) 572.
[30] See, Circular 92: Copyright Law of the United States (n 1) s 101 (Where a 'derivative work' is defined to include '...a work based upon one or more preexisting works, such as a translation...').
[31] 'Synercom Tech' (n 26) paras 1012–1013 (Where the court failed to find that the 'order and sequence' of plaintiff's input data were 'expressions of the idea').
[32] Chynoweth (n 24) 33.

textbooks, plays and movies had been infringed, hence the application of the "substantial similarity" test.[33]

At present in the USA, to succeed in these cases, a plaintiff must establish that he has a valid copyright and further prove to the court that the defendant has copied the constituent elements in those original works.[34] It should be noted that, subject to certain exemptions[35], the registration of copyright claim is a condition precedent to the institution of any civil action for the infringement of such copyright[36]. Thus, regarding the first condition, the adducing of a certificate of registration -made before or within five years after the first publication of the work-[37] would suffice as prima facie existence of a valid copyright.

However, to establish the second condition[38], two further sub-conditions must be met. First, the fact of actual copying of the "original" work would have to be established either by the proffering of direct or circumstantial evidence. Second, the copying must then be established to be an "improper appropriation" of the original work.[39] In other words, the second condition and its sub-conditions appear the most contentious in copyright infringement cases.

Admittedly, the issue of improper copying has preoccupied the courts for decades. In the locus classicus case of *Nichols v. Universal Pictures Corporation*[40], Judge Hand introduced the concept of "abstraction" of a work's structure and the differentiation of the boundary between its "idea" and "the expression of those ideas". While holding that only the copying of the substantial part of a works' "expression of an idea" could amount to an infringement, he nevertheless concluded that

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[33] Conley and Bryan (n 7) 584.

[34] Ran Duan, 'Antonick v. Electronic Arts: Expert Witnesses Ad Software Copyright Infringement' (2019) 33 Berkeley Technology Law Journal 1147, 1149.

[35] The exceptions relate to the action brought for the violation of authors rights under section 106(A)a&b of the Copyright Act.

[36] Circular 92: Copyright Law of the United States (n 1) s 411(a).

[37] ibid 410(c).

[38] See also, *Three Boys Music Corp v Bolton,* (9th Cir 2000) 212 F.3d 477 2 (Where the court held that "absent direct evidence of copying, proof of infringement involves fact-based showings that the defendant had 'access' to the plaintiff work and that the two works are 'substantially similar").

[39] '*Arnstein v. Porter*, 154 F.2d 464 (2d Cir. 1946)' 468 (Justia Law) <https://law.justia.com/cases/federal/appellate-courts/F2/154/464/1478575/> accessed 27 November 2019.

[40] *Nichols v. Universal Pictures Corporation* (n 9).

"…[n]obody has ever been able to fix that boundary, and nobody ever can…".[41] More, importantly, he cautioned against the use of expert witness in determining substantial similarity of literal parts[42]of copyrighted works and hoped that such evidence is outrightly excluded in future cases.[43]

It is perhaps safe to argue that the reasoning of Judge Hand had resonated in subsequent copyright infringement cases. Thus, a review of copyright infringement case law has shown three distinct tests being employed by courts in resolving the "substantial similarity conundrum". These are the "ordinary observer", "extrinsic/intrinsic" and "abstraction/filtration and comparison" tests. [44] Interestingly, each of the tests has some snippet of Judge Hand's reasoning, either in the form of its methodological approach, terminology or attitude to expert evidence.

In the case of *Arnstein v. Porter*[45], to determine whether the non-literal elements[46] of a copyrighted song have been copied, the court followed the two-prong approach earlier discussed.[47] Using this approach, the Court permitted expert evidence in determining "actual copying". However, in determining whether the copying amounts to an "improper appropriation", it fell back to the test of a lay-man. [48] In essence, the Arnstein's case - in deciding the question of "improper appropriation"- applied the "ordinary observer test".[49]

Also, the United States Court of Appeals for the Ninth Circuit has to decide whether copyright in a screenplay titled "The Last Samurai" has been infringed by a film of the same name produced by the defendant.[50] In this case, the Court applied a test developed and common to that circuit known as the "extrinsic/intrinsic" test. To establish infringement under this test, a plaintiff "…must

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[41] Nichols v. Universal Pictures Corporation, 121.

[42] As applied in the case, the literal elements of a play will include its story plot, lexical expressions and characterizations.

[43] *Nichols v. Universal Pictures Corporation* (n 9)123.

[44] Duan (n 34) 1151–1152.

[45] '*Arnstein v. Porter*,' (n 39).

[46] Here, the non-literal elements will include the sequence of the rhythms and the entire structure of the musical composition.

[47] See text to (n 34)

[48] Cf. *Nichols v. Universal Pictures Corporation* (n 9) para 123(Where Justice Held suggested that substantial similarity could be decided on the evidence of a "…spectator, who would rely upon the complex of his impressions of each character…").

[49] Duan (n 34) 1152.

[50] *Benay v Warner Bros Entm't, Inc* [2010] (9th Cir 2010) 607 F.3d 620624.

prove both substantial similarities under the "extrinsic test" and the "intrinsic test."[51]. The Court further expatiated that:

> "[t]he "extrinsic test" is an **objective comparison** of specific expressive elements(while) the "intrinsic test" is a **subjective comparison** that focuses on whether the ordinary, **reasonable audience** would find the works substantially similar in the total concept and feel of the works".[52]

While the discussion on the role of expert evidence in the extrinsic/ intrinsic test will be undertaken in section 2.2.3, it suffices to state that its "intrinsic" leg is similar to that of proving "improper appropriation" in the ordinary observer test. Interestingly also, both tests place more premium on the evidence of an ordinary or reasonable bystander. The third test known as the "abstraction, filtration and comparison" test was developed specifically in the context of software and will thus be discussed in the next section.

2.2.2. "Substantial Similarity Test" applied to literal and non-literal elements of software

Since a software includes a bundle of entitles which include - but is not limited to - the computer programs and the accompanying documentation[53], it is best to proceed from its elements that have been certainly assured of copyright protection to those without. In essence, an analysis from the known areas where the "substantial similarity test" has been invoked to those areas that are unknown or uncertain.

Therefore, a computer programme[54] in source or object code, irrespective of whether it is stored on a tape, disk, ROM or other medium is subject to copyright protection.[55] This position reinforces the fact that the USA's software jurisprudence focuses more on the substance of the literal[56]/ non-

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[51] ibid, 8463 (Italics and ellipsis omitted).

[52] ibid (internal citations omitted) (highlighting mine).

[53] See, (n 3)

[54] This include both the systems and application programs.

[55] Conley and Bryan (n 7) 580; '*Apple Computer, Inc. v. Formula Intern., Inc*., 562 F. Supp. 775 (C.D. Cal. 1983)' (*Justia Law*) 779; <https://law.justia.com/cases/federal/district-courts/FSupp/562/775/1571737/> See also, *Williams Electronics, Inc. v. Artic International, Inc*., 685 F.2d 870, para 25 (3d Cir. 1982) (Where the court rebutted the arguments of the defendants bordering on the non-copyrightability of software used to control the activities of video game machines. The court held that the legislative intention negates such line of argument and such software are also copyrightable), accessed 29 November 2019.

[56] The literal elements of software relate to the code and its accompanying manual. That is, those elements capable of being copied verbatim.

literal elements of the software, rather than their method of operation. Thus, the discussion has recently centred on the propriety of copyright protection and enforcement for the non-literal elements of software. These non-literal elements[57] include a software's programming language, functional user interface, or its clever algorithm.[58]

Generally, when faced with the infringement of software's literal and non-literal elements, the court has relied on the idea-expression dichotomy to evaluate the opposing claims. Particularly, the dichotomy has become a preferred line of defence by defendants[59] since it originated in the case of *Baker* v. *Selden*[60]. In that case, the Supreme Court held that Selden cannot maintain an exclusive copyright claim to a system of bookkeeping since the system represents an idea which would necessarily be copied by others in expressing their idea of similar bookkeeping forms.

In the case of *Computer Associates International, Inc.* v. *Altai, Inc.*[61], the US Second Circuit developed and applied a third test[62] to determine whether there was "substantial similarity" between two software. Though the case also deals with the question of the misappropriation of trade secrets, we shall only concern ourselves with the facts as it relates to the "substantial similarity" of software.

The case came on appeal to the Second Circuit from the United States District Court, New York. In the lower court, the judge found that the defendant's (i.e. Altai) computer program known as OSCAR 3.4 had infringed plaintiff's copyrighted computer program entitled CA-SCHEDULER. However, the judge failed to find for the plaintiff regarding its second infringement claim and rather held that Altai's OSCAR 3.5 program was not substantially similar to a portion of CA-SCHEDULER called ADAPTER. Consequently, this appeal by the plaintiff against the District's court findings.

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[57] Stanley Lai, (n 22) 2 (Which defines them as features that are behaviorally and functionally similar between programs even if their underlying coding is different).

[58] 'Recent United States and International Developments in Software Protection: Part II by Dennis S. Karjala :: SSRN' 58 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1467847&download=yes> accessed 4 November 2019.

[59] Conley and Bryan (n 7) 587.

[60] '*Baker* v. *Selden*, 101 U.S. 99 (1879)' (*Justia Law*) <https://supreme.justia.com/cases/federal/us/101/99/> accessed 3 December 2019.

[61] *Computer Associates International, Inc v Altai, Inc* [1992] US Court of Appeals for the Second Circuit Docket Nos. 91-7893, 91-7935, 982 F.2d 693 Harv Edu, <https://cyber.harvard.edu/people/tfisher/IP/1992%20Altai.pdf>.

[62] See text to (n 44) for reference to the other tests- i.e. the "ordinary observer" and "extrinsic/intrinsic" tests.

On appeal, the plank of plaintiff's argument essentially rests upon the claim that the district court erroneously concluded that Altai's OSCAR 3.5 was not substantially similar to its own ADAPTER program. The appellant argues that the district court "committed legal error in analysing [its] claims of copyright infringement by failing to find that copyright protects expression contained in the non-literal elements of computer software"[63]. Therefore, the appellant contended that, despite Altai's rewrite of its originally infringing OSCAR code, the resulting program still remained substantially similar to the structure of the plaintiff's ADAPTER program.

In essence, for the Second Circuit Court to effectively adjudicate this appeal, it has to provide answers or guidelines on the following issues[64]:

i.   Whether and to what extent the "non-literal" aspects of a computer program are protected by copyright?

ii.   What are the appropriate policy considerations that are to be upheld by courts when balancing the rights of software rights' holders and that of the public?

iii.   Whether and to what extent courts in software infringement cases are to rely on the opinions of expert's "on the factual and legal issues" before them?

The Court - in answering the first question - formulated a test which has come to be known as the "abstraction, filtration and comparison (AFC)" and which follows a three-prong approach in its analytical framework. The AFC test, though decidedly different from the earlier tests, also proceeds on the foundational basis that substantial similarity can only be established where the "ideas" and the "expression of those ideas" in the software are ascertained at each stage of evaluation.

The court, however, offered a different standard in achieving the distinction between "ideas" and their "expression". Contrary to the other two tests, the court urged us to regard computer programs as having distinct structural designs and that "…its purpose(functions) is the result of several interacting subroutines".[65] Consequently, the court refuted the idea of a computer software having

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[63] *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 8.
[64] These issues were distilled from the totality of arguments made by both parties in the case.
[65] *Computer Associates International, Inc. v Altai, Inc.* (n 61),12.

one discernible idea[66] from which we can safely withdraw copyright protection, while extending the protection to the residual "expression" of that single idea.

In essence, the case invites us to take a non-simplified approach in our analysis but rather to undertake a complex exercise in abstractions. This abstraction invites:

> "…courts…to **break down** the allegedly infringed program into its constituent structural parts. Then, by examining each of these parts for such things as incorporated ideas (not protected), expression that is necessarily incidental to those ideas (not protected), and elements that are taken from the public domain (not protected), a court would then be able to **sift out** all non-protectable material. Left with a kernel, or possible kernels, of creative expression after following this process of elimination, the court's last step would be to **compare** this material with the structure of an allegedly infringing program…"[67]

The "breaking down" refers to the **abstraction step** where the Court will dissect the allegedly copied program's structure and isolate each level of abstraction contained within it. Thereafter, it moves to the "sifting out" or the **filtration step** where courts are enjoined to filter out the unprotected aspects of an allegedly infringed program. Finally, the **comparison step** involves the Court comparing the end product to the structure of the suspect program. According to this test, the result of this comparison will determine whether the protectable elements of the programs at issue are substantially similar so as to warrant a finding of infringement.

Thus, in general, the Court held that non-literal aspects of software could be protected by copyright provided they passes the "Abstraction, Filtration and Comparison" test established by it. Furthermore, in the instant case, it found that the district court rightly held that some of the non-literal aspects were copyrightable while others were not. However, the Second Circuit cautioned

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[66] See, '*Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc*., 797 F.2d 1222 (3d Cir. 1986)' (*Justia Law*) 1236 <https://law.justia.com/cases/federal/appellate-courts/F2/797/1222/104748/> (Where the Court formulated the concept of a utilitarian work having "one discernible idea") accessed 3 December 2019.
[67] *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 12, (highlighting and bracketed words mine).

that the determination of the amount of structural (i.e. non-literal) elements which will qualify for protection would depends on the specific protectable expression found in each program[68].

On the second question, the appellant urged the Court to adopt a pro-programmer's policy for software copyright protection. They claimed that the future development of better software would be hampered if programmers are not guaranteed broad copyright protection for their work.[69] However, the Court refuted the argument and restated the position of the Supreme Court that "[t]he primary objective of copyright is not to reward the labor of authors"[70]. Thus, it held that the appropriate policy consideration is that which advances the public welfare through rewarding artistic creativity and yet permits the free use and development of non-protectable ideas.

The Court's answer to the third question will now be considered in the next section.

2.2.3. Legal basis for expert testimony in software copyright infringement actions

Generally, in the USA, experts' testimony is permitted under certain conditions.[71] Furthermore, courts are statutorily allowed to appoint their own experts upon application by parties or of its own accord.[72] Due to these statutory provisions and case law developments, the field of expert testimony and its boundaries are well researched and documented.[73] However, since there has been renowned scepticism for the use of experts' testimony in deciding the most important question of copying[74], the question is why should the case be different from software copying?

The reasons are quite numerous. Computer software differs from ordinary literary works, in that while any line-to-line copying could easily be detected by a layperson in the latter, it is practically impossible for the same person to compare line-by-line two sets of computer source or object code.[75] Furthermore, when determining substantial similarity, it would be difficult for the judge or

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[68] Computer Associates International, Inc. v. Altai, Inc. (n 61) 22.
[69] ibid, 17.
[70] ibid, citing "*Feist Publications, Inc*. v. *Rural Tel. Serv. Co.*, 111 S. Ct. 1282, 1290, 113 L. Ed. 2d 358 (1991).
[71] Federal Rules of Evidence, rule 702.
[72] ibid, rule 706(a).
[73] See, for example, *Daubert* v *Merrell Dow Pharmaceuticals, Inc* 509 US 579 (1993) (Justia Law) (Where judges were described as "gatekeepers" of the admissibility of scientific evidence); *General Electric Company* v. *Joiner*, 522 U.S. 136 (1997); *Kumho Tires* v. *Carmichael*, 526 U.S. 137 (1999) (Where the courts departed from the earlier "general acceptance test" for the admissibility of expert/scientific opinions and followed a "reliability-based test" laid down in the Daubert's case)
[74] See section 2.2.1 above
[75] Conley and Bryan (n 7) 582.

jury to ascertain the structure and functionality of a computer's software/program, hence the need to call in expert testimony.[76] These special considerations necessitate the thesis of this paper that experts should be given a more central role, particularly in determining unlawful appropriation of software.

In the USA, the role that experts play in determining whether the unlawful copying by a defendant is substantial and hence an infringement will depend on the circuit hearing the case. This because the most important factor when a court determines whether to allow expert witness is the test that the court applies. [77] For example, in the "ordinary observer" test, expert testimony is admissible to determine "actual copying" but it is not permitted in proving whether that copying amounts to an "improper appropriation".[78]

Under the AFC test laid down by the Second Circuit, expert opinions might be permitted in all the three steps of its analytical framework. This is because the Circuit acknowledges some of the special considerations adduced above and thus recognises the fact that software should "…fall outside the category of works contemplated by those who engineered the Arnstein[79] test"[80].

Thus, in the Computer Associates' case, the Second Circuit found that the District Court - with the consent of both parties - appointed and relied upon the testimony of an expert witness on the issue of substantial similarity. However, contrary to the arguments of the Appellant, the Circuit Court fails to disturb the lower court's findings since the expert's testimony merely aided and did not supplant the trial judges' status as the final "trier of fact"[81]. Nonetheless, the Court opines that the determination of the extent of expert opinion admissible (if any) should be left to the discretion of trial judges.

However, the "extrinsic/intrinsic" test only permits the dissected analysis of an expert witness in the extrinsic leg – i.e. in establishing substantial similarity in the ideas of copyrighted work - but prohibited same while determining whether such similarity exists between the forms of

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[76] Duan (n 34) 1151.
[77] ibid 1159.
[78] ibid 1154.See section 2.2.1 above
[79] See, text to (n 45) for the discussion of the Arnstein's case.
[80] *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 20.
[81] ibid 20–21.

expression[82]. As was seen in the relatively recent case of Antonick v. Electronic Arts Inc.[83], this test was applied and it led to the Ninth Circuit finding for the defendant. Because the case substantially departs from the position canvassed in this paper, a further review of its facts and holdings will be appropriate.

The case involves a diversity action seeking unpaid royalties under a contract. In the said contract, the defendant is required to pay the plaintiff royalties for a football-game software the latter developed. However, the defendant failed to honour this obligation and the plaintiff brought this action for software infringement. The plaintiff's claims rest on the contention that the source code of the Sega Madden games - which he developed - has been infringed by that released by the Defendant. Despite this claim, the plaintiff failed to adduce any of the source code was in evidence before the District Court.

Though the plaintiff argued that the testimony of his expert witness should suffice in place of the source codes, the Ninth Circuit refuted the argument holding that the:

> "…law is clear that expert testimony cannot satisfy a plaintiff's burden of proof under the **intrinsic test**, which "depend[s] on the response of the ordinary reasonable person"[84]

It is important to state that the exclusion of expert evidence by the Ninth Circuit in the "intrinsic leg" seems to be a minority disposition among courts in the USA.[85] It is hoped that the position will soon be brought closer to that adopted in the Second Circuit and in this paper.

In summary, the doctrinal summation of the position in the USA shows that the effectiveness (or otherwise) of expert opinions in resolving the "substantial similarity" puzzle is dependent on the following factors:

a.   The test in determining "substantial similarity" of works adopted by the Circuit court in

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[82] Duan (n 34) 1154.
[83]   'Antonick v. Electronic Arts, Inc., No. 14-15298 (9th Cir. 2016)' (Justia Law) <https://law.justia.com/cases/federal/appellate-courts/ca9/14-15298/14-15298-2016-11-22.html> accessed 26 November 2019.
[84] ibid , 9 (highlighting mine).
[85] Duan (n 34) 1148.

which the software infringement action is being heard.[86]

b. The legal standards approved by that circuit in distinguishing between the constituent elements of software that is the "idea" and "expressions of those ideas".[87]

c. The underlying social/public policy considerations which the court favours in maintaining the delicate balance between owners' rights and that of the society.[88] For example, the AFC test - with its multi-layer abstractions and the involvement of expert testimonies- appears to accord higher consideration for society's right and might yield preferable outcomes to defendants.

While advocating a greater role for experts in software infringement cases, this piece is also mindful of the reasoned arguments against their use. The most significant of these objections relate to the possible prejudicial effects of these opinions on the trier of facts.[89] However, instead of throwing away the proverbial baby with the bathwater, this paper will discuss in part III how the court can filter these experts' opinions[90] and lend itself to only the credible ones.

2.3. Judicial Opinions from the UK

Possibly up till the year 2012, there appears to be a consensus in the UK that originality entails that a work emanates from authors' own skills, labour, judgement and efforts.[91] This standard also reveals a classification of originality based on the works involved, thus leaving the UK with "degree of originality" depending on whether the work is a usual work(e.g. literary, artistic, musical works), a special work(e.g. software and database) or a photograph.[92]

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[86] See generally, text to (n 78-82)

[87] See, text to (n 65)

[88] See, *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 18.

[89] See generally, John Selbak, 'Berkeley Technology Law Journal Digital Litigation: The Prejudicial Effects of Computer-Generated Animation in the Courtroom' (2015) Volume 9, Issue 2 Berkeley Technology Law Journal <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1123&context=btlj> accessed 3 December 2019.

[90] '*CMAX/Cleveland, Inc.* v. *UCR, Inc*., 804 F. Supp. 337 (M.D. Ga. 1992)' (*Justia Law*) <https://law.justia.com/cases/federal/district-courts/FSupp/804/337/1651894/> (Where both parties were permitted by the Eleventh Circuit to present their expert witnesses and found the plaintiff's expert testimony regarding source code infringement more credible) accessed 3 December 2019.

[91] Andreas Rahmatian, 'Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure' (2013) 44 IIC - International Review of Intellectual Property and Competition Law 4, 5.

[92] ibid.

It is perhaps important to state that the above approach to originality focuses more on the commitments made by the author to the eventual production of the work, rather than the degree of personal intellectual contributions to such works. This fact was buttressed by the court in the case of *Ladbroke (Football) Ltd* V *William Hill (Football) Ltd* [93]where the court held that "[t]he word 'original' does not in this connection mean that the work must be the expression of **original or inventive thought**…". Thus, with this staggered classification system, a lower scale requirement for originality can be seen for the usual works, while a higher and stricter[94] requirement is expected for software which seeks to be protected by copyright.

Nevertheless, times are changing and the EU Software Directive[95] now defines originality in the sense that the work is the "authors' own intellectual creation"[96] without permitting for the Member State imposing any additional criteria. It is important to note, however, that the EU legal norms mean that UK courts could only be persuaded by this Directive. Despite this institutional limitation, the European Court of Justice has further legitimized the above originality standard in its decisions in *Infopaq International* V *Danske Dagblades Forening*[97] and *Football Dataco* v. *Yahoo*[98].

Regarding the "right to translate", an expansive reading of the provisions of the software law in the UK would likely show the balance tilted in favour of a defendant in a software infringement action. Thus, while section 16(1)b [99] provides the author with the right to issue copy, a

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[93] *'Ladbroke (Football) Ltd* v *William Hill (Football) Ltd*: HL 1964' (*swarb.co.uk*, 9 March 2019) <https://swarb.co.uk/ladbroke-football-ltd-v-william-hill-football-ltd-hl-1964/> (highlighting mine) accessed 6 December 2019.

[94] This initial stricter requirement under the UK law for the copyrightability of software is in contradiction with the USA position on the issue. See, text to (n 26)

[95] Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs).

[96] Cf. 'The Copyright and Rights in Databases Regulations 1997' s 14 <https://www.legislation.gov.uk/uksi/1997/3032/contents/made> (Which defines the maker of a database as '...the person who takes the initiative in obtaining, verifying or presenting the contents of a database and assumes the risk of investing in that obtaining, verification or presentation shall be regarded as the maker of...') accessed 6 December 2019.

[97] [2009] Case C-5/08 (A reference case from a Danish court relating to the extent of the 'reproduction right' of newspapers).

[98] *Football Dataco Ltd v Yahoo! UK Ltd* (The CJEU in this reference -from the Court of Appeal [England & Wales]- had to deal with issues concerning intellectual property rights claimed by Football Dataco and others over the English and Scottish football league fixture lists).

[99] Copyright, Designs and Patents Act 1988(n 5).

corresponding section 18(2) of the amendment[100] excludes programs from works deemed to be infringed by way of issued copies.

2.3.1. "Substantial Similarity Test" applied to literal/ non-literal elements of other works

Unlike the prevailing situation under the USA's jurisprudence where the determination of "substantial similarity" is tied to whether an "idea" or its "expression" has been copied, the position in the UK is markedly different. For example, in a software infringement case, Judge Jacob held that "… [a] distinction between the 'idea' of the program and its 'expression' is not a distinction known to English law"[101]. This position appears true for non-software copyrighted works.

Thus, to establish substantial similarity in an infringement action in the UK, a plaintiff needs to establish that the defendants' work is a copy[102](this is similar to the "copying"[103] condition under the USA case law) and that copyright subsists in the plaintiff's work[104](this is similar to the "valid copyright" condition in the USA). It is only when both are established and the defendant cannot lay claim to any defence or permitted use, that a plaintiff can succeed in any infringement action.

Though the UK's case law does not concern itself with the "idea-expression" dichotomy, it does prescribe that the question of what is "substantial" is to be answered qualitatively rather than quantitatively and that the qualitative part must contain the expression of the intellectual creation of the author.[105]

2.3.2. "Substantial Similarity Test" applied to literal and non-literal elements of computer software

Similar to the position under the software copyright law in the USA[106], copyright protection subsists in object code and this has now been judicially resolved in the UK.[107] However, the court

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[100] 'The Copyright (Computer Programs) Regulations 1992' (n 16).
[101] '*Ibcos Computers Ltd* v *Barclays Mercantile Highland Finance Ltd*: ChD 1994' (*swarb.co.uk*, 13 March 2019) <https://swarb.co.uk/ibcos-computers-ltd-v-barclays-mercantile-highland-finance-ltd-chd-1994/> accessed 6 December 2019.
[102] Copyright, Designs and Patents Act 1988 (n 5) s 27(4) a.
[103] See text to (n 34)
[104] Copyright, Designs and Patents Act 1988 (n 5) s 27(4) b.
[105] See generally, Rosati Eleonora, 'Judge-Made EU Copyright Harmonization- The Case of Originality' (European University Institute 2012) 115. <https://cadmus.eui.eu/bitstream/handle/1814/24616/2012_Rosati.pdf?sequence=1&isAllowed=y>.
[106] See text to (n 55).
[107] Lai (n 22) 2.

in *Starbucks* v *Patsystems*[108] reaffirmed the position that the "functionality, keywords, syntax, commands, options, defaults and iterations" of a computer program are not protected.

In essence, the court delineates the permissible boundary for what can fall under the "expression of the intellectual creations" of an author by outrightly excluding the above-mentioned lists. These lists are generally regarded as non-literal "ideas" in the UK scholarly literature and thus are not protected. However, it appears that non-literal expressions like the program's design, structure and the hierarchical division of tasks into sub-tasks are protected by copyright.[109]

At this point, it is perhaps helpful to keep in mind that while the UK has a "per-se" prohibitive attitude to the above mentioned non-literal elements/lists of software, the USA position is not that expressly prohibitive.[110] The final determination of whether copyright protection subsists in them- i.e. in the USA- will still turn on the "idea-expression" dichotomy and the underlying public policy justification. Since the "idea-expression" standard is relatively unknown under the UK software infringement actions, how does the system then determine the question of substantial similarity?

First, it determines whether copyright subsists in the work by examining the extent of intellectual effort by the author.[111] Second, it seeks to establish whether the defendants' work is a copy. As expected, this ambit is contentious and courts in the UK have held that proof of defendant's access to the plaintiff's software could be highly indicative of an infringement. Thus, in the SAS's case, it was established that the defendant (i.e. WPL) did not directly copy the plaintiff's program because it had no access to the source and object code.[112] Also, in *Ultrasoft Technologies Ltd*. v

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[108] '*Starbuck* v *Patsystems* (UK) Ltd | [2017] EWHC 397 (IPEC) | Intellectual Property Enterprise Court | Judgment | Law | CaseMine' para 64 <https://www.casemine.com/judgement/uk/5a8ff74f60d03e7f57eab1c2> accessed 4 December 2019.

[109] Lai (n 22) 26.

[110] See for example, '*Synercom Tech*. v. *University Computing Co*., 462 F. Supp. 1003 (N.D. Tex. 1978)' (n 26) para 1011 (Where the court held that '...At first glance these **input formats** are simply devices for the assistance of the user to facilitate his task forms. On reflection, however, one must conclude that they indeed express ideas') (highlighting mine).

[111] For example, see, '*SAS Institute Inc* v *World Programming Ltd* | [2013] EWCA Civ 1482 | England and Wales Court of Appeal (Civil Division) | Judgment | Law | CaseMine' para 15 (Where the Court held that the creation of the SAS manual involves intellectual effort on the part of SAS employees).

[112] ibid 13.

Hubcreate Ltd., it was reaffirmed that access to the alleged original is one of the pre-conditions [113]for finding infringement.[114]

Third, the Court then seeks to determine if the copied elements are substantial to warrant a finding of infringement. However, unlike in the USA where there are relatively useful tests, the relevant test(s) to be adopted in the UK is in dispute. At times, references are made to the terminologies obtainable in the USA tests without an effort to directly apply their fundamentals to software infringement actions.[115] Therefore, it might be practical for a home-grown test to be developed in the UK to handle this species of copyright infringement actions. It has also been suggested that the UK might incorporate the US infringement methodology into its software analysis[116] and this writer seems to agree with the line of reasoning.

2.3.3. Legal basis for expert testimony in software copyright infringement actions

Though Jacob J. held in *Ibcos* v *Barclays Merchantile Finance*[117] that "…in cases of claimed copyright infringement, it is not the function of the expert to decide the question of substantiality…", the courts in the UK have relied on expert's testimony in software infringement actions. However, a noticeable feature of the use of these expert witnesses is that they are usually called at the pre-trial or admission stage.

Thus, in the Starbucks's case[118], the court hinted that expert evidence of the parties could be taken at the case management level. Also, in the case of *Cantor Fitzgerald International* v *Tradition (UK) Ltd*[119], both sides were allowed to call experts - at an "admissions process" stage - who

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[113] cf. '*Starbuck* v *Patsystems* (UK) Ltd (n 108) 75 (Where the Court held that the absence of source code is in itself not determinant of non-infringement if there is alternative evidence on which the Court can properly find infringement).

[114] '*Ultrasoft Technologies Ltd* v *Hubcreate Ltd* | [2016] EWHC 544 (IPEC) | Intellectual Property Enterprise Court | Judgment | Law | CaseMine' para 41 <https://www.casemine.com/judgement/uk/5a8ff72460d03e7f57ea874d> (A case involving the alleged infringement of copyright in software and database by a competitor in the serviced-office software market) accessed 4 December 2019.

[115] See for example, '*John Richardson Computers* v *Flanders*: ChD 1993' (*swarb.co.uk*, 18 March 2019) <https://swarb.co.uk/john-richardson-computers-v-flanders-chd-1993/> (Where the judge refers to the defendant as possibly having intimate knowledge of plaintiff's software 'at all levels of abstraction' without applying the AFC test) accessed 6 December 2019.

[116] Lai (n 22) 1.

[117] '*Ibcos Computers Ltd* v *Barclays Mercantile Highland Finance Ltd*' (n 101).

[118] 'Starbuck v Patsystems' (n 108).

[119] (2001) 24(9) IPD 24057 | England and Wales Court of Appeal (Civil Division) | Judgment | Law | CaseMine' para 6 <https://www.casemine.com/judgement/uk/5a8ff6f860d03e7f57ea4ec1> accessed 4 December 2019.

examined the available software material to determine the extent of copying. It is, however, important to point out that the absence of a clear test in determining the substantial similarity between software also translates to a muted role for an expert witness. In this regard, an author has argued for a limited dissection - by experts - to assist UK judges in determining between non-literal elements of rival programmes.[120] Such an approach might be preferable and not likely to erode UK's copyright eco-space as the following comparative analysis would reveal.

2.4 Comparative Analysis of emergent themes from the judicial opinions of the USA and UK

There is a standard saying in comparative legal research that "[d]ifferent legal system gives[s] the same or very similar solutions, even as to details, to the same problem of life…"[121] .This comparative truism affirms that, though legal systems and approaches differ; a deeper evaluation of their underlying culture will still show some pattern of commonality. Thus, the following analysis will reveal the similarity between the USA and UK copyright jurisprudence on the substantial similarity question and the role of an expert's testimony.

On the other hand, the analysis will also unearth some observed differences and seeks to unravel the broader significance of the variations for each legal system. This analysis will then be useful in proposing a unifying standard in part three of this paper regarding the role of experts in software copyright litigations.

2.4.1 Proof of generic copyright concepts: from the liberal to the strict interpretations.

In both jurisdictions, the requirement to prove some basic concepts in infringement actions have been used to serve a filtering process. Therefore, the judicial interpretation of generic concepts like "originality" and "ideas-expressions" have been determinant of whether a substantial infringement action will fail or succeed. It also has to bear on whether expert testimony would be required or regarded as merely superfluous.

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[120] Lai (n 22) 6.
[121] Konrad Zweigert and Hein Koetz, *Introduction to Comparative Law*, vol 3rd Edition, p 36.

However, there are discernible differences in the way both jurisdictions employ this strategy. In the USA, the courts start by defining "originality" [122] liberally and this gives a supposed "advantage" to the plaintiff. Thereafter, the courts impose a strict "idea-expression" dichotomy on the copyrighted software, thus leaving it with only a few protectable elements.[123] This swings the prior advantage and gives the defendant some room to manoeuvre. In the UK, on the other hand, courts adopt a higher standard of originality for software[124], thus "complicating" the case of the plaintiff, but restores parity by disregarding the notion of an "idea-expression" dichotomy[125].

Underlying this funnel-like judicial approach to the interpretation of the above concepts lies a non-legal justification. We will now examine these policy objectives which are often the final basis for these judicial interpretations.

2.4.2 The Balancing Act: Right of software owners v Right of Access by society and defendants

Though with a different process, both jurisdictions effectively maintain a fine balancing act between the rights of software owners and the need of the public to have access to the copyrighted software. Therefore, in the USA, courts make use of the "idea-expression" standard and justify the non-protection of certain elements of software on "public welfare" ground. Thus, in the case of *Computer Associates* v *Altai*, the second circuit while rejecting the arguments of software owners held that:

> "…While they have a point, their argument cannot carry the day. The interest of the copyright law is not in simply conferring a monopoly on industrious persons, but in advancing the **public welfare** through rewarding artistic creativity, in a manner that permits the free use and development of non-protectable ideas…"[126]

On the other hand, in the UK, the influence of the EU legislative norms has contributed to the "fair use" and "merger" doctrines been used as defences by defendants in infringement actions. Thus, the combined provisions of section 50A of the UK Regulation[127] and the EU Software Directive[128]

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[122] See text to (n 26)
[123] See text to (n 40, 52, and 67)
[124] See text to (n 94-95)
[125] See text to (n 101)
[126] *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 17 (Highlighting mine).
[127] 'The Copyright (Computer Programs) Regulations 1992' (n 16).
[128] 'Directive 2009/24/EC of the European Parliament and of the Council (n 21), para 15.

now gives a defendant a limited right to decompile a copyrighted software. However, similar to the USA's position, these fair use defences are also premised on the social policy needs of society.

2.5 Conclusion

In answering the first research question posed in this paper, it appears that expert opinions will be effective, particularly in the USA's jurisdictions utilizing the AFC test, in resolving the "substantial similarity" puzzle. This is because such opinions have the effect of guiding the court on the technical elements of the software, thus leaving it with the final discretion on the weight ascribable to the experts' testimony. It is only when the court is properly enlightened on the factual elements that it can then proceed to draw a "…line…which also keeps in consideration 'the preservation of the balance between competition and protection'"[129]. The same effect cannot, however, be said of other jurisdictions in the USA and the UK.

From the reviewed case law and statutory provisions, we have also drawn significant themes that would enable us to answer the second research question. We shall now turn to harmonize those comparative themes with the discussion in part III en route to answering the remaining questions.

Part 3: Discussions and Lessons for Nigerian software copyright regime

3.1. Discussions

From the judicial decisions already analysed, it is obvious that both jurisdictions adopt a filtering process which enables it to determine the protected and non-protectable elements of a copyrighted software. However, when this filtering methodology is adopted by the courts, the results often fail to convince on the underlying legal reasoning adopted.

For example, in the Synercom's case[130], it was curious that the court opined that the systematic processing - by the defendant - of plaintiff's software manual in such a way as to generate a new software program might not be an infringement. This curiosity stems from the fact that it might be impracticable to undertake such far-reaching use of a software without infringing its

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[129] *Computer Associates International, Inc. v. Altai, Inc.* (n 61) 17.
[130] 'Synercom Tech. v. University Computing Co.,' (n 26) 1011.

accompanying language. It might be conceded, nonetheless, that this reasoning is supportable by the social justification framework of the copyright system.

In essence, it thus appears that the final justification for this legal reasoning ultimately lies in a non-legal framework. This is the more reason why this paper advocates that courts should be allowed to take onboard all evidence (including expert opinions) available to it. This seems logical since the decision on the weight ascribable to them would still be determined by the judge using legal and socio-legal criteria. Since the Court in the Computer Associates' case failed to give guidance to lower courts on how to utilize their discretion on expert testimonies, this paper will now deal with the issue in the next section.

3.2. A theoretical Model for experts' involvement: The Relative Plausibility Approach

Legal evidence tendered before law courts and their reception by the trier of facts (either judge or jury) could be theorized using different standards. One of such is the Relative Plausibility Theory (RPT) as developed by Professor Ronald J. Allen. The theory explains that evidence is the result of the interaction of the intelligence and knowledge of the fact-finder coupled with the sum of the observations captured during a trial.[131]

The theory is made up of two sub-theories, namely the structural theory of juridical proof and the theory of juridical evidence. By its nature, the structural theory of juridical proof deals with the formal structure of the proof process itself. Thus, it relates to what is to be proved (e.g., the facts of copying of the software and an "improper appropriation" motive) and the requisite standard of proof.[132] On the other hand, the theory of juridical evidence recognizes that there are three broad types of evidence: oral evidence, physical evidence, and miscellaneous trial observations. It defines evidence as not being a set of things but the process by which fact-finder's come to conclusions about the past. [133]

Thus, using the RPT as the basis of a normative formulation, the weight to be attached to expert testimony at any stage of determining substantial similarity- whether in the AFC's jurisdiction in

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[131] Allen (n 14) 630.
[132] Allen (n 14) 606.
[133] Allen (n 14) 627.

the USA or any comparable jurisdiction allowing experts witness- of software could follow this possible unifying standard:

i.   The court must be convinced that the expert witness was coherent and rational in the explanations that he proffered before the trial court;

ii.   the evidence of the expert regarding the similarity or otherwise of the "original" and the infringing software must pass the test of cross-examination;

iii.   the opinions of the expert must be consistent with the judge's/ jury's miscellaneous observations during the trial and prior background knowledge on the general nature of software;

iv.   and despite the evidence being ordinarily technical, it complies with (i)-(iii) in such a way that it appears circumstantially superior to the corresponding evidence from the opposing party's expert.[134]

In essence, in answering the second research question of this paper, it is suggested that courts could follow this standard in weeding out potentially prejudicial expert opinions and make its decisions only on the credible version.

3.3. Nigerian case of Microsoft Corporation v Franike Associates Ltd examined

The Nigerian Copyright Act also makes the "originality" of a work a prerequisite for the conferment of copyright protection.[135] It also provides for a similar right to the copyright holders as those we have already discussed regarding the USA and UK jurisdictions.[136] However, the Act makes some derogation from the rights granted by providing that a defendant's work shall not be ineligible for copyright protection solely on the ground that its making involved an infringement of copyright in some other work. [137]

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[134] See generally, Felix Oludare Omosele, 'Winning the Election, but Losing the Litigation: A Prognosis of Nigerian Judicial Attitudes Toward Evidence Produced from "E-Accreditation Machines"' in Robert Krimmer and others (eds), *Electronic Voting* (Springer International Publishing 2018) 171.
[135] 'Copyright Act' (n 6) s 1(2) a.
[136] ibid 5(1) i-ix.
[137] 'Copyright Act' (n 6) 1(4).

Furthermore, for a foreign copyright holder to be able to successfully enforce an infringement action against any Nigerian defendant, the provisions of Part IV of the Act must have been strictly complied with. Therefore, the relevant provision states thus:

> Where any country is a party to a treaty…to which Nigeria is also a party and **the Minister is satisfied** that the country in question provides for protection of copyright in works protected under this Act, **the Minister may by Order in the Federal Gazette** extend the application of this Act…to individuals who are citizens of…that country…".[138]

In other words, since Nigeria and countries like the USA and UK are also parties to WIPO treaties, they would naturally fall - with respect to the protection of Software - under this section. In fact, this issue of reciprocal protection came up in the context of software infringement in the case of Microsoft Corporation v Franike Associates Ltd[139].

In that case, Microsoft sued the defendant and claimed declaratory and injunctive reliefs for infringement of copyright subsisting in its software, programs and products. In responding, Franike Associates filed a motion objecting to the jurisdiction of the court on the ground that the provisions relating to "proof of reciprocal provisions" has not been complied with by the plaintiff. Furthermore, on appeal, the Defendant argued that the plaintiff did not adduce the certificate envisaged by section 5(2) of the Act. The said section mandates a foreign copyright holder to tender a certificate which shows conclusive proof of a reciprocal relationship between Nigeria and the applicable country (in this case, the USA).[140]

The Trial Court- i.e. the Nigerian Federal High Court - initially granted all the reliefs sought in the plaintiff's ex parte motion but was compelled to vacate its order and to dismiss the entire suit for lack of jurisdiction, pursuant to the application brought by the defendant. The plaintiff/ appellant

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[138] ibid 33(a)-(c) (Now section 41 of the 2004 Copyright Act).
[139] '*Microsoft Corporation* v. *Franike Associates Ltd*.' (*Nigerian Law Intellectual Property Watch Inc.*, 10 December 2013) <https://nlipw.com/cases-principles/microsoft-corporation-v-franike-associates-ltd/> accessed 13 November 2019.
[140] Lawyard (n 11).

then appealed to the Court of Appeal which had to consider, inter alia, whether the trial judge was right to have declined jurisdiction based on section 33(now 41) of the Copyright Act.

In its judgement, the Court of Appeal held that:

> "…there is nothing from the records of the Court to show any certificate which was presented to or exhibited by the Appellant. Nor was any certificate pleaded…by virtue of section 41(3)…the Minister can only order extension to the appellant through a Federal Gazette…which has not been done in this case…In the absence of this, the Learned trial judge was wrong in entertaining the matter…(but was) right (thereafter)in dismissing the entire suit for lack of jurisdiction…"[141]

3.4. The lessons for Nigeria's budding software copyright legal regime

This solitary decision regarding copyright protection of software in Nigeria has drawn diverse reactions from scholars in Nigeria. Fortunately, the Nigerian Copyright Commission has produced – since 2015 - a Draft Copyright Bill[142] which contained various reforms to the extant Nigerian Copyright Act. Furthermore, being an observer member of the African Regional Intellectual Property Organization (ARIPO), the Nigerian position on this issue could be further aligned with that in the recently proposed ARIPO Model Law on Copyright and Related Rights[143].

One of the notable reforms that the Model Law will bring to the African copyright landscape - at least when compared with the current Nigerian Copyright Act, 2004 - is the abolition of unnecessary bottlenecks in the enforcement of the rights of foreign copyright holders. Section 3(2) of the Model Law provides that the Act shall apply to all works that are capable of being protected in the applicable member states by virtue of its obligations under any international agreements.[144]

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[141] 'Microsoft Corporation v. Franike Associates Ltd.' (n 139).
[142] Nigerian Copyright Commission, Draft Copyright Bill 2015, <http://graduatedresponse.org/new/wp-content/uploads/2016/02/DRAFT_COPYRIGHT_BILL_NOVEMBER-_2015.pdf>.
[143] ARIPO, 'ARIPO MODEL LAW ON COPYRIGHT AND RELATED RIGHTS' <https://www.aripo.org/wp-content/uploads/2019/10/ARIPO-Model-Law-on-Copyright-and-Related-Rights.pdf>.
[144] 'ARIPO Model Law (2019) and Nigerian Draft Copyright Bill (2015): 8 comparative points from the emerging copyright landscape in Africa – Part I – COPY21' <http://copy21.com/2020/02/aripo-model-law-2019-and-nigerian-

The above provision is noteworthy because it does not require the designated Minister of the member state to cause this "reciprocal protection" to be documented by way of a ministerial order, neither does it require a certificate of proof from the national copyright body. These are procedures which were the backbone of contention in Microsoft's case by virtue of being enshrined in section 41 and 5(2) respectively of the current Nigerian Copyright Act.

Under the Draft Nigerian Copyright Bill, the requirement of a "ministerial order" being issued has now been expunged, leaving only the part relating to obtaining a certificate of proof from the copyright commission[145]. With Nigeria's ratification of the WIPO Copyright Treaty on the 4th of October, 2017, its law could be further brought closer to the ARIPO standard in two ways.

First, once Nigeria domesticates all its copyright treaties in line with the provisions of section 12(1) of the 1999 Constitution (as amended), then the requirement for a certificate of proof should automatically cease. Alternatively, the Draft Bill could be further amended to remove the need for such certificate of proof and once passed, it automatically domesticates this reform.[146]

However, this paper argues that the Nigerian copyright system could further draw some comparable lessons from the advanced jurisdictions earlier reviewed. Some of these lessons include:

i. **Statutory reforms**: Fortunately, this is already been done. For example, the provisions mandating the owner of a foreign copyright holder to obtain a certificate from the Nigerian Copyright Commission should be expunged. This is because Nigeria and other signatories to copyright treaties are easily discoverable from the instruments themselves and thus obviating the need to establish this fact again by way of a certificate. In fact, as argued by Busa Inen, Nigerian judges could take judicial notice of this fact by relying on Sec. 122 of the Nigerian Evidence Act. However, the non-domestication of these treaties could count against this argument and that explains why this author prefers a speedy passage of the Draft Copyright Bill, instead.

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draft-copyright-bill-2015-8-comparative-points-from-the-emerging-copyright-landscape-in-africa-part-i/> accessed 19 February 2020.

[145] Nigerian Copyright Commission Draft Copyright Bill (n 142) s 7.

[146] 'ARIPO Model Law (2019) and Nigerian Draft Copyright Bill (n 141).

ii. **Proactive judicial interpretations of extant Copyright Act**: Instead of taking the path of placing technical hurdles on the path of foreign software copyright holders, Nigerian judges are better positioned to balance plaintiff/defendants/society's rights by adopting the "idea-expression" dichotomy-as used in the USA- in filtering unprotectable elements of the software.

iii. **Use of Expert witness**: If Nigerian courts are faced with determining substantial similarity of software, it would be advisable for them to allow expert evidence in all the infringement evaluation and then filter out the non-credible ones using the unifying standard earlier discussed.

iv. **Software-specific instruments**: To prepare for the rainy days, there is the need for Nigerian copyright regime to draw up instruments like the EU Software Directive but which takes the peculiar technological needs of Nigeria into consideration.

Conclusion

This paper has been able to establish that copyright protection subsists in software in all the three jurisdictions examined, with varying degree of protection offered to literal and non-literal elements of this software. In infringement actions, it was also seen that the standards- legal and socio-adopted by the court plays a key role in determining if expert testimony would be allowed. These factors also determine- to a large extent- if the action of the plaintiff for infringement will succeed or fails. However, this paper argued that expert evidence should be permitted to determine the substantial similarity of software with judges given the discretion to filter out the non-credible ones.

In conclusion, the paper also urged policymakers in Nigeria to embrace a holistic approach to software protection by embracing international best practices. This will go a long way to bring its system at par with local and international demands for a 21st- century software-driven economy.

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