

# The technological development in computer software law european essay

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## **ABSTRACT:**

The technological development in computer software forced the judiciary to lay down new techniques and doctrine to determine scope of copyright violation in computer software. While attempting to resolve the problem of copyright violation in computer software to non-literary work, the court in *Whelan Associates Inc. v. Jaslow Dental Laboratory Inc.*[[1]] separated 'idea' from 'expression' by applying the principle laid down in *Baker v. Selden*[[2]]

The judgment of the *Whelan* is widely criticized on various grounds. The problem of dichotomy in 'idea' and 'expression' in computer software up to some extent is solved by the court in *Altai's* case by applying abstract-filtration-comparison test. The author has critically analyzed the judgment in *Whelan* case with the help of established principles in the arena of copyright law and criticism by other authors, judges and jurists. Key words:-

Abstraction-Filtration-Comparison Test, Computer Software- Source Codes and Object Codes, End Result Test and Merger Doctrine, Idea-Expression dichotomy in computer software, Tests to Analyze Copyright Violation in Computer Software-Three Stage Test also known as '1-2-3 Package'.

## **1. INTRODUCTION:**

The progress in computer science and internet has raised many challenging legal issues in the arena of the copyright and software protection. The agents of the justice system (i. e. Legislature, Judiciary and Executive) have been struggling to cope up with the scientific advancement. The rights of an author in computer software can be easily violated because of advancement in internet and other technology. The computer software can be easily

downloaded and uploaded on the Internet. The internet has been used as a means to distribute pirated software or information related to software. It is advisable to understand the nature and meaning of computer software before commenting on the tests laid down by the various courts to protect computer software under the copyright laws. The computer software consists of all instructions that instruct the computer to perform particular task. The European Commission Green Paper on, ' Copyright and the Challenge of Technology,' defined the computer software as, ' a set of instructions, the purpose of which is to cause an information processing device, a computer, to perform its functions...The program together with the supporting and preparatory design materials constitute the software'.[[3]] The definition provided by the European Commission is broader than the traditional definition of the software. The Commission has considered supporting and preparatory design material as a part of software. The supporting and preparatory design material was not considered as a part of software by traditional definition of ' software'. The instructions of the computer are of two types: Source Codes and Object Codes. The Object codes are the machine readable language and the source codes are understood by human beings. The object codes are written in ' 1' (one) and ' 0' (Zero) symbols. Consequences of the simultaneously symbolic and functional nature of software are that the traditional test for establishing that copying of the work has occurred may be wholly inappropriate. [[4]] On some occasions, courts have dismissed suits for lack of ' any real evidence of copying'. [[5]] Various courts in their respective jurisdictions applied ' existence principles' of copyright protection and developed or sometime modified the existence

principles in order to apply it to relatively new fields including computer software. The computer software includes literary and non-literary elements. Literary elements are source codes and object codes, whereas non-literary elements include structure, sequence, organization, screen displays, menu structure and general flow chart, etc.. The article is intended: To comment on test laid down by the court in Whelan's case. To analyze problems of applying traditional principles for protecting computer software. To explain and comment on the various tests and principles developed by courts in order to protect copyright in computer software. To recommend appropriate test, to determine copyright violation in computer software.

## **2. ANALYSIS OF TESTS LAID DOWN BY COURTS TO DETERMINE COPYRIGHT VIOLATION IN COMPUTER SOFTWARE:**

Since in Whelan Associates Inc. v. Jaslow Dental Laboratory Inc., [[6]] the issue of protection of source and object codes under copyright law had been already settled. The moot issue before the court was whether copyright protection shall be extended to non-literary work, including overall structure[[7]] of the computer software. In order to determine the scope of copyright protection, the court has applied the famous test laid down in Baker v. Selden,[[8]] to distinguish ' Idea' from ' Expression'. [[9]] As held in Baker v. Selden, ' the line between idea and expression may be drawn by reference to the end sought to be achieved by the work in question'. In other words, if the end or purpose sought to be achieved by the work can be achieved by various ways, then the way applied by the author/creator of the work shall be treated as an ' expression' and not an ' idea'. The purpose or

function of a utilitarian work would be the work's idea, and everything that is not necessary to that purpose or function would be part of the expression of the idea. [[10]] Therefore, when there is no alternative way or manner to achieve the given objective, the structure/way of expression will be treated as an 'idea' and not an 'expression'. [[11]] It is well established that under copyright laws, 'expression' in the form of original literary, dramatic, musical and artistic work, cinematograph films and sound recordings is protected. [[12]] In view of advancement of technological growth, there was a question of treating computer software differently from other work similarly protected under copyright laws. On this issue, the court in Whelan had concluded that the computer software is treated as a literary work and there is, therefore, no statutory basis for treating the computer programmes differently in this regard. The court further held that the structure of the programme is not essential to the task; there are other programs in the market, competitors of Dentalab and Dentcom, that performs the same functions but have different structures and designs. In other words, the court has held that if structure is not essential to achieve a task (an end result); it is an expression and not an idea. If the above mentioned 'end sought to be achieved test' or 'end result test' is applied, it will have a number of implications on the development of science on the one hand and on the interest of public at large on the other. There may be a situation wherein an alternative expression may have extreme effect on the efficiency of the product and it may be extremely user friendly. A program's efficiency depends in large part on the arrangement of its modules and subroutines; although two programs could produce the same result, one might be more

efficient because of different internal arrangements of modules and subroutines...[T]here are numerous ways the programmer can solve the data-organization problems she or he faces. Each solution may have particular characteristics- efficiencies or inefficiencies, conveniences or quirks that differentiate it from other solutions and make the overall program more or less desirable.[[13]]In this situation the question is, whether court has to consider only an alternative expression or quality/efficiency of an alternative expression? The rule laid down in Whelan's case does not allow the court to consider efficiency of alternative ways or expression. The court has laid down a sweeping rule and held that if there is an alternative way or overall structure to achieve the same result, the structure used by the author would be treated as an expression of the 'idea'. It has dire future consequences on development of science which ultimately will hamper the interest of public at large. For example, if 'A' overall structure of the computer software or way of 'expression' accomplishes the work in 10 minutes and there are alternative structures which takes hours together to achieve the same result. According to the Whelan's case, 'A' structure will also get copyright protection merely because there is another alternative expression even though inefficient. The court, while laying down a rule, has to encounter with at least two things; firstly the court has to think about impact of the decision on the future development of the science and secondly, it has to maintain a balance between individual interest and social interest. The overall structure or way of expression that makes substantial impact on the end result shall be treated as necessary incidents[[14]] of the work. Test of exclusive necessary incidents to the art may not be applied as

it is in the era of technological development. The above criticism may be counter criticized on the ground that protection based on the efficiency of the overall structure will lead to protection of an 'idea' by going beyond the actual expression of an 'idea' i. e. original selection, arrangement or structuring of the work. But it is appropriate to note that because of its peculiar nature, the computer software deserves special protection. The finding of the court is also criticized by various judges and jurists on the ground that the court's 'sweeping rule' and broad language extend copyright protection too far by moving towards a degree of monopoly protection previously given only to patent holders.'[[15]] Numerous commentators have criticized Whelan's holding as leaning too far towards the protection of 'idea' rather than 'expression', and as improperly providing protection for standard operating procedures for dental labs that were a part of public domain.[[16]] According to Peter B. Maggs and others, granting copyright on such aspect of a program would give something close to patent rights to a program author without compliance with the requirements of patent law.[[17]] Apart from strict requirements of patent rights, the interest of the public is considered by providing less time protection to patent holder compared to copyright laws. Professor Nimmer points out that "in many instances it is virtually impossible to write a program to perform particular functions in a specific computing environment without employing standard techniques."[[18]] This is a result of the fact that a programmer's freedom of design choice is often circumscribed by extrinsic considerations such as (1) the mechanical specifications of the computer on which a particular program is intended to run; (2) compatibility requirements

of other programs with which a program is designated to operate in conjunction; (3) computer manufacturers' design standards; (4) demands of the industry being serviced; and (5) widely accepted programming practices within the computer industry.[[19]]The proposition laid in Whelan's case has also been labeled as flawed because the court assumes that only 'one idea' in copyright law terms, underlines any computer program and that once a separable idea can be identified, everything must be expression.

[[20]]Whelan's case and its progeny further criticized for setting a vague and difficult standard with respect to the idea/expression dichotomy as it relates to computer programs and copyright infringement.[[21]] The test would face another practical problem because in cases involving works of literature or "non-functional" visual representations, defining the purpose of the work may be difficult. Since it may be impossible to discuss the purpose or function of a novel, poem, sculpture or painting, the rule may have little or no application to cases involving such works.[[22]] As it is already noted, a computer program's ultimate function or purpose is the composite result of interacting subroutines. Since each subroutine is in itself a program, and thus, may be said to have its own "idea," Whelan's general formulation that a program's overall purpose equates with the program's idea is descriptively inadequate. [[23]] It means a work may have a number of ideas; and while determining the scope of copyright, the court needs to consider multiple ideas involved in the computer software.



### **3. OTHER TESTS TO DETERMINE COPYRIGHT PROTECTION IN COMPUTER SOFTWARE:**

The courts have developed various other tests to determine the copyright violation in the cyberspace. Few important tests are as follows: In *Lotus Development Corporation v. Paperback Software International*,<sup>[[24]]</sup> the District judge Keeton has laid down very popular 'three stage test' also known as '1-2-3 package' to determine copyright infringement in electronic spreadsheets intended to facilitate accounting data. The court in *Brown Bag Software v. Symantec Corp*<sup>[[25]]</sup> has rejected the test laid down in *Lotus* case and held that, it should engage in 'analytical dissection not for purposes of comparing similarities and identifying infringement, but for the purposes of defining the scope of plaintiff's copyrights'. In other words, the court should first decide which elements are unprotectable by applying the traditional idea-expression and merger doctrine to each element. In *Computer Associates v. Altai*,<sup>[[26]]</sup> the court contended that the approach taken in *Whelan's* case to 'separating 'idea' from 'expression' in computer programs relies too heavily on metaphysical distinctions and does not place enough emphasis on practical considerations.' The Court in *Computer Associates v. Altai*,<sup>[[27]]</sup> has suggested three-step procedure, it is also known as 'abstraction-filtration-comparison' analysis. The three-step procedure was previously utilized to determine whether non-literal elements of computer programs are substantially similar. This approach breaks no new ground; rather, it draws on such familiar copyright doctrines as merger, *scènes à faire*, and public domain. According to the 'Abstract-filtration-comparison' test, in order to determine the substantial similarity, the court has to first segregate the programme in the constituent parts. Then court

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can segregate all non-protected elements, which are in public domain. After filtration of the protectable and non-protectable work the court has to compare the remaining programme to test whether they are substantially similar or not. Finally the court noted that " the primary object of copyright is not to reward the labour of authors but rather their original contribution."

Therefore, it is important to note that the above mentioned test is intended to achieve two objectives, firstly, to find out originality of ' expression' and secondly to compare the work in order to find out substantial similarity. It is also important to note that the court has rejected, " sweat of the brow test".

Further in *Feist Publications, Inc. v. Rural Telephone Services Co.*,<sup>[[28]]</sup> the Court considered the copyrightability of a telephone directory comprised merely of names, addresses, and phone numbers organized in alphabetical order. The Court rejected the notion that copyright law was meant to reward authors for the " sweat of the brow," and instead concluded that protection only extends to the original components of an author's work. In *Gates Rubber Co. v. Bando Chemical Industries Ltd*,<sup>[[29]]</sup> the court held that before beginning the abstraction-filtration-comparison, it is helpful to compare program as a whole, as ' an initial holistic comparison may reveal a pattern of copying that is not obvious when certain components are examined'.

Further in *Engineering Dynamics Inc. v. Structural Software Inc.*,<sup>[[30]]</sup> the court of appeals for the fifth circuit held that protectable originality can be manifested in many ways, so the analytic approach may need to be varied to accommodate facts of each case. In some of the cases, in order to balance the need of development of science and technology on one hand and interest of the author on the other, the court has applied ' Merger Doctrine'.

While applying 'merger doctrine' in *Apple Computer Inc. v. Franklin Computer Corporation*,<sup>[[31]]</sup> the court held that, if other program can be written or created which performs the same function as Apple's operating system program, then that program is an expression of the idea and hence copyrightable. Even though the courts have laid down various tests, in practice it is difficult to prove substantial copying. Since software is a series of instruction, it is not easy to pass the test of patentability. Therefore software was considered to be a borderline case between copyright and patent protection with the balance shifting slightly towards the former.

<sup>[[32]]</sup>4. CONCLUSION: - The judges have laid down the criteria for the copyright violation, but in practice it is quite difficult to lay down the concrete boundaries of the copyright protection. Even though fair-use factors are laid down by courts, ultimately what is fair use depends upon how they are weighted by the individual judge. Therefore, judge Hand once said that, "nobody has ever been able to fix that boundary, and nobody ever can".

<sup>[[33]]</sup>In abstract-filtration-comparison test, there is a need to take help of the experts from the arena concerned. The programmes sometime are complex and judges usually are not experts of the computer science. As admitted by the Judge John Walker, "Most juries, and most judges (myself included) are less than completely comfortable with the concepts and terminology of computer programs and need extensive education in order to make intelligent decisions".<sup>[[34]]</sup> The experts only can understand in better manner the process and working of the computer programme. It is true that traditionally, efficiency test is not applied while determining the copyright violation in literary work. In the literary work, literary quality of the literature

or its effect on the community is irrelevant to grant copyright protection. The efficiency test may be applied in the case of patent protection. Traditionally, in copyright verbatim of the work is protected. The subject matter like computer software requires different treatment because of peculiar nature of the subject matter. The doctrine of merger need to be applied when there is a vast difference in efficiency of expressions. Generally, reverse engineering is allowed in case of computer software. In general, reverse engineering involves starting from an existing program in order to see how it works and how it is made and then producing a new work which is based on these findings.[[35]] The reverse engineering shall be allowed by not protecting the overall structure or way of expression, which has a substantial impact on the objectives or effect to be achieved. It may be argued that it is difficult to determine what a substantial impact is. The question of substantial impact may be treated as a question of fact, and from time to time and case to case it can be determined by a judge.