THE LEGAL PROTECTION OF COMPUTER PROGRAMS AS A GENRÉ OF INTELLECTUAL PROPERTY: A COMPREHENSIVE OVERVIEW (PART I)

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I. INTRODUCTION

Shortly after World War I, the first *commercial computers* were built and marketed. Since then, the World has plunged inexorably into the *Computer* or *Information Age*. Whereas these early computer models were prohibitively expensive and unwieldy, some occupying three-story buildings, today's micro-computers are cost-effective and diminutive — some capable of being encased in an ordinary-size attaché case.[1] From the very limited routine applications[2] of primordial models, the present generation of computers have a wide range of applications — from the sophisticated[3] and highly-complex task of monitoring the flight of artificial satellites in Space to the mundane and simple chores of updating one's bank balance or computing one's payroll.

The legal profession, *inter alia*, has not been able to escape the prevalent influence[4] of computer *bytes* and *nibbles*.[5] In law offices, personal computers are being used to improve productivity in the areas

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[1] The ENIAC (Electronic Numerical Integrator and Calculator) was the first general purpose electronic computer. It was pioneered by J. P. Eckert and J. W. Mauchly in 1946. To program the ENIAC, one had to "set thousands of switches and plug in hundred of cables (like the cables of an old telephone console) by hand, one at a time" (Mislow, *Computer Microcode: Testing the Limits of Software Copyrightability*, 65 B.U.L. REV. 733, 742 [1985]). On the other hand, *see* Dembo, *Getting Carried Away*, 25 DATA PROCESSING 21 (1983) for an idea of the present state of the art.

[2] These first computers were single-purpose machines and the "program" or instruction was built as part of the structures of the machine or hardware. *See Comment, International Protection of Computer Software: The Need for Sui Generis Legislation,* 8 LOY. L. A. INT'L. & COMP. L. J. 511 (1986). Consequently, a machine of that era could perform *only* the *one* specific function which its circuitry, and the resulting series of electronic impulses, allowed it to perform. If any other function was desired, it was necessary to *rewire* the circuitry (Mislow, *supra* note 1 at 472.)

[3] The latest development in artificial intelligence involves "expert systems" or computer programs that have built into them the knowledge and capability that will allow them to operate at the expert's level, e.g., medical diagnosis, therapeutics. (*See Comment, supra* note 2 at 512 citing E. FEIGENBAUM & P. McCORDUCK, THE FIFTH GENERATION 63-64, 76-77. (1963).

[4] So ubiquitous was the computer that it was conferred the *Man of the Year* award by *Time Magazine* (*See Time*, January 3, 1983, at 14).

[5] A *byte* is made up of eight bits or memory cells. A four-bit computer word is commonly referred to as a *nibble*. (*See Note, Copyright Infringement of Computer Programs: A Modification of the Substantial Similarity Test,* 68 MINN. L. REV. 1264, 1267 (1984).

of legal research, accounting, time management and word processing. Softwares or computer programs that create spreadsheets, graphics, data bases and client data management systems are being employed to bring order to the chaotic "avalanche of information" peculiar to legal offices.[6] In the United States, "automated systems ·for legal· reasoning" are being employed in legal education where law students are confronted with simulation exercises enhancing the Socratic method.[7] Considering the rapid growth of computer or electronic data processing (EDP) education in the private educational sector[8] as well as the recent emphasis and encouragement furnished by the Government thereto,[9] it is not far-fetched to predict that by the year 2000 A.D., Philippine legal education will also be benefiting from computer-assisted instruction. For example, there are certain law subjects such as procedural law, taxation and negotiable instruments that are highly-susceptible to flowcharting or programming.[10] Undoubtedly, the computer system's structured approach will be able to mold the thought processes of the law student into a more logical pattern.[11] Moreover, the time-consuming task of keeping track with the latest statutory changes, jurisprudence or other legal developments will be greatly facilitated through the use of computers.

The above-described functional abilities and potentials of present-day computers *only* became common realities or realizable objectives through

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[6] Turner, *Getting a Competitive Edge with Software*, 70 A.B.A. J. 78 (1984).

[7] *See e.g.*, Hazen and Hazen, *Simulation of Legal Analysis and Instruction of the Computer*, 59 IND. L. J. 195 (1983-1984); Grossman and Solomon, *Computers and Legal Reasoning*, 69 A.B.A.J. 66 (1983); *Note, Reflections on TAXMAN: An Experiment in Artificial Intelligence and Legal Reasoning*, 90 HARV. L. REV. 837 (1977).

[8] There are currently over 150 schools and training institutions, *e.g.*, STI, I/ACT, IBM offering EDP training in the Philippines. They produced a combined average of 4,500 graduates of EDP courses a year. (*See* Endriga, *Country Can Generate $100 M Through the Software Industry*, Manila Chronicle, October 17, 1986, p. 5, col. 5.) Moreover, it is general knowledge that many universities and colleges, presently. offer degrees in Computer Science as part of their regular curricula, *e.g.*, University of the Philippines, De la Salle, Ateneo.

[9] As early as 1984 then Minister of Education Jaime Laya had supported the policy of increased computer education and training. This policy is presently being continued by the Ministry of Education under Min. L. Quisumbing. *See Business Day*, August 21, 1986, p. 20, col. 4 — "STI, MECS Launch Program for Free Computer Course, Scholarship Open to Public School Teachers."

A newly-drafted national information technology plan (*Strategic Program on Information Technology or SPRINT*) that was started under the Marcos administration is presently before the Ministry of Trade and Industry. The draft identifies policy and operational problems and solutions as well as incentives·to .promote computer literacy, renewed business activity and better delivery of government goods and services. (*See* Romero, *Computer Industry Awaits Policies*, Manila Journal,·September 10, 1986, p. 1, col. 3.)

Last but not the least manifestation of the present Government's salutary intentions towards computer technology development is President Aquino's Proclamation No. 7 "Declaring April 20-26, 1986 as *Information and ·Computer. Technology Week*," so as to "focus public attention to the role of information and. computer technology in national development" (*See* text reproduced in 9 PHIL. L. GAZ. 31 (1986), *promulgated* April 4, 1986.).

[10] A flowchart is a diagram of the logic in a computer program. It is drawn by using special symbols — each symbol represents a basic· step in the program's logic. *See* R. NICKERSON, COBOL PROGRAMMING 83-84 (1977).

[11] Grossman & Solomon, *supra* note 7 at 66.

the advances made in the science of miniaturization and the entry of computer software technology in the latter half of this century.

What is significant for developing or Third World countries like the Philippines is the fact that computer software technology can be *independently* developed or created by people who are not necessarily conversant or knowledgeable about the manufacturing aspect of computer machines or hardware.[12] Moreover, if the present computer industry trends continue, the demand for computer software will phenomenally outstrip that for computer hardware in the next decade.[13]

According to Mr. William T. Torres, Officer-in-Charge of the National Computer Center and Senior Vice-President of the Development Academy of the Philippines, "software development will be one area which holds a bright promise for local computer firms aiming for both the local and foreign markets. Unlike hardware manufacturing, the manufacture of software products will essentially require only investments in the training of software specialists — computer programmers, systems designers, information analysts, software engineers and scientists. In other words, program writing requires minimal capital investment compared with the research and development costs of developing computer hardware."[14] This labor intensive feature[15] of the software development industry as contrasted to the capital intensive characteristic of the computer hardware industry constitutes our

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[12] Hardware refers to the computer itself and peripheral devices for input and output, etc. — in short, the "hard-wired" or permanent aspects of a computer system. *See* Note, *Copyright Protection for Video Games: The Courts in the Pac-man Maze,* 32 CLEV. ST. L. REV. 531, 538 (1983-1984).

[13] In view of the continuing world-wide recession, micro-computers, which are highly dependent on computer software, are enjoying a business boom due to its affordability and cost-effective attractiveness. *See* Business Day, May 17, 1982, p. 4, col. 3. This trend continues to be true today. According to a recent business newspaper article:

> "The worldwide software market is currently estimated at US $100 billion and is said to grow at the rate of 30% annually. In the Far East/Asia Pacific Region alone, the software market is expected to grow to US $7 billion five years from now. Much bigger still is the US market where the software business is estimated to grow to US $41 billion in the next five years. According to one estimate, if we only get 1/4 of 1% of the US software market, we can earn almost US $100 million a year. (At the present time [1986], the country's software and computer services industry is estimated to be already earning for the country at least US $10 million a year in foreign exchange."

Endriga, *supra* note 8, at 5.

[14] Business Day, June 7, 1982, p. 2, col. 1. "Today there is little doubt that the local software houses can meet even the most exacting requirements of foreign clients. A number in fact have landed big contract jobs from the US, such as million-dollar programming job which Systems Resource, Inc. recently completed for aircraft firm, Boeing International." *See* Endriga, *supra* note 8, at 5. Moreover several internationally-acclaimed software packages in business- and education-oriented programs are the creations of our local software specialists, *e.g.,* I/ACT, SRI, SSI. (*See* Romero, *RP Software Exports Hold Big Promise,* Manila Journal, September 11, 1986, p. 1, col. 6).

[15] In fact, this competitive advantage had, for many years, already been exploited by data encoding firms in the US, Australia and in Europe through sub-contracting data encoding and data entry jobs among local firms (Endriga, *supra* note 8, at 5.)

distinctive competitive advantage — an advantage[16] that we cannot afford to *fritter away* faced as we are with one of the severest trials a *20th-Century Developing Nation* must overcome, namely, the spectre of national economic degeneration.

Thus, in view of the increasingly vital role that the Computer and its "high-tech" adjuncts play in our daily lives and, more critically, in the light of the economic recovery potentials that the software development industry represents for our national economic survival, it is high time that the legal profession seriously appraise the current modes of legal protection available to computer software/programs as a genré of intellectual property. It is also hoped that the present study will be able to bridge the prevalent "knowledge gap" existing among those in the computer industry with respect to the legal *milieu* in which computer software thrives.

II. THE COMPUTER SOFTWARE: THE INVESTMENT TO BE PROTECTED

Inasmuch as laws forged on the Anvil of Ignorance cannot be expected to yield just results, it will not do to examine computers from a distance when formulating legal rules thereon. "While analogies are occasionally useful, they can also be misleading unless accompanied by an explanation of the underlying phenomena. In order for the Law to come to grips with computer-related issues, (the legal profession) must first overcome its technological *naiveté.*"[17] It has to have at least a respectable rudimentary grasp or understanding of computer operations and, more particularly, of computer programming process.

A. The Various Expressions of Computer Programs

A computer is primarily a device that "computes" or "calculates." However, in its modern acceptation, not all calculating devices can be properly designated as a computer. To qualify in the category of a "computer," that particular device has to have three distinguishing characteristics. *First,* it must be "electronic" and as a result of this particular ·feature, it can "operate at electronic speeds." *Second,* it has to have "the ability to store or hold information" (*memory*) which can be recalled at some future time. *Third,* it has to have "the ability to retain in its internal storage a set of instructions that tells the computer what it is to do."[18] This set of instructions is the program. More particularly, a computer

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[16] As Ms. H. Romero perspicaciously noted in her article, "While the West may have a near monopoly of hardware and technology, it cannot claim exclusive right to brains and the vital human factor that go into making computers work for Man." *See* Romero, *supra* note 14, at 1.

Other competitive advantages that the Philippine software industry possesses besides its comparataively *cheap* labor advantage are (1) the abundant supply of *skilled* labor — Filipinos being highly literate, trainable and conversant in English, the language of computer programming and (2) the presence of educational and training infrastructures. (*cf.* footnote 8 of this paper; Endriga, *supra* note 8, at 5.).

[17] Mislow, *supra* note 1, at 740 to 741.

[18] R. NICKERSON, *supra* note 10, at 2 to 3.

program is a detailed sequence of instructions (an algorithm) that, when executed by a computer, solves a problem or brings about a desired result.[19] These instructions may be written in any of three different *levels* of computer languages. The computer can "understand"[20] (that is, execute) *only* programs in "machine language" (*object code*) which is the lowest level of communication with a computer. Machine language or object code is a series of electrical impulses that are executed *within the computer.*[21] Being electrical impulses, it is impossible for a human being to read them. For human beings to be "able" to read machine language or object code, it has to be translated into binary code. A binary code is so called because it expresses everything in base 2 numerical notation, *e.g.,* "0" and "1" or "on" and "off" or "high" and "low". The binary code thus appears as a cluster of two symbols or *bits* (*e.g.,* 1001000011) which indicates "high or low voltage levels in digital computers."[22]

To make it easier for humans to read and write programs, two higher levels of languages exists. The first level is "assembly language." Assembly language instructions consist of alphanumeric labels, *i.e., combinations of alphabets and numbers,* rather than bits. To be executed by the computer, the alphanumeric instructions must be translated into their corresponding clusters of bits since, as earlier-mentioned, computers can only understand this particular language. The translation is accomplished by another computer program known as the assembler.[23] At the next level are "high-level" computer languages such as *FORTRAN* (Formula Translator), *COBOL* (Common Business-Oriented Language), *BASIC* (Beginner's All Purpose Symbolic Instruction Code), etc., that employ English-like words and syntax and are therefore easier to understand than assembly or machine language. Each high-level instruction is the equivalent of several assembly or machine language instructions.[24] High-level language programs are translated into object code by means of compilers or interpreters.[25] Programs

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[19] Note, *Copyright Protection of Computer Program Object Code,* 96 HARV. L. REV. 1723 to 1724 (1983). *See also* Apple Computer, Inc. v. Franklin Computer Corporation, 219 U.S.P.Q. 113 (1983).

[20] Actually, a computer cannot really understand or comprehend in the human sense, the instructions with which it is fed. It merely responds to voltage levels in its circuitry. Consequently, the only way to achieve any result with a computer is to regulate its internal voltage. *See* Mislow, *supra* note 1, at 741 to 742.

[21] *Id.,* at 743.

[22] *See* Mislow, *supra* note 1, at 743.

[23] Note, *supra* note 19, at 1725.

[24] *Ibid.*

[25] Tesler, *Programming Languages,* 251 SCI. AM. 70, 75 (1984).

Tesler distinguishes a compiler from an interpreter as follows: "A compiler translates the entire text of a high-level program in one continuous process, creating a complete machine-code program that can then be executed independently of the compiler. An interpreter executes a program one statement at a time, transforming each high-level construct into machine instructions on the fly. The difference between a compiler and an interpreter is analogous to the difference between a translator of literary works and a conversational interpreter. The translator takes a completed manuscript and delivers a new text in another language. The conversational interpreter renders each phrase or sentence as it is spoken."

written in assembly or high-level languages are referred to as "source programs" or "source code."

B. The General Functions of Computer Software

Computer programs can also be categorized by functions regardless of the form in which they are expressed. Functionally, a program can be classified either as an application program or an operating system program.[26]

An application program is designed to perform a specific task for the computer user, e.g., word processing, playing a game. It interacts *directly* with a human being to serve his particular needs.[27] In general, there are two types of application programs — contract programs which programmers "tailor to the needs of a single user" and general software packages which are mass-marketed.[28]

An operating system program operates the computer. It manages the internal functions of the computer *without regard* to the performance of any particular task for the user. It acts as a mediator between the computer and the application program.[29] Some examples of internal functions which operating system programs regulate in the computer are transmission error detection, file tracking and the transfer of data from one storage area to another.[30]

C. Program Storage Devices

To be used in a computer, programs must be stored in memory devices. Current storage devices include magnetic tapes, magnetic discs, keypunched cards, coding sheets, floppy disk or diskettes, and silicon chips, the latter two being the most popular. A floppy disk is an auxiliary memory device consisting of a flexible magnetic disk resembling a phonograph record which can be inserted into the computer and from which data or instructions can be read.[31] It can be "written on, erased, reprogrammed, and removed."[32] Program stored on floppies can be expressed in source code and then be compiled into object code by the computer immediately before performing the program's functions.[33] Silicon chips, on the other hand, are built into the central processing unit[34] of the computer and consist of very small

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[26] Rodau, *Protecting Computer Software: After Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F. 2d. 1240 (3rd Cir. 1983), *Does Copyright Provide the Best Protection?* 57 TEMP. L. Q. 527, 539 (1984).

[27] *Note, Defining the Scope of Copyright Protection for Computer Software*, 38 STAN. L. REV. 497, 502 (1986) (emphasis added).

[28] *Note, The Policy Implications of Granting Patent Protection to Computer Software: An Economic Analysis*, 37 VAND. L. REV. 147, 156 (1984).

[29] Mislow, *supra* note 1, at 737.

[30] *Ibid.*

[31] Apple Computer, Inc. v. Franklin Computer Corp., 219 U.S.P.Q. 113, 117 (1983) [hereinafter cited as Apple-Franklin].

[32] Note, *supra* note 5, at 1267.

[33] *Ibid.*

[34] The central processing unit or CPU is the brain of the computer. It includes two principal parts, the arithmetic-logic unit (ALU) and the control unit. The ALU

rectangular chips that store programs in integrated circuits (semi-conductor chips). Programs stored in silicon chips are always expressed in object code inside the chip and need not be compiled by the operating computer.[35] The silicon chip may be a ROM (*Read Only Memory*), an *EPROM* (*Erasable Programmable Read Only Memory*) or a RAM (*Random Access Memory*). "A ROM is a photochemically imprinted silicon chip which stores information in the form of minute "bits." Bits are simply on-and-off switches. The pattern, sequence and frequency with which these switches are activated gives instructions to the machine and causes it to function in its various modes. The entire pattern imprinted on a ROM makes up what is generally called a computer program"[36] [in this case, the object code]. ROM is an internal permanent memory device and is incorporated into the circuitry of the computer. Information stored on a ROM can only be read, not erased or rewritten.[37] EPROM, as the name suggests, can be erased and reprogrammed.[38] On the other hand, a RAM is a chip on which *volatile* internal memory is stored. "Volatile" means that storage is lost when the computer's power is turned-off.[39]

D. The Process of Software Development

Basically, there are five stages in software development.[40] These are requirement analysis, systems specification, systems design, coding, and testing. Programming, in its narrow sense, apprehends only the third and fourth stages, *i.e.*, systems design and coding.

1. *Requirement Analysis.* This refers to the study of the interface between the target or desired software system and the people who will use it.[41]

2. *Systems Specification.* This is the stage which defines precisely "what the computer does."[42]

3. *Systems Design.* This stage is the heart of programming. It involves "the development and detailing of the functions required.[43] To do this, the programmer must first have a clear idea of the program's objective. In other words, *what* does he want to accomplish? *How* or in *what* manner is he going to solve a given problem? After defining his objective, he will

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performs arithmetic and logical (and/or) operations on the data passing through it. The control unit controls the computer. By emitting electronic signals to various "control points," the control unit activates or reactivates the appropriate combination of circuits for any desired function. [Mislow, *supra* note 1, at 745].

[35] Note, *supra* note 5, at 1267-1268.

[36] Apple Computer, Inc. v. Formula International, Inc., 218 U.S.P.Q. 47, 49 (1983) [hereinafter cited as *Apple-Formula*].

[37] *Apple-Franklin*, *supra* note 31, at 117 [emphasis added].

[38] *Ibid.*

[39] *Ibid.*

[40] Business Day, June 7, 1982, p. 2, col. 4.

[41] *Ibid.*

[42] *Ibid.*

[43] *Ibid.*

now employ his knowledge of the symbols, data structures,[44] control structures,[45] and rules of manipulation[46] appertaining to computer programming to construct a flowchart.[47] The end result of this process is the algorithm or the "step-by-step procedure for accomplishing a given result."[48] In short, the programmer will arrive at the functions he would like the computer to carry out for him. Specifically, he has now identified in detail *what* he wants the computer to do. It is also apparent at this point that there is a diversity of *combinations* of steps possible or available to a programmer to achieve a single objective or to carry out a particular function. Consequently, a variety of computer programs exists for any single function — the lesser the complexity of the problem, the more limited will be the number of ways to design the algorithmic process involved or, in other words, the greater will be the chance of structural[49] similarities among the computer programs designed for it. "Since the amount of skill (or creativity) required to formulate a computer program is usually determined by the problem to be solved, programs therefore vary widely in complexity, form and function.[50] A skilled programmer can formulate a better program in less time than a less accomplished person."[51]

4. *Coding*. This refers to the "actual writing of program statements in the chosen program language."[52] At this stage, the programmer is more concerned with *how* he is going to instruct the computer so that it will

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[44] Data structures are predefined ways of grouping information such as arrays, records and files. [Mislow, *supra* note 1, at 789 citing C. PARKER, UNDERSTANDING COMPUTERS AND DATA PROCESSING 297 (1984)].

[45] Control structures are predefined ways of directing program flow. The three most common control structures are sequence (instruction executed in physical order), selection (if X is true, do Y, otherwise, do Z) and iteration (repeat X until a specified test condition is satisfied. [*Ibid.*]

[46] For example, the use of modules or subroutines. A subroutine is a set of computer instructions that performs a specific computational procedure. A program may call a single subroutine at many different points, but the instructions composing the subroutine appear only once, thus saving memory space when the program is run. [Note, *supra* note 27, at 500].

[47] A flowchart is a representation of the basic logic of a computer program.

[48] Diamond v. Diehr, U.S. citation 101 S. Ct. 1048, 1056 n. 9 (1981) .

[49] By a computer program's "structure" is meant its "overall design", more particularly, "the *manner* in which the program operates, controls and regulates the computer in receiving, assembling, calculating, retaining, correlating and producing useful information either on a screen, printout or by audio communication", *i.e.*, "the way in which the program asks for, stores, and retrieves data; the way it divides task between multiple modules and subroutines; and its method of passing information between modules and subroutines" [internal functions as distinguished from external functions]. "External functions include, among other things, the data manipulations that the program performs and the information it supplies."
See Note, *supra* note 27, at 526, 528 [citing Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc., 609 F. Supp. 1307, 1320 (E.D. Pa. Term, 1985)] and 529.

[50] The criterion for a particular software's superiority over another is its utility, *i.e.*, its efficiency and effectiveness in bringing about the desired result. "The selection of one data structure over another or the arrangement of operations in one sequence rather than another affects *how the program runs*, and *how well*" (Mislow, *supra* note 1, at 790).

[51] Note, *Computer Programs and Proposed Revisions of the Patent and Copyright Laws*, 81 HARV. L. REV. 1529, 1542 and 1543 (1968).

[52] Business Day, June 7, 1982, p. 2, col. 4.

carry out the functions he had identified for it in stage three. To do this, all the programmer has to know are the vocabulary and rules of syntax of the computer language he has chosen to embody his algorithm in, *e.g.*, BASIC, COBOL, FORTRAN.

5. *Testing.* To raise the chance that software developed will be successfully marketed or favorably received by its intended users, the programmer has to see to it that the program is "fault free and absolutely reliable,"[53] hence the need for testing wherein the program is made to go through a trial run with representative data.[54] Through this process (also known as debugging[55]), errors (both in syntax and logic) as well as other quirks in the program are ascertained and ironed out.[56]

Once the computer program is accomplished and in marketable condition, the user has only to plug in the input data. The "control unit" in the CPU will then "interpret the program's instructions, direct the proper sequence of the instructions and the data to the (ALU) that does the actual calculating and 'reasoning.' "[57] Finally, the output or desired result or solution is conveyed to the outside world on a computer paper printout or, at least in the case of a microcomputer, on the screen or monitor display.

Each of these stages in software development represents "significant (intellectual) investments of engineering, technical, scientific, writing and editorial skills and efforts."[58] The process is also time-consuming and costly. For example, SABRE, a flight reservation coordination system of American Airlines, costs $30 million, including hardware costs, with a substantial part allocable to its software.[59] "The typical cost of developing most software programs, however, ranges between US $50,000 and US $500,000, with an average cost of about US $200,000.[60] Without these costly or complex software programs, however, computers become merely inert assemblages of electro-mechanical or electronic modules which one author likens to "pianos without music."[61]

Thus far we have demonstrated that the computer industry is a veritable goldmine deserving of active government support and the com-

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[53] Keplinger, *Computer Software — Its Nature and Its Protection*, 30 EMORY L. J. 483, 487 (1981).

[54] *See* Business Day, June 7, 1982, p. 2, col. 4.

[55] *See* Bryer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies and Computer Programs*, 84 HARV. L. REV. 281, 343 (1970).

[56] *Id.*, at 345.

[57] Note, *supra* note 51, at 1541. *See also* the discussion in footnote 34 of this paper.

[58] Keplinger, *supra* note 53, at 486.

[59] Burck, *"On Line" in "Real Time"*, FORTUNE, April, 1964 at 140, 143.

[60] Note, *supra* note 28, at 152 citing Gemignani, *Legal Protection for Computer Software: The View from 1979*, 7 RUT. J. COMPUTERS, TECH. AND THE LAW 269, 276 n. 36 who in turn cited the *amicus curiae* brief of Applied Data Research at 3-4 & n. 7, Parker v. Flook, 437 U.S. 584 (1978). Unfortunately, no data is available with respect to the software development cost under the Philippine setting.

[61] *Id.*, 152-153 n. 27.

puter software, a *valuable* economic and intellectual property worthy of legal protection. Inasmuch as multifarious interests or concerns[62] are involved, our next task is therefore to identify the preeminent principles or policies that should govern any kind of support that the Government should extend to the software industry as well as the legal parameters that should be observed in determining the forms of legal protection that should be afforded the computer program.

III. CONSTITUTIONAL UNDERPINNINGS: PAST AND PRESENT

"The life of the law has not been logic: it has been experience. The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellowmen, have had a good deal more to do than the syllogism in determining the rules by which men should be governed. The law embodies the story of a nation's development through many centuries, and it cannot be dealt with as if it contained only the axioms and corrollaries of a book of mathematics. In order to know what it is, we must know what it has been, and what it tends to become. We must alternately consult history and existing theories of legislation. But the most difficult labor will be to understand the combination of the two into new products at every stage. The substance of the law at any given time pretty nearly corresponds, so far as it goes, with what is then understood to be convenient; but its form and machinery, and the degree to which it is able to work out desired result depend very much upon its past."[63]

Before we can even begin to appreciate the panoply of statutes and legal devices that protects intellectual creations like the computer program, we must first acquaint ourselves with the *raison d' etre* of this very policy as embodied in the Fundamental Law of our land. We must ascertain from this MACRO-level its merits and the overriding interest/s it seeks to secure lest we merely "persist from blind imitation of the past" "when the grounds upon which it was laid down have vanished long since."[64] We must trace the development of this policy and hopefully learn by the guiding light of history how to better-fashion our laws into effective instruments of economic liberation.

A. The 1935 Constitution

Section 4, Article XIV of the 1935 Constitution provides that,

"The State shall promote scientific research and invention. Arts and letters shall be under its patronage. The exclusive right to writings and inventions shall be secured to authors and inventors for a limited period."

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[62] For example, we have to consider the incorporeal interest Society has in the dissemination of knowledge, the interest of the software users or consumers, the proprietary interest of the authors of computer software, *i.e.,* the computer programmers, the interest of the data processors, the software manufacturers, the computer hardware manufacturers, to name a few.

[63] O. W. HOLMES, THE COMMON LAW 1-2 (1881).

[64] O. W. HOLMES, *The Path of Law* in THE JUSTICE HOLMES READER 74 (J. Marke ed. 1955).

This provision was primarily a result of the amalgamation of the provisions separately proposed by the Committee on Scientific Research and the Committee on Industry of the 1934 Constitutional Convention.[65] Its members realized this early that to achieve "economic progress", we must first attain "industrial progress which is basically scientific progress."[66] They noted that from the standpoints of "material prosperity", "physical well-being" and "national defense" potentials, it is not enough for us to passively "take all advantage possible of the contributions of science but (we) must actively encourage scientific and research activities to the full."[67]

"The exclusive right to writings" that shall be "secured to authors" and the "exclusive right to inventions" that shall be secured to "inventors" are respectively known as the *copyright clause* and the *patent clause*. They were actually inspired by similar provisions found in *almost all* constitutions of different nations.[68] Though apparently simple, "familiar", "natural" and "easy to take for granted",[69] this last sentence of Section 4, Article XIV of the 1935 Constitution embodies ideas that have not always been accepted but had actually been "laboriously fought (and) thought out in past times."[70] It possesses a wealth of history and meaning, an exploration of which is essential to its full understanding.

1. Historical Notes

a. The Copyright Clause

The first recognition of literary property as a proprietary right of authors was in Rome under the empire when the important manuscript book publishers paid them for the right to duplicate and sell their works.[71] Under the Roman concept, the owners of literary property possessed exclusive rights to the use of their works until dedication to the public, commonly termed "publication".[72] "Although no imperial act or provision in Roman law protected these copyrights, trade usage estopped infringement upon a bookseller's right in a work transferred to him."[73] This tradition however got lost for a time especially after the "Christianization" of Rome in 303 A.D.[74]

"During the early Middle Ages, literature was produced in the monasteries and schools of the Catholic Church; but books were composed and

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[65] *See* J. ARUEGO, THE FRAMING OF THE PHILIPPINE CONSTITUTION 674 (1949).
[66] *Id.*, at 675.
[67] *Ibid.*
[68] *Ibid.*
[69] O. W. HOLMES, *supra* note 63, at 2.
[70] *Ibid.*
[71] 4 ENCYCLOPEDIA OF THE SOCIAL SCIENCES, *Copyright*, 401 (1930) [hereinafter cited as SOC. SCI. ENCY.]
[72] NOTE, *Copyright — Study of the Term "Writings" in the Copyright Clause of the Constitution*, 31 N.U.Y. L. REV. 1263, 1264 (1956).
[73] 4 SOC. SCI. ENCY., *supra* note 71, at 401.
[74] 19 MERIT STUDENTS ENCYCLOPEDIA, *World History*, 565 (1971).

classics copied *not for profit but for the glory of God and the Church,* and. the freer the diffusion of religious truth, the greater the glory. *Author or scribe enjoyed NO property right although sometimes he was granted certain institutional privileges or exemptions.* Some monasteries established a kind of copyright in rare or authentic manuscript and allowed copies to be made for a fee or in exchange for other books."[75]

"Starting in 1190 A.D., the idea of the *stationarius* was established as a recognized university official who provides and rents to students or instructors *authorized* and *verified* texts, the prices and rules being determined by the university. Next came the *librarii,* who sold instead of rented and multiplied into guilds of booksellers with very substantial monopoly of the trade of making and selling books. These were controlled by both university and town to assure students correct texts at moderate prices and *protection against heretical writings* (this being the period of Protestant Reformation). This meant *censorship and trade regulation in exchange for copyrights.*

The invention of the printing press in about 1450 A.D. revolutionalized the ideas on copyright. Cheap duplication immensely enlarged the reading audience, and the author's rewards increased so vastly that he had a pecuniary interest in his copyright. The state or crown as its power grew asserted the prerogative to *control* printing by issuing patents or privileges to individuals or by organizing companies or publishers with monopoly rights. The purposes were in part to be able to *censor heresy or sedition,* and in part to *foster literature by protecting publishers against piracy.*

Meanwhile, in contradistinction to this concept of state born monopolies to printer publishers, there arose the novel idea that an author had a common law claim to his own intellectual creations before and after publication. (The time came when) authors prospered and became class conscious and set up the idea of personal versus institutional literature. They claimed their works were private property, produced by arduous labor, in which they enjoyed perpetual rights. The licensing system which prohibited printing any work without the author's sanction was introduced. Thereafter, the lapse of the licensing system and the confusion between the idea of a state grant and the property at common law resulted in such confusion with widespread piracy that authors and printers demanded new formal protection, a statute against piracy and recognition of registration at the Stationers' Hall. In 1710, they secured such a law, namely, the Statute of St. Anne, which was the first copyright law the world had known. It granted copyright for 14 years with a renewal for 14 years during the lifetime of the author, required registration at Stationers' Hall but allowed non-members to register (their) titles, demanded the deposit of certain copies (for the king's library and certain universities) and required copyright

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[75] 4 Soc. Sci. Ency., *supra* note 71, at 401.

notice to be printed in the book. These are the roots of modern copyright legislation."[76] All these were happening in England. By the 1800s, the rest of the Continent, i.e., France, Italy, Spain etc., had also perfected and codified the basic principles of Anne's Act.[77]

"The Spanish Law on Intellectual Property of January 10, 1879, was extended to the Philippine Islands by the Royal Decree of May 5, 1887. (It) was published in the *Gaceta de Manila* with the approval of the Governor General, on June 15, 1887, and took effect in the Philippines six months after its publication."[78] "Under Article XIII of the Treaty of Paris, it became the duty of the American Government to protect the holders of patents, copyrights and trademarks which had been issued to residents of the Philippine Islands *during* the Spanish Regime."[79]

"The Spanish Copyright Law was replaced by the United States Copyright Law when the United States took over in the Philippines in accordance with an opinion rendered by the U.S. Attorney General which held that the inhabitants of the Philippines were entitled to the protection of the *United States Copyright* Law."[80]

The Spanish Civil Code which remained in effect during the entire American Regime contained two provisions on intellectual properties.[81] "Copyrights were looked upon as *special* properties[82] to be governed by special laws."[83]

On March 6, 1924, Act No. 3134, entitled "An Act to Protect Intellectual Property", was approved and was later known as the *Philippine Copyright Law*.[84] It was "by and large of American extraction,[85] traceable to the Act of March 4, 1909.[86]

On May 24, 1935, the 1935 Constitution was ratified by the Filipino people. Recognizing the importance of protecting the interest of authors in the "pecuniary benefits" and "reputation" that they might derive from the work of their creation, the 1935 Constitution embodied for the first time in Philippine history, the copyright clause.[87]

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[76] *Id.*, at 401-402.
[77] *Id.*, at 403.
[78] 3 A. TOLENTINO, COMMENTARIES AND JURISPRUDENCE ON THE CIVIL CODE OF THE PHILIPPINES, 481 (1983) [hereinafter cited as CIVIL CODE COMMENTARIES] *See also* Laktaw v. Paglinawan, 44 Phil. 855 (1922).
[79] Gsell v. Yap-Jue, 6 Phil. 143 (1906).
[80] A. TOLENTINO, *supra*, note 78, at 481.
[81] CIVIL CODE (1889), art. 428 and 429. *See also* 2 A. PADILLA, CIVIL CODE ANNOTATED 505 (1965).
[82] A. TOLENTINO, *supra* note 78, at 462. [emphasis added].
[83] CIVIL CODE (1889), art. 429.
[84] A. TOLENTINO, *supra* note 78, at 481.
[85] E. Bautista, *Salient Features of the New Philippine Law on Intellectual Property*, I PHILAJUR 498 (1975).
[86] 35 Stat. 1075.
[87] *See* V. SINCO, PHILIPPINE POLITICAL LAW: PRINCIPLES AND CONCEPTS (1962).

In view of the non-self-executing character of the copyright clause in the 1935 Constitution, the lawmaking agency of the Government enacted the necessary legislation to better-implement this constitutional mandate with the end in view of achieving "Progress in Science."[88] Intellectual creation was provided as a new mode of acquiring ownership when the Spanish Civil Code was revised in 1949 by Republic Act 386.[89] Subsequently, a few months after the declaration of Martial Law, Act No. 3134 was expressly repealed[90] by one of the earliest Presidential Decrees passed, Presidential Decree No. 49 otherwise known as the *Intellectual Property Decree*. It became effective on November 14, 1972 and is one of the most prescient forerunners in its field.[91] Through it, the Philippines became one of the earliest nation to give *express* protection to computer programs *from the moment of creation*.[92]

Historically, we can conclude at this point in time that the legal concept of Copyright has diametrically evolved from a *restrictive program of censorship* where the main objective is to *control or limit* the spread of

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[88] This particular clause was used by both the Committee on Scientific Research and the Committee on Industry in their individual recommendations. Even though there is dearth of discussion on why this particular clause did not find its way eventually into the 1934 Draft Constitution, the records is replete with instances that show that this was the intended objective to be achieved.

[89] The Code Commission adopted the views of the eminent Spanish jurist, Sanchez Roman. Rep. Act No. 386 became effective on August 30, 1950. *See* Report of the Code Commission 52.

[90] Pres. Decree No. 49, sec. 64 (1972). *See* CBSI EDITORIAL STAFF, INTELLECTUAL PROPERTY, PATENT AND TRADEMARK LAWS OF THE PHILIPPINES WITH RELATED SPECIAL LAWS 23 (1986).

[91] At this time, for example, there was still a raging debate going on in the United States with respect to the copyrightability & patentability of computer programs. *See* Note, *supra* note 51, at 1529.

In view of the labyrinthian effect of rapid technological changes and developments on traditional concepts of Intellectual Property Law, the U.S. Congress established in 1974 the National Commission on New Technological Uses of Copyrighted Works [CONTU] to study and compile data on *inter alia* computer uses of copyrighted works. The CONTU finished its comprehensive study on July 31, 1978. *See* FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS (1978) [hereinafter cited as *CONTU Report*]. Its recommendations were substantially adopted in the Computer Software Copyright Act of 1980 which President Carter signed into law on December 12, 1980. This law settled in the affirmative the issue of computer program copyrightability. *See* Keplinger, *supra* note 53, at 483. *See also Note, supra* note 19, at 1726.

[92] Section 2 of Pres. Decree No. 49 provides as follows:
"The rights granted by this Decree shall, from the moment of creation subsist with respect to any of following classes of works:
     X   X   X   X
(N) Computer Programs;
On this aspect of providing protection from the moment of creation, the United States once again lagged behind us. It was only in 1981 when the U.S. COPYRIGHT REVISION ACT OF 1976 was amended to provide for copyright protection from the moment of creation. *See* 17 U.S.C. Section 302(a) [Supp. V. 1981]. This is a significant innovative and relevant provision as it makes copyright a more viable mode of legal protection with respect to computer software which is subject to rapid technological obsolescence. In practical terms, this means that the copyright of computer programmers in their work will not be lost simply because of failure to register on time.

knowledge, to a *progressive scheme of public disclosure* wherein authors are induced by the promise of protection under the law to share the products of their artistic or scientific creativity or genius with the public in general, effecting thus, an *increase* in Society's collective store of knowledge.

b. The Patent Clause

"The modern patent system has its background in the monopolies and exclusive privileges of the Middle Ages. To stimulate the introduction of *new* manufactures and the supply of natural and artificial products, the kings began to grant monopolistic privileges to towns and merchant and craft guilds. This motive of encouraging trade was weakened or corrupted by the growing necessity of the kings to secure money or services. The grants were abused and served instead of reward court favorites and to raise annual tributes for the sovereign. The grantees sold the privileges at high prices to persons who imposed severe burdens on their use. Gradually, even necessities of life came into the hands of patentees. The monopoly was made known by the issue of *litterae patentes*,[93] addressed to the subjects of the sovereign so that the privilege granted should not be questioned for want of knowledge."[94] The salutation of letters patent is usually some variant of the Latin rubric: *Pateat universis per praesentes* — "To all to whom these presents shall come."[95]

"In England the abuse of exclusive privileges and monopolies was ended during the reign of James I by the famous Statute of Monopolies enacted in 1623, which abolished the restrictive privileges and established an exception in favor of *new inventions*. It formulated also for the first time in history the requirements for the grant of a patent and the limitation in time of the privilege and did away with arbitrary administrative action."[96] This idea spread and also took root in the Continent of Europe, such that the extension of oppressive royal grants and monopolistic privileges ceased by the late eighteenth century.[97] Moreover, the synergistic confluence of varying legal traditions that resulted therefrom produced the basic doctrines that now support the modern patent system. For example, "the original British idea that patent was a monopoly and should be regarded with disfavor by the law yielded before the French theory of the inventor's natural right and the German idea of a bargain between the inventor and the society."[98]

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[93] Letters Patent or Open Letters are to be distinguished from Letters Close. The latter are documents which are first folded and then sealed, so that their contents cannot be read without breaking the seal e.g., the infamous *lettres de cachet* during the oppressive *ancient regime. See* P. ROSENBERG, PATENT LAW FUNDAMENTALS 5-6 (1975).

[94] 12 ENCYCLOPEDIA OF THE SOCIAL SCIENCES, *Patents,* 19 (1930) [hereinafter cited as 12 Soc. Sci. ENCY.] (emphasis added).

[95] P. ROSENBERG, *supra* note 93, at 6.

[96] 12 Soc. Sci. ENCY. *supra* note 94, at 19.

[97] *See Id.,* at 19.

[98] *Id.,* at 19-20.

In the Philippines, the modern patent concept[99] was only introduced in 1913 when the Philippine Legislature approved a law for the registration in the Philippines of patents already registered in the United States. The first Philippine patent law [Act 2793] was however passed only in 1919.[100] Subsequently, with the ratification of the 1935 Constitution, the role of the patent system gained new preeminence in the light of its potential contribution to national progress. Pursuant to this Constitutional mandate, the Legislature enacted Republic Act No. 165 entitled "An Act Creating a Patent Office, Prescribing its Powers and Duties, Regulating the Issuance of Patents, and Appropriating Funds Thereof" on June 20, 1947.[101] Republic Act No. 165 also expressly repealed the two former laws on patents.[102] A few years later [1949], the Legislature once again recognized the rights of scientists/inventors in their discoveries/inventions in another statute, Republic Act No. 386 (New Civil Code), by providing for intellectual creation as a new mode for acquiring ownership in intellectual properties.[103] Today, the basic law on patent is still Republic Act No. 165 but as amended by Republic Acts Nos. 637 and 863 as well as by Presidential Decree No, 1263.[104]

From a historical perspective, we can conclude that, as contradistinguished from copyright, the *raison d' etre* of the patent system, discounting instances of abusive exercise in the past, has remained essentially UNCHANGED. Basically, the State extends monopolistic privileges in certain areas, investment in which has been identified as being, in the ultimate analysis, beneficial to the common weal. The state does so in order to attract high-risk takers as exemplified by the business speculators during the Middle Ages and the eccentric innovators/inventors of the present times. To put it caustically, the patent system is a scheme for harnessing human greed through some kind of enlightened self-interest with the ultimate aim of bringing into the public domain that which was previously unknown to the public. *Ipso facto*, "a patent takes nothing from the people. Rather, by adding to the sum of human knowledge, patents actually gives something to the public."[105]

2. *The Constitution as an Equalizer.*

As we have but tangentially scrapped the surface of the multifarious interests at stake on this issue, we will now particularize them with the end in view of concretizing priorities in a world of limited or scarce resources.

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[99] By this is meant the limited patent system that extends only to inventions.

[100] 3 A. TOLENTINO, *supra* note 78 at 469.

[101] 2 A. PADILLA, *supra* note 81 at 511.

[102] Rep. Act No. 165 (1947), sec. 80. *See* CBSI EDITORIAL STAFF, *supra* note 90 at 60.

[103] CIVIL CODE, art. 721 (4).

[104] 2 A. PADILLA, *supra* note 81 at 511. *See also* 2 A. AGBAYANI, COMMENTARIES AND JURISPRUDENCE ON THE COMMERCIAL LAWS OF THE PHILIPPINES 478 n. 33a (1986).

[105] P. ROSENBERG, *supra* note 93 at 9.

Moreover, though the following discourse will generally hold true for all intellectual properties, an attempt will be made to specifically link the discussion to the peculiarities affecting the computer software as a variant of intellectual property.

a. Competing Interests.

(1) The Author/Inventor.

As mentioned earlier, the French legal theory concerning the natural right of authors/inventors has largely contributed to the foundation of our intellectual property laws as we know them today. Inasmuch as an intellectual property owes its very existence to the author's or the inventor's wilful act of creation, it should belong to its originator in ownership which embraces *inter alia*, the right to exclude others from the enjoyment thereof. Concomitantly, it also includes the right to conceal such discovery or work of art from society at large or the right to choose not to share it with anybody at all or to share it only with a limited few.

From the perspective of economics, it is axiomatic that creators of intellectual property should be "entitled to material sustenance at least at a level commensurate with less creative segments of society."[106] Unlike the bygone era "when artists (or inventors) could depend on private patrons for their living, ours is an age when an artist (or an inventor) without a private fortune must eke out a living from his art (or discovery) if he has to devote himself to it."[107] Thus, failure to take into consideration this particular concern would necessarily lead to the extinction of this special breed of extraordinarily-gifted persons. The fire of genius most certainly cannot be kept alive when constantly doused with spates of extreme physical deprivations.

It is therefore clear that with respect to the creators of intellectual property, a system of legal protection must be provided to act as a "stimulus for creative exertions."[108] Hence, it was mandated by the 1935 Constitution that "the exclusive right to writings and inventions" "be secured to authors and inventors,"[109] thus implicitly enunciating a State policy "to encourage individual effort and creativity by granting valuable enforceable rights."[110]

(2) The General Public.

Even though the Constitution secures to authors and inventors an exclusive right to their intellectual creations, theirs is but a secondary interest

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106 Note, *supra* note 28 at 178 n. 188 citing P. ROSENBERG, PATENT LAW FUNDAMENTALS § 1.07 (2d ed. 1980) Emphasis added.
107 BAUTISTA, *supra* note 85 at 509.
108 Grant v. Raymond, 31 U.S. 141, 156 (1832) per Marshall, C.J.
109 CONST. (1935), art. XIV, sec. 4.
110 Note, *supra* note 12 at 564.

subserved by this Constitutional policy. The Constitution, as the fundamental charter by which the State is to be governed, does not adhere to a policy of art for art's sake or the empty pursuit of science or knowledge as an end in itself. Neither does this policy of protection aim to afford authors and/or inventors an opportunity to amass private fortune from the exercise of the monopolistic privileges granted by the State to them. By prescribing a legal policy of protection for intellectual creations, the primary interest to be served is that of the *General Public* — specifically, to encourage the "general dissemination of knowledge" but necessarily "the direct communication of information."[111] It is the promotion of "Progress of Science and the useful Arts by providing society with an ongoing free-flow of information that will contribute to progress."[112] It just so happened that the "means for providing this benefit to society is the protection of secondary interests, that of authors and inventors — providing these creators with recognition and economic reward to encourage them to expand their time and energy in developing new technologies and arts."[113] To tie this up with the earlier discussion, it is not enough that the system of legal protection provides "an incentive to create"[114] but more importantly, it should be able to replace the incentive to hoard or conceal the products of creative genius with the incentive to share or disclose them for the public benefit.[115]

That the primary consideration for affording constitutional protection to intellectual properties is the general public good is also evinced by the qualifier that it is only *"for a limited period"*[116] that the "exclusive right to writings and inventions shall be secured to authors and inventors."[117] From this, one can infer the non-absolute and temporary character of this uncommon constitutional grant of monopolistic powers. Considering the general proscription against monopolies, we can also posit from this inference that the Constitutional Convention members, fully aware of the misallocation effects associated with the deliberate creation of market imperfections like monopolies, sought to limit these unfavorable consequences[118] by the above qualifier, thereby allowing the juxtaposition of two traditionally opposing concepts, i.e., monopoly and free competition. This, in turn, reveals that in the ultimate analysis, the intention was for the greater interest of the general public to gird the entire framework of

111 "The two are significantly dissimilar; knowledge may be obtained (as, for example, through the study of fossils) without the deliberate communication of information." The significance of this particular distinction to the computer software will be shown later. Mislow, *supra* note 1, at 767.

112 Comment, *International Protection of Computer Software: The Need for Sui Generis Legislation*, 8 LOY. L. A. INT'L. & COMP. L. J. 511, 514 (1986).

113 *Ibid.*

114 Bender, *Computer Programs, Should They Be Patentable?* 68 COLUM. L. REV. 241, 244 (1968).

115 *Id.* at 246.

116 CONST. (1935), art. XIV, sec. 4.

117 *Ibid.*

118 *See* Note, *supra* note 28 at 149 n. 7 citing J. PARKER, THE ECONOMICS OF INNOVATION 302 (1978).

constitutional protection. As the eminent Constitutionalist, Dean Vicente Sinco, put it, "the reason behind this limitation would seem to be the policy against any form of longstanding monopoly."[119] In sum, the deliberate support of monopoly at the expense of competition [rests on the ground that] the benefits to the community of *improving the potential flow of new knowledge* [will eventually] outweigh the misallocation effects"[120] associated with monopolistic market structures.

We would still come up with this unerring conclusion even if we had employed the rule on holistic construction. "It is an established canon of constitutional construction that no one provision would be construed alone but that *all* provisions bearing upon a particular subject are to be brought into view and to be so interpreted as to effectuate the great purposes of the instrument."[121]

The 1935 Constitution, along with all subsequent Philippine Constitutions, enunciated the following policy:

"The State shall promote scientific research and invention. Arts and letters shall be under its patronage. The exclusive right to writings and inventions shall be secured to authors and inventors for a limited period."[122]

Applying the rule of holistic construction, we can ascertain from this provision that the last sentence merely embodied the means for effectuating the main objectives expressed in the first two sentences — the promotion of scientific research and invention and the patronage of arts and letters.

Though it is not immediately apparent, these two objectives cannot be attained by merely taking care of one factor on the supply side of the equation, that is, the interest of the artistic and inventors. It is imperative to the viability of this constitutional policy that the State also considers the other variables in the equation. On the supply side, the State has to give due regard to the interests of both the *Investors of Capital* and those of the *Creative Rivals in the Industry.* On the demand side, the State has also to protect the *Consumers* of intellectual property from extreme abuses resulting from the exercise monopolistic privileges granted by the State.

The broad public availability or dissemination of the fruits of intellectual labor and the consequent general improvement in the quality of life cannot be brought about if the interests of these three most affected segments of the general public are ignored or neglected.

In order for us to better appreciate the close interplay between these three three sectors, it would be beneficial for us to first acquaint ourselves with certain basic concepts in economics. · ·

119 V. Sinco, *supra* note 87 at 482.

120 *See* Note, *supra* note 28 at 149 n. 7 citing J. Parker, THE ECONOMICS OF INNOVATION 302 (1978).

121 S. ALCANTARA, STATUTES 143 (1979).

122 CONST. (1935), art. XIV, sec. 4.

Economics is the "science that treats of the production, distribution and consumption of wealth."[123] Unfortunately in this world, wealth is not unlimited. In short, economic resources are scarce, *i.e.*, they are available only in amounts less than that sufficient to satisfy wants or desires. The test of scarcity in economics is the price. For example, only goods that are not scarce, such as air, do not command a price. On the bright side, resources have alternative uses. Thus, we are confronted essentially with a multi-dimensional allocation problem. The problem is to allocate scarce resources with economy and efficiency. "Economy means to achieve a given objective with the fewest resources [which is not necessarily, the cheapest in terms of cost]. Efficiency means to achieve the maximum benefits from given resources."[124]

Ideally, in a perfect market where no single buyer or seller has any appreciable influence on the price, the actual interaction of market forces will result in the most economic and efficient allocation of scarce resources in a process much akin to the Darwinian hypothesis on natural selection. However, in an imperfect market such as one characterized by monopolistic market structures, the sole seller/buyer *controls* or *dictates* the price of the good subject matter of the exchange transaction. Monopoly prices are usually not commensurate to the *real* value of such good. This leads to the misallocation of scarce economic resources, which is an example of the "misallocation effects" mentioned earlier.[125] Another common misallocation effect of monopolies is the ability of the sole buyer/seller to artificially raise the barriers to entry in that particular market or industry so as to perpetuate his monopolistic advantage for as long as possible. Also, innovative improvements, though present, are slow in coming or are not responsive or sensitive to the needs of consumers.

Now that we have set down these basic constructs, we can, without further ado, go into a more detailed exposition of the conflicting or antagonistic interests of the three sectors earlier mentioned.

(a) The Investors of Capital

One of the most compelling arguments for an efficient system of legal protection for intellectual properties is the need to provide the *incentive to invest*. "The establishment of a new business is a risky new venture at best, and experience indicates that the mortality rate on new business is very high. The man who has invented [or created] . . . . . must spend rather considerable sums of money equipping himself to produce the product and in establishing markets and sales , . . . , before he can expect to receive adequate returns."[126] Thus, an effective system of legal protection is "a

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[123] FUNK & WAGNALLS STANDARD DICTIONARY 244 (1980).
[124] D. WATSON & M. HOLMAN, PRICE THEORY AND ITS USES 8 (1977).
[125] *See supra* note 118-120.
[126] Bender, *supra* note 114 at 245 n. 21 citing J. WISE, PATENT LAW IN THE RESEARCH LABORATORY 25-26 (1955).

matter of very real importance to him. Of still more importance . . . . .
is the effect of [such] a system when he (the inventor or author) himself
does not have the funds . . . . . but must instead attempt to persuade others
to invest money in his enterprise."[127] It is a market truism that speculative
capital will not back new inventions or works of art without an effective
system of legal protection from piracy.

In the context of computer software development, it has been earlier
established that this particular undertaking involves a relatively expensive,
time-consuming and painstaking process of formulation, coding and testing.[128]
"Without knowledge that it can earn royalties from the use of its products
by others, a company is frequently reluctant to make the necessary invest-
ment of time and money."[129] In economic terms, without a reasonable
chance of realizing profit, the investing public or individuals with excess
funds would be disinclined to channel their savings into the software industry,
specially considering the modern wonder or bane of "reprography."[130]

(b) Creative Rivals in the Industry.

"[W]ith respect to the useful arts, there is a societal interest in having
many offer the art in the marketplace. Our economy functions best under
competition; and if many can present variants,"[131] there is greater probability
that innovations will occur in the industry. Laws must thus be created to
provide the public with a "system that encourage technological progress,
the spread of knowledge, industrial efficiency and free competition."[132]

Intellectual properties are essentially intangibles, though usually incor-
porated in a physical or tangible medium. They represent knowledge *per se.*
Knowledge cannot flourish in a vacuum. It cannot be built on nothing.
As such, it stagnates in a cesspool of secrecy. This is especially true with
respect to the process of technological growth in the computer software
field.

"The computer software industry progresses by a *stepping-stone* im-
provement process, with each innovation building on past innovations to
produce an improved product. Although it appears to be the result of
quantum leaps, the development of computer software has actually been

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127 *Ibid.*

128 Please refer back to the earlier discussion on the process of software develop-
ment.

129 Bender, *supra* note 114 at 245.

130 Reprography refers to the instantaneous reproduction of audio and visual ma-
terials usually at a cost highly disproportionate to the cost of producing the original.
One of the mechanisms that achieve this modern phenomenon is the ubiquitous zerox
machine. *See Note, Toward A Unified Theory of Copyright Infringement For An
Advanced Technological Era,* 96 HARV. L. REV. 451, 452 (1982).

131 *See* Note *supra* note 5 at 1275 citing Kepner-Tregoe, Inc. v. Carabio, 203
U.S.P.Q. 124, 131 (E.D. Mich., 1979).

132 Note *supra* note 2 at 514 citing Stern, *What Should Be Done About Software
Protection?,* 12 EUR. INTELL. PROP. REV. 339, 340 n. 10 (1981).

founded on a succession of seemingly minor improvements on existing techniques.' Whereas only a few programmers have the capability to create totally new methods of operations, there are many programmers who can mimic the pioneers and add improvements. Cumulatively, the minor innovations produce technological growth of major significance."[133] Inasmuch as progress in the computer software industry is impelled by this process of "cumulative innovation or second sourcing,"[134] competitive rivals or colleagues in the industry must be afforded the wherewithal to effect such stepping-stone improvements "without having to start from the beginning and recreate the original work"[135] since this latter process will merely be duplicative of research and development efforts and not conducive to the optimal allocation of society's thin resources.[136]

The abundant presence of creative synergy, being the *sine qua non* of a thriving computer software industry, must be fostered by the State. Laws must be made to promote greater access to and exchange of innovative programming techniques among the "creative rivals in the industry." Barriers to communication among program developers must be torn down or at least, lowered considerably.[137] The widespread circulation of new ideas, which accelerates the rate of technological development throughout the industry, must be secured by any legal scheme that aims to protect the computer software.[138]

(c) Consumers

The very existence of a product is dependent on its ability to get itself accepted in the competition of the market. Its survival hinges on its power to attract to itself the limited resources of the consuming public. No matter how qualitatively superior a product may be *vis-a-vis* a substitute product, it will eventually go out of commerce if there is no viable amount of demand for it. In short, the absence of buyers spells disaster for a product and at times, even death for the industry. Thus, one cannot afford to ignore the consumers' interest.

That the State should be concerned with the needs of the consumers finds even greater support from another perspective. Intellectual properties, in essence, represent knowledge harnessed, and converted into a saleable commodity. The broad diffusion of knowledge or technology tends to improve the general standard of living in Society.[139] In view thereof, the

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133 Note, *supra* note 5 at 1291-1292.

134 *Ibid.*

135 *Ibid.*

136 *Id.* at 1292 n. 173. *See also Note, The Policy Implications of Granting Patent Protection to Computer Software: An Economic Analysis,* 37 VAND. L. REV. 147, 176 (1984); Bender, *Computer Programs, Should They Be Patentable?* 68 COLUM. L. REV. 241, 247 (1968) and *Note, Computer Programs and Proposed Revisions of the Patent and Copyright Laws,* 81 HARV. L. REV. 1529, 1547 (1968).

137 *See Note, supra* note 114 at 247.

138 *Note, supra* note 28 at 161.

139 *See Note, supra* note 28 at 176.

State has an interest to see to it that the fruits of intellectual labour are of broad public availability.

As pointed out before, when Society intentionally supports monopolies, it should expect to experience certain misallocation effects as a tradeoff. Two particular misallocation effects that vitally affect the interest of the consumers are lessened innovation and the attendant evils of monopoly pricing power.[140]

"Monopoly power causes monopolists to offer consumers fewer goods at higher prices than they would in a competitive economy."[141] "Fewer" comprehends a reduction both in terms of quantity and quality. Concerning the latter for example, the near monopoly power attained by giants in the U.S. computer industry such as IBM, RCA, GE, Honneywell, Burroughs, etc. is "so great that they have not been notably sensitive to the needs of the consumers."[142] A result of this lack of competition is "inferior software" or "software slovenliness." These giants tend to develop new software only when they can gain competitive advantage.[143]

With respect to the monopoly pricing power conferred on the owners of intellectual property, there is also need for State regulation to minimize abuses. Considering the multiplier effect of knowledge as a catalyst in raising the quality of life in society, it is not enough that intellectual properties are available to the public; the State must see to it that they are reasonably affordable to the greater segment of our society. To this end, royalties demanded from consumers for the enjoyment of intellectual properties that are of foreign origin must be regulated. Regarding intellectual properties of domestic origin, consider this — would it not be the height of irony if the intellectual creations of Filipino scientists and artists are so monopolistically priced beyond the reach of the Filipino masses so that instead of ameliorating the living conditions or alleviating the desperate economic plight of the latter, they only serve to enhance the standard of living of *other* nations and worst, to widen even further our existing technological gap with the Industrialized Nations of the World?

d. Balanced Interests.

The indispensable role that advancement in the sciences and arts has to play in the progress of our young nation was underscored by consecrating in the Fundamental Law of the Land the policy of protection of "writings and inventions." This Constitutional policy compelled us to face the issue of *equilibrium* — the task of *equalizing* the indubitably valid interests of these diverse affected groups. On one hand, we have to give intellectual

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140 *See Id.* at 176-177. *See also* Bender, *supra* note 114 at 247-248.
141 *Note, supra* note 28 at 177.
142 Bender, *supra* note 114 at 247.
143 *Id.* at 247-248 n. 28, 29 citing Goetz, *Today's Commercial Software,* DATA-MATION, May, 1966 at 117, 118.

creators and investors of capital the advantages of Monopoly power. On the other hand, we have to provide an environment of free competition in the interest of society-at-large which includes the actual consumers and the rivals within the industry. Simply put, we have to juxtapose the incongruous systems of Monopoly and *Laissez Faire.*

Lord Mansfield stated this basic conflict very well in 1785 when he wrote:

> "[W]e must take care to guard against two extremes equally prejudicial; the one that men of ability, who have employed their time for the service of the community may not be deprived of their just merits, and the reward of their ingenuity and labor; the other, that the world may not be deprived of improvements, nor the progress of the arts be retarded."[144]

The attainment of equilibrium entails a task quite familiar to the student of the Law. It is the drawing of lines, specifically, the setting of limits to protection so as to prevent the grant of exclusive rights to authors and inventors "'from foreclosing others from making full use of the protected works, thus hindering rather than promoting the 'Progress of Science.' "[145]

To effectuate this Constitutional policy in its most comprehensive sense, we have developed on our own as well as adopted from the rich traditions of more experienced nations, certain legal hermeneutics, doctrines and concepts that will most reasonably allow the desired optimal balance of interest to take place. For the sake of order, the discussion will be made in their proper context, that is, either under patent or copyright law.

(1) Patent Law.

(a) LIMITATIONS.

i. Non-Patentability of Ideas.

Ideas are the building blocks of invention. To allow bare ideas patent protection will effectively stifle the creative process on a macro-level. This proscription is expressly embodied in Republic Act No. 165 as amended which is still the existing law on patent. It provides as follows:

> "SECTION 8. *Inventions Not Patentable.* — An invention shall not be patentable if it is contrary to public order or morals or to public health or welfare or if it constitutes a *mere idea, scientific principle or abstract theorem* not embodied in an invention as specified in section seven thereof, or any process not directed to the making or improving of a commercial product." (Emphasis supplied).

ii. Limited Patentable Subject Matter.

Another restriction that can be inferred from the above provision is that to be patentable, the idea must also be embodied in an invention as

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144 Sayre v. Moore, 102 Eng. Rep. 139, 140 (1785) cited in *Note, supra* note 5 at 1275, n. 70.

145 *Note, supra* note 12 at 533.

defined in Section 7 or a process directed to the making or improving of a commercial product. Section 7 defines as inventions patentable "any invention of a new and useful machine, manufactured product or substance, process or an improvement of any of the foregoing." This enumeration is exclusive of all others.

iii. *Stringent Standards of Patentability.*

Qualification as patentable subject matter does not insure or guarantee automatic patent protection. The stringent standards associated with patents have to be complied with. These are the standards of novelty, utility and non-obviousness.[146] Novelty is an ambiguous term because it is relative. Implicit in every novelty determination is a frame of reference. One must ask the question, "New to whom?"[147] Our Patent Law answers this question by defining in Section 9 thereof what is *not* considered as new.

> "SECTION 9. *Invention Not Considered as New or Patentable.* — An invention shall not be considered new or capable of being patented if it was known or used by others in the Philippines before the invention thereof by the inventor named in the application for patent for the invention; if it was patented or described in any printed publication in the Philippines or any foreign country more than one year before the application for a patent therefor; or if it had been in public use or on sale in the Philippines for more than one year before the application for a patent therefor; or if it is the subject matter of a validly issued patent in the Philippines granted on an application filed before the filing of the application for patent therefor."

The standard of utility dictates that the invention to be patentable must be "practicable and capable of performing its specified functions to produce an advantageous or useful result."[148] Non-obviousness means that the invention must not have been one that can be created merely by the exercise of mechanical skill. In short, it must not have been obvious to persons skilled in the art.

iv. *Scope of Protection.*

The exclusivity flowing from a patent is a negative right, *i.e.*, "the right to exclude others." As a consequence of the right of each patentee to exclude others, each can prevent the other from embodying that which is recited in the claims of his own patent.[149] Only that which is disclosed by the inventor in his claims is given protection. The purpose of this rule is not to prevent an inventor from receiving a patent but to force the inventor to limit the scope of the patent monopoly to the breadth of his contribution to society, thus precluding a monopoly on more than that which actually

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[146] *See* P. ROSENBERG, PATENT LAW FUNDAMENTAL 89 to 130 (1975) for an in-depth discussion of these patent standards.

[147] *Id.*, at 89.

[148] A. AGBAYANI, *supra* note 104 at 460 citing Von Eberstein v. Chambliss, 166 Fed. 463, 467.

[149] P. ROSENBERG, *supra* note 93 at 10, 12.

was invented.[150] The three ends sought to be accomplished by this disclosure requirement under the Patent Law are (1) knowledge by the government of what will become public property when the monopoly expires, (2) instruction to licensed persons as to how to make and use the invention, and (3) information to other inventors as to what part of the field of invention is still unoccupied.[151]

(b) APPLICABILITY TO COMPUTER SOFTWARE.

Whether or not computer programs are patentable subject matters has not yet been settled in our jurisdiction as this has not been brought in issue yet before our courts. Neither has it been clarified by legislation. An inquiry however at the Philippine Patent Office yielded an affirmative answer so long as the software involved complies with the standards of patentability. Considering the American origin of our present Patent Law — a condition which makes U.S. decisions of persuasive weight under Philippine jurisdiction — it would be beneficial for us to explore American jurisprudence with respect to this matter.

The latest U.S. Supreme Court case where this issue was tackled was the *Diamond v. Diehr* case.[152] It was held there that patent law is available to the processes which underlie computer programs, provided that the process is something more than a mere algorithm — where new areas of technology are ventured into. In short, the statutory subject matter patentable is the process contained in the computer program, not the computer program itself. This decision must be qualified by the fact that it was badly split and more importantly, it did not settle the question of whether computer programs are *per se* patentable.[153] Moreover, prior to this case, there were decisions[154] that sustained the reverse ruling on the ground that mathematical equations, which is how they narrowly understood the term "algorithms," are not patentable subject matter.

(2) *Copyright Law*

(a) NON-COPYRIGHTABILITY OF IDEA — THE IDEA-EXPRESSION DICHOTOMY.

It is a fundamental doctrine of Copyright Law that ideas may never be copyrighted for ideas are the very raw materials of authorship. "Only

150 Myrick & Sprowl, *Patent Law for Programmed Computers and Programmed Life Forms*, 68 A.B.A.J. 920, 921-922 (1982).

151 Under Sec. 21, Rep. Act No. 165, as amended, the term of patent protection is 17 years from the date of issue of the letters patent.

A. AGBAYANI, *supra note* 104 at 457.

152 450 U.S. 175 (1981).

153 *See e.g.,* Goodman, *The Policy Implications of Granting Patent Protection to Computer Softfare: An Economic Analysis*, 37 VAND. L. REV. 147 (1984) and Hopkins, *The Status of Patent Law Concerning Computer Programs: The Proper Form for Legal Protection*, 33 DRAKE L. REV. 155 (1984).

154 *See* Gottschalk v. Benson, 409 U.S. 63 (1972); Parker v. Flook, 437 U.S. 584 (1978).

an author's *expression* may be copyrighted . . . Once an idea is published, it enters the public domain. This is the important difference between copyright and patent law: Patent prohibits the use of a protected idea[155] even by someone who discovers it independently, whereas copyright prohibits "only" direct copying[156] and does not restrain the use of ideas."[157] In essence, copyright laws "prohibit the unproductive use of a protected work (copying the expression), but allow economically and artistically beneficial use (copying the idea)."[158]

"As a corollary to this general principle, if a particular idea admits of only one form of expression, that expression may not be copyrighted. Otherwise, by copyrighting the expression, the author could effectively monopolize the idea."[159] This is known as the "idea-expression identity" limitation.[160]

In the context of computer software, this last limitation would not be unnecessarily restrictive. It has been observed that "very few programs are so simple as not to embody sufficient original expression or creative effort of authors. Moreover, most complex computer processes are capable of expression in a program in a myriad number of ways."[161]

(b) The Requirement of Originality

"Originality does not require novelty, merely that a work be a product of some independent effort on the part of its author and that it exhibits some minimal quantum of creativity"[162] or "something irreducibly one man's alone and not merely a trivial variation."[163]

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[155] R.A. 165, as amended defines the right of patentees as follows:
"SECTION 37. *Right of Patentees.* — A patentee shall have the exclusive right to *make, use and sell* the patented machine, article or product, and to use the patented process for the purpose of industry or commerce, throughout the territory of the Philippines for the term of the patent; and such making, using, or selling by any person without the authorization of the patentee constitutes infringement of the patent."

[156] P.D. 49 defines the scope of copyright protection as follows:
"SECTION 5. Copyright shall consist in the exclusive right:
(A) To print, reprint, publish, copy, distribute, multiply, sell, and make photographs, photo-engravings, and pictorial illustrations of the works;
(B) To make any translation or other version or extracts or arrangements or adaptations thereof; to dramatize it if it be a non-dramatic work; to convert it into a non-dramatic work if it be a drama; to complete or execute it if be a model or design;
(C) To exhibit, perform, represent, produce, or reproduce the work in any manner or by any method whatever for profit or otherwise; if not reproduced in copies for sale, to sell any manuscripts or any records whatsoever thereof;
(D) To make any other use or disposition of the work consistent with the laws of the land."

[157] *Note, supra* note 27 at 507 to 508.
[158] *Note, supra* note 5 at 1275.
[159] *Note, supra* note 27 at 508.
[160] CONTU REPORT, *supra* note 21 at 19. *See also Note, supra* note 12 at 541.
[161] *Note, supra* note 12 a t541.
[162] Mislow, *supra* note 1 at 757 to 758.
[163] CONTU REPORT, *supra* note 21 at 25. *See also* Bleistein v. Donaldson Lithographing Co., 188 U.S. 239 (1903) [hereinafter cited as the Bleistein case].

Rather than a fixed minimum being the test, there is a reciprocal relationship between creativity and independent effort;. "[t]he smaller the effort (e.g. two words), the greater must be the degree of creativity in order to claim copyright protection."[164] Another way of putting this is that the greater the degree of similarity between two works, the greater the probability that there would be a finding of infringement. This is known as the "substantial similarity test."

With respect to computer programs, U.S. Courts have applied this substantial similarity test by considering "the number of identical computer instructions, the appearance of the video screen displays, and recently, the process through which the allegedly infringing program developed."[165] One author also argued well for considering the overall structure of a program as an additional point of comparison.[166]

Originality as a requirement of copyrightability is to be considered only from the quantitative aspect of creative effort that we have just elaborated on. The *qualitative* aspect, i.e. the aesthetic merit of the creative effort, is never in issue. This is but proper; otherwise:

> "[S]ome works of genius would be sure to miss appreciation. Their very novelty would make them repulsive until the public had learned the new language in which their author spoke. It may be more than doubted, for instance, whether the etchings of Goya or the paintings of Manet would have been sure of protection when seen for the first time."[167]

Comprehensibility is not the litmus of expressiveness; otherwise the copyright law would "punish the more daring innovators, a result that is surely the highest anathema to any statute designed to encourage creativity. (This is the) especially salutary characteristic of copyright law — that it encourages creative risks in the most efficient manner possible by removing any penalty for failure. In other words, it is not essential that an artist succeed in communicating to his fellow humans, merely that he tries."[168]

(c) FAIR PRACTICE LIMITATION

To protect the public's right to general information and cognizant of the need for the advancement, dissemination and conservation of knowledge and culture as well as for the promotion of educational, charitable and religious purposes,[169] our latest Copyright law, P.D. No. 49 [properly known as the Intellectual Property Decree], contains an entire separate article entitled "Limitations on Copyright."

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[164] Mislow, *supra* note 1 at 758 n. 110.
[165] *Note, supra* note 27 at 499.
[166] *Ibid.*
[167] Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903).
[168] Mislow, *supra* note 1at 771.
[169] Bautista, *supra* note 85 at 504.

"Under Section 10 of the Decree, the following acts of exploitation of the work after it has been lawfully made accessible to the public do not constitute violation of the copyright:"[170]

"1. Its recitation or performance (a) if done privately[171] and free of charge; or (b) if made for strictly charitable *or educational purposes or at religious services by any educational, charitable* or religious institution or society."[172]

Section 11, on the other hand, enunciated the fair practice doctrine as follows:

"To an extent compatible with fair practice and justified by the scientific, critical, informatory or educational purpose, it shall be permissible to make quotations or excerpts from a work already lawfully made accessible to the public. Such quotations may be utilized in their original form or in translation. x x x"

(3) Copyright v. Patent: An Evaluation.

With respect to computer software, copyright protection is superior to patent protection in most cases. As mentioned earlier, copyright protects the form of expression while patent safeguards its exclusive use. For a subject matter to be copyrightable, the only requirement is that it be original; whereas, to be patentable, the subject matter must satisfy the tests of novelty, non-obviousness and utility. Acquiring copyright protection is quite inexpensive whereas the acquisition of a patent is time consuming and expensive.[173] Moreover, many programs have relatively short marketing life cycles and go through continual series of updates and improvements such that it is highly possible that by the time patent protection is obtained, it is only of little use because the original is obsolete already. Copyright protection, on the other hand, is available from the moment of a program's creation, thus, it can keep pace with this rapid turnover of technology.[174] Bearing in mind also that even if the immediate effect of copyright law is to secure a fair return for an author's creative labor, the ultimate aim is to stimulate artistic creativity for the GENERAL PUBLIC GOOD.[175] Compared with patent protection, copyright protection would serve this end better since

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[170] *Ibid.*

[171] Under Sec. 56 of Pres. Decree No. 49 as amended by P.D. No. 1988, for "purposes of the Act, public exhibition shall cover any exhibition wherein 15 or likewise included." Thus, for the exhibition to qualify as private, the maximum number of audience must be 14 and it must be made free of charge.

[172] Words underscored were omitted in the copy published in the Official Gazette. This grave omission is attributable to the Bureau of Printing. *See* Bautista, *supra* note 85 at 104 n. 17.

[173] With respect to computer programs, acquisition of copyright is from the moment of creation, registration and deposit are not even required for purposes of recovering damages. [See Sec. 26 and 50 of P.D. No. 49].

[174] *See* CONTU REPORT *supra* note 21 at 16 to 46 and at 125 to 126. *See also Note, supra* note 19 at 1742-1743; Elson, *Protecting Software Against Piracy*, 25 DATA PROCESSING 6 (1983).

[175] *See* Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975).

copyright allows greater dissemination of programming techniques. Copyright would therefore advance social welfare better by maximizing public availability of literature, music, the arts and sciences.[176]

B. The 1973 Constitution

Section 9, Article XV of the 1973 Constitution provides that:

"(1) The State shall promote scientific research and invention. *The advancement of science and technology shall have priority in the national development.*

(2) *Filipino culture shall be preserved and developed for national identity. Arts and letters* shall be under the patronage of the State.

(3) The exclusive right to inventions, writings, and artistic creations shall be secured to inventors, authors, and artists for a limited period. *Scholarships, grants-in-aids or other forms of incentives shall be provided for specialy gifted citizens.*"[177]

Like its counterpart provision in the 1935 Constitution, this 1973 Constitutional provision was not self-executing. It was only a direction to the State. "It [was] hoped and expected that, with this specific mandate, the lawmaking agency might enact the necessary legislation with the corresponding appropriations, although even without this provision the lawmaking agency could enact the legislation in the exercise of its general legislative power"[178]

Even from a cursory glance, it is obvious that the basic framework of protection for intellectual properties in the 1935 Constitution had remained intact. The changes were not substantive and only served to reinforce the earlier policy.

First of all, the importance of the advancement of science and technology in our national development was further stressed by affording this factor "priority" status.

Secondly, our transition from a colonial state to that of an independent nation in the thirty-eight years that intervened between the two Constitutions was manifested by the new Constitutional direction to preserve and develop Filipino culture for national identity.

Third, the addition of the words "artistic creations" and "artists" respectively to the list of subject matter and intellectual creators afforded protection under the 1935 Constitution *rendered more explicit what was already the understood policy under the latter.* On this score, the observation has been made by certain commentators that "the former (1935) Consti-

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[176] *See Ibid. See also* Mazer v. Stein, 347 U.S. 201, 219 (1954), Fox Film Corp. v. Doyal, 286 U.S. 123, 127-28 (1932).

[177] The emphasis refers to the changes made in the 1973 Constitution with reference to the 1935 Constitution.

[178] J. ARUEGO and G. ARUEGO-TORRES, THE NEW PHILIPPINE CONSTITUTION EXPLAINED (INCLUDING THE CONSTITUTIONAL AMENDMENTS) 250 (1981).

tutional right to exclusiveness was extended *only* to authors and inventors" with respect to their writings and inventions so much so that with the inclusion of "artists" (with respect to their artistic creations), the 1973 Constitution added a new and distinct group to those already under the protective umbrella of the former Constitution.[179] Contrary to this view, it is respectfully submitted that the terms "authors" and "writings" in the 1935 Constitution were *even then already understood* in their most expansive sense so as to cover "artists" and "artistic creations." That this was so can be seen in the light of subsequent executive, legislative and judicial implementation of this Constitutional policy.

After the ratification of the 1935 Constitution, the pertinent provisions of the Copyright Law of 1924 which was then in force were never challenged as being constitutionally inferred by reason of their having extended copyright protection to matters which were obviously beyond the scope of constitutionally protected "writings", if the latter had been understood in its restrictive sense, *e.g.,* photographs, pictorial illustrations, etc.

That "writings" in the 1935 Constitution was not definitive of the *form* of constitutionally protected subject matter could also be inferred from subsequent legislative enactments. When Congress provided for intellectual creation as a new and original mode for acquiring property under the New Civil Code (1950), it did not limit itself to writings in its common narrow acceptation. Art. 721 of Republic Act No. 386 provides that:

"By intellectual creation, the following persons acquire ownership:
(1) The author with regard to his literary, dramatic, historical, legal, philosophical, scientific or other work;
(2) The composer, as to his musical composition;
(3) The *painter, sculptor, or other artist,* with respect to the product of his art;
(4) The scientist or technologist or any other person with regards to his discovery or invention."

Even more significantly, Presidential Decree No. 49 or the Intellectual Property Decree, which is clearly the implementation of the copyright clause in the 1935 Constitution, affords copyright protection to such obvious non-writings as:

"SEC. 2. The rights granted by this Decree shall, from the moment of creation, subsist with respect to any of the following of works:
                    x   x   x
(G) Works of drawing, painting, architecture, sculpture, engraving, lithography, and other works of arts; models or designs for works of art;
(H) Reproductions of a work of art;
(I) Original ornamental designs or models for articles of manufacture, whether or not patentable, and other works of applied art;
(K) Drawings or plastic works of a scientific or technical character;

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[179] H. DE LEON & E. LUGUE, TEXTBOOK ON THE NEW PHILIPPINE CONSTITUTION 430 n. 60 (1982).

(L) Photographic works and works produced by a process analogous to photography; lantern slides;

(M) Cinematographic works and works produced by a process analogous to cinematography or any process for making audio-visual recording;

(N) Computer programs;

(O) Prints, pictorial illustrations, advertising copies, labels, tags and box wraps;

(R) x x x x x other artistic works."

On the part of the Executive Branch of the Government, the Copyright Division of the National Library had all this time been accepting *mutatis mutandis* for registration and deposit the subject matters considered copyrightable under the pertinent copyright legislation, irrespective of whether they can be considered writings under the common acceptation of the word.

On the other hand, the Judiciary had never denied copyright protection in cases involving obvious non-writings on the ground that the intellectual property subject of the litigation is not a constitutionally copyrightable subject matter.[180]

In sum, this particular modification in the 1973 Constitution was merely a cosmetic change to clarify what was already the impliedly understood policy of affording an extensive meaning to the term "writings" — that writings include "any physical rendering of the fruits of creative intellectual or aesthetic labor."[181]

Lastly, a keener awareness of the financial plight of our intellectual creators[182] was shown by constitutionalizing the additional incentives of scholarships and grants-in-aid.[183]

C. THE 1987 CONSTITUTION

Consistent with its more detailed character *vis-a-vis* the previous Charters, the 1987 Constitution contains numerous provisions that have bearing on our present topic. They are as follows:

ARTICLE II

DECLARATION OF PRINCIPLES AND STATE POLICIES

SEC. 17. The State shall give priority to education, science and technology, arts, culture and sports to foster patriotism and nationalism,

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180 *See for example* the case of Santos v. McCullough Printing Company, 12 SCRA 321 (1964). In this case the subject matter was an exclusively Christmas greeting card depicting a native Madonna and Child scene. It was created by the famous painter Mauro Malang Santos for Ambassador Neri. It was denied copyright protection not because it was not considered a "writing" but because of failure to make the necessary registration and deposit which were prerequisites to copyright protection under the former law.

181 *See* Goldstein v. California, 412 U.S. 546, 561 (1973).

182 E. FERNANDO, PHILIPPINE CONSTITUTIONAL LAW 402 (1984).

183 2 P. FERNANDEZ & C. SISON, PHILIPPINE POLITICAL LAW: CASES AND MATERIALS 1652, 1653 (1975).

accelerate social progress, and promote total human liberation and development.

SEC. 24. The State recognizes the vital role of communication and information in nation-building.

ARTICLE XII
NATIONAL ECONOMY AND PATRIMONY

SEC. 14. The sustained development of a reservoir of national talents consisting of Filipino scientists, entrepreneurs, professionals, managers, high-level technical manpower and skilled workers and craftsmen in all fields shall be promoted by the State. The State shall encourage appropriate technology and regulate its transfer for the national benefit.

SEC. 19. The State shall regulate or prohibit monopolies when the public interest so requires. No combinations in restraint of trade or unfair competition shall be allowed.

ARTICLE XIV
EDUCATION, SCIENCE AND TECHNOLOGY,
ARTS, CULTURE, AND SPORTS
SCIENCE AND TECHNOLOGY

SEC. 10. Science and technology are essential for national development and progress. The State shall give priority to research and development, invention, innovation, and their utilization; and to science and technology education, training and services. It shall support indigenous, appropriate, and self-reliant scientific and technological capabilities, and their application to the country's productive systems and national life.

SEC. 11. The Congress may provide for incentives, including tax deductions, to encourage private participation in programs of basic and applied scientific research. Scholarships, grants-in-aid, or other forms of incentives shall be provided to deserving science students, researchers, scientists, inventors, technologists, and specially gifted citizens.

SEC. 12. The State shall regulate the transfer and promote the adaptation of technology from all sources for the national benefit. It shall encourage the wide participation of private groups, local governments, and community-based organizations in the generation and utilization of science and technology.

SEC. 13. The State shall protect and secure the exclusive rights of scientists, inventors, artists, and other gifted citizens to their intellectual property and creations, particularly when beneficial to the people, for such period as may be provided bv law.[184]

ARTS AND CULTURE

SEC. 14. The State shall foster the preservation, enrichment, and dynamic evolution of a Filipino national culture based on the principle of unity in diversity in a climate of free artistic and intellectual expression.

SEC. 15. Arts and letters shall enjoy the patronage of the State. The State shall conserve, promote and popularize the nation's historical and cultural heritage and resources, as well as artistic creations.

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[184] According to the Constitutional Commissioners, this is an omnibus provision which would, likewise, include Arts and Culture. See JOURNAL OF THE 1986 CONSTITUTIONAL COMMISSION PROCEEDINGS 9 (September 11, 1986).

SEC. 16. All the country's artistic and historic wealth constitutes the
cultural treasure of the nation and shall be under the protection of the
State which may regulate its disposition.

ARTICLE XVI
GENERAL PROVISIONS

SEC. 10. The State shall provide the policy environment for the full
development of Filipino capability and the emergence of communication
structures suitable to the needs and aspirations of the nation and the
balanced flow of information, into, out of and across the country, in
accordance with a policy that respects the freedom of speech and of the
press.

The basic framework of protection for intellectual properties is still
substantively the same under the 1987 Constitution so that our prior dis-
cussion are all still valid. One noteworthy character of the 1987 Constitu-
tional provisions is its high awareness of the role of science and technology
in our national progress and the clear emphasis placed on self-reliance and
public benefit. Also, rather than leave it to the market forces to effect the
desired public dissemination of knowledge, the 1987 provisions adhere to
a more active process — it provides for a policy of participative mobilization
of the people in bringing about the desired social change.

IV. CONCLUSION

In recent years, the concepts of copyright and patent, the two most
common legal systems for the protection of intellectual property, have be-
come almost completely commercialized. Divorced from their traditional
roles as instrument of national progress, they were merely thought of as
simply anti-misappropriation schemes for the protection of intellectual prop-
erties especially those capable of extensive reproduction. Instead of being
agents of national economic liberation, the royalties that we had had to pay
under these system merely serve to increase the heavy foreign yoke that
we were already burdened with. Clearly, the very *raison d'etre* of these
system had been forgotten.

The 1987 Constitution reminds us again of the proper perspective that
should be adopted with respect to our Intellectual Property Laws. It spells
out repeatedly in black and white that the overriding interest to be served
by "protecting and securing the exclusive rights of scientists, inventors,
artists and other gifted citizen to their intellectual property and creation"
is that of the Filipino public's — "the national benefit," to "foster patriotism
and nationalism," "accelerate social progress" and "promote total human
liberation and development" to be effectuated by, *inter alia,* supporting "indi-
genous, appropriate, and self-reliant scientific and technological capabilities"
"in a climate of free artistic and intellectual expression." It realizes that neither
overprotection nor underprotection of our intellectual creators is proper.

"Permit too much borrowing and authors will not recover their investment in research and development because competitors will share the fruits of their labor at minimal cost. Permit too little borrowing, and authors' monopolies will be injudiciously extended to similar programs, making competition in many areas of the computer software industry impossible."[185]

The computer software industry represents for us a possible solution to our economic dilemma. It offers us the chance to "leapfrog the messier stages of industrialization by switching to information, science and technology, the so-called frontiers of Science and Technology" of this later half of the Twentieth Century.[186] But it is just that — an opportunity which we, as a people, can either grasp or ignore. It is our future at stake and we are the ones who will have to make the final choice. And while the faithful implementation of the constitutional policy with respect to the protection of intellectual property for the promotion of social progress lies with our Government, the attainment of optimal resource allocation lies with us, the human resources of our nation. Once again, it is our decision that will make the actual difference.

THE FUTURE BECKONS US.....

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[185] See Note, supra note 27 at 498.

[186] This was a possibility pointed out by Constitutional Commissioner Blas Ople citing J. SHRIVER and TOSHO SAN, THE WORLD CHALLENCE. See JOURNALS OF THE PROCEEDINGS OF THE 1986 CONSTITUTIONAL COMMISSION 28 (September 11, 1986).