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Structural Continuity and Transformations of the U.S. Copyright Law With Regard to Computer Programs: Actors' Communicative Interactions through the Use of Structural Rules and Resources

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Abstract

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The framework of "authorship," "work," and "use" helps us understand the stakeholders' relationships and struggles that are manifested in their legal arguments. The structural rules mainly concerning the concept of authorship and work at first enabled the developers and copyright holders to make effective arguments to extend copyright protection on their behalf. When the cases began to have more actors who are developers but not copyright holders and the actors who are not developers but claim their rights in the programs, the struggle between the developers and non-developers were manifested in their arguments focusing on the concept of work and that of authorship. Through the legal actors' constant efforts to legitimize their interests in computer programs, the construct of authorship has been mobilized yet remained central. Artistic creativity that had been emphasized in other areas of copyright, and "independent" creativity that had been emphasized in earlier cases of software copyright, is later transformed to "scientific expertise, knowledge, and skills."

The findings of this study demonstrate the importance of the role of communication in structuration, because the only way that the legal actors were able to legitimize their interests and possibly transform the existing structural rules was through their communicative activities. The nature of the actor, i.e., whether she was a developing entity, was found to be a single most important factor that influences the decisions made by the judges. However, only when the legal actor could successfully present herself as a party that involved with developing computer programs, the judges were more likely to make a decision in her favor. When the actor was a developer but she focused her arguments on the nature of the work rather than her developing activity, the actor tended not to have any advantage over the other party. Therefore, it was the legitimacy gained by communicating the nature of the actor, rather than the nature of the actor itself, that made the difference in the ways the judges made decisions.

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With Regard to Computer Programs:
Actors' Communicative Interactions
through the Use of Structural Rules and Resources

Jisuk Woo

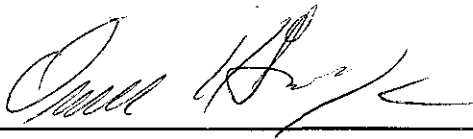
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Presented to the Faculties of the University of Pennsylvania in Partial
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1995



Supervisor of Dissertation



Graduate Group Chairperson

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Jisuk Woo

1995

This dissertation is dedicated to my parents,
Sung-Joo Woo and Yong-Min Kim.

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ABSTRACT

Structural Continuity and Transformations of the U.S. Copyright Law With Regard to Computer Programs: Actors' Communicative Interactions through the Use of Structural Rules and Resources

Jisuk Woo

Oscar H. Gandy Jr., Supervisor

This study analyzes the 115 U.S. federal cases regarding the copyright protection of computer programs, in order to examine how legal actors with different resources interact through their strategic communication activities, which influence the structuring of the information environment of the copyright system.

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emphasized in earlier cases of software copyright, is later transformed to "scientific expertise, knowledge, and skills."

The findings of this study demonstrate the importance of the role of communication in structuration, because the only way that the legal actors were able to legitimize their interests and possibly transform the existing structural rules was through their communicative activities. The nature of the actor, i.e., whether she was a developing entity, was found to be a single most important factor that influences the decisions made by the judges. However, only when the legal actor could successfully present herself as a party that involved with developing computer programs, the judges were more likely to make a decision in her favor. When the actor was a developer but she focused her arguments on the nature of the work rather than her developing activity, the actor tended not to have any advantage over the other party. Therefore, it was the legitimacy gained by communicating the nature of the actor, rather than the nature of the actor itself, that made the difference in the ways the judges made decisions.

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I. INTRODUCTION

This is a study of legal arguments and court decisions regarding the copyright protection of computer programs in the United States. This study aims to examine how the court decisions relate to the use of structural rules and resources by legal actors - in this case, judges, plaintiffs and defendants - and how these arguments and decisions influence future arguments and decisions by reproducing and transforming structural rules.

Examining the copyright law in relation to computer programs has both a theoretical significance as a communications study and a practical implication. In a constantly changing, information-based society, copyright law has a particular significance in that it controls the flow of information and information technology. In addition, among the various technological developments and changes that have been credited with having generated great changes in human lives and relationships in society, computers have transformed the way information is created, processed, transmitted, and provided to individuals and institutions (Office of Technology Assessment, 1990, p. 3). Computer software has become a valuable resource for the functioning of an information-based economy and the means to increase the exchange of information. Questions as to what kind of rights are given to whom with regard to computer software posit significant economic and social implications, since the access to software plays an important role in increasing the sharing of information, which is believed to be a fundamental basis for scientific and social progress.

The difficulty to use existing legal regimes to protect a new technology has been compounded by the special characteristics of computer programs. While the computer software industry generates billions of dollars annually,

programs that involve costly research and development can be copied illicitly with ease and little expense. Another difficulty arising from the nature of computer programs involves the fact that traditional distinctions among various stages in the creation cannot be maintained: these programs are both writings, descriptions, and processes (Office of Technology Assessment, 1986). In addition, more and more computer programs continue to be one of the intellectual work that is being done by teams. Finally, the development of software programs can be characteristically incremental and cumulative, as developers commonly adopt software design elements by consulting examples in other programs (Samuelson, *et. al.*, 1994). Therefore, while computer technologies are fast-moving, the software industry is maturing, and increased numbers and types of software users are entering, these unique characteristics of computer software pose a remarkable challenge to the existing regime of copyright law.

The fact that the U.S. copyright laws are enacted by the legislative branch and interpreted by the judiciary may also have a significant implication in the ways in which computer programs are protected and information is disseminated. While the courts deal with particular incidents involving two disputed parties and do not necessarily consider the broader context of policy-making in an explicit way, the decisions concerning copyright protection of computer software have a direct influence on the computer software industry and users. The ways in which legal decisions are made with regard to copyright protection of computer software have significant policy implications because they provide rules and guidelines for those involved with the development, the distribution, and the use of computer software.

While acknowledging the social and the economic significance of the protection of computer software, legal scholars and decision makers who have attempted to examine the copyright law in relation to computer programs have been puzzled. Many articles and debates about the legal protection of computer software have focused on how existing laws can or should apply to computer programs, i.e., what is the scope of copyright protection, who has the ownership, who has the right to copy or to distribute, and how much should be protected from the use of competitors or other users (Office of Technology Assessment, 1986). Some scholars who argue for a *sui generis* approach conducted normative analyses of the kind of legal protection that would be socially desirable for computer software and how it might best be accomplished, and suggested that a new system for protecting the software is necessary (see Samuelson, *et. al.*, 1994). A recent notable contribution stems from various interdisciplinary approaches of literary and legal critics who try to understand the underlying values and mechanisms in copyright law (see Woodmansee and Jaszi, 1994; Sherman and Strowel, 1994).

While these studies provide some insights into the elements of copyright law in relation to computer software, systematic studies on the processes in which software copyright decisions are made have been scarce. Studies that examine the mechanisms by which the copyright law with regards to computer software has been established and transformed are almost non-existent. The factors that influence the judges' decision-making in the software copyright law have not been systematically identified. This poses a serious problem in that various approaches to understand the mechanisms by which the software copyright law is shaped remain un-tested. This study attempts to compare the approaches and derive a framework that will help us capture the variety and diversity of factors that shape copyright

law, by analyzing all the decisions and arguments that were made in the U. S. federal cases regarding the copyright protection of computer software.

This study also distinguishes itself from the other approaches to study the copyright law of computer software, in that it conceptualizes the communicative interactions among the legal actors reflected in case reports as the primary focus of the mechanism, by which the copyright law is established and transformed. The laws and practices of the copyright system, as those of any legal system, reflect the relationships among the stakeholders and tensions among the interests and values that copyright law tries to protect. At the same time, the laws and practices also generate and reinforce these relationships and tensions. In order to understand the underlying relationships and competing interests and values, this study conceptualizes interactions between knowledgeable legal actors - judges, plaintiffs and defendants - and institutions as forces influencing the copyright decisions. The interactions between actors and institutions in the legal decision making processes are basically made through legal arguments, which become a crucial nexus providing an understanding of the decision making process regarding computer software. Providing a useful framework to examine the legal arguments and decisions as communication processes of knowledgeable actors, and examining the role of communication in the process of the reproduction and transformation of a legal regime, is the main concern of this study.

Examining the copyright rules and discourses regarding computer software is particularly informative to understand interactions among the actors and institutional rules, because the rules in this area are relatively less-grounded but still evolving. In the U.S. Constitution, the intellectual property clause grants to Congress the power to enact copyright legislation in

order to promote the progress of science and useful arts. The enacted law is constantly being re-interpreted by individual decisions made in the courts. Given that computer software has not traditionally been protected by copyright, and that the protection of software requires certain amount of expertise in the area of computer technology, room for variation in the interpretation of the enacted law when applied to the specific cases could be especially large.

The focus of the study is on how different stakeholders with differing resources use the rules and resources in legal arguments, which influence the structuring of the information environment of the copyright system. How, in the process of actors' communicative interactions, the rules and resources themselves are reproduced and transformed is the main concern of this study. Examining copyright decisions and arguments on computer software would not only enhance our understanding of the role of communication in legal decision-making processes, but also would provide a context for evaluating these decisions.

The next chapter is an analysis of theoretical frameworks that help us to inquire into the processes in which the copyright law is shaped. The theoretical perspectives that are discussed include: Critical Legal Studies that emphasize the role of actors in legal processes; instrumentalist and structuralist theories that focus on influential factors on social reproduction and change; and the theory of structuration formulated by Giddens that reconciles the relationship between actors and structures. The conceptual framework for this study is proposed in the end.

In the third chapter, the conceptual framework proposed in the second chapter is applied to the copyright system of computer software. The critical

concepts of the framework are defined and discussed in relation to the copyright decision making process. In order to derive useful frames to analyze legal arguments, this chapter examines some of the approaches attempted to understand the copyright principles and to recognize the social, political, and economic underpinnings that contributed to the shaping of the copyright concept and system. The main research questions are proposed in the end.

The fourth chapter describes the methods used in gathering data, instrumenting variables, and analyzing the data. The final three chapters are the result of the analyses, first one being descriptive analyses of the nature of cases and other variables, second being analyses of the relationships between the legal actors, issues, and court decisions, and third being analyses of the legal actors' use of rules and resources reflected in their legal arguments. The findings of the third analysis identify the ways in which the structural rules are created, reproduced, and transformed.

The last chapter combines the three analyses to examine the interactions among the actors, their use of structural rules and resources, and decisions. The process of structuration in the copyright arguments and decisions is illustrated. Also, the relationships, interests, and values that have been reflected, generated, transformed, and reinforced in this process are discussed.

II. THEORETICAL FRAMEWORK

The literature review in this chapter consists of five related themes. It starts with a discussion of different approaches to the legal decision making process, with a special focus on the Liberal legal formalism and the Critical Legal Studies. In order to examine how social structures and social actors may play a role in the legal decision-making process, social theories regarding the social structure and actors are discussed, with a particular emphasis on the tension between the structuralist and the instrumentalist strands. Giddens's theory of structuration which attempts to reconcile this tension is discussed in detail, and the analytical framework of this study is proposed. The importance of the communication aspect, in terms of legal arguments made by knowledgeable legal actors, is emphasized here. Finally, how the scheme of news discourse analysis drawn from the perspective of constructivism may help examine the legal arguments is discussed.

Legal System: Decisions and Arguments

There are roughly two broad streams in the legal scholarship that characterize the legal system and legal decision making: Liberal legal formalism, which dominates the mainstream law and practice, and Critical Legal Studies (CLS), which is a new current in contemporary legal theory. The doctrine of legal formalism posits that law is a body of intelligible and impersonal purposes, policies and principles that form a gap-less system of rules from which legal reasoning and subsequent decisions are derived (Unger, 1983, p. 1). These decisions are assumed to come after 'objective' hearings where evidence is presented according to certain rules, and thus

'truth' ultimately emerges. Combined with the doctrine of objectivism, the Liberal legal scholarship views law as an apolitical realm for the exercises of power relationships. The decision making process itself supposedly guarantees that law remains above politics, mainly due to the contribution of the attributes of the legal system including "judicial subservience to a Constitution, statutes and precedent; the quasi-scientific, objective nature of legal analysis; and the technical expertise of judges and lawyers" (Kairys, 1982, p. 1).

The Liberal legal scholarship, therefore, believe that legal systems, decisions and arguments are natural, neutral, apolitical, rational and objective. Consequently, political, social, and economic factors which might influence the decision making processes, and the implications of the decisions have not received much attention by Liberal legal scholars. In particular, legal decisions involving new technology such as computer programs are more easily argued and perceived to be "value-free," "technical" decisions.

The assumption that legal decisions and arguments are value-free or objective is rejected by CLS scholars who generally believe that any kind of human reality is socially constructed. Within the perspective of the social construction of reality, neither language nor collective procedures can be value-neutral: individual selves are inseparable from society, and aspects of human social life such as "rights" are always socially constructed, contingent, and context-bound, instead of natural or universal (Streeter, 1990, p. 4). Thus, Critical Legal Studies is critical of the belief in neutral and objective legal systems and decisions, and points out that law is a form of human activity, a practice carried out by people (Olsen, 1990, p. 208). Boyle makes a similar point by arguing that ineradicable subjectivity is brought to the legal system by

the very fact of the judge's humanity (1985, p. 692). According to the CLS scholars, the activities of lawyers and judges are embedded in social structure, not objective procedures that stand above social reality and power relations (Streeter, p. 4). In the same vein, Bettig (1989) analyzed the Betamax case on home recording rights and VCRs, and found that the formal rules that judges are supposed to follow in reaching decisions in particular areas of litigation are biased toward the protection of private property. He points out that not only are the judges themselves biased toward the protection of private property rights, but so are the formal rules that they are required to apply (p. 190). However, the selection of particular rules and different interpretations of the rules were not examined in this study.

The CLS scholars also argue that it is impossible to separate law from politics not only because of the judge's subjectivity, but also of the impossibility of constructing a set of rules that could be applied in a neutral or objective manner (Boyle, 1985, p. 692). Critical Legal Studies reject the notion that law is principled, which is based upon the belief that law consists of a few rules and principles and that these general rules provide a principled basis for deciding individual cases (Olsen, 1990, p. 208). According to CLS scholars, law is actually made up of an agglomeration of specific rules and some general standards, and the rules are too specific, definite, and contextualized to count as principles and the standards are too vague and indeterminate to decide cases (Olsen, 1990, pp. 208-209). Therefore, law is not abstract and principled but personalized and contextualized (Olsen, 1990, pp. 208-209).

This non-principledness of law has implications related to the concept of legal indeterminacy advanced by Critical Legal Studies. Most forms of legal Liberalism rely on some sense of the permanence and universality of the meaning of words. Liberal legal scholarship assumes that given a certain set

of legal rules and a certain legally defined situation, a properly trained judge or lawyer, within certain boundaries, can use his or her expertise in legal language and reasoning to arrive at, or at least approximate, the correct interpretation (Streeter, 1990, p.46). CLS reject this "idealized model" of law by stressing the inconsistency in the application of legal doctrine, evidenced by the wide range of choices and outcomes that are possible in any particular case.

Indeterminacy parallels the linguistic and literary premise that the meaning of words is not fixed by their referent, but signs are arbitrary and conventional (Streeter, 1990, p. 47). According to CLS, just as there is no immutable language standard or logic that determines the "correctness" of grammatical structures, there is no fixed, objective logic that can determine the correctness of a legal decision (Cohen, 1935; Streeter, 1990, p. 47). The premise that the meaning of words is not fixed, similarly illustrates that the law enacted by the Congress is interpreted by the judiciary in individual cases and is constantly re-interpreted and re-defined. As Patterson and Lindberg (1991, p. 3) argue that all rules of law contain implied extensions and implied limitations and are therefore subject to interpretation, it follows logically that different interpretations can be possibly made from a single law.

Some of the CLS scholars have explored how legal modes of interpretation change dramatically over time, so that what was once considered a correct legal decision would now be considered incorrect, and vice versa (Streeter, 1990, p. 47). From this perspective, law is fundamentally indeterminate (Streeter, 1990, p. 47). Using detailed textual analyses of laws and legal judgments, CLS scholars show that opposite interpretations are equally valid within the logic of legal reasoning (Streeter, 1990, p. 46-47). In the absence of a coherent set of neutral or a priori premises, legal decisions

and practices seem inescapably political and value-laden (Boyle, 1985, p. 740), and contain enormous amounts of room for private action, and consistent private action can essentially "make" law by re-shaping existing customs (or even creating new ones) that may subsequently be honored by the courts.

The premise of the CLS suggests the importance of legal arguments and discourse. Since legal actors are human and social beings, the understandings and the perceptions of the judges and lawyers about the issues are important in decision-making. In addition, the legal system and rules upon which the decisions are based are not determinate nor principled. The understandings and perceptions of a judge could be influenced by arguments made by petitioners and defendants. The role of communication is important in terms of who makes what kind of arguments in what ways with what effects in the legal decision-making process. If legal decisions are assumed to be highly subject to constant knowledgeable interplay, the activities of legal scholars such as the types and modes of arguments may influence these decisions. Also, the ability to make effective arguments may also influence the decision-making process. The mechanisms through which legal decisions are influenced by arguments are worth examining.

Studies on the legal decision making process in the particular area of copyright are not substantial. Except for some studies concerning judges' attitudes and their socialization, it is even harder to find studies that consider individuals as active and knowledgeable actors in the legal decision making process. If the legal system and decisions are not objective, neutral, and principled as CLS suggests, there is no one principle or one set of rules that can be relied upon to make a "correct" decision. Then decisions about who should have the authorship, what kind of copyright should be given to whom, etc. inevitably require value judgments emphasizing certain values or

rights over other values or others' rights, which may be the result of arguments made by actors. The activities of lawyers and judges are inevitably embedded in the social structure, therefore these activities cannot be considered objective procedures that stand above social reality and power relations (Streeter, 1990, p. 46).

From the Structure versus Agency Dichotomy to the Process of Structuration

If legal decisions are closely interconnected with social structures and the social actors' understandings and perceptions, it follows logically that attention should be given to the mechanisms through which the legal decisions may be influenced by social structures and actors. Many critical scholars from the traditions of Marxism, neo-Marxism, and Critical Legal Studies have provided some insight on this question, although copyright has not been an issue of particular interest to these scholars.

Most of the approaches suggested by these critical scholars can be placed into two broad categories: structuralism and instrumentalism. Instrumentalism tends to emphasize human agency at the level of consciousness while structuralism stresses unconscious, structural determinations. These approaches are not mutually exclusive, but rather represent different levels of analysis and emphasis. Both structuralism and instrumentalism each by itself is a partial reflection of a dialectical interaction between human agency and social structures. Among the various attempts to deal with this nexus, Giddens's theory of structuration is suggested as a useful framework to approach the legal decision making process and its relationship to social structure and agency.

An instrumentalist approach is in rejection of both deterministic structuralism, and of formalism and of objectivism, upon which modern legal thought is based. An instrumentalist perspective sees the struggle of the agency and the ruling class to maintain their power as a main force of influencing the social structure. Instrumentalist analysis seeks to explain how the capitalist class is consciously able to protect and extend their interests through the exercise of power in private and public institutions.

An instrumental approach to the role of law in capitalist society begins by identifying the class background or social status of judicial elites. Miliband argues that judges themselves are "by no means, and cannot be, independent of the multitude of influence, notably class origin, education, class situation and professional tendency, . . . (1969, p. 138)." He adds that judicial elites are drawn mainly from the upper and middle layers of society. Miliband goes on to emphasize the common professional legal background of most judges as a profession that produces individuals "whose ideological dispositions are traditionally cast in a highly conservative mold" (p. 138).

Kairys from the CLS perspective similarly stresses the humanity of judges. He argues that judges share common backgrounds from their law school experiences and from typically practicing commercial forms of law (1982, p. 5). Bettig points out that these ideological influences enter the process of legal decision-making and produce results that are not random (1989, p. 188). CLS scholars, including Kairys, attempt to explore the ways in which the law is neither separate from nor above politics, economics, culture, values, or the particular ideological dispositions of judges (Kairys, 1982, p. 17). They also emphasize the influence of social and political factors on judges, both at the conscious and unconscious levels.

However, this instrumentalist view of the law is criticized by many scholars including Marxist scholars themselves. Some anti-rationalists point out that it is very hard to imagine so many individuals accurately perceiving their long-term self-interest and acting in concert to institutionalize it as law, and always have the intended consequences (Boyle, 1985). A more general criticism centers around the argument that the instrumentalist view tends to de-emphasize the other aspects of the legal system. The recognition of this deficiency provides the impetus for the second standard position in Marxist legal thought. This is the move away from a focus on the wishes of the individuals who make up the ruling class, and toward a focus on the objective structural interests of that class (Miliband, 1969).

The theoretical approaches of structuralism have been applied in the study of law and legal institutions. With law appearing as neutral, objective and quasi-scientific, the judicial process itself in turn "lends a broader legitimacy to the social and power relations and ideology that are reflected, articulated, and enforced by the courts" (Unger, 1983, p. 4). The structuralist picture of law generally has two tiers, a determining substructure and a determined superstructure. Structuralism tries to explain why the social structures reinforce class domination and inequalities. The structuralist analysis sees the law as evolving out of the logic of capitalism, and hence emphasizes particularly the determination of structures by the logic of capital (Boyle, 1985, p. 722). This view sees the economy as determinant and the legal system as an output. There are different accounts of the process by which the economic substructure determines the ideological superstructure of the law, morals, religion, and aesthetics, but all tend to stress the one-way nature of the relationship: economy determines law rather than vice versa (Boyle, 1985, pp. 722-723).

The structuralist account of law is criticized as both being too deterministic and assuming of the objective reality. I will discuss these two criticisms separately. One important critique of structuralism is related to its assumption of the "objective" structures and the "objective" legal principles. But as discussed earlier, our ideas of "the subject" and "the structure as the object" are both socially or inter-subjectively produced categories, and both ideas come from the social world. Then it becomes meaningless to imagine that there is an objective set of historical laws that act on the subjects of those laws (Boyle, 1985, p. 759). Boyle argues that even if we assume that we concede the existence of a structure, the structure is ultimately a distillation of our experience of social life (pp. 759-760).

Gordon makes a similar point. He asserts that Marxist inquiries into the objective determinants of social reality are meaningless, precisely because it is social reality, that is, a reality constructed by subjects, and not by structures (1982, p. 287). Gordon goes on to argue that "what we experience as 'social reality' is something that we ourselves are constantly constructing. . . (p. 287)." His argument, however, is also vulnerable to another criticism stating that it merely switches the privilege from the structuralist strand of hidden economic determinism to the subjectivist strand of hidden personal choice (Boyle, 1985, p. 776). Therefore, any amalgam of the two strands to create a social theory becomes unstable.

Also relevant to the point made by Boyle is a criticism about the deterministic aspect of structuralism. The structuralist approach to the law is considered only to switch the determining power away from the individual wills of capitalists towards the structural requisites of capitalism, and so does not solve the deficiency of considering multiple social forces. But the particular forms and functions of the structures are neither precisely

determined nor inevitable because human beings create and recreate these structures (Bettig, 1989, p. 196). The interdependency of the structuralist and instrumentalist accounts seem to be recognized by some CLS scholars. Boyle illustrates that in order to explain what is the structure, we have to posture some "agency" to whom the knowledge of structural constraint will be useful. Similarly, to describe the instrumentalist strand, we have to rely on the vision of transcending or breaking through a dominant structure. Therefore, each strand both contradicts and relies on the other (Boyle, 1985, pp. 743-744).

A tension between the instrumentalist (also called subjectivist) and the structuralist strands has long existed in critical legal thought. While the instrumentalist strand stresses the importance of the individual's subjective experience, conversely, the structuralist strand focuses on structures. Many scholars from various scholarly perspectives have tried to resolve this tension between structure and actors. As a response, a "relatively autonomous" account of the law has been suggested, which leaves room for dialectic interaction between multiple sets of structures, and imagines the possibility of historically informed subjects. But critical theories of law discussed so far, whether of instrumentalism, of structural determinism, or of relatively autonomous varieties, all seem to be vulnerable to the criticism of giving emphasis to one of the other of the elements, while disregarding the interactive processes among them.

In order to solve the tension, the switch from structural or subjectivist determinism to a social creation process is necessary. Some CLS scholars suggest that we should try to expose the constraining quality of the structures of everyday life, which are embedded in legal decisions, in standard arguments, or in the assumptions upon which a discussion is based (Boyle, 1985, p. 743). In this case, "structure" is applied in a broader sense than its

technical usage, to mean a focus on clusters of beliefs, ideas, or economic forces that supposedly have their own internal logic, and that somehow organize, explain, or are reflected in the subjective experiences of those who are affected by them (Boyle, 1985, p. 742).

The "processes" by which individuals in the society and social structures interact through communication together to maintain or change social relations are emphasized by some scholars. Some of the critics argue for local theory or analysis, which Boyle defines as "a partial, non-privileged account of particular areas of life that is informed by the mediating devices that the tension had uncovered" (p. 774). Boyle, referring to Michel Foucault (1980), suggests that our social theory should not be based on the analysis of large-scale ideologies (p. 773). Here the attempt to reweigh the balance between the subject and the structure involves making up local maps by capturing momentarily our experience of the world (Boyle, 1985, pp. 778-780). Foucault (1980) notes on the importance of local research:

"It is not that these global theories have not provided, nor continue to provide in a fairly consistent fashion, useful tools for local research. . . . But I believe these tools have only been provided on the condition that the theoretical utility of these discourses was in some sense put in abeyance, or at least curtailed, divided, overthrown, theatricalised, or what you will. In each case, the attempt to think in terms of a totality has proved to be a hindrance to research.

So the main point to be gleaned from these events of the last fifteen years, their predominant feature, is the *local* character of criticism. . . . I believe that what this essentially local character of criticism indicates in reality is an autonomous non-centralized kind of theoretical production, one, that is to say, whose validity is not dependent on the approval of the established regimes of thought." (p. 80-81)

The research orientation suggested by Gordon also follows Foucault, and looks for practices of domination in "the smallest, most routine, most ordinary interactions of daily life" (Gordon, 1982, p. 290). The focus at the level of daily life is indeed useful and necessary if we want to examine the processes in which legal decisions regarding copyright are made in which individuals act relying on the structures that they have made. Giddens's theory of structuration reflects his attempt to embrace this notion of routine interactions in order to reconcile structuralist and subjectivist perspectives of social theory (1984). The theory of structuration, which is consistent with the assumption of this study that the reality (including the legal reality) is symbolically and socially created rather than objective and concrete, provides a useful framework to understand the interactions between social actors and structures. The theory of structuration will next be discussed in detail.

Reproduction and Change of Structure

Giddens argues that "the basic domain of study of the social sciences is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across time and space" (1984, p. 2). He notes that all structuralist theory fails to conceptualize structure as being actively produced and reproduced by reflexive human agents, and draws upon Weberian constructs of social action rejecting the tendency of de-emphasizing the role of the subject (Parsons, 1989, p. 11).

The integration of structuralism and subjectivism is attempted by the theory of structuration through its rigorous conceptualization of structure. According to Giddens, structures are the rules and resources people use in interaction, and they are analyzed as dualities: both the medium and the

outcome of interaction. The structures act not only to constrain social action, but also make social action possible by providing the paths for appropriate behavior. Therefore, Giddens's structuration theory is different from the structuralist view, not only in terms of its emphasis on social action, but also in its explicit argument that structural elements "enable" as well as constrain social action. He suggests social structures, or social systems to be envisioned not as frameworks outside of and constraining social action, but as a product of social action, enabling as well as limiting it. This is what he means by the "duality of structure." Giddens argues that the parameters of structures are continually re-created in the daily routines of social life:

"By duality of structure, I mean the essential recursiveness of social life, as constituted in social practices: structure is both medium and outcome of the reproduction of practices. Structure enters simultaneously into the constitution of the agent and social practices, and 'exists' in the generating moments of this constitution (Giddens, 1984, p.5)"

Therefore, structuration is the production and reproduction of social systems through the application of generative rules and resources. Giddens emphasizes the importance of recognizing the role of antecedent frameworks of meaning in the recursive creation of social reality (pp. 25-28). The systems of deeply layered structures explain the "framework" of the organization, in this case, copyright law system, while people creating and recreating structures form the patterns of interaction. The importance of individuals in structuration needs to be underscored, since they are carriers and creators of the rules and structures. Thus, structuration is grounded in individual interactions that, over time and space, constitute institutions, and its analyses can work to bridge the macro/micro dichotomy. A central concern of the

structuration theory, therefore, is the identification of the conditions that govern the continuity, or transformation, of structures, and thus the reproduction of systems.

Stress is placed on social behavior and more specifically on the purposiveness of individuals in situated practice. The knowledgeable and directedness of social agents is underscored. Three levels of social awareness - unconscious, practical, and discursive - are considered in the general theme of re-creating the social fabric across time and space (Giddens, 1984, pp. 5-14). Unconscious levels of social awareness have a psychological sense of requiring a basic security or needs system. Practical consciousness refers to that level of knowledge or awareness whereby daily social life is constituted and reconstituted across time and space. Discursive consciousness presumes the ability to give a coherent account of the social rules that govern one's situation and action.

Since action involves power in the sense of transformative capacity, the major issue is the power dimension inherent in the ability of an individual to create his or her own reality (Giddens, 1984, p. 15). Power is defined as the ability to achieve outcomes: it "presumes structures of domination whereby the power flows smoothly in the process of social reproduction" (Giddens, 1984, p. 257). Power is exercised and realized through two types of social resources, allocative and authoritative (Giddens, 1984, p. 16). Allocative resources are of a material nature, while authoritative resources tend to be associated with control over persons. Power, generated through control of such resources, results in the continual reconstitution of social domination: "Structures of domination involve asymmetries of resources employed in the sustaining of power relations in and between systems of interaction" (Giddens, 1979, p.93). But Giddens also recognizes that

power relations are always two-way, in that even the most dependent actors have some resources with which to influence the activities of their superiors (1984, p.16). Giddens' notion of the relationship between resources and the structure of domination illustrates that differences in the resources of the legal actors may result in different levels of their discursive ability to make arguments in the court, which in turn may influence the court's decisions.

Social change itself, consequently, cannot be based on structural or dialectic models (Giddens, 1984, pp. 227-256). Rather, the social system is both maintained and modified in every social act. The subtle but powerful movement of change is contained by that component of the duality of structure that precedes and frames social action, which in itself is the product of antecedent social practice and both the intended and unintended consequences of such activity. Change is also influenced by motivations of knowledgeable social actors who seek to control the feedback that helps further define and reconstitute the system. Also, unintended consequences are an important outcome of this interaction of dominant and inferior agents, which Giddens calls the "dialectic of control." Both intended and unintended consequences serve to influence perceptions of social reality and social forms, to modify future structures - rules and resources, and figure as a component in social change (Giddens, 1984, p. 288-97).

Giddens's theory of structuration offers a conceptual framework for understanding this process of power and dominance presumed in the process, although it does not focus on organizations as actors due to its anthropological orientation, and it does not explicitly address the legal decision-making process. Employing the perspective of the structuration theory, this study views the process of legal decision making as that of

reproducing and transforming the structure by knowledgeable actors who use the precedent structural framework, i.e., the process of structuration.

Communication as a Force in Structuration

The following discussion concerns the way these concepts of the structuration process might serve to illuminate social processes, especially the process of legal decision making on copyright. A central concern of the structuration theory is the identification of the conditions that govern the reproduction or transformation of structures. In the routinization of everyday life, many aspects of social systems develop a transparency, a "taken-for-grantedness," that commands their habitual reconstitution, but militates against their conscious manipulation. Alternatively, some components are apparent and understood and thereby open to attempts at control. Each component plays a role in affecting social or political interaction, and such interaction in turn reconstitutes those different forms. Since actors tend not to see such structures as greatly malleable, their "taken-for-granted" nature provides the lever for their chronic social regeneration.

Thus, this study on copyright decision making can be informed through the analysis of both the transparent and the apparent components of social structure and the examination of how the structure of the copyright system is reproduced. Differing areas of analysis are needed to answer this. First, the examination of the reproduction of the structure starts with the analysis of the pre-existing structural rules and resources which are used as assumptions of authority and legitimacy which frame interactions among legal actors. The identification of rules and resources that constrain and enable legal actors in issues of copyright protection of computer software is

necessary. How these rules and resources change over time are also examined.

The second analysis assesses the allocative resources of the knowledgeable actors which can be used to employ these rules and resources. In the case of copyright law decision making, the actors comprise judges, petitioners, and defendants. Thus a description of resources available to various actors, of how such resources are used, and of how there might be "asymmetries of autonomy and dependence" among knowledgeable actors (Giddens, 1984, p.289) is the main concern of this analysis.

The symmetries or asymmetries of the actors' resources are expected to be reflected in the ways in which they employ those rules and resources in making interpretive schemes and norms. Therefore, the third analysis attempts to discover how the rules and resources defined in the first analysis are used in interpretive and normative arguments regarding the copyright protection of computer software. The ways in which the structural rules and resources as well as allocative resources shape the communicative interactions of actors in future litigations are the main concern of the analysis.

Based on these analyses, the relationship between the level of actors' allocative resources and court decisions is analyzed. In addition, the relationship between the use of rules and resources and court decisions is analyzed. Decisions made by judges become intended and unintended consequences of these activities of knowledgeable actors which again form conditions for further action, although these consequences may not be acknowledged by actors. How the decisions and arguments accepted as legitimate contribute to reproducing recursive structure consisting of rules and resources can be also examined by conducting these analyses. The

analyses that are conducted across time allow us to learn when and how changes in the structure may occur.

It is examined how resources and other structured properties of the copyright legal system are drawn upon and reproduced by knowledgeable actors in the course of communicative interactions, and how these communicative interactions relate to the judges' decision making processes. In this way, the patterns of maintenance and transformation of rules and resources relevant to the ways in which knowledgeable actors make arguments are examined. The interplay between the legal structure related to copyright and the actors' use of the structural frameworks, which again forms the structure for further action, is significant in determining how the relationships of domination are sustained. The findings of this study should provide an insight on the processes in which power and dominance are practiced through communication in the copyright decision making process.

Typification and Objectification Through Legal Arguments

The process of communication activities in legal decision making is a central notion of this study. This section discusses the two central concepts of the news discourse analysis that are directly related to the process of structuration: typification and objectification. A conceptual framework and analytic methods of examining news discourse that have developed and refined in the field of communication provide a fruitful insight in examining the role of legal arguments in the decision making process.

The analogy between the perspectives in the legal scholarship and in the study of news is striking. There are two broad theoretical perspectives that could guide studies on news stories: One is the research on news bias and

objectivity and another is the research on news framing in the construction of news discourse. The study of objectivity and bias and Liberal legal formalism are both under the doctrine of objectivism, in which value-free and fixed accounts of reality are assumed to be possible. The news discourse approach and Critical Legal Studies, on the other hand, share the premise of constructivism, in which meanings of language are not fixed but arbitrary and conventional, and the notion that reality is seen not as a given set of facts or rules, but as the result of particular way of constructing reality (Hall, 1982).

The notion of journalistic objectivity consists of two dimensions: "factuality" and "balance or impartiality" (McManus, 1991). Balance or impartiality means giving fair and equal treatment to opposing camps and requires that reports include both positive and negative value judgments (McManus, 1991; Hacket, 1984). The notion of factuality suggests that news reporting is a mirror of reality, and that the journalist's mission is to find truth and disseminate it (Hacket, 1984). The two components of factuality and impartiality are incompatible at an epistemological level. The notion of balance assumes a relativist position in which bias is avoided by juxtaposing competing, incompatible, and equally valid world views, while the goal of factuality implies a non-relativist affirmation of the ultimate "knowability" of the truth. It logically follows that news content that can be regarded as "balanced" reporting is not necessarily a "reflection of reality" (Hacket, 1984).

In addition to their incompatibility, the assumption that a plurality of viewpoints approximates truth is also problematic. Networks' attempts to balance news stories are partly a response to government fairness rules and to the concerns of affiliate stations (Epstein, 1974). Also, the journalist's attempt to present conflicting truth-claims is one of several "strategic rituals," through which news workers protect themselves from such occupational

hazards as missed deadlines, libel suits, and superiors' reprimands (Tuchman, 1972). Since journalists often depend upon legitimized institutions for "objective" facts and information, media professionalism and the canons of objectivity, ironically become an unarticulated commitment to the established order.

Another assumption of objectivity is the notion of "factual reality." The notion assumes that facts can be separated from opinion or value judgments, that journalists can be fully detached observers of the external world, and that a neutral transmission of an event through the media is possible. But since language cannot function on its own to transmit the meaning presumably inherent in news events, neutral and value-free news is impossible. Even those who advocate journalistic objectivity acknowledge that it is impossible for journalists to stay value-free in reporting social events because no account is independent of the perceiver (McManus, 1991).

If no observation or presentation of observation via text can be value-free, it follows logically that the news media unavoidably structure their representations of social and political events in ways which are not pre-given in themselves, nor is this representation necessarily the "distortion" of the real. Thus, news media inevitably involves a process by which meaning is constructed. The premise that social reality is constructed actively is reflected in analyses of the role of mass media frames in shaping public discourse and in reproducing the dominant culture (Tuchman, 1978; Gitlin, 1979; Gamson, 1988). It is suggested that through the process of ideology as a system of coding reality, journalists tend to serve as a support for the reproduction of a dominant ideological discursive field (Hall, 1982).

Constructivism makes interpretive processes central, and stresses the interpretive scheme which plays a decisive role in the construction of

meaning of everyday life (Berger and Luckman, 1967). In this perspective, discourses have been defined as "historically specific, socially situated, signifying practices" (Fraser, 1992). In discourse analysis, news text is viewed as a system of organized signs and of symbolic devices that may interact with audience members in the construction of meaning. Assuming that these signs and symbolic devices are not put together randomly, but are involved with some kind of persuasion, discourse analyses pay attention to the basically ideological nature of the media reconstruction of reality, as a form of reproduction of the dominant forces and ideologies in society.

Drawing on these premises, scholars of news discourse analysis consider discourse as a process rather than a text, and understand the news discourse as a meaning construction process. The act of making news is considered the act of constructing reality, and the news itself is socially constructed (Tuchman, 1978). Van Dijk (1988) also approaches news as a type of discourse as a form of interaction, and views media discourse as a form of social and institutional practice. In short, news discourse analysis is concerned with the interplay between the interpretive processes of actors and the structural elements in a society, which relates to the ideological processes of news discourse. The primary contribution of the scholars in this area is their attempt to link social and cognitive dimensions of the news construction process. The central concepts of the news discourse process involving the news text production and comprehension are typification and objectification.

The notion of typification relates to the social coordination of time and space in human activities. Drawing on the concept of frames (or script, schemata, constructs, etc.) as a concept related to human cognition, framing is viewed as an act of providing the ordering of activities and meanings. Berger

and Luckman (1967) observe that the reality of everyday life contains typificatory schemes in terms of which others are apprehended and dealt with in face-to-face encounters. In face-to-face situations, the typificatory schemes of the two people enter into an ongoing negotiation. They argue that social structure is the sum total of these typifications and of the recurrent patterns of interaction established by means of the typifications. Goffman (1974) also notes that frameworks that are implied when people recognize a particular event render what would otherwise be a meaningless aspect into something meaningful. He argues that people intend to perceive events in terms of primary frameworks, and the type of framework they employ provides a way of a description to which it's applied.

Tuchman (1978) applies this notion of frameworks or typificatory schemes to the news production process. Her notion of typification refers to a classification in which relevant characteristics are central to the solution of practical tasks or problems at hand, and are constituted and grounded in everyday activity. She points out that by reducing all phenomena to known classifications, newswriters are allowed to manage the unexpected and produce a fixed amount of news (independent of what really happens) within the constraints of deadlines or budget limitations. Owing to these typifications, the occurrences of the everyday world can be subjected to routine processing and dissemination. These classificatory schemes also channel the newswriters' perceptions of everyday world and guide decisions on what is newsworthy. Therefore, the news typifications become part of the reporter's professional stock of knowledge-at-hand, and the use of typification is a necessary, routinized, organizational device that helps to produce news.

Typification and classificatory schemes can be an element that influences, and is influenced by the internal structures of news texts. Hall

(1982) makes a similar argument that since meaning does not depend on "how things are" but on "how things are signified," the internal structures rather than content will be important. According to him, particular discursive formulations would be ideological, not because of the manifest bias or distortions of their surface contents, but because they were generated out of, or were transformations based on, a limited ideological matrix or set. Tuchman's (1978) concept of typifications is also rather content-free. She argues that typifications of kinds of news draw upon the "way" occurrences happen, not upon "what" is happening, although some sort of occurrences are likely to happen one way.

Gamson (1983; 1988), in his examination of the mechanisms by which frames in the news text relate to the public opinion, also argues that journalists' working norms and practices, including journalists' routine relationship with official sponsors and with other journalists, play an important role in the production of an issue culture, since they influence the organization of signature elements in the newsmaking processes. He emphasizes that the idea elements in an issue culture are not separated, but are organized and grouped into interpretive packages. He calls this package an "interpretive" package to relate it to human cognitive processing. These interpretive packages are produced in a complex process involving an interaction between sources and journalists.

These packages are divided into two parts: one deals with the pattern organizing (framing) nature of the issue culture, and the other with reasoning and justifications for positions. Framing devices are metaphors, exemplars, catchphrases, depictions, and visual images. The reasoning devices are roots, consequences, and appeals to principle. Using these elements, Gamson provides a sophisticated framework in which to analyze

framing devices, called a signature matrix. His categorization of a pattern organizing nature and a reasoning/justifying nature of framing is related to Giddens's (1984) notion of interpretive schemes and normative schemes as modalities of communication. Normative elements and codes of signification are the two feature of structural rules. According to Giddens, interpretive schemes are the modes of typification incorporated within actors' stocks of knowledge, applied reflexively in the sustaining of structuration. Thus typification and objectification can be parallel to Giddens's notion of signification and legitimation.

Typification is a concept that is employed to relate the cognitive schemes of newsmakers and the internal structure of the news text. Typification is a routinized framework and/or schemes through which newsmakers understand phenomena in the world and process other source materials. Therefore, typifications work not only as constraints but also as enablements to newsmakers. These cognitive schemes, and the notion of newsworthiness defined through the schemes, are being constantly redefined by newsmakers and influenced by the structure of the news text itself.

An important point related to the notion of typification is that of objectification. The typified categories are often presented as objective categories, not as constructed or changeable (Tuchman, 1978). If objectified, typifications are more likely to be used by newswriters and taken for granted by them and the audience. Presenting the typificatory schemes as objectively real elements is a legitimation process (Berger and Luckman, 1966). The "taken-for-grantedness" is also recognized by Giddens (1984). According to him, many aspects of social systems develop a transparency, a taken-for-grantedness. Since actors tend not to see such structures as greatly malleable, their taken-for-granted nature provides the lever for their social regeneration.

In order to routinize their work and at the same time obtain legitimacy and credibility, newsmakers try to provide facts and legitimate sources (Tuchman, 1978). Thus, the facticity used by newsmakers not only creates an illusion of objectivity and credibility, but also ultimately legitimates the status quo. The rules requiring and identifying proper sources, and identifying and gathering facts are embedded in socially structured understandings of the everyday world and its institutions (Tuchman, 1988). Therefore, despite the fact that questions of "what are the facts," "what are the relevant facts," "who are the legitimate sources" are all socially and ideologically defined and constructed, the selective use of sources and facts can serve to legitimate the sources themselves and the ideologies from which definitions are drawn. Therefore, ideology or social meanings are crystallized into common sense knowledge, considered natural, taken for granted, and thereby legitimated and reproduced.

Many scholars stress how institutions including the media objectify social meanings. Social meanings, constituted in social interactions, are transformed into institutional and organizational rules and procedures that may be invoked as resources to justify actions. Through these processes in which social meanings are redefined and legitimated, the "processes" in which the meanings are constructed themselves are also defined and legitimated (Tuchman, 1978; Berger and Luckman, 1966).

In this process, the "facts" taken for granted by members of society become resources to be invoked for the accomplishment of action (Tuchman, 1978). The facts and sources that have been socially constructed gain legitimacy and facticity, thus serve as resources in the reproduction of social structures. Therefore, socially, these resources are unequally distributed, and individuals have different access to and ability to use the resources (Berger

and Luckman, 1966; Tuchman, 1978). This implies that some people have a greater ability to reproduce social meanings and construct social reality. Therefore, a power dimension is inherent in the ability of an individual to create his or her own reality (Giddens, 1984). Power is exercised and realized through resources - allocative and authoritative - and since the typified schemes and facts become resources, structural rules and resources are reproduced.

The above discussions have tried to unify the various scholarly approaches to news discourse into a coherent framework through the notions of typification and objectification. News discourse is a process of meaning construction in which the interplay between cognitive frameworks and textual structures plays a central role. Newsmakers employ typified schemes (frameworks) in the course of their daily activities to routinely negotiate the production of news. These typificatory schemes which enable and constrain this process involve the cognitive processes of the actors. The process of typification relates to the structure of text as a discursive product. By being objectified, typifications gain legitimacy and credibility. The objectified typificatory schemes become structural rules and resources that people will use in future interactions. Therefore, the schemes are a medium through which news discourse process occurs and at the same time become an outcome of the process. In this way, the parameters of structures are continually re-created in the daily routines of social life. In addition, the resources are not equally distributed, and power is exercised through the use of these rules and resources to construct social meanings.

The application of this framework to the legal discourse generates a two-fold contribution: one is in relation to the larger conceptual framework, and the other from the discourse analysis devices suggested. Considering the

legal decision making process as a meaning construction process involving signification and legitimation practices, the framework discussed above provides a helpful conceptualization of the legal decision making process, in which meanings are mediated by legal arguments of the actors (judges, plaintiffs, and defendants) within the enablements and constraints of routines related to the judiciary and larger social structure and ideologies. Therefore, in analyzing legal discourse, the rules and resources of the legal actions that frame the interactions among legal actors are essential. Institutional rules or typified categories in the law system should be identified.

The structure of the legal decision-making system can be considered to be constructed by legal rules and facts - the structural rules - and human and allocative resources that actors have. The actors employ these rules and resources in generating the court opinions and decisions, and the decisions are transformed into objective facts. Here, the legal rules and facts are objectified and become themselves resources for legal actors. Through this process of gaining facticity and objectivity, both the court decisions and opinions as a discursive product, and the sources and facts used in the decisions are legitimized. In this way, the structural rules and resources are reproduced in the legal discourse. Therefore, identifying relevant legal rules and facts and the resources that actors have provides an entry point for the study of legal argumentation and decision-making.

Conceptualizing legal arguments and the decision-making process as a form of discourse provides a particular insight, in that it suggests the importance of analyzing the structures of discourse text in their relationship to cognitive schemes. Through these cognitive schemes that involve the codes of typifications and objectifications (interpretive schemes and

normative schemes in Giddens's sense), the arguments made by plaintiffs and defendants may shape the frames and options and thus influence the judges' opinions.

Regarding the specific devices of analyzing the structures of arguments, Gamson's (1983; 1989) categorization of exemplars and metaphors as framing devices, and roots, consequences, and appeals to principle as reasoning devices is particularly relevant to legal argumentation. Metaphors are used as an explicit device to signify a certain understanding of the issue, by providing an association between the metaphor and the principle subject. Exemplars are the real events of the past or present which are used to frame the principle subject. In legal argumentation, precedent cases and opinions are essential elements that are often suggested as authorities to support actors' arguments. Although all of these are "real" events or cases, the choices of the relevant cases and proper interpretations of the opinions are not usually definitive. The use of metaphor also involves choices of relevant objects or events, and can be particularly powerful when used to present a new subject or event. Thus these choices necessarily involve some social and ideological judgmental processes. Therefore, the use of metaphors and exemplars is another process of social construction of meaning, and also serves to reproduce the existing structure. The representation of possible causes and consequences, and justification through the moral appeals to some general principles (in this case, statutes, precedents, etc.) are also frequently used in legal discourse. The precedent as exemplars and as appeals to principles are often used because they are considered as the "facts" and the "rules" in the legal decision making. And the decisions made in this way with the use of facts, sources and norms will gain facticity and objectivity, and become another "facts" which are authoritative resources for later decisions. The

kind of sources and facts that are more likely to be used and legitimized in terms of expert testimony, the precedent, etc., may illustrate how the legal system is maintained and changed.

Gamson (1988) also emphasizes that there is ample room for disagreement within the overall frame, thus the frame can be interpreted in different ways. This is why he constructed a matrix containing the "core frame" and the "core position" separately, arguing that frames should not be confused with positions for or against some specific policy measure. In the analysis of legal argumentation, therefore, not only should the presence or absence of certain legal theories be considered but also should the interpretations of the theories and their relevance to the theories presented by plaintiffs and defendants be examined.

As noted before, news typifications are considered part of the reporter's professional stock of knowledge-at-hand (Tuchman, 1987). Being a professional reporter capable of coping with idiosyncratic occurrences means being able to use typifications to invoke appropriate reportorial techniques. In a similar way, being a professional lawyer means being able to use typifications (legal rules and facts) to invoke appropriate legal technique. This point underscores the importance of the lawyers' ability to find out relevant rules (legal theories) and factual evidence and authorities to support the theories, which may help to frame the discourse in a way that is more likely to give advantage to their clients. Therefore, these typifications and the practical ability to employ them become rules and resources which enable them to work effectively, and at the same time, constrain them, by providing the frame for categorizing and evaluating events.

Related to this, Gamson's (1983) notion of sponsor activities can be particularly relevant to the case of legal discourse, since it deals with more

intentional and strategic arguments. He argues that certain framing packages frequently have sponsors interested in promoting their careers. He suggests that usually organizations employ professional specialists to prepare materials. The importance of the use of legal expertise as a resource to influence the framing of the issue is illustrated here again. Organizations engaged in the court cases can be an another example of "signifying agents" who are actively engaged in the production of meaning (Snow and Benford, 1988).

The framework of discourse analysis provides a dynamic model of legal decision making processes which involve the interactions between structures and actors, and between their social and cognitive dimensions. Examining legal argumentation in terms of a legal discourse will help us to understand how the legal actors work within these structural rules employing their resources, and at the same time, redefine and reproduce the structures. Through the interpretive processes among the actors, between actors and textual structures, and between textual structures and larger structural frameworks, a legal system is reconstructed. It is suggested that the potential of change as well as of reproduction is also contained in the duality of structure which are the product of antecedent practices (Giddens, 1988). As Hall (1980) also implies, the possibility of the transformation of the system may be also found in the change related to classificatory schemes, in other words, the use of structural rules and resources.

Based on the discussions and the application of the framework, it is proposed that a study be implemented to examine legal discourse regarding copyright protection of computer software. This study should examine the ways in which these rules and resources work as enablements and constraints

to the actors in the system who try to obtain their objectives through their communicative activities - their arguments. The main concern of the study is how, in doing so, the legal actors produce and reproduce those rules and resources in the legal system, which in itself is the intended and unintended product of antecedent social practice, and thereby reproduce the enablements and constraints that are implicit in social and economic power relationships.

III. PLACING THE COPYRIGHT SYSTEM OF COMPUTER SOFTWARE IN THE CONCEPTUAL FRAMEWORK

The second chapter discussed theoretical approaches which may be applied to legal decision making processes, and proposed an analytical framework in which the theory of structuration is applied to legal decision making processes. In this chapter, the conceptual framework is placed in the area of copyright law regarding computer software. The key concepts of the framework in the context of copyright protection of computer software should be defined in terms of structure (rules and resources) and processes of action (arguments of actors who employ structural rules and resources). In order to understand the structural rules of the copyright system, many scholars have attempted various approaches to analyze the history of copyright law and its origins and modern principles. Through a critical examination of these different approaches, a more detailed framework of analyzing legal arguments in this study is drawn. Research questions are developed in the end.

Structural Rules of the Copyright System: Legal Rules and Factual Evidence

In order to conceptualize the structure of the copyright system, institutional orders of the legal system that frame the interactions among legal actors should be identified. As noted before, the institutional orders refer to the "rules and resources." Rules are first discussed in this section. The concept of "rules" as an element of the structure in the structuration theory is not the same as the conventional meaning of "rules," which some of the scholars cited in this chapter also use. Rules, by Giddens, mean not

followable prescriptions but a form of practical knowledge of "how to do something" rather than how something ought to or must be done (Cohen, 1987, p. 27). In order to avoid the possible confusion, rules as an element of structure will be referred to as "structural rules," whereas particular rules to be applied in legal decision making will be referred to "legal rules" in this study.

Conrey and O'Barr (1990) point out that the law is rule-oriented, in theory, if not always in practice. A thought process learned by law students involves finding the facts, selecting the proper legal rules, and then applying these rules to the facts to produce a result (Conrey and O'Barr, p. 59-60). In all stages of legal decision making, the argument is central, whether in a written or oral form. The structure of the argument is typically a complex blend of legal theory and factual statements to justify the theory (Majone, 1989, pp. 10-11). This paper conceptualizes "legal rules" and "facts" (or legal theory and evidence) as the two important elements that constitute institutional orders of the legal decision making system. In order to make any interactions in courts meaningful, actors should act within this framework of legal rules and facts.

The legal rules as an essential element of the legal structure are illustrated in the study of Conrey and O'Barr, which examined the ways in which ordinary people relate to the American legal system. Conrey and O'Barr find a striking difference between the approaches of lay people and legal professionals to the resolution of everyday problems. They categorize litigants of informal courts as "rule-oriented" and "relational." Relational litigants were found to focus heavily on status and social relationships, believing that the law is empowered to assign rewards and punishments according to broad notions of social need and entitlement. Rule-oriented

litigants interpret disputes in terms of rules and principles that apply irrespective of social status, seeing the law as a system of precise rules for assessing responsibility, and rejecting as irrelevant everything not circumscribed within these rules (pp. 58-59). Therefore, "rules" mentioned by Conrey and O'Barr more precisely mean "legal" rules as opposed to "structural" rules.

Conrey and O'Barr focus also on a fundamental division between those who view the law as an enabling mechanism and those who view it as an instrument of limitation. Among litigants, those with an ideology of enablement tend to be those with a philosophy of social governance that we characterize as relational. Thus they seek to apportion rights and responsibilities according to need and social worth rather than rules of law. However, Conrey and O'Barr argue, the "official" ideology of the legal system is the ideology of limitation. The law in the framework of the official ideology is limited to dealing with violations of specific rules of narrow applicability. Moreover, far from seeking out wrongs to rights, the legal system responds only to claims that are framed in appropriate terms. Litigants who share this ideology, or are able to come to terms with it, enjoy obvious practical advantages in dealing with the system (p. 163-164). The rule-oriented accounts contain few "extraneous" facts, but instead concentrate on the issues that the court is likely to deem relevant to the case. Conrey and O'Barr argue that since the law is (legal) rule-oriented, these rule-oriented accounts mesh better than relational ones with the logic of the law and the agenda of the courts.

In addition to legal rules, "facts" are another element consisting of the institutional order of the legal system. Facts are examined first in order to find appropriate legal rules. The emphasis on facts upon which actors

interact is well known in legal scholarship. Wren and Wren (1986), in their book on legal research, point out the role facts play in actual lawyering and suggest ways to gather and analyze facts for legal researchers. They suggest people, tangible evidence, books, periodicals, reports, expert witnesses, etc., as sources of pertinent information (pp. 29-31). Patterson and Lindberg (1991) also note the role of facts, especially in copyright decisions. According to them, in enacting copyright legislation, Congress starts with the intellectual property clause of the Constitution. In deciding copyright cases, however, a judge starts with the facts of a single case and goes back to the Copyright Act.

Facts play a critical role in legal decision making through its relationship with rules they support. Rules become significant determinants in decision making when the rules are considered appropriate for the particular case and for the particular facts in the case. If it is decided that there is insufficient factual evidence, the rules are not considered to be applied. Therefore, it is important that rules are chosen by its relevance to the facts and are supported by appropriate precedent decisions and opinions. In that sense, it is important to point out that a specific combination of rules and facts, rather than certain rules or facts themselves, may constitute structural rules at a given time for a given case.

A combination of legal rules and facts is used by actors in providing "interpretive schemes and norms" in Giddens's sense. Interpretive schemes are the modes of typification incorporated within the actors' stocks of knowledge, applied reflexively in the sustaining of communication (Giddens, 1984, p. 29). Their interpretive scheme would influence judges' and other actors' understanding of the problem and copyright issues by providing factual evidence. Normative accounts of interaction always center upon relations between the rights and obligations 'expected' of those participating

in a range of interaction contexts (p. 30). Thus a legal theory that actors choose should provide them with the normative grounds whereby their activities or arguments can be 'justified' (p. 30).

Actors act within this framework of legal rules and facts, in which they make use of their knowledge in such a way as to render their interchange meaningful (Giddens, 1984, p. 331). By invoking the institutional order in this way, they contribute to reproducing it. Moreover, in reproducing it they also reproduce its "facticity" as a source of structural constraint (Giddens, 1984, p. 331). How this framework consisting of legal rules and facts is related to the nature of stakeholders and their arguments will be discussed later in this chapter.

An important point related to the role of "facts" in the legal system involves the following interrelated processes: arguments of legal actors are framed within the framework of facts; decisions are influenced by the relevant factual evidence; and once a decision is made, the decision and opinion become "facts," which are "accepted-as-real" in future cases. As Giddens suggests, the structural rule becomes both the medium and outcome of actions. Precedent court decisions and opinions are considered as "authorities," sometimes mandatorily and other times optionally, which provide a basis for future decisions. In their study on the effects of the expert testimony on some court decisions about school segregation, Chesler, Sanders, and Kalmuss (1988) interviewed one social scientist whose remarks keenly illustrate the importance of precedent decisions:

I remember in one case I was talking with the judge from the witness box, and questioning some of the testimony in *Brown (v. Board of Education of Topeka I)*. He asked me, "Are you questioning the facts of Brown?" And I said "Yes," and he said, "Well, that's not admissible for you to be doing that." So it kind of stymies a person.

The evidence in Brown argues that desegregation will change attitudes, increase self-esteem, and improve school performance, when in fact that doesn't happen. We know that it doesn't happen. But there's a difficulty in making that point with the judge. (Chesler and others, 1988, pp. 43-44)

Thus the court decisions which have become facts often overrule "socially-accepted-facts."

Precedent court decisions and arguments become important structural rules that enable and constrain the legal cases in the future. Consequently, each case in different time periods has different structural rules. The nature of decisions in related former cases and the extent to which those decisions are differentially cited in other cases should be analyzed to assess structural rules.

Legal Actors and Resources

The stakeholders in the software debate can be categorized in many ways. According to the Office of Technology Assessment, software stakeholders include software creators, software users, large and small commercial software developers, computer hardware manufacturers, educators, students, academic and other software and computer science researchers, etc. (1992, p. 9). In a broader categorization, the actors in the copyright system regarding computer software consist of judges and stakeholders including software users (private, corporate, or government), software creators (individuals or organizations; small or large firms), and software distributors.

In the cases related to copyright protection of computer software, however, the parties involved in the litigations do not usually include

members of the public as end users of software. Rather, most consumers of software tend to be large firms which use the software for their own businesses, or other immediate consumers who are retailers distributing the products through licensing agreement. Therefore, the involved parties in copyright cases usually consist of software developers who own their copyright at the same time, developers who are not copyright holders, and copyright holders who are not developers, or non-developers and non-copyright holders but retailers or other sellers.

The nature of the legal actors itself can become an important resource in their communicative activities. The controversy along the lines of "large firm vs. small developer" could have significant implications in how copyright decisions are made. For example, when a legal actor effectively presents itself as a developer who contributes to important innovation in the software industry, the actor may gain a sense of legitimacy in making his or her arguments, thus be in a strong position to gain a judge's sympathy. In that sense, the nature of the actor can be considered a status resource.

Conrey and O'Barr try to link the (legal) rule-orientation of the legal system to the notion of hegemony. According to them, this rule-orientation could be characterized as an acquired skill, so the mastery of rule-orientation helps the dominant class to maintain its authority, since members of the other classes have little opportunity to acquire the skill. They also point out that this system of control is both subtle and particularly effective because rule-oriented decision making has an appearance of strict neutrality (p. 80).

Attorneys try to choose the rules that the court would most likely use in its opinion and the authority to support the rules. Thus the mastery of the institutional orders of the legal system then becomes a resource for legal actors to meet their ends in courts. Resource-mobilization or resource-

dependency approaches help us to understand the relationship between the resources that organizations acquire and their organizational activities. Resource-dependency models basically argue that the ability to adapt organizational practice to the demands of resource acquisition ultimately means the difference between organizational survival or death (Pfeffer, 1972; Aldrich, 1979). Resource mobilization is the process by which the organization gains control over resources that it previously did not control (Knoke and Wood, 1981). The perspective of the resource-mobilization model is similar to that of the resource-dependency models, although it gives relatively more emphasis on the process rather than the structure. The organizational capacity to act in terms of their ability to monitor and gather relevant information influences the degree to which they can meet their organizational interests (Lauman and Knoke, 1987).

Resources are broadly defined as any means or facilities potentially controllable by an organization that can be used in adaptations between the organization and its environment (Knoke and Wood, 1981). A variety of items may serve as mobilizing resources. Many scholars demonstrate various essential elements of sustaining organized activity: funds, personnel, information, and products or services (Aldrich, 1979), money and authority (Benson, 1975), money, information, legitimacy, and power (Parsons, 1966), specialized expertise, personnel, funds, good connections, authority (Lauman and Knoke, 1987).

The types of resources an organization can bring to bear in attempting to meet its objectives differ depending upon the type of the organization and the type of the environment the organization attempts to influence. In the case of the legal decision making process, importance should be given to the organization's ability to gather relevant information and communicate

effectively using the information. Since certain legal rules and facts may become important structural rules in which the actors should interact, mobilizing resources are the factors that help the organizations to use persuasive legal theory and to gather and use relevant factual information to support the theory. In that sense, resources suggested by Chesler, Sanders, and Kalmuss (1988) are also useful.

Chesler and others examined how social movement organizations mobilize legal resources as a strategy to influence judges' understandings of the causes and effects of problems and decisions. The legal resources included "people willing to go to court, attorneys with legal knowledge of and ability in constitutional litigation, a legal theory which would cause courts to grant the relief sought, facts to support the application of that theory in a specific situation, witnesses to present those facts, and enough money to support all of these people in their efforts and to pay the costs of litigation" (p. 15). Although these are quite useful and comprehensive accounts of possible factors that may influence the legal decisions, they consist of factors of different dimensions and stages. This paper conceptualizes people willing to go to court, attorneys with legal knowledge and ability, witnesses to present the facts, and money as human and allocative resources. However, the precedent arguments and decisions that include legal theories supported by facts are conceptualized as structural rules of the legal decision making system.

Although all legal actors presumably have considerable knowledge of the institutional orders of the court system, they may have differing degrees of ability to use legal theory or provide factual evidence more persuasively. The possible resources that are chosen will be discussed in more detail: specialized attorneys, judges' characteristics, scientific experts, money, and

precedent court arguments and decisions. In order to choose a legal theory which would cause courts to reach a decision sought by the organization, and to communicate effectively based upon the theory, attorneys with legal knowledge of and ability in constitutional litigation are also important. Since copyright, especially the copyright of computer software, is a specialized area, full-time specialized lawyers working for the organization may become important resources.

The factual accounts to support the theory can be provided by parties, witnesses, and experts. In a legal system, recruiting and preparing experts are essential parts of a plaintiff's mobilization strategy (Chesler and others, 1988, p. 89). It is a feature of the American legal system that evidence is almost always introduced by a witness. As a result, parties to litigation must find and mobilize individuals willing to testify about facts and ideas in court (Chesler and others, 1988, p. 62). Chesler and others find that the use of social science and expert testimony altered judges' general understanding of the causes of school segregation and this altered understanding affected the way judges interpreted evidence of violation, the nature and scope of the remedy, and the procedures used by the judges to construct a remedy, although there have been limits according to the judicial capacity and the movement organizations themselves (p. 203, pp. 233-234).

Expert testimony can be even more significant in the area of computer software which is one of the newer areas of debate. Since the copyright protection of computer software involves technical and scientific matters that judges and other actors do not always find familiar, testimony of experts are often necessary and determining. In addition, when there is no objective way of checking the conclusions of analysis, the credibility of the expert also becomes important (Majone, 1989, p. 4).

The characteristics of the judge may become another important resource. Since judges' understanding of the issues and implications can have important intervening effects on decision making, their ideological orientation may play an important role. As discussed in the case of journalists as agents, the judges' ideological inclination may influence the ways in which they understand issues and events. Various studies on the relationship between the judges' characteristics and their voting behavior have suggested that political orientation of judges may influence the decision-making process especially on the economic and moral issues (Nagel, 1961; Ulmer, 1962; Glick and Emmert, 1986). Although it is difficult to assess the political and ideological orientation of each judge, investigation into the administration under which the judges were appointed could provide some indication of what their orientation is likely to be.

The judges' ideological orientation may relate to decision making in software copyright cases in two contradictory ways. It is possible that Republican judges are more willing to decide in favor of providing copyright protection as much as possible if it will preserve the status quo and thus benefit large corporations. Democratic judges may favor limiting the scope of copyright protection if that is considered to enhance the public interest. On the other hand, it is also possible that Democratic judges are more willing to decide in favor of broadening copyright protection, as they are supposed to be more willing to intervene to help small businesses in the industry. If that is the case, it seems that the relationship between the judges' characteristics and their decisions may depend on the situation of the software industry, i.e., how monopolized or centralized it is. This is a question that may be best answered through data analysis.

Recruiting and preparing specialized lawyers, experts, and preparing for court cases can all be costly. Thus enough money to support all these people and procedures is also an important mobilizing resource. Although it is not always the case, large firms usually have a relative advantage on these financial matters over small firms or individuals. It can be expected that the size of the organizations may have a relationship to the organizations' ability to acquire mobilizing resources. It seems that the legal and financial resources partly inferred by the size of the firms give important characteristics to the stakeholders in the copyright decisions in relation to computer software. The human and allocative resources can be assessed in terms of the size of the firm and the expertise of the legal counsel. This study examines how the legal and financial resources of the stakeholders may have implications on the current copyright decision-making process.

Legal Arguments: Principles and Theories of Copyright Law

The structural rules and resources discussed above serve as constraints and enablements originating from the actors' capabilities and the givenness of the environment. Within the framework of structural rules and resources, actors interact in order to meet their objectives. The essential processes of their interactions occur through their communication activities in the legal decision making system, since arguments are central in all stages of the decision making process. The arguments composed of legal theories and factual evidence are the result of strategic efforts of the participants, and can influence the understanding of what copyright is, what the problem is, and what the causes and effects of the problem are.

As argued before, in order to make effective and persuasive arguments, legal actors must be able to use typifications (combinations of legal rules, factual evidence, and authorities to support the theories) to frame the discourse in a way that is more likely to give advantage to their parties. How these typifications become "taken-for-granted" structural rules through the legal actors' communicative interactions, and how in this process, the typified structures gain objectivity and legitimacy, is the main concern of the study.

The arguments thus center around the statement of legal principles and rules supported by factual evidence. The legal rules are usually drawn from documented laws such as the Constitution, statutes, or precedent court decisions. Therefore, in theory, the purpose of these rules, theories, doctrines is to "balance the exclusive right of copyright owners against the public's interest in the dissemination of information affecting areas of universal concern, such as art, science, and industry" (Wainsright Secs. Inc. v. Wall Street Transcript Corp.). But in reality, the Constitution, a statute, or legal principles and rules are subject to more than one reading (Wren and Wren, 1983, p. 83). Rules are "interpreted," sometimes through claims to reveal the original intent of the Founding Fathers or the legislature. The very attempt to add clarity, precision, and meaning to legislative words by the courts inevitably puts the courts in the role of adding dimensions to those words (Patterson and Lindberg, 1991). In the copyright law of computer software, the ambiguity of statutes is even larger because the matters to which legislators responded to when they enacted the early copyright statutes would not have included written computer programs. Therefore, copyright-related legal theories can be interpreted in different ways by legal actors seeking different objectives.

In order to define various frames in the copyright discourse, this study categorizes the types of arguments in relation to the copyright protection principles and legal theories. This categorization does not necessarily allow one any expectation on whether a certain principle or theory would benefit the plaintiff or the defendant; it only provides a framework for the legal actors to approach the copyright issues and for other actors in the court to understand the issues. The use of particular theories, not others, and interpretations of the theories in a certain way, not in another way, also provides frames with which people make sense of the copyright issues related to the court cases.

The concepts of "frames" and "framing" have been developed by Goffman (1974) and elaborated by communication scholars, especially in studies of interpersonal communication and media content (Edelman, 1988; Gitlin, 1980). Frames are organizing devices that individuals or organizations use to impose meaning on issues. The concept of framing rejects the proposition that there can be a single possible meaning that a text can offer or that a text can be understood by everyone in the same way. Rather, the structural and lexical features of the text will have an influence of "constructing some of the limits and parameters within which decodings will operate" (Hall, 1980: p. 135). Therefore, "some degree of reciprocity" seems to exist between frames in the arguments and the frames with which actors understand the issues (van Dijk, 1989; Hall, 1980). But this reciprocity does not suggest that there is a "necessary correspondence" between a set of structural and lexical features of a text and its meanings, since meanings result from actors' active interpretations of the text by linking the textual features to their knowledge and experiences (Hall, 1980). These frames are neither mutually exclusive nor exhaustive. All of these frames may be

equally valid, but they provide a different insight of the trend in copyright law and the underlying values that are protected and reinforced by the copyright law.

The frames should be defined in a way that they could suggest socially embedded values that become constraints and enablements in the copyright discourse in relation to computer software. These social values may be discerned by principles that lead to rules of action in concrete copyright cases. A great number of scholars have attempted to understand and define the principles and rules at work in the copyright system, employing historic, economic, literary, legal or interdisciplinary approaches. These approaches are not mutually exclusive nor contradictory with each other (rather, they seem to be interrelated), but differ in terms of which kind of tension or conflicts of interests in the copyright law they focus on. In order to derive a useful framework to understand values implicit in copyright law regarding computer software, different ways of categorizing legal arguments are discussed as follows.

Many of the critical historical analyses focus on demonstrating how the process of shaping copyright laws deprived or minimized the author's rights while the publishers were granted exclusive rights in the works created by the authors. Another frame that is commonly considered pertains to policy implications and consequences on the market. Some of policy-oriented arguments focus on the tension between the public access to the intellectual work and the author's rights to the work. This tension can be captured as a tension between authors and users or a tension between the public interest and private proprietary rights. A marketplace theme can be understood as an economic version of focusing on the tension between the public access and the author's rights or between the innovation and control. The most recent

trend in the comments on the copyright law regards the distinction between authorship and the work as a product of the author's skills and effort. This frame focuses on the tension between the authorship (especially the Romantic notion of author-genius) and the work alienated from the author. Some scholars argue that the underlying tension of this distinction between work and authorship represents the conflict between individual autonomy and collectivism. The arguments of scholars who employ each frame are discussed in detail.

Authors versus Copyright-Holders (Publishers)

Many of the historians have demonstrated how the power relations among the authors, publishers, and the State to legitimize their own interests contribute to the shaping of copyright law. Patterson and Lindberg (1991) noted that because copyright was originally the product of a new communications technology (the printing press), and copyright issues now extend to include products of other new communications technology (the computer), the early history of copyright has a particular contemporary relevance. Bettig (1992) argues that copyright evolved as a legal concept during the period of the Renaissance, coinciding with the growth of industrialization and the rise of capitalism in Western Europe. According to him, the roots of copyright as a legal statute can be traced to the proliferation of the book trade in Europe, concomitant to the advent of printing in the early part of the fifteenth century.

Although some legal scholars posit that nascent forms of copyright had already existed as early as ancient Graeco-Roman times, and were observed by Western societies throughout the Middle Ages (Ploman and Hamilton, 1980; Stewart, 1983), the copyright that existed during these times emerged more

out of concerns about the moral or natural rights of the authors of intellectual and creative works rather than out of economic or political considerations (Aziz, 1990). According to Ploman and Hamilton, the rights of authors had already been recognized in classical Greek culture, in the Talmudic principles of ancient Jewish law, and in the Roman publishing system (1980, p. 5-8). For example, in Talmudic law, reporters who orally passed on principles of law from one generation to another were very careful not to express such principles without mentioning the author. Analyses of authors' rights in Roman law indicate that plagiarism was recognized as morally wrong, but there was no direct evidence that legal sanctions existed (Ploman and Hamilton, 1980). Therefore, the copyright laws of early Rome and Greece placed its emphasis on the "moral rights" of the authors rather than economic rights (Stewart, 1983). Also, plagiarism was viewed as morally wrong in the Jewish culture, and the principle of rightful attribution to an author was a major concern of the Jewish prophets.

It is suggested that during the Middle Ages the religious institutions, particularly the monasteries, primarily participated in the preservation and development of intellectual works. The monks functioned as copyists, scholars, and authors, but very few works during this period reveal the name of the author. Authorship was not considered a right of a monk as an individual, but was attributed to the monastery as a moral person (Ploman and Hamilton, p. 8). Plagiarism and the wrongful or incorrect attribution to an author were subject to society's ridicule but not a law suit (Stewart, 1983, p. 15). The scholars argue that this emphasis given to moral rights changed when the legal concept of copyright emerged with technological developments.

The technology of printing by movable type rendered copying manuscripts much easier and faster. Printing enhanced the spread of literary activities as much as it inspired new thought and the spreading of new knowledge (Eisenstein, 1983). The proliferation of the printing press and the book trade brought about two major concerns: printers, who also functioned as bookbinders and publishers, soon had to face competition from those printing unauthorized copies of the books; secondly, the State perceived the free dissemination of ideas as threatening to the status quo (Ploman and Hamilton, 1980).

The mechanism adopted for organizing and controlling the printing trade was to grant a publisher of a specific work individual privileges which contained a prohibition preventing anyone other than the beneficiary to sell the privileged work. Hence, the granting of rights and privileges came out of the political and economic considerations of the censorship of printed matter, and the protection of the interests of entrepreneurs involved in the printing and publishing activities. Therefore, Ploman and Hamilton (1980) argues, functions of the privileges had little to do with the protection of the author and his or her rights.

The first country to adopt a copyright statute in the modern sense was England. The Stationer's Company, consisting of members of the book trade - printers, bookbinders and booksellers, held a virtual monopoly over printing and publishing in England. The Stationers' Company originally used copyright to regulate trade by protecting works published by one member from piracy. The Star Chamber Decrees of 1586 and 1637 and a series of licensing acts granted exclusive privileges to the Company. Bettig (1990) argues that all of these acts protected the economic rights of Company members, but there was no reference to the protection of authors' rights

regarding their creative works in these acts. Stewart (1983) also indicates that "though the economic rights of the merchant class of printers and publishers were made explicit and protected by the system of royal patronage and the by-laws of the Stationers' Company, the rights of authors in their creative works per se were not contained in or formalized by the licensing acts or any one of the Star Chamber Decrees." (p. 21)

By the end of the 17th century, writing became a way of making a living, and was gradually becoming an individual pursuit for personal recognition. Authors and printers began to articulate the notion of "natural rights" in creative and intellectual works. Some scholars argue that the concept of the author's intellectual property right was being defined by scholars like John Locke (Ploman and Hamilton, 1980, p. 13). In the second of his Two Treatises of Government (1689), Locke articulated the conception of "natural rights" within the notion of common law property by extending his labor theory of value (Ploman and Hamilton, 1980, p. 13).

. . . every man has a property in his own person, thus nobody has any right to but himself. The labour of his body and the work of his hands, we may say, are properly his. Whatsoever then he removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property. (p. 134)

However, for Locke this natural right to property did not belong to servants and wage laborers who had to sell their labor to survive. Thus laborers alienated their natural right to own the products they produced when they contracted to labor for someone else (Bettig, 1989, p. 9). Rather, this notion of natural right was used by publishers to argue that since authors had a natural right in their works as a result of their creative labor, the

transfer of the right to copy to the publisher gave them a license in perpetuity to publish and profit from the work (Bettig, 1989, p. 9). Aziz notes that although the Lockean view of intellectual property rights which positions the author as the "natural owner of his or her works implicitly meant the shift of the ownership rights from the publisher to the author, it was used by publishers to secure perpetual ownership of the rights to multiply copies once authors surrendered their original manuscripts for printing in this time of the impending decline of the power of the Stationers' Company" (1989, p. 64-65). There seemed to be little question that authors should be paid for their manuscripts, but the payments from publishers were not based so much on legal as economic grounds (Ploman and Hamilton, 1980, p. 11-12).

It is suggested that this Lockean libertarian idea coupled with the abolishment of the Court of Star Chamber in 1641, the decreased regulatory power of the Stationers' Company after the English Civil War, and the rampant piracy in the aftermath of the House of Common's refusal to renew the Licensing Act, the members of the publishing industry began to seek some form of statutory protection, and argued for it in a petition to the House of Commons in 1707. The campaign for authors' rights was led by publishers because they perceived that when the statutory terms of copyright protection expired they would lose their monopoly privileges. The petitioners - the copyright owning publishers, a few printers who still owned valuable copyrights, and the wholesalers tied to the monopoly, but no authors - finally secured legal protection in the "Act for the Encouragement of Learning and for Securing the Property of Copies of Books to the Rightful Owners Thereof (known as the 1710 Copyright Act or the Statute of Queen Anne)" (Bettig, 1989, p. 10).

The Statute codified not only the Stationers' copyright but also the author's right to copy. The Statute of Anne made it legal for any person, not only the authors and publishers, to acquire copyright. Thus, this statutory copyright was limited in time but broadened in terms of those eligible to own the right. However, as Ploman and Hamilton points out, the Act had the effect of benefiting publishers since the Act did not provide for "natural" right ownership to an author when the copyright was transferred to a publisher or passed into the public domain:

"The Statute concerned the right to copy and no more. There was nothing in this Statute that touched upon the creative or moral rights of the author. The right protected was a "property" right. (1980, p. 13)"

Therefore, the critical analysis of the history of the copyright law suggests that the legal notion of intellectual property supported the expansion of the realm of creative human activities that could be commoditized. It also suggests that copyright law facilitated the private appropriation of intellectual creativity, and legitimized the concentration of the ownership of literary and artistic works in the hands of publishers, a part of the emerging capitalist class (Bettig, 1990). In exchange for political loyalty, economic privileges were granted to printers and entrepreneurial booksellers. Through such patronage, "property" ownership of literary and artistic works and their reproduction rights were highly concentrated in the hands of the publishers. This group, by virtue of their offer of a specialized entrepreneurial activity, justified claims to the perpetual right of property by articulating the idea of the creators' "natural" rights (Aziz, 1990, p. 60). First, the author's natural right was not recognized in copyright, but when it was recognized, it was used as a rationale by publishers for granting property rights to themselves.

The history of the British publishing industry and the development of copyright also demonstrates that copyright in a legal sense has emerged as an instrument through which certain groups and institutions - authors, publishers, and the State - legitimize their own interests. The incorporation of an author's right into copyright principles has obscured the separate interests of authors and publishers. However, in the realm of literary and artistic creativity, scholars argue that the actual creators of the copyrighted work lost control over their product and were separated from it when copyright protection became exclusive for the owners of the copyright - usually publishers with capital (Bettig, 1992). This was mostly due to the persuasive arguments of publishers articulating the rationale of granting the author's right for the publishers' own sake, which fit with ideas of the State to organize and control the information flow in society. Most of these provisions were contained in the United States' first federal Copyright Act of 1790, which replicated those of the English copyright Statute of Anne.

The 1710 Statute of Anne is the direct ancestor of American copyright law: its full title identified the fundamental ideas (the encouragement of learning, copyright for authors, and limited times) of the copyright clause of the Constitution, and the statute itself clearly served as the model for the Copyright Act of 1790, the first U.S. copyright statute (Patterson and Lindberg, 1991, p. 47). Patterson and Lindberg (1991) argue that the history of copyright reveals that the copyright served to give economic rights to publishers, while the authors of the copyrighted work lost control over their work. They also claim that copyright for television and the computer today serves precisely the same function that copyright for the printing press served originally - to give entrepreneurs a monopoly over their products - with little regard to, or concern for, the authors who produce the product (p. 7). Responding to this

claim, the current study explores how the modern copyright arguments and decisions regarding computer software reflect this struggle between authors and publishers.

Public Interest versus Private Property Rights

The public/private contradiction has been considered by many scholars as the fundamental conflict of purpose in the copyright law. On the one hand, copyright aims to promote public disclosure and the dissemination of the information product. On the other hand, it seeks to confer on the creators the power to restrict or deny distribution of their works. This conflict is reflected in the tension between public benefit and private reward inscribed in the full title of the first British copyright law, the Statute of Anne of 1709: An Act for the Encouragement of Learning by vesting the Copies of printed Books in the author's or Purchasers of such Copies during the Times therein mentioned."

In the U.S. Constitution, the purpose of copyright is stated in the intellectual property clause which grants to Congress the power to enact copyright legislation:

The Congress shall have power . . . to Promote the progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries (U.S. Consti. art. 1, § 8, cl. 8.).

The keystone of copyright is thus the promotion of learning, and the protection of the author is given as an instrument for achieving this.

On the other hand, many critics point out that although the promotion of learning for the public interest still serves as a rationale for protecting economic rights, there is a gap between the purpose and the means through

which to achieve this purpose in the modern U.S. copyright system. They question the basic assumption of the American copyright clause that granting rights to authors will bring some benefit to society by promoting learning. They argue that this assumption is not always supported in reality since protecting authors' economic rights itself does not necessarily promote learning. In that sense, a marketplace norm is an important concept that is related to policy implications as to the public benefit. Marketplace norms imply a theory of incentives: in securing opportunities for profits on the marketplace, copyright is supposed to provide maximum amount of information product available to society. Samuelson and others (1994), acknowledging this gap in the assumption of the authors' incentives and innovation especially in the area of computer software that has a critically functional aspect, advocate for a market-oriented legal regime for the copyright protection of computer software.

Geller (1994) suggests that the marketplace norms have been elaborated against a background of enlightenment values, and argues that Anglo-American copyright laws, in the usual course of affairs, rely on marketplace norms while Continental European laws, when a case calls for a choice, favor authorship norms. According to him, although marketplace and authorship norms often lead to much the same results, in some hard cases, following one norm can lead to results inconsistent with those reached in following the other.

By comparing the codified copyright clauses of the U.S. copyright and French systems, and by comparing their philosophical origins of the copyright law, many scholars have argued that the French laws tend to place authors' rights (often their moral rights) on a more elevated basis than the Anglo-American copyright law (Goldstein, 1994). Even though Geller himself points

out the inadequacies of the framework of the marketplace versus authorship norm as a conceptual tool for describing copyright, and tries to provide alternative ways to thinking about copyright law, and another scholar Ginsburg (1994) refutes the notion of the incompatibility of French and Anglo-American copyright law through an examination of the regimes of literary copyright in Revolutionary France and America, the conceptions of French copyright law as author-oriented and of Anglo-American copyright law as society-oriented or market-oriented still seem to be a prevalent view.

The analysis of this frame of public interest versus private rights, or that of marketplace versus authorship rights, examines how often the policy concerns are the focus of legal arguments, and in what ways those concerns are expressed in those arguments, i.e., whether they involve public interest concerns, present the speculation or data on actual consequences on the actors or on the market, merely restate the policy concern without any basis, or use the encouragement of author's creativity as the only rationale.

Authorship versus Work

Some scholars suggest that the formulation of the public/private contradiction may not accurately capture the true essence of the fundamental conflict of interests that underlies copyright (see Jaszi, 1994). It is partly because the public/private distinction is not a concrete entity but a construct, of which meanings change according to situations. Accordingly, some scholars suggest the examination of the different meaning of the public/private constructs. On the other hand, other scholars suggest a formulation of the work versus authorship as a more useful framework to understand the copyright system.

The work versus authorship frame is drawn from a series of critical arguments regarding the Romantic notion of authorship, which considers that "genuine" authorship is "originary," in the sense that it results not in a variation, an imitation, or an adaptation, and certainly not in a mere reproduction, but in an utterly new, unique, "original" work which may be said to be the property of its creator and to merit the law's protection as such (Woodmansee and Jaszi, 1994). In "What Is an Author?" Michel Foucault (1979) posed questions about the causes and consequences of the persistent, over-determined power of the author construct. Locating the emergence of the "author" in the cultural context of the eighteenth century, he called our attention to neither neutral nor inevitable, but culturally laden concept of "authorship," which he argued represented means to the end of constraining the "proliferation of meaning." Scholars who examine the construction of authorship note that the Romantic ideas about creativity and individual authorship (which do not encompass comparative manifestations of creativity) remain in the realm of copyright. In addition, Kaplan (1967) pointed out the emergence of new kind of intellectual work, which "is now being made by teams, a practice apt to continue and grow." He argued that such collaboration may diffuse and diminish emotions of original discovery and exclusive ownership that is prevalent in copyright law.

Their arguments that the ideology of individual creativity is praised in copyright law are seemingly contrary to the other scholars' claim that the authors' right was not recognized in copyright or only used as a rationale by publishers for granting property rights to themselves. However, these two strands of arguments actually agree in acknowledging that the shaping of the copyright law is influenced by interactions of stakeholders. Their conclusions seem to be contradictory in terms of their focus: the former focusing on the

conflict between publishers and authors that resulted in furthering unequal power relations between them, and the latter focusing on the construction of the author as the bearer of special legal rights and cultural privileges which carries consequences for the ways in which power and wealth are distributed.

Jaszi (1991), in his "Toward a Theory of Copyright: The Metamorphoses of Authorship," illustrates how the authorship construct has been mobilized in legal discourse, especially in its relationship to the concept of the "work" alienated from its author. According to him, the authorship construct has been constantly modified but remains as the central notion in copyright, reflecting the contradiction between the collectivism of the marketplace and the prerogatives of the autonomous individual.

He argues that the inherent instability of the "authorship" construct renders "work" the vehicle for a significant expansion of copyright protections. The "work" was the commodity form or the objectification of the "author's" labor, and the publisher was able to realize the surplus value of that labor. Thus the "work" displaced the "author" as the central idea of copyright law, minimizing the threat to free exchange posed by the notion of an intimate link between the author and her productions, which Jaszi calls the strategic suppression of the "author." On the other hand, the maturation of the "work" as a legal concept increased the leverage of publishers and other purchasers of "authors" rights.

One example of the arguments in which the focus is on the work rather than on its author is the objective test of copyrightability for derivative works. According to Jaszi, the nature of any creative investment in the variations is, as a practical matter, simply irrelevant to the outcome, save in one respect: the variations must be traceable to a human actor; they cannot arise from mere mechanical mishaps. In this sense, he argues, "authorship"

still matters. In substance, the opinion marginalizes and trivializes "authorship"; but in form, it continues to acknowledge the centrality of the concept by transforming itself into the "minimalist" and "democratized" vision of authorship.

Another example illustrating how the notion of authorship interacts with the notion of the work involves the ownership or authorship dispute of the program. Jaszi argues that the individualistic Romantic vision of "authorship" is central to the conceptualization of the so-called "work-for-hire" doctrine. On the one hand, when a work is deemed to have been made "for-hire," that alienation of creative workers from the products of their labor is formally and legally complete: the "author" of the "work" is the person on whose behalf the "work" was made, not the individual who created it. On the other hand, the employers' claims are rationalized in terms of the Romantic conception of "authorship" with its concomitant values of "originality" and "inspiration."

The analysis of authorship construct and of the relative emphasis on the authorship versus work in copyright arguments concerns how the ways of conceptualizing the creative production influence the distribution of power and dominance. As James Boyle (1992) points out:

we are driven by a number of factors to confer property rights in information on those who come closest to the image of the romantic author, those whose contributions to information production are most easily seen as original and transformative. (T)his is a bad thing for reasons of both efficiency and justice; it leads us to have too many intellectual property rights, to confer them on the wrong people and dramatically to undervalue the interests of both sources of and audiences for the information we commodify (pp. 1-2).

Employing the work versus authorship frame and Jaszi's interpretive scheme of analyzing the construct of authorship, this study analyzes the underlying values in the copyright arguments and decisions regarding computer software, and examines how the values sustain or change through the process of arguments over time.

The review of some approaches to describe and understand the shaping of copyright law has included several important concepts: the author, the work, the public interest, marketplace. One important concept that seems to be missing is that of use. The use of the programs by purchasers as end users is only implicitly included in the discussion of the public interest and marketplace. In addition, the notion of the use of the underlying program by a potential developer of another program is important and complicated, which has not yet been considered explicitly in the above approaches. As Samuelson and others (1994) note, many programs on the market are composites of programs, each of which could exist separately because there is no material difference between a "task" and a "sub-task." Therefore, innovation in software development is typically incremental and largely cumulative. By adopting available software design elements either wholesale or to a new context, programs contribute to and benefit from a cumulative innovation process. These characteristics of computer software, when acknowledged as distinguishable from other works of authorship in copyright, could be used as a basis to hold different decisions in infringement cases according to the nature of the defendant's use of the underlying program. Examining how the courts combine this issue of the nature of use with the various constructs of authorship will illustrate the ways in which the copyright law balances the different values underlying those concepts.

Therefore, the key concepts in analyzing legal arguments of this study are authorship, work, and use. The concepts of authorship and work can be divided into those of the plaintiff and those of the defendant when necessary for analysis. The concept of use includes the use by the defendant, the use of the public as end users of the program, and the marketplace that determines the potential use of the program. While all the legal arguments are categorized in terms of these frames, many of the legal arguments also contain identifiable legal rules or theories that are commonly used in the copyright law. The description of each legal rule and its possible interpretations is provided in the analysis chapter. The legal theories are neither mutually exclusive nor are an exhaustive set of possible legal theories, but these theories are the rationales often suggested as a reason or means to implement copyright. All of these theories claim to serve the purpose of copyright, and all of them are valid on their own in regards to the copyright protection of computer software. At the same time, all of these theories are subject to different interpretations. An argument using one doctrine can be used as an argument either in favor of or in opposition to extending the copyright protection. Thus, the ways in which these theories are presented differently by different stakeholders in their arguments can have significant implications on how the copyright law is actually implemented, and on who receives the benefit and who receives the detriment.

The categorization of the frames and legal theories does not necessarily allows us any expectation on whether a certain frame or theory would benefit the plaintiff or the defendant. Instead, the use of the frames and rules provides a framework of approaching the copyright issues. How the frames and rules are interpreted by the plaintiffs and defendants, how these different

frames and theories function in relation to resources of the actors, and how the structural rules are reproduced and mobilized through the process of communicative interactions, are the main concern of this study.

Research Questions

This study examines the process in which copyright stakeholders regarding computer software use their strategic efforts to influence court decisions by their arguments, rationale, and interpretations. By examining the ways in which judges accept and reject the plaintiff's and defendant's use and interpretation of legal frames and theories, processes in which the structural rules and resources are reproduced and mobilized through actors' discursive interactions are explored.

The structure of the legal decision-making system can be constructed by legal rules and facts - the structural rules - and human and allocative resources that the actors have. This study examines the ways in which these rules and resources work as enablements and constraints to the actors in the copyright system who try to obtain their objectives through their communicative activities - the arguments. How, in doing so, the legal actors produce and reproduce those rules and resources in the copyright system, and thereby reproduce the enablements and constraints that are implicit in social and economic power relationships is the critical concern of the study.

This study first examines the structural environment of legal rules, interpretations, or copyright decisions over time. It is important to identify the ways in which social meanings are embedded and transformed into the frames, legal rules, and interpretations. This analysis of legal arguments is combined with an examination of how human and allocative resources of

legal actors relate to the ways in which they make legal arguments. It is explored how the two factors -- resources of actors and structural environment -- may interactively relate to the ways in which the parties make arguments. It is then examined how the relationship between resources of legal actors and court decisions can be explained by the relationship between resources of legal actors and the ways in which they make arguments using legal rules and facts.

This study tries to identify the conditions in which certain arguments using certain rules and facts are accepted or rejected by judges. In this process, the typified rules and facts become objectified when the court decisions and opinions once decided become the rules and facts in future cases. Therefore, examining these conditions helps us to explore the processes in which structural rules are reproduced and transformed, and thus social meanings embedded in the structure are reproduced and transformed.

Answering the following set of questions will contribute in revealing the mechanisms by which the copyright system is shaped and reproduced through legal arguments. The questions start with the ones related to descriptive analyses of important factors of the study. Then the relationships between the court decisions and possible explanatory variables such as the nature and resources of legal actors, judges' characteristics, or the nature of the case in terms of the programs are analyzed. Analyses of legal arguments are followed. In order to gain the compatibility, legal arguments are analyzed according to the issue of the cases. In each issue, legal arguments made by the actors including the use of frames, legal theories, and their interpretations are analyzed. The changes in legal arguments according to the time frame are also discussed.

1 What are the general legal characteristics of the cases and actors?

1.1 What are the distributions of the state and the circuit in which the cases were held, the procedural status of the cases, the judges' characteristics, the major topic of the cases, the subject matter of the dispute, the kind of program developed by the defendant, if any, and the decisions of the cases? Have the general characteristics of the cases changed over time?

2 What are the characteristics of the actors?

2.1 How is the nature of the actors (in terms of whether they are software developers, copyright holders, both developers and copyright holders, distributors, or users) distributed? Is there any change over time?

2.2 What are the nature of the cases derived from the nature of the actors? Is there any change over time?

3 How are the human and allocative resources are measured and distributed?

3.1 How are the human and allocative resources, measured in terms of whether the party was an individual or a firm, distributed?

3.2 How are the human and allocative resources, measured in terms of the size of the organization, distributed among legal actors?

3.3 How does the nature of the actors relate to their human and allocative resources?

4 What are the factors that may influence the judges' decisions?

4.1 How do the general characteristics of the cases relate to judges' decisions?

4.2 How do the nature of actors relate to judges' decisions?

4.3 How do the human and allocative resources relate to judges' decisions?

5 How can the legal arguments be characterized?

5.1 What are the identifiable frames of the legal arguments?

5.2 What are the legal theories that are used by the plaintiffs, defendants, and judges?

5.3 What are the different ways of interpreting the theories and arguments?

5.4 What are the possible social meanings embedded in the frames, legal theories, and interpretations?

5.5 What are the typified legal rules and arguments that become the structural rules of the copyright cases pertaining to computer software?

6 What is the relationship between the actors and their legal arguments?

6.1 Are there any differences in the use of frames and legal theories between plaintiffs and defendants?

6.2 Are there any differences in the interpretations of the frame and legal theories between plaintiffs and defendants?

6.3 Are there any differences in the use of frames, legal theories and interpretations according to the nature of the actors (developer, copyright holder, both, neither)?

6.4 Are there any differences in the use of frames, legal theories and interpretations according to the nature of the cases indicated by a different combination of actors?

7 What is the relationship between legal arguments and judges' decisions?

7.1 Is there a particular frame of arguments that is more likely to be accepted or rejected by judges?

7.2 Are there particular legal theories that are more likely to lead into certain kind of decisions?

8 What are the conditions under which certain arguments are accepted or rejected by judges? How are the conditions related to the ways in which the parties use their resources and structural rules?

8.1 What are the frames, legal theories or certain kinds of interpretations that are accepted or rejected by judges in arguments made in each issue of the cases?

8.2 Are there any differences in the judges' acceptance or rejection of the frames, legal theories, and interpretations according to the argument makers? In other words, does the relationship between the nature of the actors and the use of legal arguments explain the relationship between the actors and decisions? Does it also explain the relationship between the nature of cases and decisions?

8.3 What kind of social meanings can be inferred from these conditions in which certain arguments (and frames, theories and interpretations used in the arguments) are accepted and rejected?

9 Are there identifiable ways in which the structural rules are reproduced or transformed (thus social meanings transmitted in them are reproduced or transformed) through these communicative interactions?

These research questions try to examine how different actors with different resources make arguments in the framework of legal rules and facts and how their interactions through arguments influence the decisions. This study attempts to provide an important understanding on the ways in which the difference in the resources of actors are reflected in their arguments, through which the structure of power and dominance is maintained and transformed.

V. METHODS

This chapter describes the methods that are employed in this study. First, this chapter introduces an overview of the research design and its major conceptual categories. Following this, the data of the study are described. Then the discussion of instrumentation of each conceptual variable follows. Finally, the ways in which the data are analyzed are presented.

Research Design

This study utilizes both quantitative and qualitative approaches to examine how different rules and resources that legal actors employ function as enablements and constraints in their communicative activities, and how these communicative activities relate to the court decisions. Content analysis of legal arguments is conducted and then related to the analyses using other variables of legal arguments, legal actors' resources, and court decisions.

First the level of resources of each legal actor in the court cases regarding the copyright of computer software is assessed. The legal resources including the nature and status of legal actors and financial ability are identified. In addition, the structural environment is assessed by examining precedent decisions by the time each case was held and the use of legal rules and interpretations in the precedent cases. How the structural environment has changed over time is also explored. This study involve three related areas of analyses: the relationship between the resources of actors and the copyright decisions; the relationship between the copyright decisions and the use and interpretation of rules and facts in legal arguments; and the

relationship between the resources of actors and the use and interpretation of rules and facts in legal arguments.

Data Collection

All of the federal court cases at the U.S. Court of Appeals and U.S. District Court levels regarding copyright of computer software programs that were filed and published by 1993 were selected to be analyzed. A comprehensive list of the relevant cases was obtained by a series of procedures. The Lexis/Nexis database was used to generate the initial list. In the library of federal copyright cases in the Lexis database, two hundred and eight cases regarding computer software were found. All of the 208 cases which were retrieved from the Lexis database were compared with the previous list and were read to determine whether each case is directly related to copyright protection of computer software. Those cases that are not directly related to the copyright infringement or copyrightability issues of computer software were excluded from the data. Cases that only concern trade secret preemption issues, patent issues, monopolies, license agreements, fraud, copyright registration issues were also excluded. Unpublished cases were not used as data because it is not possible to obtain relevant information to use in the analyses. In this way, one hundred and fifteen cases were selected as data of this study (a list is presented in the appendix).

The full-text reports of all the cases are analyzed in order to examine the rules and resources of the copyright court that enable and constrain the actors. Allocative resources of the actors were gathered using outside materials including many data sets. The reports of the cases that are basically the judges' opinions and rationales of the decisions indirectly reflect the

arguments of the plaintiffs and defendants. Therefore, arguments of the plaintiffs and defendants are also assessed through the reports of the judges' opinions.

This may pose some problem to this study that relies on the judges' reports in analyzing arguments of all the actors. Judges may accept or ignore certain arguments made by plaintiffs or defendants without explicitly mentioning them. In order to examine the degree of discrepancy between the parties' initial arguments and their arguments reflected in the court opinions, a sample of 13 cases was drawn and the briefs submitted by the counsels of the plaintiffs and defendants were obtained. In 7 of the 13 cases briefs of the both parties were obtained and in the remaining 6 cases, briefs of only 1 of the parties could be obtained. Each issue included in the briefs, with a special focus on the use of legal theories, was recorded and compared with the judges' opinions. Among the 29 identified arguments used by the parties, only 3 of them were missing in the judges' opinions. And all the three arguments that are missing were the ones of the winning parties, which suggest that the omitted issue was not likely to be critical in decision-making. Between the plaintiffs and the defendants, the issues and legal theories they used in the briefs tended to be the same. Even when one of the issues that was covered in one party's briefs was not included in the other party's brief, the other party always included that issue in their reply brief.

Due to the tendency that the two parties usually communicate before the actual trial, the issues and legal theories that are used by the parties tend to be the same eventually, even though the interpretations of theories or conclusions they draw from the issue tend to be contrasting. This confirms the importance of analyzing different ways of interpreting legal theories rather than focusing exclusively on the existence of the theories. And the

judges are found to be more likely to examine in their opinions all the issues that were initiated by the parties in their opinions. This is consistent with the arguments of Conrey and O'Barr as well as other critical legal scholars and feminists that legal decision makers, especially those in the adversarial U.S. system, choose among contending voices, and the law cannot have a voice apart from the voices of the participants (1990, p. 169).

In addition, the rejection of certain arguments and behaviors is an important mechanism by which other actors, both involved in the legal cases and involved in the creation, distribution, and consumption of software in a society, learn and understand the copyright system. As the judges' opinions and decisions that define precedent are what become influential in the process of copyright law, examining the court reports written by the judges will provide a valuable insight into the processes in which structural rules are reproduced and transformed through communicative interactions among the legal actors.

Instrumentation

The methods of measurement are discussed in three subject areas: resources, decisions, and structural rules. As discussed before, legal resources include the nature and size of the firms. Legal arguments are analyzed in terms of the ways in which frames and legal theories are used, the legal theories are interpreted, and the precedent cases are provided to support the legal theories. The decisions and arguments in precedent cases as well as characteristics of judges become structural environment.

Procedural status of cases

The cases are different in terms of the procedural status. There are cases that are being decided on the merits, i.e., whether infringement has or has not occurred, after full trial on all the contested facts. In this case, final judgment is made. Judges grant summary judgments when there are no relevant facts in dispute, but only different legal interpretations given by the parties to the facts -- in which the judge can decide the case without a trial (but summary judgments will only be affirmed if there are no facts in dispute). Summary judgment is appropriate "if there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law (Fed. R. Civ. P. 56(c))."

Preliminary injunction is granted to temporarily enjoin the alleged infringer from copying, manufacturing, using, or distributing the original program. There are four factors of which satisfaction many courts require: (1) the plaintiff has a likelihood of success on the merits of his claim; (2) the plaintiff does not have an adequate remedy at law and it will suffer irreparable harm without the injunction; (3) this harm is greater than the injury the defendant will suffer if the injunction is granted; and (4) the injunction will not harm the public interest. Other courts require that the plaintiff show either irreparable harm and likelihood of success, or irreparable harm and the existence of serious questions going to the merits and balance of hardship.

The exact combination of the above factors depend on the judge and the court, while judges usually require some kind of variation of the four factors. Judges tend to claim that none of the four factors are definitive, although there are some judges who explicitly weigh the factors differently. In order to examine how these factors are considered in the arguments and

decisions, arguments in the preliminary injunction cases will be analyzed separately.

Arguments regarding the likelihood of success on the merits in preliminary injunction cases have similar structure and considerations to the arguments on the merits in final judgments and summary judgment cases. The only difference is that the judges in preliminary injunction cases decide on the basis of only the "reasonable likelihood" of the success on the merits. Therefore, the arguments around the merits will be analyzed in all the cases.

Subject matter

A computer program is defined as a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result" in the Copyright Act of 1980. There are many ways to categorize computer programs. First, computer programs can be classified according to form, having either literal elements or non-literal elements. Literal elements are divided into object code and source. A program in object code form, called machine language, can be directly executed by the computer. Because machine language consists of a series of binary numbers, programs in object code form are difficult for programmers to work with directly (Gage, 1987, p. 868). Thus, programmers use higher level computer languages based on English words or symbols. Programs written in higher languages are called source code programs and must be converted into object code before the computer can execute the program. Non-literal elements include the structure, sequence, and/or organization, screen display, user interface, and function or purpose.

Second, programs can be categorized by function, either as application programs or operating system programs. Application programs allow the

computer user to accomplish specific tasks such as using spread sheets, playing games, or editing text. In contrast, operating system programs direct the computer to carry out steps which allow the user to operate the computer and run application programs. Video game programs are included in the data and considered a separate category in this study.

And third, computer programs are classified according to their embodiment, the memory device on which a program is stored. Computer programs are commonly stored on either magnetic disks or silicon chips. Within magnetic disks, a program is recorded on the face of a rotating disk and can be modified or copied relatively easily. While disks containing programs are generally kept outside the computer until needed, silicon chips are built into the computer. Within tiny silicon chips, a program is stored in integrated circuits and cannot be modified without substantial effort.

The computer programs considered in these legal cases are classified according to their form, function, and embodiment. In every case there is an original computer program of which the movant claims copyright ownership, and which the movant claims is infringed by the program developed or used by the other party. It is examined whether this original program is an operating system program, an application program, or a game program, whether the main issue of the cases is the literal (object code or source code) or non-literal elements (user interfaces, screen display, or structure, sequence and organization) of the original program, whether the original program is embodied in silicon chips or in magnetic disks.

There can be other computer programs than the original programs which are developed or used by the defendant. In copyrightability cases, there is usually no other program involved, as the claims of the challengers of the copyright validity focus on the issue that the original program should not be

copyrighted or its copyright is not valid. All the classifications that are made to the original program are applied to the other programs in the cases as well, i.e., what kind of characteristic the other programs have in relation to the original program. For example, whether the other program has the same function, but is written in different language, whether the other program is an application program that works on the original operating system program, whether the other program is a device to alter features of the original program, etc., is examined.

Nature of parties involved in the case

The parties involved in the case consist of plaintiffs and defendants. Usually plaintiffs initiate the case alleging that the defendants infringed the copyright of the plaintiff's program. However, in some cases, the plaintiff initiates the case as a response to the accusation of defendant that the plaintiff infringed the copyright of the defendant's program. The cases in which defendants become movants and vice versa are very rare (10 out of 115 cases). Therefore, for the purpose of analysis, this study categorizes the movant of the case as the plaintiff and the alleged infringer (in infringement cases) or the challenger of the copyright validity (in copyrightability cases) as the defendant.

The nature of the actors is first examined according to the involvement of each actor with the original program, i.e., the developer of the original program who is not the copyright holder, the copyright holder of the program who is not a developer, the developer and copyright holder of the program, and neither (retailers, importers, etc.). In a case that a defendant is not involved with the original program in any way, it is important to examine whether he or she is associated with other kinds of programs or not. Thus, it

is also examined whether an actor is a developer or a copyright holder of any other programs.

Judges' characteristics

The judge's characteristics such as ideological orientation, age, and education may be an important factor of the structural environment that may have some intervening influence on the decision making process. Some studies focusing on civil rights cases or antitrust cases show that decisions may be predicted according to the judges' ideological orientation. As discussed earlier, the judges' ideological orientation may play a role in the case of the copyright protection of computer software in two contradictory ways according to the market situation and the judges' view on the best way to enhance the public interest. Therefore, the examination of the relationship between the judges' characteristics and their decision-making in this area remains to be exploratory.

In order to find an accurate indication of their ideological orientation, survey or data that provide information on the nature and the degree of ideological orientation of each judge were searched. Information on the party affiliation of a substantial number of judges was not available because many of the judges did not report their party affiliation in these sources. Therefore, the administration under which the judges were appointed was assessed alternatively, since it can offer a relatively reliable indication of the judges' resources in terms of their ideological orientation. Information on the appointed year, age of the judges, and education was also found in the *American Bench - Judges of the Nation* and *BNA's Directory of State & Federal Courts, Judges, & Clerks*.

Time periods

This study does not assume one clear classification according to time change. However, due to the number of cases of data, dissecting the 16 year periods to a smaller category is sometimes needed for the sake of analysis. In that case, the 16 years were divided into 5 periods, each of which has a 3 year period, except for the third period that has four years. In this way, the first period is from 1978 to 1980, the second period from 1981 to 1983, the third period from 1984 to 1987, the fourth period from 1988-1990, and the fifth period from 1991 to 1993.

Decisions

The court decisions are first categorized as in favor of the plaintiff (movant) or of the defendant (alleged infringer in infringement cases and challenger in copyrightability cases). Next analysis is on whether the decision is that infringement occurred or that infringement did not occur in infringement cases, and that in favor of granting copyrightability or against granting copyrightability in copyrightability cases. The decisions are also categorized as "broadening the scope of copyright protection" or "narrowing the scope of copyright protection." In the preliminary injunction cases, the decisions are also made as to whether the injunction was granted for the plaintiff or not. The decisions at the level of court of appeals and the Supreme Court, additionally include the following categories: affirmed, reversed, and reversed and remanded. The cases can be ordered to be "remanded" to send the case back to the court at the lower level. In these cases, they are later combined with the "reversed" category.

Size of firm

As noted before, large organizations usually have relative advantage on financial matters over small firms or individuals. Since recruiting specialized lawyers, experts, and preparing for court cases can be all costly, the size of the firm was found to relate to the ability of the firm to effectively use rules and resources in some of the cases.

It can be speculated that there are two ways in which the size of the firm may relate to legal arguments or decisions. First the financial ability to hire qualified attorneys and spend more money for litigation seems to be more directly related to the sales revenue. On the other hand, the perceived status of the firm can be either related to the number of employees or sales revenue. Therefore, two indices of the size of the firm are separately assessed and used in the analyses. Using Dialog Business Connection service including Dun's Market Identifiers in D&B database and the Computer Select database, the number of employees and the sales revenue are assessed for each company in the relevant cases.

It is important to note that the variables of the resources of legal actors such as the nature and size of the firm should be considered in relation to the opposing party in each case. A copyright holding firm of a middle size can be perceived in very different ways when it has a litigation against an individual developer and against a large non-developing corporation. Therefore, another variable is created to indicate a relative size of the firms in each case.

Legal counsel

The ability to hire attorneys with legal knowledge and ability in litigation and expertise in the copyright law is an important legal resource. The names of the lawyers in the sample cases are identified in the reports of the decisions. The Martindale-Hubble Law Directory provides legal ability

ratings on both lawyers and firm ratings on law firms. "A" represents the rating from very high to preeminent, "B" from high to very high and "C" from fair to high. The ratings of the law firms only consist of "A" and "B." The ratings of the lawyers and the law firms they represent are used to construct an index that indicates the ability and expertise of legal counsel. In the case the organization employs an in-house lawyer, the law firms for whom they worked previously are identified.

Arguments

The arguments of the plaintiffs, defendants, and judges in court opinions are analyzed to examine the actors' use of rules and resources in their communicative activities. The reports usually start with a description of the case including the issue of dispute, nature of the plaintiffs and defendants. The structures of legal arguments differ according to the judge. Usually judges respond to plaintiffs' and defendants' arguments even when they structure their arguments with their own analytical style. Since judges tend to argue why they reject certain arguments made by a losing party rather than provide reasons why they accept certain arguments, the judges' arguments mainly consist of the arguments that they are about to reject, followed by the judges' opinions on each point and issue.

The unit of analysis in relation to decision variables and actor variables was a case. For an analysis of arguments, however, I coded each argument in each case in order to include all the theories and issues dealt with in the case, because a case can have several different arguments. This usually does not pose any problem in analysis since the analysis of the arguments is conducted according to the issue of the case, about which each case tends to have one argument. Therefore, the unit of analysis in terms of the case and that in

terms of the arguments remains the same in the detailed analysis of arguments conducted according to each case, unless the case has many arguments using the same frame and the same theory (some judges tend to write more when it's actually one argument). In that case, the analysis of arguments employs each case as a unit of analysis considering the arguments as one.

Arguments of legal actors are first coded according to whether the argument-maker is claiming: the subject matter is (or not) copyrightable, should (or not) be copyrighted, the copyright is (or not) valid; copying did (or not) occur; two programs are (or not) substantially similar; the copying does (or not) constitute infringement; and the plaintiff (or the defendant) is the author. All of these arguments can be more broadly categorized as either broadening copyright protection or limiting copyright protection.

The contexts of these arguments are important in analyzing the legal arguments. In order to compare the plaintiff's and defendant's arguments and to examine the trend over time, arguments in the same category of issues should be compared. Thus the arguments are broadly categorized as copyrightability, ownership/authorship dispute, and infringement, and the analysis of frames and theories are conducted in each issue.

When the arguments are not initiated by judges, the judges' response to the arguments made by plaintiffs or defendants is coded as follows: accept the plaintiff's argument; accept the defendant's argument; reject the plaintiff's argument (implicitly accepting the defendant's argument; and reject the defendant's argument (implicitly accepting the plaintiff's argument). Since rejecting one party's argument usually means accepting the other party's argument in the court of adversarial system, all of the judges' arguments can

be broadly categorized as in favor of the plaintiff and in favor of the defendant.

Also examined is the reason for the rejection of the rules or the arguments about the rules made by plaintiffs or defendants: because the rule itself is not right or appropriate; on the basis of different interpretation of the rule; because the rule is decided to be not relevant to the case; because the rule is decided to be not applicable to the particular facts considered; due to insufficient factual evidence to support the rule; or due to the wrong use of the authority.

Most importantly, the legal arguments are categorized in terms of their primary frame, the existence of legal theories, the interpretation of the theories, and the provision of factual evidence and authorities to support the theories. As discussed in the previous chapter, frames of each of the legal arguments can be categorized as the author, the work, the use (by the defendant), the public interest, and market consequences. Examples of coding the arguments according to the frames are presented as follows (also see the coding scheme in the appendices).

Arguments that used the frame of the plaintiff's work are usually about whether computer programs are copyrightable as a subject matter or whether the copyright of the plaintiff's program is valid. For example, in Uniden v. EFJ, EFJ, who manufactured and sold two way radio systems, developed a software program, and Uniden developed and sold a compatible radio system. Uniden argued that EFJ's computer code is not copyrightable because a computer program is a "useful" work, but the judge held that a computer program is a "literary" work, thus copyrightable. These arguments were coded as having a frame of the plaintiff's work. Most of these arguments are made in the cases pertaining to court decisions on the

copyrightability of the subject matter, and some of these arguments are also made in infringement cases where the defendants try to argue that the similarity between the two programs falls under the idea of the program rather than the expression of the program.

The frame of the plaintiff's authorship usually involves arguments on the originality of the program developed by the plaintiff. For example, in Kramer v. Andrews, when Andrews and other defendants argued that the copyright of a video poker game 'Hi-Lo Double Up Joker Poker' developed by Kramer was invalid because it lacked originality, the judges argued that the standard for originality is minimal, enough if it is something "his own" and held that the copyright of the plaintiff's program was valid. These arguments are coded as having the frame of the plaintiff's authorship. The arguments that use the frame of the plaintiff's authorship are usually made in the copyrightability cases, but in some infringement cases where the defendants try to challenge the validity of the plaintiff's copyright by challenging the originality of the program.

Many arguments focus on determining the substantial similarity between a program developed by the plaintiff and a program developed by the defendant. When the argument centered around finding the textual or functional similarity of the two programs, the argument was coded as having the frame of the defendant's work. When the argument focused on the effort or expertise of the defendant in developing her program, the argument was coded as having the frame of the defendant's authorship. For example, in Atari v. Williams, Williams who developed a game program 'Jawbreaker' argued that his idea came from Atari's 'PacMan,' but the expression of the idea through symbols and graphics was not similar to 'PacMan'. Employing some similarity tests, the judge held that 'Jawbreaker' did not infringe the

copyright of 'PacMan' because Atari failed to show any possible confusion between the two games. These arguments were coded as having the frame of the defendant's work.

On the other hand, when Holiday Steel argued that they sought to create its own product through a laborious and expensive process in NEC v. Holiday, the judge held that a great effort to copy a work does not mean that a copier is not an infringer. Also, in NEC v. Intel, when Intel argued that NEC must have copied its 8086 and 8088 microcodes because NEC's creator of the program was inexperienced, the judge disagreed by saying that he believed NEC's expert testimony that the NEC's creator did have expertise and talent as opposed to Intel's argument. These arguments that focused on how much the defendants contributed to the development of their own programs are coded as having the frame of the defendant's authorship.

The arguments that have the frame of the defendant's use usually center around either fair use doctrine or the adaptation of the program. Modifications of programs were made valid under 17 U.S.C. §117, which permits the adaptation of the program for utilitarian purposes and for archival use. In Allen-Myland, Inc. (AMI) v. IBM, AMI argued that their copying of the IBM's microcodes is permissible as it is an essential step in the owner's enhancement and used for archival use, and the judge held that these doctrines do not apply to AMI's copying. These arguments were coded as having the frame of the defendant's use of the program. Also, there are 4 factors required for fair use: the purpose of use, nature of the copyrighted work, amount and substantiality of the portion used from the copyrighted work, and the effect on the potential market. The arguments regarding fair use are usually coded as the ones having a frame of the defendant's use, unless one of the factors is considered a decisive one and discussed

elaborately, in which case its frame is decided according to that particular factor. An analysis of how each of the 4 factors was considered is separately presented later.

Arguments that use the frame of market consequences usually focus on the impact of the defendant's program on the market or on the incentive to innovation. For example, in Vault v. Quaid (appeals), Quaid manufactured a program called 'CopyWrite' with a segment of 'Ramkey' which allows a user to make copies of programs contained on floppy diskettes. Vault argued that because purchasers of 'CopyWrite' use them to make unauthorized copies, Vault lost customers of its program 'Prolok'. But the judges decided that while a purchaser of 'CopyWrite' violates the law, Quaid who developed the program does not. The plaintiff made an argument on the basis of the issue of market consequences and the judge rejected its argument implying that the market consequence is not an important factor to be considered. The plaintiff's and defendant's arguments were coded as having the frame of consequences.

The public use frame is not very common, as will be discussed in the next section, but when the arguments focus on how the public may benefit from gaining more access to the programs or that the program was made available to the public, the arguments were coded as having the frame of public use/benefit.

In addition, plaintiffs, defendants, and judges often make arguments based on various legal theories such as originality, fixation requirement, idea versus expression, adaptation, fair use, first sale, etc. The theories are applied to the facts and sometimes interpreted in different ways by the courts and the judges. Even though certain theories tend to fall into a certain frame rather than the other, such as the originality theory usually falling into the frame of

authorship, one theory does not necessarily match one particular frame. This is because parties in opposing interests can use the same theory to frame the arguments in their favor and the judges interpret or apply the theories differently according to the nature of the arguments and the nature of the cases. Therefore, legal theories and interpretations are coded separately.

Sometimes the focus of the arguments is not definitively on one of these. For example, arguments regarding whether the plaintiff's work is in the public domain involve the nature of the plaintiff's work, but in relation to the others' potential use of the work. In this case, the decisive factor of the arguments, i.e., the factor on which the judge made her decision regarding that issue, is considered the frame of the argument.

The use of metaphor is particularly important. As the copyright law has recently begun to be applied to the area of computer programs, many actors in the legal cases use metaphors that create analogy between computer software and other works that have been protected by copyright, such as literary works, artistic works, audiovisual works, graphic and pictorial works, etc. The use of different metaphors may have an importance influence on decision-making.

Other elements that consist of legal arguments are the presentation of evidence and authorities. The ways in which judges require evidence and authorities, i.e., scientific or lay observer's, are coded when relevant. How the judges respond to the use of evidence and authorities is also examined.

Analysis

The data obtained are analyzed in three aspects. First, descriptive analyses of the important variables and their variances over time are

conducted. The relationship between the court decisions and possible explanatory factors such as the level of resources, the nature of the case, the nature of actors, subject matter and topic of the case is analyzed by using analysis of variance and cross tabulations. The legal arguments are then analyzed to examine the use of frames and interpretations of legal theories and to identify structural rules prevalent in copyright cases. The analysis of legal arguments includes the examination of how the actors' nature and resources relate to the ways in which legal theories and facts are used in legal arguments -- communicative interactions -- is conducted. Interpretive readings and cross tabulations are combined for this analysis. The important question here is to define the conditions under which the parties make arguments that are perceived as credible and convincing by the judges. Figure 1 illustrates the interrelationships of the analyses that are conducted using the cases regarding copyright protection of computer software. These analyses attempt to explore the mechanisms by which actors' resources and decisions relate to each other, by introducing communicative activities of the actors as a critical intervening factor.

Expectations

The results of the three related analyses provide an understanding on the ways in which the rules and resources of the copyright legal system enable and constrain the legal actors with different level of resources to employ the rules and resources, and the ways in which the rules and resources are reproduced and changed. The study tries to demonstrate the critical ways in which social and economic power relationships embedded in the enablements and constraints are maintained in this process. In addition, this

study provides a basis to categorize the legal discourse and to evaluate propositions with regard to the scope of the copyright protection of computer programs.

VI. CHARACTERISTICS OF THE CASES

(DESCRIPTIVE ANALYSIS)

All the federal cases regarding copyright protection of computer software are used as data for this study. The presentation of results starts with the description of the characteristics of the data. Among one hundred and fifteen cases, 87 (76%) cases were held at the District Court and 28 (24%) at the Court of Appeals. In terms of the circuit in which the cases were held, 30 (26%) cases were held at the ninth circuit, 16 (14%) at the second circuit, and 13 cases at the third circuit and seventh circuit, 11 at the fifth circuit, 9 cases at the fourth circuit, 6 at the tenth circuit, 5 at the first circuit, 4 at the 11th circuit, 3 at the sixth circuit, 2 at the eighth and the D.C. circuit, and 1 at the federal circuit (see table 1). The most cases were held in the state of California which held 19 (17%) cases, and in the state of New York that held 12 (10%) cases.

Procedural status

The most cases (41 cases, 36%) were decided on the preliminary injunction issue, and 33 (29%) cases were final judgments. 28 (24%) cases were appeals cases (which are a part of the final judgment cases) and 13 (11%) cases were summary judgments.

Topic of the case

The topics of the case can be broadly categorized according to whether the issue in dispute was about copyrightability or infringement. 6 (5%) cases decided only the issue of whether the program in issue is copyrightable or whether the copyright of the program(s) is valid (see table 2). For these cases,

the decision about infringement was not made. 75 (65%) cases assumed the copyrightability of the program and decided only whether infringement occurred. Some of these cases do address the question of the copyrightability of the program but as a part of the discussion on the ownership of valid copyright or the copyrightable expression in infringement issues. In these cases, decisions involve only infringement and not copyrightability. 22 (19%) cases were decided on both issues of copyrightability and infringement. These cases have decision variables on both issues. There are 12 (10%) cases in which the primary focus of the arguments is authorship of the program and ownership of the copyright, but also deal with infringement issue. Later cases tend to focus on the infringement issue only.

Year

There is a tendency that more cases are held in later time periods, although it is neither consistent nor linear. Meaningful temporal trends are found in relation to the ways in which arguments are made, which will be discussed later. The first two cases regarding the copyright protection of computer software were decided in 1978, 1 in 1979, 1 in 1980, 10 in 1981, 11 in 1982, 7 in 1983, 3 in 1984, 4 in 1985, 5 in 1986, 7 in 1987, 8 in 1988, 11 in 1989, 12 in 1990, 13 in 1991, 17 in 1992, and 3 in 1993. According to the five time periods created in the methods chapter, there were 4 cases in the first period, 28 in the second, 19 in the third, 31 in the fourth, and 33 in the fifth (see table 3).

Subject Matter

There are 17 (15%) cases which consider the operating system programs the original program (see table 4). In 65 (57%) cases, application programs are

considered the original program, and in 33 (29%) cases, video game programs are the original program. 26 (23%) cases dealt with literal elements of the program only, and 33 (29%) cases dealt with non-literal elements only. In 18 (16%) cases, both literal and non-literal elements were considered, and 38 (33%) cases did not distinguish between literal and non-literal elements. Among the 44 cases that dealt with literal elements, 1 case specifically considered the issue of only the object code, and 5 cases considered the issue of only the source code. The other 38 (33%) cases considered the object code and the source code together. Among the 52 cases that deal with non-literal elements, the focus of the most (32) cases was the screen display of application programs or the audiovisual display of video game programs, and 10 cases focused on the structure, sequence, and organization. 9 cases focused on user interfaces, and there was only 1 case that dealt with non-literal elements in general.

There was some difference in the subject matter according to different time periods. In the first period (1978-1980) all of the four cases dealt with application programs, but in the second period (1981-1983) the subject matter of most (64%) cases was video game programs. During the last three periods (1984-1993), application programs were the subject matter of most (69%) cases. As most cases dealing with video games programs focused on their audiovisual display, during the second period all of the non-literal elements considered were screen display, while in the other periods they were more evenly distributed.

In the cases involving the issue of copyrightability only, there is no other program involved because the program used by the other party is the same as the original program. In the cases involving the issue of infringement, however, there can be other programs. Among these cases

involving other programs, 49 (43%) cases involve competing products, which achieve similar functions as the original program. There are 37 (32%) cases that can be also categorized as competing products, but have particular characteristics related to the underlying program. 29 of these programs have characteristics that may not disserve, if not benefit, the developer of the original program by providing more choices for the users: programs written in another kind of computer language (5), programs that work on a different system (9), programs that are used to enhance or update the underlying program (2), programs that are made to be compatible with the underlying program (9), application programs that can work on the underlying operating system (2), an enhanced version of the underlying program (4). 6 of these programs have characteristics that can clearly disserve the developer of the original user than other competing products in general: programs that are used as a device to alter the original program (4), program device to reproduce the original program (1), and program device to de-effect the original program (1).

The reason the programs other than the original program are categorized in this way is to examine whether the decision-making is more related to the characteristics that can benefit or harm the developers of the original program by providing more diverse products that are related to the underlying program in the market, or more related to the possible involvement of the alleged infringer in any kind of developing activity. The programs that have the former characteristics are referred to as "add-on" software, which typically offers some enhanced functions to an existing program, either modifying the other program's behavior or supplementing it in some way (Samuelson *et. al.*, 1994). Samuelson and others (1994) indicate although some courts allow the add-on software to be marketed due to its

added pleasure for the users, a market-oriented approach to copyright will not excuse the developer of add-on software from infringement because the add-on software rely heavily on the value of the program by building on the underlying developer's research and development.

Therefore, examining how the courts deal with these computer programs that have clearly different characteristics will help us understand the ways in which the copyright law deals with the notion of users' choice or pleasure as opposed to the process of independent creation. If the programs with the characteristics that can be assumed to benefit the users and possibly the developers of the underlying program are considered differently from the programs with the characteristics that can harm the original program, it suggests that the users of the infringing product are considered seriously in decision-making. However, if these programs that have two different kinds of characteristics but were created as a result of some developing activity are considered in a similar way in decision-making, it suggests that the degree to which an independent developing activity is involved to produce the allegedly infringing program is playing a critical role. Therefore, the important question in analysis using this variable is whether the last category of the programs with characteristics that are more harmful to the underlying program are considered more similar to the other competing programs or to the cases in which no other programs were involved.

Nature of actors

Movants of the cases consist of 7 (6%) developers of the underlying program who do not have the copyright of the program, 77 (67%) developers who are at the same time copyright holders of the program, and 30 (26%) copyright holders who are not developers of the program (see table 5). There

is 1 case in which it was being decided whether the movant was a developer of the program. The movants can be also categorized as whether the movants are developers of the program no matter whether they are copyright holders or not. The movants of 84 cases (73%) are developers and those of 30 cases (26%) are non-developing copyright holders.

Alleged infringers or challengers of copyright validity are more diverse than the movants (see table 6 for broader categories). 2 (2%) of them are developers of the program in issue in the involved cases, and 2 (2%) of them are copyright holders of the program in issue. Most of them are neither developers of the original program in issue nor copyright holders of the original program in issue. However, they can be divided in terms of whether they are involved in developing other programs or whether they own the copyright of other programs. Defendants of 21 cases (18%) are neither developers nor copyright holders of any kinds of computer programs, but retailers, distributors, etc. Those of 67 cases (58%) are neither developers nor copyright holders of the underlying program in issue, but developers of other computer programs. Those of 8 cases (7%) were neither developers nor copyright holders of the underlying program in issue, but copyright holders of other computer programs which the movant alleges infringed the copyright of the original program. In 8 cases (7%), the copyright holders of the underlying program in issue had claims against the developers of the underlying program who did not own the copyright of the original program but developed other programs, which the movants claim infringed the copyright of the underlying program. In 6 cases it was being decided on who owns copyright of the program, so in these cases it was not clear who are developers or not. In 2 cases (2%) the developer of the program filed suits

against a copyright registrar who denied granting registration for copyright of the program.

These diverse characteristics of the alleged infringers or challenger of the copyright validity can be broadly divided into two categories: 77 (67%) are developers of any kind of computer programs and 37 (32%) are non-developers of any computer programs.

The nature of actors shows some change over time. In the second time period, there were more (64%) non-developing plaintiffs than developing plaintiffs, while in all the other periods most of the plaintiffs were developers (100% in the first period, 95% in the third, 81% in the fourth, and 79% in the fifth). This variation according to time seems to be related to the fact that in the second period many cases dealt with video game programs, which tend to involve more non-developing copyright holders.

The nature of the alleged infringers also change over time. In the fourth period, about half of the defendants are non-developers, while in the other periods more of them were developers (100% in the first period, 64% in the second, 68% in the third, and 79% in the fifth). In the second period, in which many plaintiffs were non-developers, more than half of the defendants were developers. This illustrates that video game cases which comprised of many cases in the second period tend to be the cases in which defendants involved in some kind of developing activity in relation to the underlying program, of which copyright is owned by non-developing plaintiffs.

Nature of the case

The nature of the cases can be drawn from the nature of actors. There are 4 cases in which developers of the original program filed suits against

copyright holders of the program (see table 7). In 3 cases copyright holders of the programs in issue filed suits against developers of the programs in issue. In 76 (66%) cases developers who are also copyright holders had claims against competitors. Among these 76 cases, 17 cases involved no other program than the original program, while in 59 cases programs other than the original program were involved. In 22 (19%) cases, copyright holders who are not developers filed suits against competitors. Among these, 3 cases involved only the original program while 19 cases involved other programs that are not the original programs. In 2 cases the developer of the program had claims for copyright against the copyright office registrar. In 6 cases the copyright holder of the program in issue sued the developer of the program, based on the infringement claim of other programs developed by the developer. In 2 cases, the developer and copyright holder at the same time sued their clients. These are the only cases in the data that involve end-users of the program.

These cases can be categorized more generally. There are 59 (51%) cases in which developers of the original program had claims against developers of any kind of programs. In 24 (21%) cases, developers of the original programs had claims against non-developing actors who may or may not be copyright holders of any kind of programs. In 32 (28%) cases, non-developers claimed against developers of any kind of programs or non-developers.

There is another dimension by which these cases can be divided: the number of program(s) involved in the case. In every case, there is the original computer program of which the movant claims the copyright. 28 (24%) cases involved only this original program. In the other 87 (76%) cases, other computer programs than the original program are involved, whether the programs are decided to be infringing the original program or not.

There is a difference in the nature of the cases according to the time period. In all the cases in the first period, 76% of the cases in the fifth period, and 63% in the third period, developers sued developers. In the second period, as expected, non-developers sued developers in 64% of the cases. In the fourth period, the nature of the cases was evenly distributed.

Judges' characteristics

Judges' characteristics that may have some relation to the ways in which they decide the copyright cases include their age, presidents who appointed the judges, the year in which they were appointed, the political party of the appointing presidents. Information about six of the judges were not available from any of the references that were used. For analysis, even when a judge decided more than one case, she was counted as one judge each time she decided on a case.

The age of the judges at the time they decided the cases range from 45 to 90. 5 judges were in their forties, 15 in their fifties, 43 in their sixties, 32 in their seventies, and 14 were between the age of 80 and 90. The year in which the judges were appointed were between 1959 and 1992. 20 judges were appointed between 1959 and 1970, 55 between 1971 and 1980, and 29 between 1981 and 1992.

There were 8 presidents by whom the judges were appointed. 3 judges were appointed by Eisenhower, 19 by Kennedy, 25 by Johnson, 46 by Nixon, 15 by Ford, 93 by Carter, 53 by Reagan, and 18 by Bush. 61 judges were appointed by a Republican president and 48 by a Democratic president.

Decisions

The decisions of the study can be categorized in various ways. First they are categorized according to whether the movant of the case won the case, or the alleged infringer (in infringement cases) and/or the challenger (in copyrightability cases) won the case. Among the 115 cases, the movants won 73 cases (64%) and the alleged infringer and the challengers won 42 cases (36%). When the decisions were divided broadly according to whether the decision was limiting the scope of copyright protection of computer software or expanding the scope, 43 cases (37%) limited the scope and 69 (60%) cases expanded the scope (see table 8). Three cases (3%) were about who owns the authorship or ownership rights only, so could not be categorized into either limiting or expanding the copyright scope.

According to the topic of the case, the cases may have decisions on copyrightability, infringement, or both copyrightability and infringement. Therefore, separate variables were made for the copyrightability decision and infringement decision. Among the 115 cases, 29 cases dealt with the issue of the copyrightability of the program. 26 (90%) of the copyrightability cases were decided in favor of granting the copyright, while only 3 (10%) cases were decided against granting the copyright to the program (table 9). Among the 115 cases, 107 cases dealt with the infringement issue. Among these 107 cases, 65 cases (61%) decided that infringement occurred, while 42 (40%) decided that infringement did not occur (see table 10). Therefore, it seems that a higher degree of consensus has been achieved in the courts on the issue of granting copyrightability to computer programs than on the issue of infringement, although more cases decided that infringement occurred.

Another dimension of the decisions was whether the case decided for or against the developer of the program or the copyright holder of the program. The movants of the cases consist of developers of the program, or

developers and copyright holders at the same time, and copyright holders of the program who was not involved in developing processes. One-hundred and eleven out of 115 cases involved the copyright holder of the program whether they were developers or not. Among these copyright holder-involved cases, 70 cases (63%) decided in favor of copyright holders, while 41 (36%) decided against copyright holders. There were 92 cases that involved developers of the program whether they were copyright holders or not. 59 cases (64%) decided in favor of developers and 33 (36%) decided against developers.

The copyright cases regarding computer software tended to decide in favor of granting the copyright rather than against granting the copyright, to find an infringement than not, in favor of developers than against them, in favor of copyright holders than against them, and in favor of developers than in favor of copyright holders when they are in dispute. In conclusion, the courts were generally in favor of expanding the scope of copyright protection of computer software, rather than limiting the scope of copyright protection.

Size of actors

One of the various measurements that indicate the level of resources is whether the actors are individuals or firms, or multiple firms acting together for the case. 4 (4%) of the movants are individuals, 3 (3%) of them are individuals who are affiliated to some firms (usually they own the companies), 100 (87%) of them are firms, and 8 (7%) of them are multiple firms. In the case of alleged infringers of challengers of copyright validity, there was 1 individual, 4 (4%) multiple individuals, 19 (17%) individuals who own the companies, 45 (40%) firms, 14 (12%) multiple firms, 30 (26%) firms with other individuals, and 2 (2%) copyright registrars. In a broad

categorization, 7 (6%) of the plaintiffs were individuals and 108 (99%) of them were firms, while 26 (23%) of the defendants were individuals and 89 (77%) are firms.

The nature of the case can be drawn from this categorization. Most (77%) cases were between firms, and in 20 (17%) cases firms claimed against individuals. In 6 cases, the plaintiffs and the defendants were both individuals. There was only one case in which individuals filed against a firm.

In the case of firms, their size can be measured by the revenues and the number of employees. Due to the difficulty of obtaining this kind of data despite the extensive use of various databases, among the 108 cases in which the movants were firms, information was obtained for 62 (57%) cases. Among the 89 cases in which the alleged infringers/challengers were firms, information was available for 58 (65%) cases. It is likely that there is a systematic difference between the firms about which the information is available now and the firms about which the information is not available now. However, it is difficult to imagine that the systematic bias, if any, operates in different ways for the plaintiffs and for the defendants.

In the 62 cases, movants were found to have greater revenues than alleged infringers, but was not statistically significant because the variances were very large. Among the movants, the firms in 29 cases had revenues less than 100 million dollars, and in 33 cases more than 100 million dollars. Among the alleged infringers/challengers, firms in 49 cases had revenues less than 100 million dollars and only in 11 cases more than 100 million. The average number of employers in the firms of movants was greater (9246) than that of alleged infringers/challengers (8121). The average age of the firms of

the movants was also higher (17) than that of the alleged infringers/challengers (14).

As noted before, the level of resources only has a meaning when it is compared between the two parties involved in each case. Therefore, it is important to analyze only the cases for which the information on the both parties is available, although the problem of the lack of data is more compounded. In 88 cases in which both parties are firms, information on both parties was obtained for 31 (35%) cases. In 21 (68%) cases the revenues of the movants were greater than those of the defendants, and in 10 cases it was vice versa.

In a similar vein, among the 44 cases for which information for both parties' numbers of employees are available, in 31 (70%) cases plaintiffs had more employees, and in 11 cases defendants had more employees. In 2 cases the number of employees was the same between the two parties. The age of the firms of the both parties was available in 30 cases. In 19 (63%) cases firms of the plaintiffs were older and in 10 cases those of the defendants were older. In one case the age of the firms was the same. Thus the available data suggest that in every aspect the plaintiffs had greater allocative and human resources than the defendants. Although the data only constitute 35% of the total data, there is no reason to suspect that the availability of information on the size of the firms is systematically different between the plaintiffs and the defendants.

The ratings of the legal counsels and the law firms were turned out to be extremely homogeneous. Since almost all of the counsels and firms had "A" ratings, the variance was not enough to make any comparison. It seems that all the parties sought to gain the first rate legal service as the stake involved in copyright cases pertaining to computer software tends to be very high.

VI. DYNAMICS BETWEEN ACTORS, ALLOCATIVE RESOURCES AND DECISIONS

Based on the characteristics of each variable, this chapter examines how these factors related to the judges' decisions. This chapter does not include variables that were not found to be related to the decisions in any way, such as the level of the court (district court versus appeals court), circuit and state in which the case was held, the form of the program (literal or non-literal elements). The interaction of the actors' legal arguments with these factors will be examined in the next chapter.

Procedural status

Decisions regarding infringement were slightly different according to the procedural status of the cases. In the summary judgment cases, more (7 out of 10) cases did not find any infringement, while in the other cases of all the other procedural status, more decisions found an infringement than not. This result can be attributed to the nature of the status. Because summary judgments can be given only when there are no genuine facts involved in the case, if it is found that there is any factual dispute, summary judgment cannot be given. The fact that the summary judgment was not given does not mean that the opposing party won the case on the merits, but means that the merits should be decided at trial.

Topic

The topic of the cases sharply influences decision-making. When the topic of the case is copyrightability, 25 (89%) out of 28 cases were decided in favor of granting copyrightability. In the infringement cases, it was not as

consistent. 61 (62%) out of the remaining 98 cases were in favor of deciding that infringement has occurred, and 37 (38%) were against deciding that infringement has occurred. Some of these cases include both issues of copyrightability and infringement. In the cases that deal with the infringement issue only, the rulings were even more evenly decided. 35 (47%) out of the 75 cases ruled that infringement has occurred, and 40 (53%) cases ruled that infringement has not occurred.

Judges' Characteristics

In general, judges' characteristics were not related to the decisions. The age of the judges at the time of the decision-making and the year in which they were appointed did not have any significant relationship to the way they made copyrightability or infringement decisions. Also, the appointing presidents and the political party of the appointing presidents did not influence the ways in which they made decisions in any significant way. Especially in copyrightability cases where decisions did not vary much, most of the judges decided in favor of granting copyrightability of computer software regardless of their appointing presidents. In infringement cases, slight differences were found among the judges. For example, the judges appointed by Eisenhower, Nixon, Ford, and Reagan found an infringement in about half of the cases they decided. The judges appointed by Kennedy and Bush were more likely to find an infringement and the judges appointed by Johnson and Carter were more likely to find that there was no infringement. This result seems to suggest only that in the copyright cases with regards to computer software, individual differences among the judges may play a larger role in decision making rather than their political orientation.

Allocative and human resources of actors

In examining whether the allocative and human resources of the actors relate to the judges' decision making, there are different dimensions by which the level of resources can be measured. The first one is whether the actors are individuals or firms. When the plaintiffs were individuals, they were more likely to lose the case than when the plaintiffs were firms. On the other hand, when the defendants were individuals, they were more likely to win the case than when they were firms. When both actors are firms, their resources are also measured by the revenues, number of employees, and age of the firms. These three measures were not found to be influencing the decisions. Whether the decisions were in favor of the plaintiffs or in favor of the defendants, the mean revenues, number of employees, and age of the firms were not significantly different. This may be related to the fact that the data on these variables are not complete, but there is no reason to assume that the size of firms about which the information was not available differs for the plaintiff and for the defendant. Tentatively, it can be concluded that the actors' allocative resources relate to the decision making more in terms of whether they were individuals or firms than in terms of the actual financial and human assets they possess. This conclusion suggests that it is important to examine how the nature of the actors relates to the decision making.

Nature of Actors

The decisions were not found to be influenced by the nature of the movants, i.e., whether the movants were developers or not. However, the nature of the alleged infringers was found to be significantly related to the decision making, while the nature of the challengers of the validity of copyright was not found to be related to the decisions. No matter whether the

defendants in copyrightability cases were developers or not, decisions tended to be made in favor of granting copyrightability. In general, alleged infringers are more likely to lose the case than the movants of infringement cases. But when the alleged infringers were non-developers, they had only a 20% chance to win the case, but if they were developers of any kind of programs, they had a 45% of probability to win the case.

Therefore, it is concluded that the copyrightability decisions tend not to be influenced by the nature of actors, but the infringement decisions tend to depend greatly on whether the alleged infringers have been involved in the developing activities in any way.

Subject matter

First, the nature of the plaintiff's program in terms of whether it is an operating system program, an application program, or a video game program was not found to be related to decisions in any ways. However, the nature of the other programs than the plaintiff's program involved in the case was found to be clearly related to decision-making: These other programs are the ones that were created and/or used by the alleged infringers. In some cases, they used the plaintiff's programs, but in other cases they developed other programs, which may have infringed the plaintiffs' underlying programs. Some of these newly developed products have particular characteristics in relation to the underlying program, as described in the previous chapter. Some of the characteristics may be reasonably expected to benefit the users and possibly the developers of the original program, while the other characteristics are clearly harmful to the developers of the original program because these programs help reproduce, de-effect, or alter the nature of the original program.

These two different kinds of characteristics did not result in different kinds of decisions. Regardless of whether the characteristics may be beneficial or clearly harmful to the users and possibly the plaintiffs, alleged infringers who developed these programs were much less likely to be decided that they infringed the copyright than the alleged infringers who developed no new programs or developed competing programs without these particular characteristics. For example, in Vault v. Quaid, even though Quaid marketed a program that can be used to make unauthorized copies of other copyrighted software programs and Vault made an argument based on its consequences on the market of its own program, the judges decided that the Quaid program did not infringe on the copyright of Vault. On the other hand, when the defendant's software program can be considered "add-on" software which typically offers some enhanced functions to an existing program, the courts were split in their decisions and more likely to decide that there was an infringement than not. For example, when Artic sold electronic devices intended to stimulate Midway's 'PacMan' and 'Galaxian,' as well as devices designed to be inserted into the Galaxian Game to speed up and otherwise alter the play of the game, the judge decided that the Artic's game kits are infringing derivative works. But when Lewis Galoob marketed a video game accessory 'Game Genie,' which can be attached to a video game cartridge such as Nintendo products and allow the player temporarily alter certain attributes of the game, the judge decided that the game accessory did not infringe on Galoob's copyright.

This result clearly suggests that the copyright decisions tend to consider the degree of involvement in the developing activity of the alleged infringers more than the possible impacts of these other programs to the original developers and users. In addition, this result is consistent with the finding

that the nature of alleged infringers is significantly related to decisions.

When the alleged infringers were developers of any programs, they were less likely to be ruled as infringers of the copyright than when they were non-developers of any programs. Thus it can be inferred again that the copyright decisions in general tend to consider the involvement with developing activity very importantly.

substantial similarity issue. In this context, judges ask the question of the validity of copyright again, in order to define whether the copied portion of the program was a copyrightable expression or not. 39 (15%) arguments of the judges were placed in this context. Altogether, the copyrightability question was asked in 120 (46%) of the 261 arguments and was a recurring theme in almost all of the cases. Finally, if it is found that copying has occurred and the copied portion was the copyrightable expression, the court should decide whether the copying constitutes infringement or not. 72 (28%) arguments were placed in the context of copying as infringement. A question that was less frequently asked but carries a great significance in copyright law is about the authorship/ownership dispute. 17 arguments (7%) centered around this issue.

There is a high association between what the plaintiffs and defendants argued and what the judges argued, naturally because many of the judges' arguments were responding to the other parties. Among the 70 arguments of the plaintiffs that were explicitly mentioned by judges, 20 (29%) of them were about copying as infringement, 19 (27%) 21 about the substantial similarity, 15 (21%) about copyrightable expression, 8 (11%) about ownership/authorship dispute, and 7 (10%) about copyrightability. The distribution of the defendants' arguments is similar to that of the plaintiffs', except that more of their arguments regarding the copyrightability issue were considered by the judges. Among the 184 arguments of the defendants that were mentioned by the judges in court opinions, 51 (28%) were about the copyrightability, 49 (27%) were about infringement, 26 (14%) were about substantial similarity and copyrightable expression respectively, 19 (10%) about the validity of ownership, and 12 (7%) about authorship/ownership dispute.

VII. LEGAL ARGUMENTS: USE OF STRUCTURAL RULES AND RESOURCES

The analysis of arguments will begin with the description of general characteristics frames and theories used by the legal actors. Based on the approaches that have been discussed in a previous chapter, the legal arguments are analyzed according to the frame of the public interest versus the private reward, and then according to the frame of authorship, work, and use. For the sake of comparison between frames and time periods, detailed analysis of legal arguments according to each issue of the copyright cases is conducted. Important structural rules that have been established are identified by examining the parties' arguments and the judges' responses in earlier cases. How the legal actors use these structural rules in relation to their resources, and how the judges respond to the ways in which the parties use their communicative resources in their legal arguments, is examined. Possible change or reproduction of structural rules that occur through this process is explored as well.

General Frames

Regarding the form of the argument units, most frequently, the judges' arguments were explicitly responding to the defendants' arguments. In 145 (52%) out of 261 arguments, judges identified what the defendants' arguments were, but did not identify the plaintiffs' arguments. In 38 of the arguments, judges indicated the characteristics of both the plaintiffs' and defendants' arguments. In 36 arguments, the judges only identified what the plaintiffs' arguments were, but did not identify the defendants' arguments.

Judges did not explicitly identify any of the parties arguments but presented their own analyses in 42 (16%) arguments.

The judges' arguments tended to be in favor of broadening the scope of copyright protection (74%) than limiting the scope (26%). In order to examine the general trend of the arguments and the use of frames over time, the time periods developed in the methods chapter were used. Even though the original time periods consisted of 5 categories with 3-4 year in each period, because the first period has only 4 arguments, the first and second periods are combined for analysis. As a result, the first period (1978-1983) has 69 arguments, the second period (1984-1986) 45 arguments, the third period (1987-1990) 68 arguments, and the fourth period (1991-1993) 79 arguments. It was found that the trend of broadening the scope of copyright protection was more clear in the first two time periods (81% and 84% for broadening the scope) than in the last two time periods (70% and 74%).

The most frequent issue of the case was that of copyrightability. In 58 (22%) arguments in the copyrightability cases, judges dealt with the question of whether the computer software or any element of it is copyrightable as a subject matter or the plaintiff's copyright in the original program is valid. They also asked the same question in infringement cases but in slightly different contexts. In order to decide on the infringement case, the court should first decide whether the plaintiff owns a valid copyright in the program involved in the case. Thus, another 27 (10%) of the judges' arguments regarding the question of copyrightability were placed in this context. Once the ownership is established, the court should decide whether the defendant copied the plaintiff's program, which can also be inferred by showing access and substantial similarity. Except for one case, access was not a matter of dispute. 54 (21%) arguments were placed in the context of the

When the judges responded to the other actors' arguments, most frequently judges discussed about how they rejected to the defendants' arguments. Among the 219 arguments in which judges were responding to the parties, 163 (63%) of them were rejecting the defendants' arguments while 44 (17%) of them were rejecting the plaintiffs' arguments. In these arguments, judges explicitly or implicitly accepted the other party's arguments. Not so frequently judges only presented arguments that accepted a party's argument while not explicitly rejecting any arguments. In only 5 (2%) cases judges indicated that they were agreeing to the plaintiffs' arguments and in 7 (3%) cases judges indicated they were agreeing to the defendants' arguments. In summary, judges tended to agree, explicitly or implicitly, with the plaintiffs more frequently (167 arguments) than with the defendants (52 arguments).

Narrowly constructed frames are identified as follows: the nature of the plaintiff's work, the authorship (creation process) of the plaintiff, the nature of the defendant's work, the authorship (creation process) of the defendant, the nature of the use by the defendant, market consequences, and the public use and benefit. The frame that was most frequently used by judges was that of the nature of work (62%, 162 arguments) followed by the frame of use (22%, 57 arguments) and the frame of authorship (16%, 42 arguments) (see table 11). The frame of work and the frame of authorship can be further divided in terms of whose work and whose authorship was being considered. The nature of the plaintiff's work was more frequently considered (100 arguments) than the nature of the defendant's work (62 arguments). Similarly, the authorship issue of the plaintiff was more frequently considered (27 arguments) than the authorship issue of the defendant (17 arguments). The frame of use also can be further divided in terms of its

focus: the use of the defendants (36 arguments), the public use (14), and market consequences (7).

The frames used by the defendant were similar to those of the judges' while the plaintiffs' use of frames was slightly different. The defendants used the frame of work most frequently (58% of the arguments), followed by the frame of use (25%) and the frame of authorship (18%). The plaintiffs also used the frame of work (61%) most frequently, but they used the frame of authorship (23%) more often than the frame of use (16%).

It was also examined if there is any difference in the frame of arguments when the judges were explicitly responding to the parties and when the judges did not clearly mention the other parties' arguments. When judges used their own arguments, they tended to use the frame of work even more frequently (81%) as opposed to the frame of authorship (5%) than when they were explicitly responding to the other parties (58% for work and 20% for authorship). Also, when they used their own arguments, their arguments tended to have frames of the defendant's work/authorship (67%) more than frames of the plaintiff's work/authorship (31%), while when they were responding, the use of these two frames was more evenly distributed. Therefore, the most frequently used frame when judges used their own arguments only was the nature of the defendant's work (52%) while the most frequently used frame, when judges were responding to the others' arguments, was the frame of the plaintiff's work (37%). Also, the judges' arguments employing the frame of the public interest or market consequences were usually made when they were responding to the other parties (20 arguments). These frames were used only once when judges were making their own arguments.

The judges' use of frames also differed according to the kind of their arguments in terms of the scope of copyright protection. When the judges' arguments were in favor of expanding the scope of copyright protection, they were more likely to be using the frame of the nature of the plaintiff's work/authorship (52%). But when the judges' arguments were in favor of limiting the scope of protection, they were most likely to use the frame of the nature of the defendant's work/authorship (57%). Using the frame of work versus that of authorship did not make a clear difference in the judges' arguments in terms of the scope of protection.

In general, the arguments of the first 2 time periods focused more on the nature of the work (80% in the first period and 76% in the second period), while the arguments of the last 2 periods were more evenly distributed in terms of the use of frames (see table 12). In the third period, 31 (46%) of the arguments made by judges used the frame of work, 23 (34%) of the arguments used the frame of use (including public interest and marketplace frames), and 14 (21%) used the frame of authorship. In the fourth period, 42 (53%) used the frame of work, 21 (27%) used the frame of use, and 16 (20%) used the frame of authorship.

In a similar fashion, the judges' arguments also focused on the plaintiffs' work/authorship more frequently (64%) than on the defendants' work/authorship (28%) in the first time period, but as time went by, the arguments tended to include the frame of the defendants' work or authorship more frequently (28% in the first period, then 47%, 53%, and 48%).

These changes over time in the use of frames, from the frame of work toward that of use and from that of the plaintiff's toward that of the defendant's, seem to result from a change in the issues considered in the cases over time. In the first time period, most of the arguments were about the

issue of copyrightability (61%). However, in later time periods the copyrightability arguments decreased (49% in the second period, 34% in the third period, 39% in the fourth period). At the same time, the arguments dealing with the issues of substantial similarity and copying as infringement tended to increase (36% in the first period, 47% in the second period, 59% in the third period, and 51% in the fourth period).

The use of frames differed according to the issue (see table 13). When the issue was the authorship/ownership dispute, all the 17 arguments used the frame of authorship. When the issue was copyrightability (including those in copyrightability cases and in infringement cases), most of the arguments (97 arguments, 82%) had a frame of work, and only some arguments (18 arguments, 16%) had a frame of authorship. Among the 97 arguments that used a frame of work, 94 of them focused on the plaintiffs' work, while only 3 focused on the defendants' work. When the issue was substantial similarity, most of the arguments also used a frame of work (49 arguments, 91%), but among the 49 arguments, 46 focused on the defendants' work while only 3 focused on the plaintiffs' work. When the issue was copying as infringement, the most frequent frame was that of use (54 arguments, 75%).

As the issue of the cases relates to the use of frames, it is important to analyze legal arguments separately according to the issue of the cases. Although the frame of use includes the use of the public interest and the market consequences as well as the use of defendants in this framework, the focus of the detailed analysis is on how the concepts of work and authorship interact with each other and are mobilized, and how these two concepts operate in conjunction with the concept of use which appeared later. Therefore, a separate framework of analysis is needed to examine the

question of how the concept of public interest versus private proprietary rights plays a role in copyright cases, and how the marketplace norm and rationale relate to the concept of enhancing public benefit through the encouragement of innovation. Thus, before the analysis that used the frames of work, authorship, and use is presented, legal arguments are analyzed in terms of how the public interest or marketplace considerations are dealt with in copyright cases with regards to computer software.

Frame of Public Interest versus Private Property Rights

Despite the premise that the fundamental principle of the copyright regime concerns the public interest, the public interest is a theme that hardly becomes a basis for decision in copyright cases regarding computer software. In the arguments that decided the merits or arguments in summary judgment cases, the public interest or policy considerations were only occasionally argued as a rationale for a decision. Even in the preliminary injunction cases of which four basic requirements included the public interest factor, this factor was often ignored in decision-making or was merely re-stated in the arguments without any further discussion. The considerations of the public interest and marketplace in preliminary injunction arguments and in arguments that decided on the merits are separately analyzed.

Policy Considerations and Public-Regarded Legal Theories in Final Judgment and Summary Judgment cases

The arguments employing the concept of public policy or public interest were found to be rare in the copyright cases in regards to computer

software. The judges in only 8 cases among the 115 cases explicitly used the notion of public policy as a rationale for supporting their arguments and decisions on the merits. There were 3 different kinds of policy considerations: the intent of the Congress, the public benefit, and the consequences on innovation or competition. There was no significant relationship between the use of policy considerations and the nature of the actors or cases. But it was found that these policy considerations were argued in the context of certain frames in the arguments, such as the nature of the plaintiff's work and the use of the plaintiff's program.

Among the 8 cases, 2 cases were about whether to grant copyrightability, and the remaining 6 were about finding an infringement. In the 2 copyrightability cases, the judges used the intention of the Congress as a policy argument. In ruling whether the computer software on the ROM was a "copy" or copyrightable, the judges stated that the intention of the Congress is to copyright computer programs (Tandy v. Personal Micro Computers; Williams v. Artic, appeals).

Among the 6 infringement cases that used public policy arguments, 2 of them, which were the same case that was held in the district court and in the court of appeals, used policy arguments regarding the public access and public benefit. In Sega v. Accolade, Accolade developed game cartridges compatible with the 'Genesis' console developed by Sega, and argued that to gain the "public's need for access" to programs, fair use should be allowed. The district court judge commented that the public's need for access is fully satisfied by the copyright owner's marketing of the original. However, the judges in the court of appeals accepted Accolade's argument and argued that allowing a particular use of the original program results in the public benefit, and when humans cannot gain access to the unprotected ideas and functional

concepts without making copies, it is against the public policy underlying the Copyright Act not to allow the use. Consequently, it was held that Accolade's game cartridges did not infringe Sega's copyright. In this case, the public policy argument was made in the context of other legal rules such as fair use and the functionality theory.

In the remaining 4 infringement cases, the policy arguments centered around the possible consequences of allowing the use of the original programs such as innovation and competition, and the judges were split on that matter. When the policy considerations were argued in the context of the utilitarian aspect or functional use of the plaintiff's program, the judges decided that allowing the use of the program will preserve the market for innovation or otherwise it will result in too little competition. In Foresight v. Larry Pfortmiller, Pfortmiller developed a digitizer based on the plaintiff's 'Drafix' program and used this enhanced program only in its business. The court held that this enhancement of the program falls within the adaptation for the exception of infringement, and argued that allowing this kind of utilization of the program would "preserve the market for improvements." In Apple v. Microsoft, the judge argued that to accept Apple's desktop metaphor and look and feel arguments would result in "too much protection" and yield "too little competition" because the element of Apple's user interface is a purely functional purpose as much as the automobile. Therefore, considering the consequences for innovation or competition in terms of the utilitarian aspect of the programs led into arguing for a narrow scope for copyright protection.

In the other 2 cases, the judges focused on the literary aspect of the program from the beginning of their arguments, or shifted the focus from policy considerations to the nature of the program itself. In Pearl Systems v.

Competition Electronics, Inc., the defendant argued that ruling the use of computer program as infringement would discourage innovation. But the judge shifted the focus of the issue from public policy to the idea versus expression dichotomy, by saying that granting a copyright does not give him or her the right to monopolize the idea. In Lotus v. Paperback, Paperback argued that the judges should not find an infringement because the policy favors extremely narrow copyright protection in computer programs that are useful articles. The judge disagreed with the defendant's notion of the useful article, and argued that, through copyright law, Congress intends to explicitly give substantial protection to innovative expression in intellectual works, including computer programs.

In all of the cases in which the public policy arguments were used, the parties of the cases were both developers of different programs (in 7 cases) or both non-developers (in 1 case). Thus it remains unknown whether the nature of the parties would make any difference in the judges' use of policy considerations. However, it seems that the ways in which policy considerations are considered clearly relate to the context of the frame in which the arguments are placed. When the policy consideration on the intention of the Congress was combined with the frame of the nature of the program, the arguments were made in favor of the broad scope of copyright protection. The consideration regarding the public use and benefit consideration that was combined with the frame of the use of work led the judge to argue against broadening the scope of copyright protection. When the policy consideration on innovation and competition was placed in the context of the nature of the program such as the idea versus expression dichotomy and in the context of the computer program as a literary work, the judges favored a broader scope of copyright protection. But when the policy

considerations on innovation were placed in the context of a utilitarian element or functional use of the program, the judges argued against broadening the scope of copyright protection. Therefore, it is suggested that the policy considerations tended to be influenced by the use of other frames or existing legal rules rather than to operate as a decisive factor themselves.

Other than the policy considerations that were used in the above 8 cases, there are some cases that used legal theories relating to the issue of the public interest -- publication/public domain doctrine and first sale doctrine -- in infringement cases. In theory, these theories were designed to ensure the adequate access of the public to the computer programs and to encourage innovation by allowing the use of available codes. The first sale doctrine (17 U.S.C. §109) provides that the owner of a copy of the program can sell her copy without the permission of the copyright holder.

Among the 11 cases that used these theories, 6 cases used the publication/public domain doctrine and 5 used the first sale doctrine. Usually defendants made arguments based on these theories and judges responded to the arguments, more often unfavorably than favorably. It seems that the nature of the parties, whether the party was a developer of computer programs or not, was an important factor that related to how credible and convincing their arguments appeared to the judges.

When the plaintiff was a developer and the defendant was a non-developer (4 cases), judges never accepted the defendant's argument that used the doctrines of limited publication or first sale. In GCA v. Chance, the plaintiffs manufactured and sold the computer machines and the defendants were in the business of repairing the machines. While the defendants argued that the plaintiff's program was already published when they used the

program, the judge argued that the plaintiff's distribution of the program was a "limited" publication since the plaintiff had no intention of distributing its source code and object code to the general public. Similarly, in Allen-Myland, Inc. (AMI) v. IBM, AMI was in the business of providing engineering services to owners of IBM large scale mainframe computers and argued that it did not infringe IBM's copyright in its 3090 microcode because the microcode was in the public domain. But the judge held that there was no evidence supporting AMI's argument, thus the microcode was not in the public domain. In ISC v. Altech, Altech who serviced computer equipment and purchased and sold used computer equipment, argued that ISC is not entitled to the protection of its operating and applications programs under the first sale doctrine. But the judge decided that the doctrine of the first sale was not applicable because ISC did not sell the program to Altech but licensed it. In Data Products v. William Reppart, the defendants for whom Data Products supplied their application program packages also argued that their use of the plaintiff's computer programs was legitimate and non-infringing due to the first sale doctrine. But the judge held that the doctrine was not applicable in the case since the defendant did not only use the software but made unauthorized "copies" of the material while the doctrine only extends to the original copy itself. The judges seem to have perceived that the theory of publication and the theory of first sale does not have applicability when the defendants were not developers themselves. The defendants failed to have appropriate resources to use certain legal theories, i.e., being engaged in software developing activities in these cases.

When the both parties were not involved in any activities related to software development such as in Red Baron v. Taito, where Taito imported a game program called 'Double Dragon' and Red Baron owned a copyright of

the program, the appellate court judges also rejected the first sale doctrine used by the defendant. The judges argued that the exhibition of the images in "sequence" of the game constitutes a "performance," and the first sale doctrine is limited to the "distribution" right, and does not apply to the "performance" right. There is only one case where the plaintiff was a non-developer and the defendant was a developer. But in this case, Midway v. Strohon, the defendant's argument using the first sale doctrine was rejected on the basis that the judge considered the doctrine applicable only in patent cases.

Finally, when both parties of the case were developers of any kind of computer programs, the decisions were split. There are 4 cases in which the plaintiff was a developer of the original program and the defendant was a developer of another program which the plaintiff allegedly infringed. In 3 of the cases the judges rejected the arguments of the defendants using the theories of first sale or public domain, while in 1 case the judge accepted the defendant's argument based on the theory of public domain. For example, in Hubco v. Management Assistance, Inc. (MAI), Hubco who developed an upgrading program for MAI's operating system software argued that because MAI publicly distributed its operating systems, Hubco's software did not infringe MAI's copyright. But the judge disagreed by saying that the important distinction is between "general publication" and a "limited publication," and that MAI made a limited publication so it was not publicly available. Also, in PRC v. National Association of Realtors (NAR), the judge decided that NAR's modified program of PRC's software infringed the copyright of PRC because the original program was not made available to the public without restriction, so it was not publication as NAR insisted. In Gates Rubber v. Bando, the defendants who were former employees of the

plaintiff's company argued that the plaintiff's copyright was not enforceable because the program was unprotected due to prior publication. The court held, however, that if any publication had occurred, it was a limited publication.

On the contrary, the judges of the court of appeals in Data Cash v. JS&A interpreted the concept of "limited publication" differently. They argued that a limited publication was really in the eyes of the law no publication at all, and thus JS&A's chess game program did not infringe upon the copyright of Data Cash's chess game program. The Data Cash case can be distinguished from the other 3 cases, in that the defendant's program in this case was a competing product which was similar in its function but was not found to have a clear relationship in terms of the developing process with the plaintiff's program. The defendants' programs in the other cases were an upgrading program for the plaintiff's program, a modified program of the plaintiff's program, or a similar program developed by the ones who had been involved with the development of the plaintiff's program. Therefore, when judges try to decide whether the use of the program is legitimate because the program is in the public domain or was already sold to the other party, they seem to consider the apparent connection between the two programs more importantly than the functional similarity of the programs.

In summary, there were only 11 cases that used the public access arguments using the publication or first sale doctrines, and these arguments were usually not accepted by the judges. Especially, when the parties involved non-developers of any computer programs, the argument using these doctrines were never accepted. Only when both parties were developers of different programs did the party that used the argument based on these theories have a chance to convince the judges, but they were not always

successful. When the argument was accepted, it was when the defendant of the case could successfully use not only the legal theory but also the actor's resources, i.e., having developed another program which was not related to the plaintiff's program. Therefore, the most important concern in relation to the use of these legal theories seems to be the ways in which the defendant's program was developed (independently or by somehow using the underlying program of the plaintiff).

Factors Regarding the Public Interest and Marketplace in Preliminary Injunction Cases

Most of the arguments explicitly considering the public interest issue were made in the context of preliminary injunction cases, since one of the four requirements of deciding for preliminary injunction is a factor of the public interest. Therefore, arguments in the cases deciding on a preliminary injunction are separately considered here. In an infringement action, preliminary injunction cases arguably have more issues on balancing equities than in other final judgment or summary judgment cases. Because alleged infringers are only "preliminarily" enjoined from copying, manufacturing, using, or distributing the original program in these cases, decisions are made on the basis of different considerations than cases decided on the merits. In determining whether to issue a preliminary injunction, courts require the satisfaction of a various combination of the following four factors: (1) the plaintiff has a likelihood of success on the merits of his claim; (2) the plaintiff does not have an adequate remedy at law and he or she will suffer irreparable harm without the injunction; (3) this harm is greater than the injury the defendant will suffer if the injunction is granted; and (4) the injunction will

not harm the public interest. Other courts require that the plaintiff show either irreparable harm and likelihood of success, or irreparable harm and the existence of a serious question going to the merits and balance of hardship.

There are 47 preliminary injunction cases including 8 cases at the court of appeals. The decisions in the preliminary injunction cases are more likely to be made in favor of finding an infringement (70%) than in other cases.

Although judges tend to claim that none of the four or two factors of preliminary injunction cases should be definitive, not every factor is always explicitly considered, nor are the factors that are considered given the same weight in the arguments. For example, the issues related to the likelihood of success on the merits were considered in every case, and in an extensive way except for only one case. Moreover, the ultimate decisions of the case regarding granting or denying the injunction were always made in the same way as the decisions regarding the likelihood of success on the merits. In this way, the likelihood of success on the merits is actually considered the predominant factor in many cases. The arguments discussed to determine the probability of the merits have similar characteristics and structure with the main arguments made in all the other cases. Therefore, these arguments will be analyzed together with the other arguments in other cases, which will be presented in the next section.

The second most frequently considered factor was the irreparable harm, but still 22 out of 47 preliminary injunction cases did not mention this factor at all. In the 25 cases that did mention this factor, the judges in 19 cases argued that the irreparable harm can be presumed if the plaintiff established the factor of the likelihood of success on the merits. This tendency of eliminating this factor altogether or of deciding that this factor was presumed became even more clear in later cases. Among the 19 cases in which the

irreparable harm was presumed, judges of 9 cases also provided some reasons why they thought that there was a possibility of irreparable harm. The reasons include that the plaintiff's reputation, although not sales, can be harmed, that the video games have short-lived popularity, that the plaintiff invested large sums of money and time in developing the program, the defendant's sales constituted only small percentage of total sales, and that the plaintiff was on the verge of bankruptcy.

In 2 cases, no basis was provided, but the judges just stated that there would be irreparable harm if an injunction was not granted. In 4 cases in which the judges did not presume the possibility of irreparable harm but argued that there was the possibility, the rationale given was that the plaintiff made a big investment in terms of time, money, and effort, or that the defendant's sales of the particular program were not significant in the defendant's business. In every case where the possibility of irreparable harm was considered, the judges decided that there was a possibility. And in every case in which it was decided that there was a possibility of irreparable harm, an injunction was granted. It is interesting to find that the "plaintiff's" investment in terms of "time, money, and effort" is often considered a factor to make a decision in favor of the plaintiff, while the "defendant's" "labor, time, and effort" (as opposed to the "creativity" and "independent production") are always rejected in the arguments that rule on the merits, as promoting a value that should not be considered in copyright law.

The factor of balance of harm was considered in 19 (40%) out of 47 cases. In 15 cases it was decided that the factor favored the plaintiff, and in 4 cases the factor favored the defendant. In some cases, judges explicitly stated that the balance of harm was a less important factor than the likelihood of

success on the merits, and thus would not consider this factor (Data General v. Grumman).

In 4 of the 19 cases no reason or basis was provided for the judges thought the plaintiff's harm exceeded the defendant's harm. The reasons and rationales provided in the remaining 15 cases were related to the different positions and situations of the actors. In 9 cases, the judges employed actual comparisons between the harms, or employed the position in the industry as a rationale, i.e., that the defendant would experience the elimination of sales altogether while the plaintiff would experience only a decrease in sales, that the defendant was still marketing the product while the plaintiff was not, and that the plaintiff was better suited to withstand injury than the defendant. In these cases, 4 cases were decided in favor of the defendant and 5 cases in favor of the plaintiff. In 6 cases judges employed the position of the actors in the case as a rationale, i.e., that the plaintiff's investment was large, that the program in issue was not a substantial part of the defendant's business, that the plaintiff's investment was much larger than the defendant's, that the defendant's loss of profit did not deserve equitable consideration due to its position as an infringer, and that the defendant's harm was its own fault. In all these cases, the decision was made in favor of the plaintiff.

Therefore, when the actors' position in the industry and the actual comparison of the harm were considered, the decisions were split and defendants sometimes were granted a favorable decision. However, when the judges considered the position of the actors as an investor versus an alleged infringer in the case, the plaintiff always won the case.

The factor of the public interest was not mentioned or considered at all in 31 (70%) out of 47 preliminary injunction cases. Among the 14 cases in which the public interest was considered, 13 cases decided that the injunction

should be granted. The basis of these arguments was that the public interest would be served by free trade and competition.

In 3 out of 14 cases, the judges did not provide any rationale or explanation in simply arguing that the public interest would be served by granting the injunction. This is clearly contrasted with arguments relating to the likelihood of success on the merits, in which the rules and issues are considered in a very detailed and extensive way. Among the remaining 11 cases in which the judges did provide rationales regarding the factor of the public interest, a judge in 1 case claimed that the public interest would be served by prohibiting unfair competition. In the other 9 (64%) cases, the judges argued that the public interest would be served by rewarding the plaintiff's development, rewarding the author, encouraging individual effort and creativity, rewarding creative expression, encouraging innovation, and protecting the right of the copyright holder. The value of the public interest and access was strikingly equated with the value of authorship which was characterized by individual effort and creativity.

The analysis of the arguments and decisions in regards to preliminary injunction factors show considerations of the public interest, users, or equity were usually neglected. The three factors analyzed here are considered less frequently than the likelihood of success on the merits. Irreparable harm was easily presumed by the establishment of success on the merits, and usually the basis to determine the possibility of irreparable harm was only that the plaintiff invested a large amount of money and effort. This is usually inevitable in any of the copyright cases. Consequently, the judges tend to make tautological restatements of the nature of the case.

The factors of the balance of harm and the public interest are even less seriously considered compared with the other two factors, and also do not

benefit from any of the specific guidelines. Judges do not show consistency in dealing with the following conflicting bases to consider the balance of harm: the actual comparison of the dollar amount of harm, the actors' position in the industry, or the actors' position in the case -- as a plaintiff versus a defendant, and as a developer versus an alleged infringer. In regards to the actors' position in the case as a sole consideration, this is again nothing more than a tautological restatement of the nature of the case, and as a result, the decisions were made always in favor of the plaintiffs.

The public interest factor was the least seriously considered factor. In addition, not only did the arguments centering around the public interest issue never deal with concerns of the users or the "public" as the users, but also was the most frequently used rationale for this factor rewarding the author's creativity and effort. The judges merely restated the assumption that the public interest will be automatically served by rewarding individual (authors') effort and creativity. In other words, by broadening copyright protection to authors (and probably copyright holders). Therefore, the value of the public interest was trivialized into providing a monetary reward to the developers, and in the process, the value of "individual creativity" and "authorship" was created and reproduced as an important structural rule in the copyright cases regarding computer software.

Frames of Authorship , Work, and Use

This section presents detailed analyses of the legal arguments according to each issue of the cases. As identified earlier, the issues include copyrightability in copyrightability cases, the ownership/authorship dispute, the validity of ownership, substantial similarity, copyrightable expression,

and copying that constitutes infringement. The ways in which the plaintiffs, defendants and judges use frames, legal theories, and interpretations in their arguments are analyzed. In order to identify the establishment of structural rules in copyright cases, and to define the conditions under which the structural rules are reproduced and transformed, the ways in which the plaintiffs and defendants employ their resources and structural rules, and the ways in which the judges respond to their arguments, are examined (see table 14).

Copyrightability Cases

As expected by a large number of copyrightability cases in earlier time periods, arguments pertaining to the issue of copyrightability mainly occurred in the first time period, and the number of the arguments on that issue decreased over time. Among the 58 arguments that dealt with the issue of copyrightability, 25 were made in the first time period, 18 in the second period, 14 in the third period, and only 1 in the fourth period.

Unlike the infringement cases, copyrightability cases do not consider a question regarding the use of the plaintiff's program by the defendant. Thus the frames used in these cases consist only of the plaintiff's authorship (7 arguments) versus the plaintiff's work (50 arguments), except for one policy argument that was about the intent of Congress. The other frames such as the defendant's work, the defendant's authorship, the defendant's use, the public interest, or market consequences did not appear in the arguments pertaining to this issue.

All of the 7 arguments that used the frame of authorship involved the theory of originality. In only 1 argument the judge was responding to the

plaintiff's argument while in 6 of the arguments judges were responding to the defendants' challenge of the originality of the plaintiffs' programs. Through these arguments, the judges clearly defined the concept of originality as a minimalistic requirement.

The first question regarding the originality of the plaintiff's computer program was raised in 1982 in Apple v. Franklin. Even though the preliminary injunction that Apple sought was denied in the district case (later preliminary injunction was granted in the appellate court), pertaining to Apple's operating system programs, the judge stated that an "original work" need not be a work of genius. This minimalistic view on the originality requirement was stated again later in 1986 in M. Kramer v. Andrews. When the defendants challenged the validity of the plaintiff's audiovisual work on the basis of the lack of originality, the judges argued that the standard for originality is minimal, which is enough if it is something "his own." Where the work is an audiovisual work, not a work of art, the judges argued, "true artistic skill" is not required.

In Atari v. Oman that was decided in 1988, the district court agreed with the copyright register who was the defendant of the case and held that Atari's videogame lacked "minimal artistic expression," and admittedly independent efforts are too trivial or insignificant to support copyright. The district court's holding, however, was rejected by the appellate court, which argued that the usual standard of creativity for copyright is "minimal, modest, and very slight." In the 3 cases that followed, the judges consistently adopted this minimalistic view of the originality requirement by arguing: that originality means only that the work "owes its origin to the author," i.e., "independently created" (NEC v. Intel, 1989); that the defendant's files were substantially "re-worked" (Service & Training v. Data General, 1990); and that

he standard of originality is minimal that it only requires "independent creation" (Apple v. Microsoft, 1991).

The analysis of the arguments in relation to the plaintiff's authorship suggests that the scope of copyright protection was broadened by the minimalistic view of the originality requirement. This result is consistent with Jaszi (1991)'s argument that the concept of "authorship" continued to be strategically used to extend copyright protection to new kinds of subject matter, by making it dissociated from "genius" and then reassociated with the meanest levels of creative activity, as something more than a "merely trivial" variation. Moreover, not only was the requirement minimal, but the judges also considered "independent creation" the most important concept in originality, without building any objective standard for defining the characteristics that make a work "original." Therefore, the minimal standard for originality and the importance given to the "independent development" of the program is established as an important structural rule in copyright cases regarding computer software. The judges' view on the originality explains why they made infringement decisions based on the degree of the defendant's developing activity "on his own," rather than on the functional similarity or possible market effect of the defendant's program.

The arguments that used the frame of work made more frequently in earlier cases. 24 (48%) of the 50 arguments were made in the first time period, 17 (34) in the second period, and 9 (18%) in the third period. There were no arguments that used the frame of work in the fourth period. This seems to be because the copyrightability of computer programs as a subject matter was a critical question when the first cases regarding software copyright began to be decided. After many cases, it had become established as a structural rule that the computer software is copyrightable as a subject matter.

Among the arguments that used a frame of work, most of them (44 out of 50) were responding to the defendant's challenge against the copyrightability of the plaintiff's program. 41 of them rejected the defendant's arguments and only 3 of them accepted the defendant's arguments. There was only one argument that rejected the plaintiff's argument that the program is copyrightable.

Most of the arguments that used a frame of work were about whether the computer software is copyrightable. In most of the cases (45 arguments, 90%), it was established that it is a copyrightable subject matter. The first case Synercom v. University Computing Company employed the theory of communication and expression to determine the copyrightability of the input formats of the Synercom's statistical analysis program. The defendants argued that the input formats are not subject to copyright because they are not intended to convey information. The judge rejected this argument saying that forms which communicate information can be the subject of copyright, and the critical question is whether the material undertakes to "express." The computer program's input formats, therefore, were decided to be copyrightable as it communicates the selection arrangements and the sequences, which is expression. Citing this argument in Synercom, the judge in Digital v. Softklone argued that screen is a form that clearly expresses and conveys information and therefore, is copyrightable.

The theory of communication was used in the other 4 arguments. In Apple v. Franklin, the judge argued that the scope of copyright is limited to the material with a communicative purpose, so that it can create human interaction. This argument that tried to limit the scope of copyright helped Franklin in the district court, but it was explicitly rejected in the court of appeals which argued that the 1976 Copyright Act suggested that programs are

considered copyrightable as literary works whether or not it is a medium of communication to human being. The question of communication in the issue of copyrightability was considered once again in Williams v. Artic in 1982, where the defendant argued that a "copy" must be intelligible to a human being. The judge, however, held that the program can be fixed by any method, including with the aid of a machine. In this way, a strict communication requirement was generally rejected by the courts and the courts begin to rely more on the fixation requirement.

The 1976 Copyright Act states that "copyright protection subsists . . . in original work of authorship "fixed in a tangible medium of expression" . . . from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." 2 arguments that focused on the fixation requirement were also responding to the defendants' challenge against the copyrightability of computer programs. The defendants in both Midway v. Artic and M. Kramer v. Andrews questioned whether the changing images of the audiovisual screen of videogames can be copyrightable because they are not "fixed" in a tangible medium of expression. Judges held that audiovisual are fixed in the computer program, thus both the images (Midway) and the underlying computer programs (M. Kramer) may be copyrighted. Consequently, arguments regarding the communication and fixation requirement have undoubtedly established that both literal and non-literal elements of the computer program, including the status screen and audiovisual display, are a copyrightable subject matter.

A related theory is that of idea versus expression, which states that expression, but not ideas, are protected by a copyright in order to prohibit the monopolization of an idea. 25 of the 28 arguments that used this theory were responding to the defendants' arguments against the copyrightability of

computer programs, and 3 of them did not explicitly mention who initiated the arguments. Judges tended to disagree with the defendants' arguments using this theory (22 out of 25) and held that the program is copyrightable expression rather than ideas. For example, in Whelan v. Jaslaw, which was extensively cited although often criticized, the court of appeals held that copyright protects "non-literal" aspects of the program, i.e., structure, sequence, and organization because the "purpose or function of a utilitarian work would be the work's idea and everything that is not a purpose or function is expression." In Broderbund v. Unison, Unison argued that the idea underlying the menu screens, input formats, and sequencing of screens in the plaintiff's program is indistinguishable from its expression (merger doctrine), and thus are not copyrightable. But the judge, following Whelan v. Jaslaw, rejected the argument saying that there are many ways of expression in the case of the plaintiff's program, thus rules and instructions can be protected by copyright.

In order to determine whether computer programs or any elements of the programs are ideas or expression, courts usually examined the characteristics of the computer program (functional or artistic). Some of these arguments explicitly used metaphor of utilitarian work, artistic work or literary work in relation to the idea versus expression doctrine. Due to the significant influence of the use of metaphor on the ways in which the decisions are made, the arguments and decisions explicitly using metaphor will be separately analyzed later in this section.

The judges who made arguments using this theory of idea versus expression usually held that the work is copyrightable. When they decided that it is not copyrightable in 2 out of 20 cases (even though both of the cases were reversed in the appeals courts), it was always related to the fact that they

considered the program a functional work, or focused on the functional aspect of the program. For example, in Atari v. Oman, when Atari tried to register its videogame for copyright, the copyright register argued that copyright protection does not extend to games because the game and the expression is merged, and its arrangement of images are dictated by functional requirements. The district court agreed with the defendant, but the court of appeals reversed the holding because the judges considered the plaintiff's arrangement of images not dictated by functional requirements or merged with ideas. Another case is Apple v. Franklin, in which the judge accepted the defendant's argument that ROM is an object that merges its utilitarian function and expressive purpose so that they are inseparable. But the judges in the court of appeals rejected the view that the ROMs are utilitarian objects or machine parts, but considered computer programs as literary works, which are protected by copyright law. This case was thus reversed.

There are other arguments in relation to the copyrightability of the plaintiff's work focusing on the nature of the work, but without using any identifiable theories. All of these arguments were made in favor of granting copyrightability. In regards to whether ROM chips are a "copy," or regarding the distinction between the game and the program, many of these arguments used metaphor as a rationale for their arguments. Use of metaphor will be analyzed in the next section.

In the arguments made in the copyrightability cases, judges always decided to grant the copyright to the plaintiff (excluding the arguments and decisions that were reversed). The party that initiated the arguments, the particular frame or theory that was used, or the characteristics of the parties (developers, copyright holders, neither) did not matter. In conclusion, the copyrightability cases and arguments, which centered around the plaintiff's

originality as authorship and the plaintiff's work as a copyrightable subject matter, have clearly established structural rules that: 1) computer software is copyrightable as a subject matter and the protection extends to videogames and operating programs as well as application programs, to literal and non-literal elements and to programs embodied in ROMs and diskettes; and 2) only a minimal amount of the originality shown by the evidence of the plaintiff's independent development (on his own) is required to grant copyright.

Metaphor

In earlier cases, the focus of the arguments was often about which law should be applied, between Copyright Act of 1909 and Copyright Act of 1976. In almost all the cases it was decided that the parties should comply with the 1976 Act. After this issue was settled, the use of metaphor in cases regarding software copyright became frequent. As the new technology of computer software poses difficult problems to the copyright cases, many judges and legal actors tried to find analogy between computer software and other traditional works that had been protected by copyright law. Some of the arguments relied on the 1976 Copyright Act that states that "works of authorship include literary works, musical works, dramatic works, choreographic works, pictorial, graphic, and sculptural works, audiovisual works, and sound recordings."

Although the arguments using a metaphor were made in the copyrightability cases most frequently (15 out of 33 arguments), they are also found in the ownership dispute cases and the infringement cases. But the arguments that used metaphor in the other cases were also placed in the

context of determining the copyrightability of certain elements of programs. Therefore, the analysis of the metaphor arguments will include all the arguments, regardless of the issue of the cases.

Among the 115 cases, judges in 27 cases mentioned some kind of metaphor in making decisions. In some cases, the judges were responding to the plaintiffs or defendants who used metaphor in their arguments. In other cases, the judges used metaphor of their own. The metaphor most frequently used by the judges was the literary work (9) and the audiovisual work (9), followed by the utilitarian work (6) and the artistic or pictorial, graphic, sculptural work (2).

The issue of whether software is characterized as a utilitarian work, a literary work, an audiovisual work or an artistic work has beneath it important implications about the scope of protection. The critical distinction is whether computer programs were considered a utilitarian work or a literary and artistic work. For example, when Microsoft succeeded in persuading the judge to think of the Apple interface as a utilitarian work, it practically won the case on that issue. Apple had argued that the interface was artistic and fanciful, and hence should enjoy a broad scope of protection. Apple analogized the interfaces to paintings and music, while Microsoft analogized them to automobiles.

The metaphor arguments turned out to be powerful and decisive, in that the use of different metaphors always resulted in different decisions in the copyrightability and the infringement cases. In 6 cases when judges considered the computer program as a utilitarian work, it was always held that the defendant did not infringe the copyright of the plaintiff's program because it was not a copyrightable work. For example, in Synercom v. University Computing Company, the judge rejected Synercom's argument

that the order and sequence of the data was the expression, not the idea. The judge's rejection was based on its famous analogy of the "figure-H" pattern of an automobile stick, which the court decided was not protected by copyright. Also, in Sega v. Accolade, which involved the plaintiff's computer program for a video entertainment system, the judges in the court of appeals argued that copyright protection differs according to the nature of the work, and that functional and factual aspects receive less protection and computer programs are in essence utilitarian articles.

All the other arguments that used a literary work, artistic work, and pictorial, graphic, and sculptural work as a metaphor for computer programs, resulted in the decision that the work was copyrightable and/or the defendants did infringe on the plaintiffs' copyright. In Midway v. Artic, Midway argued that its 'PacMan' games are copyrightable as an audiovisual work while Artic argued that the 'PacMan' on the ROM and the 'PacMan' games themselves are utilitarian objects. The judge rejected Artic's argument and decided that Artic infringed Midway's copyright. Also in Johnson v. Uniden, the defendant argued that the plaintiff's computer code is not copyrightable because a computer program is a "useful" as opposed to a literary work. But the judge held that a computer program is a "literary" work, thus the "useful work" doctrine is not applicable in the case.

In addition, the cases that considered videogames as an audiovisual work held that the displays of videogames are copyrightable as an audiovisual work, regardless of the requirement of the fixation, communication, or originality (Atari v. Amusement; Midway v. Dirkschneider; Stern v. Kaufman; Midway v. Artic; M. Kramer v. Andrews; Red-Baron v. Taito, appeals). Regarding videogame programs and their audiovisual displays that were a new subject for copyright, the arguments and decisions that employed

the notion of an audiovisual work firmly established the structural rule that videogames are copyrightable as a subject matter and that the other requirements for copyright do not have to be strictly applied for videogames. Consequently, the scope of copyright protection for videogames became even broader than that for other computer programs.

The judges' use of metaphor was found to be a decisive factor in decision making. However, it is not clear how the judges determine which metaphor to accept or reject when they face opposing metaphors argued by different parties. When the judges accept or reject that parties' arguments, they tended not to provide any basis or rationale for why they consider a program in a different way. Further, it was found that the nature of the plaintiffs or defendants (whether they were developers or non-developers) or the topic of the case (copyrightability or infringement) does not have any significant relationship to the metaphor used by the judges or to whether the judge accepted or rejected the parties' arguments. In order to identify how the metaphor arguments may operate, the frames regarding the authorship, the work and the use that are implied in some cases are examined.

Although the metaphor arguments were made in 9 copyrightability cases and 17 infringement cases, the basis for the decisions was on whether the plaintiffs' computer programs were copyrightable or whether their elements were a copyrightable expression in the first place, even in the infringement cases. Thus, the metaphor arguments basically focused on the nature of work, more likely on the plaintiff's work. But in some cases there was a difference in the implicit notions of authorship, work, and use. The interaction between the concepts of authorship, work, and use implied in the metaphor arguments is apparent in some cases.

When the judges considered the computer program a literary work or artistic work, the metaphor arguments tended to imply a process of creation. For example, in Broderbund v. Unison, Unison argued that the plaintiff's program 'The Print Shop' does not fall within the definition of "pictorial" or "graphic" works, since the program has mechanical or utilitarian features rather than the artistic aspects which are protected. The judge argued that the structure, sequence, and layout of the audiovisual displays of the plaintiff's work are dictated primarily by "artistic considerations" and not by utilitarian ones, so it is protected by copyright. Also in Digital v. Softklon, the judge argued that the status screen, as a literary work, meets the requirement of an original work. The defendant in M. Kramer v. Andrews argued that the plaintiff's work is invalid because the work lacks originality, but the judges argued that the standard for originality is minimal, and artistic skill is not required where the work is audiovisual work. The judge followed the structural rule in copyright law that the originality standard is minimal. Consequently, his arguments expanded the scope of copyright.

Therefore, when the computer program was considered a utilitarian work, the argument focused on the nature of the work itself, isolated from the process of development or creation. However, when the program was viewed as a literary work, the arguments usually mentioned authorship, originality, or the process of software creation. It seems that when the work is considered an artistic or literary work, it becomes more persuasive and convincing that the author of the work should be compensated. But when the work is considered useful and mechanical, the focus of the argument becomes detached from the consideration of authorship. Thus it becomes easier to argue against providing copyright protection, of which primary concern in the court seems to be rewarding the authors.

On the other hand, some cases that involve an alleged infringement of a videogame copyright, arguments that used the metaphor of an audiovisual work included the ones that responded to the defendant's arguments regarding the use of the program. In Atari v. North American, the defendant and the district judge mentioned extensively the defendant's "effort to avoid infringement" and decided that North American did not infringe on the copyright of Atari's 'PacMan' video game programs. The judge in the court of appeals, however, viewed North American's effort to avoid copying as an attempt to disguise an intentional appropriation of Atari's game, and instead argued that games can be copyrighted as pictorial or graphic works and the repetitive sequence of a game is considered copyrightable as an audiovisual work. The case was reversed and decided that North American infringed on Atari's copyright. The shift of the focus from the defendant's use to the nature of the plaintiff's work resulted in a decision that found an infringement.

In conclusion, in many of the arguments that used metaphor, the critical distinction lies in the distinction between work and authorship. The arguments and decisions regarding the metaphor have firmly established the copyrightability of computer programs and audiovisual displays of videogames, by focusing on the frame of the plaintiff's work. The only cases in which the copyrightability was denied, were when the judges viewed the computer program as a utilitarian work. The metaphor of a utilitarian work was presented as an alternative to considering the computer software as a literary work or artistic work, which inevitably relates to the notion of authorship and creativity. Metaphors in copyrightability arguments tend to reflect the tension between the developers of the original program and the defendants who may benefit by isolating the author from the work. The

audiovisual work is presented as a work of authorship that is protected by copyright, regardless of the degree of originality or fixation. Also the minimal requirement of the originality test was applied and reinforced here.

Therefore, metaphors in some of the infringement arguments reflect the tension between the defendants who try to use the plaintiffs' programs and the plaintiffs who are often not developers themselves and try to focus the argument on the notion of work that is isolated from the notion of use.

Ownership/Authorship Disputes

17 of the judges' arguments in 13 cases were made in the context of deciding the rightful author of the computer program when it was not clear who developed (or co-developed) the program, or in the context of deciding who owns the copyright of the program. Naturally, all the arguments in the authorship/ownership cases used the frame of authorship. None of the arguments used the frame of work or use. The analysis of the frame of authorship in copyrightability cases demonstrated that the individual creation is emphasized while the originality requirement in general is minimized. The analysis of the arguments in the authorship/ownership dispute which consist of the work-for-hire doctrine and the joint authorship issue illustrates another dimension regarding how the authorship construct transforms itself in copyright law.

In most of the cases (10), both the plaintiffs and the defendants were somehow engaged in the development of a computer program, and the judges used the work-for-hire doctrine in deciding who was the rightful author. In one case, the defendant was not engaged in any kind of developing activity but questioned the plaintiff's authorship of the program. 2 cases

decided whether the plaintiff and the defendant were joint authors of the program. These authorship/ownership dispute cases began to appear relatively recently. 9 of the 13 cases were held in the 1990's.

The 2 cases regarding joint authorship are actually the same case held in the district court and the court of appeals. Although the primary frame in the arguments was that of authorship, the frame of work was combined as the theory of idea versus expression was used. In Ashton-Tate v. Ross, Ashton-Tate received a list of user commands for the program 'MacCalc' that Ross was developing, and created a similar program 'Full Impact.' Ross claimed a joint authorship in 'Full Impact' but the judges shifted the focus of the arguments to the nature of the work by asking whether Ross' contribution in terms of the list of commands was an idea or an expression. The judges argued that the defendant's contribution is considered only ideas, because it's nothing "innovative" or "novel." Consequently, the judges applied a different level of the authorship requirement to the defendants, as compared to the very minimal requirement for the plaintiff's authorship, by shifting the focus of arguments from the defendant's authorship to the nature of the plaintiff's work.

In Nintendo v. Elcon, the defendant who did not participate in the development of the plaintiff's video game questioned the validity of the plaintiff's authorship, arguing that the plaintiff itself did not develop the program but hired someone else. The judge responded that according to the work-for-hire doctrine, the plaintiff's copyright is valid because Nintendo was an employer of the person who developed this program while the person who developed the program was merely a "technical assistant."

In all the other work-for-hire cases, both parties were involved with the development process of the program in some way. A critical question

posed in all of the work-for-hire cases is whether one party was an employee of the other party or not, because most judges follow the rule in 17 U.S.C. §101(1), which was again established in Community v. Reid. Reid discussed the presumption that the one who creates the work is the owner for copyright purposes, and argued that this presumption may be overcome if the work is made for hire. In order to decide if the work is made for hire, Reid applied a 2 step analysis to determine: 1) if the creator is a true employee of the employer or merely an independent contractor; and 2) if the product was prepared within the scope of the employment. And the product is within the scope of the employment if: 1) it is of the kind he is employed to perform; 2) it occurs substantially within the authorized time and space limits; and 3) it is actuated by a purpose to serve the master.

Therefore, on the one hand, the work-for-hire doctrine alienates the work from the author by taking rights from the author and granting them to the employer, and it can be considered an indication that the authors' rights began to be deprived of, as some scholars argued. On the other hand, the authorship construct which was developed in the earlier copyrightability cases seems to remain in the work-for-hire doctrine. The importance given to the "independent creation" in the authorship construct of copyrightability arguments is also found in this work-for-hire doctrine, in that the important premise to be an author of the work one creates is to be an "independent contractor" rather than an employee. Among the multi-dimensional factors to take into account, the judges weigh different factors and questions in a different way in the work-for-hire cases. The analysis of these arguments reveals how the individual Romantic vision of authorship still remains central, but in a somewhat distorted way, in work-for-hire cases.

The question regarding whether the developer was an employee appeared in every case. In some cases, especially in earlier cases, the only question was whether the developer was an employee. Once the judge decided on that matter, the question of who the author is was automatically decided. In BPI v. Leith, judgment was made for the developer of the program when the judge held that he was not an employee of BPI. Graham v. James was decided against the developer of the program when the judge held that James was an employee of Graham. Also, Aymes v. Bonelli was decided for the developer of the program in the district court and then decided against the developer of the program in the court of appeals, purely on the basis of the judges' different interpretation and application of the Reid's test of the "hire" and "employment" concept.

Later cases tend to introduce other factors with the discussion of the matter of employment. There are some cases where, despite a finding that the developer was an employee, the other factors played a larger role and the decision was made differently. For example, in Avtec v. Peiffer, the court admitted that Peiffer was an employee, but it still decided that he was the rightful owner of the program because he did not prepare the product within the authorized time and space limits but developed the program during his non-working hours and did not create it for Avtec. In addition, in Kelstall-Whitney v. Mahar, the court found that Mahar was an employee. But when Mahar argued that he developed the program on his own time "independently," the court accepted the argument and held that it was Mahar who had the "initial idea," wrote the source code, after working hours, and with no wage compensation.

In other cases, the other factors work complementary to the notion of employment. For example, in Mercer v. MacLean, when the court of appeals

considered the factors in Reid and decided that Mercer-MacLean was not in a master-servant relationship to constitute employment because he wrote the program after he left Mercer, the court reversed the district court's holding and decided MacLean may be the author of the program. At the same time, the court of appeals also pointed out that MacLean had the required "skill and creativity" to develop the program. Another clear example suggesting that "independent creativity" was considered important is Whelan v. Jaslaw. When Jaslaw sought co-authorship with Whelan who developed a dental lab program for Jaslaw, the court held that the work-for-hire doctrine was not applicable because Whelan was an "independent contractor." At the same time, the judge noted that Whelan alone was the author because her "expertise" and "creativity" designed the methods, while Jaslaw explained to Whelan only the "functions" to be performed by computer.

The analysis of the arguments in authorship/ownership dispute cases keenly reveals how the notion of authorship interacts with the notion of the work in copyright arguments. The work-for-hire doctrine provides a place in which the alienation of the author from the work occurs, and the ownership rights are transferred from developers to employers, in that the "author" of the "work" is the person on whose behalf the "work" was made, not the individual who created it. The work-for-hire thus provides a rare opportunity for the parties who are not developers to possibly prevail in authorship cases. At the same time, the notion of "employment" which is critical in deciding the applicability of the "work-for-hire" doctrine is contrasted with the notion of "independent contractorship," suggesting that the activity of "independent" creation is considered important. In addition, the values that are constantly emphasized in conjunction with the employment arguments are "skill and creativity," "expertise," "creativity,"

and even "ideas," all of which are rooted in the Romantic vision of the author-genius. Therefore, while the author is being alienated from the work when a work is deemed to have been made "for-hire," the individualistic Romantic notion of the authorship seems to be still central to the conceptualization of the authorship-ownership disputes.

Moreover, even when the "employer" was considered the author of the program, the values of creative "ideas" or "inspirations" as opposed to "labor" were emphasized. For example, in Aymes v. Bonneli, the judge argued that because Aymes performed work under "supervision and direction" of Bonneli, the work belonged to Bonneli even if Aymes had not been an employee. In this way, the employers' claims are ironically rationalized in terms of the Romantic conception of "authorship" with its concomitant values of "creativity" and "inspiration," as Jaszi (1991) pointed out.

Infringement Cases (Ownership and Copying)

186 arguments were made in infringement cases, which comprise the arguments made most frequently in the data, and these arguments tended to increase over time. In the first time period, the infringement arguments were 61% of the total arguments (42 arguments), 72% in the third period (49 arguments) and 89% in the fourth period (70 arguments). In the second period, however, the infringement arguments slightly decreased to 56% (25 arguments) while the copyrightability arguments slightly increased from the first period. This is because the second period was when the copyrightability of new subject matters such as videogame programs and their audiovisual displays were being decided. The arguments in the infringement cases were

more likely to be made in favor of broadening the scope of copyright rather than limiting (69% for broadening and 31% for limiting), but the discrepancy was smaller than in the copyrightability cases (90% for broadening and 10% for limiting).

In infringement cases, the frame of "use" is introduced and interacts with the frame of authorship and that of work. Except for one argument, all the arguments that used the frame of use were made in infringement cases, including the nature of the defendant's use of the plaintiff's program, public use/benefit, and market consequences. The most frequently used frame in infringement arguments was the frame of work that was used 60% of the time, followed by the frame of use (30%) and the frame of authorship (10%). In copyrightability cases, the frame of work was used 86% of the time, and the frame of authorship was used for 12% of the time. Also, many of the arguments in infringement cases began to focus on the defendant's work, the defendant's authorship, and the defendant's use (44% of the arguments) in infringement cases, while none of the copyrightability arguments focused on the defendants.

The arguments in infringement cases can be categorized into 4 major issues upon which infringement decisions are based: 1) ownership of a valid copyright, 2) copying – substantial similarity), 3) copying – copyrightable expression as a scope of copying, and 4) copying that constitutes infringement. In order to find an infringement, courts usually require the plaintiff to show ownership and copying: that the plaintiff has a valid copyright for the program in dispute, and that the defendant copied the plaintiff's program. Acknowledging the difficulty of showing direct copying, courts note that copying can be inferred from access and substantial similarity: that the defendant had access to the plaintiff's program, and the two programs are

substantially similar. The access was in dispute in only one case in the copyright cases regarding computer software. Once it is decided that copying did occur, the court can also consider whether the material copied was the copyrightable expression or the unprotected idea. In addition, the court can consider whether the defendant's copying constitutes an infringement or a legitimate use.

Among the 186 arguments in infringement cases, the arguments made most were made in the context of infringing use (72), followed by substantial similarity (54), copyrightable expression (39), and ownership of a valid copyright (21). The arguments regarding the copying as infringement were a steady majority of the arguments most of the time (36%, 32%, 47%, and 43% of the arguments in each time period), although arguments regarding the substantial similarity were the majority in the second time period (52%). The arguments regarding copyrightable expression also greatly increased in the fourth period (6% to 33%), while the arguments in substantial similarity decreased over time (33% and 19% in the third and fourth periods).

The judges were most likely to argue in favor of broadening the scope of copyright (95% of the time) when the arguments were made in the context of the validity of a copyright ownership), followed by the context of copying as infringement (72%), copyrightable expression (67%), and substantial similarity (54%). All the arguments that were made regarding the validity of copyright ownership, except for one, were in favor of deciding that the copyright is valid.

Also, some differences are found in the use of frames according to these issues. The arguments regarding the copying of the substantial similarity, copyrightable expression, and valid ownership of copyright used the frame of work most frequently (91%, 87%, and 62% of the arguments

respectively), whereas the arguments regarding the copying as infringement used the frame of use most frequently (75%). Except for 2 arguments, all the 57 arguments that used the frame of use were made in the context of copying as infringement. The detailed analysis of the use of frames, legal theories, and interpretations in legal arguments according to each issue is presented as follows.

Valid Ownership

The detailed analysis begins with the 21 arguments in relation to whether the plaintiff has a valid ownership of the program. Basically, these arguments have similar characteristics with the arguments in copyrightability cases, but they do not lead to a separate decision on copyrightability, but are placed in the context of defining the validity of a copyright as a pre-requisite to find an infringement. As in the copyrightability cases, the arguments on the validity of ownership tend to use the frame of work most often (13 out of 21 arguments), and most of them (12 out of 13 arguments) were about the plaintiff's work rather than the defendant's work. Only one of the judges' arguments refuted the validity of the plaintiff's copyright, even in the 3 cases where the defendants were not found to have infringed on the copyright.

Only 2 arguments used the frame of use. The defendants of the two cases in the fourth period challenged the validity of the plaintiffs' ownership using the frame of public interest/benefit (Gates Rubber v. Bando; PRC v. National Association of Realtors). Both of these arguments relying on the doctrine of publication were rejected by the judges.

The frame of authorship was used in 6 arguments, 4 of which were on the plaintiff's authorship and 2 on the defendant's joint-authorship claim.

As demonstrated in the analysis of the arguments in authorship/ownership dispute cases, the notion of authorship was constructed differently when it was applied to the defendants than to the plaintiffs.

In all of the 4 arguments that used the frame of the plaintiff's authorship, the defendants challenged the validity of the plaintiffs' copyright based on the lack of originality. The judges rejected all of them by shifting the focus of arguments from the authorship to the nature of work, or applying the minimal requirement of authorship that had been established. For example, the defendants in Stern v. Kaufman made an argument in relation to the issue of the distinction between the program and the audiovisual display, arguing that Stern's videogame display is not an original work because Stern registered the audiovisual material, but not the underlying computer program. The judge, shifting the focus of the argument from the issue of originality to the nature of the work, held that copyright protection extends to an audiovisual work and the plaintiff's game is a copyrightable subject matter as an audiovisual work. The judge in Johnson Controls v. Phoenix explicitly stated that the standard of originality required for a copyright is minimal, rejecting the defendant's challenge against the validity of copyright in the plaintiff's program. Dynamic Solutions v. Planning & Control also held that the plaintiff's program is original, because the plaintiff's "contribution" is substantial. The judge in Allen-Myland v. IBM claimed that the plaintiff's work can be considered original if the work is viewed as a whole.

The judges relied on Whelan v. Jaslaw in rejecting 2 joint authorship arguments made by the defendants, arguing that the defendant's "contribution" was not sufficient, and that the defendant was only a supplier of "ideas" who did not translate the work in a tangible medium of expression

(Softel v. Dragon; S.O.S. v. Payday). As in the authorship/ownership dispute cases, the defendant's joint authorship arguments never received the benefit of the "minimal" requirement of originality that was usually applied to the plaintiffs. In addition, in S.O.S. v. Payday, the judge again shifted the focus of argument from the authorship to the work itself by introducing the idea versus expression theory to determine the authorship. Contrary to the work-for-hire cases in which an employer as a supplier of ideas and supervision was deemed an author, this case alienated the defendant's authorship from the defendant's work by using the idea versus expression theory.

Similar to the copyrightability arguments, most of the arguments (12 out of 13) regarding the frame of work were made by the defendants who tried to challenge the validity of the plaintiffs' copyright, usually using the idea versus expression dichotomy (7 arguments) or the fixation/communication requirement (3 arguments). The judges rejected all but one of the defendants' arguments.

Therefore, the analysis of the arguments regarding the validity of the ownership of copyright in infringement cases reveal that no matter what kind of frame or theory was used in the defendants' arguments, judges tended not to refute the plaintiff's copyright ownership as invalid. When the frame of authorship was used, the requirement of the authorship changed depending on the prospective author in terms of the defendant or the plaintiff. And when the frame of work was used, the computer software was simply considered a copyrightable subject matter. Even when the case did not find an infringement eventually, it was on the ground of other issues such as substantial similarity or copyrightable expression. It seems that through the arguments and decisions of the copyrightability cases, the minimal standard of originality required for the plaintiff and the copyrightability of computer

software as a subject matter had been solidly established as important structural rules of copyright cases regarding computer software. Furthermore, these established structural rules seem to have constrained future arguments as shown by the decrease of the copyrightability arguments in copyrightability cases and in the issue of the validity of ownership.

Substantial Similarity

As discussed above, copying can be inferred by showing access and substantial similarity in the infringement cases. Since the access was in dispute only once, the substantial similarity becomes a critical question to be answered in finding an infringement.

The frame of work was constantly used in similarity arguments to compare the characteristics of the two programs. 49 (91%) out of 54 arguments used the frame of work and 5 arguments used the frame of authorship. The arguments using the frame of work in the cases focused on the nature of the defendant's work rather than the plaintiff's work except for one argument. All of the arguments that used the frame of authorship were about the defendant's authorship rather than the plaintiff's authorship. None of the arguments used the frame of use.

While most of the arguments using the frame of the defendant's authorship (4 out of 5) were in favor of deciding that copying did not occur, arguments using the frame of the work were evenly distributed. 20 (41%) arguments found that there was copying, and 23 (57%) arguments did not finding that there was copying.

When the defendants were not developers of any of the programs, they never used the frame of authorship. But when the defendants were

developers, they were able to use the frame of authorship as well as that of work. Interestingly, when the party who was making any kind of argument was a non-developer whether she was a plaintiff or a defendant, judges never explicitly accepted her arguments. It seems that being a developer of any computer programs rather than being only copyright holders or retailers becomes an important resource in making copyright arguments.

In 4 of the 5 arguments that used the frame of authorship, judges rejected the plaintiff's argument that the defendant's work is substantially similar to their program by shifting the focus from the work to the skills and expertise of the defendants. Whenever the judge focused on the defendant's developing activities, the judge decided that the defendant did not copy the program. For example, in Plains Cotton v. Goodpasture where Plains Cotton argued that they had an evidence of similarity between the two programs, the judge changed the focus of argument toward the defendant's "experience and knowledge" and held that the defendant did not copy. Therefore, when the judges decided to use the frame of authorship instead of the frame of work in order to find substantial similarity, it usually worked in favor of the defendant whose creativeness was considered in the arguments. The judge's arguments in NEC v. Intel also clearly illustrates how the defendant's knowledge and skill was emphasized. When Intel argued that there was copying, the judge stated that the developer of the NEC's program does have the "expertise and talent," as opposed to Intel's argument that he was inexperienced. The judge also mentioned that the program had been "independently created," and thus it was not copying. Responding to the similarity argument of the plaintiff, the judge in Micro Consulting v. Zubeldia also emphasized that just being "created independently" by the author meets the originality requirement. The judge in Integral v. Peoplesoft

also decided in favor of the defendant when the defendant argued that its employees had the necessary "skills, knowledge, and experience" to develop the program "independently."

In the remaining one argument that used the frame of authorship, while the defendant used the concept of the "laborious and expensive process," the plaintiff used the concept of "independent creation," arguing that the defendant could not have independently created its program without consulting the plaintiff's program, which the plaintiff admitted was true (Lasercomb v. Holiday). As expected, the court chose the plaintiff's view which had been accepted by the courts.

Therefore, when the focus of argument in similarity cases was shifted from work to authorship, and the authorship frame involved the defendant's "expertise and knowledge" and "independent creation," the arguments were made in favor of the defendants. But earlier, it was demonstrated that in the case of other issues, the frame of authorship was applied differently to the plaintiffs and to the defendants: the minimalistic view of the originality was not applied to the defendants, but instead a higher standard was considered. The critical difference between the authorship arguments in the similarity issue and those in the other issues was that all of the defendants in substantial similarity cases were developers themselves. It is suggested that the concept of "independent creation" and "expertise" have become important structural rules in the copyright cases that constrain the legal actors' arguments but also enable some parties who have traditionally been in a disadvantaged position, when they have and employ their resources effectively in making arguments, i.e., by being developers themselves and being perceived as independent creators by the judges. In the process of these

actors' interactions through the use of the structural rules and resources, the possibility of a structural change was found.

The majority of the arguments in similarity cases used the frame of work. Various tests were conducted to determine similarities and differences between the characteristics of the two programs. In earlier cases, courts tended to ask if the similarity in the specific and overall appearances can be determined by a "reasonable lay observer" (Midway v. Dirkschneider; Atari v. North American; Nintendo v. Bay Coin; and later Soft Computer v. Lalehzarzadeh; NEC v. Intel; Accolade v. Distinctive). In the first 4 cases employing this "reasonable observer test" or "intrinsic test," the courts found that there were substantial similarities.

However, this lay observer test began to be criticized by other courts in that it captures the "total concept and feel" that was not supposed to be protected in copyright law. In Micro Consulting v. Zubeldia as well as in Autoskill v. National Education, the plaintiff claimed that "total concept and feel" is similar between the programs, so an intrinsic test should be applied. But the judge argued that the test of total concept and feel had been widely criticized as it was geared toward simplistic works, thus served no purpose in the realm of computers, where expert testimony was needed. The judge used instead a "laundry list" of specific differences suggested by the defendants as an extrinsic test. Also, the judges in the court of appeals in Computer Associates v. Altai argued that due to the nature of computer programs which are impenetrable by lay observers, the "reasonable person" doctrine employed in other areas of copyright law should not be so much observed in software copyright cases, and that the use of expert evidence was warranted. There were some courts that still used the lay observer test, but the last 3 cases that used this test found that the two programs were not substantially similar.

Therefore, the courts constantly emphasized the importance of the expert testimony over the lay observer test in software copyright cases (Midway v. Bandai; Computer v. Altai). More courts began to use the "extrinsic" test, that involves expert testimony, analytic dissection and detailed analysis of the two programs (Pearl v. Competition; Midway v. Strohon; Telemarketing v. Symantec; Micro v. Zubeldia). Although some courts used both extrinsic and intrinsic tests as a 2-step test (Broderbund v. Pixelliite; Digital v. Softklone; Manufacturers v. CAMS; Integral v. Duffield), even the courts that considered both tests tended to rely on the expert testimony in deciding the issue, explicitly giving a greater weight to the extrinsic prong of the 2-step test (Gates Rubber v. Bando). Moreover, some judges transformed the concept of a reasonable person into someone who has expertise in computer programs (Integral v. Duffield; Atari v. Nintendo). In Integral v. Duffield, the judge stated that a "reasonable person" is defined as a reasonable person in the intended audience, and in this case the person would be with some knowledge of human resource management systems (the software system of dispute in the case). The judges in Atari v. Nintendo also stated that in the context of computer software, the "ordinary reasonable person" is a computer programmer. Consequently, more and more of the plaintiffs and defendants tried to use expert testimony. Moreover, when the experts of the two parties presented different views, the judges often decided whose testimony was more credible on the basis of the background and expertise of each expert, rather than creating an objective way to evaluate the testimony (NEC v. Intel; Plains Cotton v. Goodpasture; Integral v. Duffield; Autoskill v. National Education; Yamate v. Sugerman).

In this process, the importance given to the expertise and skills in the authorship arguments was found even in the arguments that used the frame

of work in the area of similarity tests. The analysis of the similarity tests shows that computer programs were differentiated from other works of authorship, unlike in copyrightability arguments where computer programs were constantly analogized to other works of authorship such as literary work, artistic work, or audiovisual work. By pointing out that these are copyright cases relating to the realm of computer programs, not to other traditional works of authorship, judges tried to use a different test (extrinsic test rather than intrinsic test) and/or to use the same test but placed a totally different meaning on it (computer expert as an ordinary lay observer).

The values of scientific expertise and skills were constantly emphasized and reinforced by the copyright cases regarding the protection of computer software, which at first rejected the relevance of a lay observer test but adopted analytic dissection and expert testimony, and then decided the credibility of the testimonies based on the scientific background of the testifier rather than the testimony itself. The use of expert testimony and analytic analysis became an important structural rule in the copyright arguments and decisions regarding computer programs. The value of artistic creativity that has been emphasized and reinforced in other areas of copyright law was transformed into that of "scientific expertise and knowledge" in software copyright cases.

The similarity tests themselves did not determine whether the judges would find a similarity when the tests were applied without having any relation to other legal theories, even though the judges were slightly more likely to find a similarity than not (found a similarity in 13 out of 19 arguments). In general, the chances of finding a similarity were quite evenly distributed: 54% of the arguments found a similarity and 46 % did not. However, when the theory of idea versus expression was introduced in

analytic dissection to determine similarities, the arguments tended to limit the scope of copyright. More often than not (13 out of 19 arguments), arguments that used the theory of idea versus expression did not find that the two programs were similar.

One of the most important rules in copyright law is that only the expression, but not ideas, is protected against copying. The idea versus expression doctrine has some corollaries such as merger doctrine, limited ways, scenes a faire. Merger means that there is practically only one way to express an idea, thus if the idea is indistinguishable or inseparable from, or limited by its expression, copying the expression will not be barred. Scènes á faire is a doctrine that allows the use of the expression when using that expression is inevitable as an ordinary, stereotyped, industrial standard.

It was found that if the relevance of this doctrine was admitted, it became one of the most important exceptions of deciding whether there was copying. Except for the 3 arguments in which the relevance of the idea versus expression theory was rejected, all of the remaining 16 arguments that used the idea versus expression doctrine in the context of the similarity issue were made against deciding that the defendant copied the plaintiff's work. For example, in Frybarger v. IBM, the court decided that similarities between the two programs are confined to ideas and concepts, so they are non-infringing. Also in Micro v. Zubildia, no substantial similarity was found between the programs at the level of protected expression. A few examples of arguments using the merger doctrine or scenes a faire are presented here. Atari v. Amusement decided that Amusement did not infringe on Atari's copyright because, given the requirements of the idea of a game, most of the similarities between Atari's videogame 'Asteroids' and Amusement's videogame 'Meteors' are inevitable. This case influenced Frybarger v. IBM, where the

judge held that IBM did not infringe on Frybarger because when idea and expression are inseparable, only virtually identical copying is barred. Data East v. Epyx also held that the elements of similarities between the two videogames necessarily follow from the idea of a karate game, or inseparable from, indispensable to, or standard treatment of, the idea of the karate, so they are not protectable. NEC v. Intel held that if the underlying ideas of the similar routines found are capable of only a limited range of expression, they may be protected only against virtually identical copying, which the defendant's program does not have. Finally, Integral v. Peoplesoft found that the similarity of system modules compares functions, not expressions, thus cannot be the evidence of copying.

The analysis of the arguments that used the frame of work shows that when the arguments centered around the comparison between a work and a work, when the Romantic notion of authorship was severed from the notion of work, the defendants were able to use the structural rule in a more equal footing. Using the idea versus expression theory in the context of comparing the similarities of the two works, as opposed to in the context of determining the copyrightability of the plaintiff's work, the defendants gained a more solid ground to compete with the plaintiffs.

This result suggests that the same frame of work that invariably favored the plaintiffs in copyrightability or valid ownership arguments was somehow used in a different way in similarity arguments. That is, the frame of work in similarity arguments encompassed both the defendant's work and the plaintiff's work, thus changed the focus of the argument from the plaintiff to the defendant. As a result, when the defendants who are themselves developers of programs and videogames could effectively use the frame of work on their behalf, they have transformed the meaning of the

"work of authorship" protected in copyright to the one that includes the work created by the defendants.

In conclusion, differing from the arguments regarding copyrightability or the validity of the ownership of copyright, which invariably favored the plaintiffs, arguments regarding the similarity issue gave the plaintiffs merely a slightly greater chance to prevail on the merits. Many of the defendants could employ their resources of being developers in their use of frames (of authorship and of work), and transformed the frame of authorship to emphasize scientific expertise and knowledge and the frame of work as encompassing the work created by defendants as well. This is a process by which structural rules were transformed by the legal actors' use of rules and resources.

Copyrightable Expression

When arguments using the idea versus expression dichotomy were placed in the context of similarity arguments, the question was whether the "similarities" were the expression or the idea. The idea versus expression theory can also be applied to arguments in the context of copyrightable expression in infringement cases. In that case, the question becomes whether the "plaintiff's work" was copyrightable expression. Thus, the issue of copyrightability of the plaintiff's computer program was considered in conjunction with the similarity test in many courts, especially in later cases. Among the 39 arguments that dealt with the issue of copyrightability of the plaintiff's programs in relation to similarity arguments in infringement cases, 26 (67%) arguments were made in the fourth time period.

Various tests were used to determine the copyrightable expression in infringement cases. The most frequently used tests were the "Whelan test" and the "abstraction-filtration-comparison" test used by Judge Learned Hand in Nichols v. Universal. The Whelan test comes from a holding of Whelan v. Jaslaw that the purpose and function of the utilitarian work is a part of ideas and everything else is the expression. Judge Hand's 3 step test involves conducting an analytic dissection (as in the extrinsic test), removing elements of ideas from those of expression, and then comparing the plaintiff's expression and the defendant's expression. The first 2 steps involve the nature of the plaintiff's work while the last step involves the similarity between the two works. Some courts used only a portion of the test. Courts have used different combinations of different tests, but they can be divided into the test of the similarity that involves the nature of the two works and the test of the copyrightable expression that involves the nature of the plaintiff's work. It depends on the court whether it will consider the copyrightable expression requirement, and if it does, whether the copyrightability test is conducted before or after the similarity test.

34 (87%) of the 39 arguments used the frame of work and 5 used the frame of authorship. Most (32 out of 34) of the arguments that used the frame of work focused on the plaintiff's work. Arguments that used the frame of work in the copyrightable expression issue were more likely to decide that the plaintiff's program was copyrightable expression than it was not copyrightable expression (13 cases versus 6 cases).

By considering the issue of copyrightable expression in infringement cases, the arguments regarding the issue of copying were turned into the arguments regarding copyrightability. Consequently, the arguments related to the issue of copyrightable expression in the infringement cases show a

striking similarity with the arguments made in the copyrightability cases in terms of the use of the frame, theories, and structural rules derived from the arguments and decisions. For example, in Atari v. North American (appeals), the judges argued that the repetitive sequence of a game is considered copyrightable as an audiovisual work and held that the plaintiff's work was copyrightable expression by applying the abstraction test. Other cases also employed the traditional copyrightability arguments such as that ROMs are copyrightable (Midway v. Strohon), that the program is a "literary" work that is copyrightable (Johnson v. Uniden), that the program can be copyrighted as an audiovisual work or a literary work (Whelan v. Jaslaw), etc.

In some cases where the courts decide that the plaintiff's work is not copyrightable expression, it was usually when the defendants used the merger doctrine or functionality theory that is related to the idea versus expression dichotomy (Computer v. Altai). For example, the judge in Williams v. Bally held that many elements of the plaintiff's game are not protected because they are utilitarian, and once these elements are put to aside, relatively little remains to be determined for substantial similarity.

Another similarity between the copyrightable expression arguments and the copyrightability arguments lies in that the nature of the actors does not seem to make any difference in whether the judge will decide that the work is copyrightable or not. Regardless of whether the plaintiffs were developers or not, the judges were more likely to decide that the work was copyrightable. The nature of the defendants did not make a difference, either. Whether the defendants were developers or non-developers, the judges were always more likely to decide that the plaintiff's work was copyrightable expression.

The ways in which the frame of work was used in the arguments regarding the copyrightable expression were substantially different from the ways in which that was used in the arguments regarding substantial similarity. In similarity arguments, the focus of the arguments was on the defendant's work and on how similar or different the defendant's work is from the plaintiff's work. On the contrary, in copyrightable expression arguments, the arguments centered around the copyrightability of the plaintiff's work or even the copyrightability of computer programs in general as a subject matter, which had already been decided in copyrightability cases. In this way, the infringement arguments were transformed into the traditional copyrightability arguments and decisions, and copyrightability arguments which generally favored the plaintiffs are being repeated in infringement cases. As a result, arguments that used the frame of work in copyrightable expression issue were twice more likely to be made in favor of the plaintiffs than of the defendants. In this process, the structural changes that occurred in similarity arguments were diminished, and the structural rules regarding the computer software as a subject matter were reinforced.

4 of the 5 arguments that used the frame of authorship found that the plaintiff's work was copyrightable and 1 argument found it was not copyrightable. These arguments were often complementary to arguments using the frame of work by being made in conjunction with them without any further discussion (Stern v. Kaufman; Apple v. Microsoft). 2 of the arguments were about originality of the plaintiff's work. For example, the defendant in Johnson v. Uniden argued that the plaintiff's program is not copyrightable because it was derived in large part from a preexisting material in the public domain, thus Uniden cannot have infringed the Johnson's copyright. But the judge responded that as long as the work contains

originality, the mere fact that it is a derivative work does not bar copyrightability, and stated that the originality test is a modest one, requiring only a "faint trace" of originality. The judge in Lotus v. Borland also stated that the originality requirement is minimal. Even when the focus of the argument was shifted from work to authorship, the focus remained as the "plaintiff's" authorship rather than the defendant's, and the arguments still relied on the established rule that the originality requirement for the developer of the underlying program is minimal.

The analysis of the arguments in the copyrightable expression issue reveals that many of the later infringement arguments were turned into the traditional copyrightability arguments which benefited the plaintiffs even when the plaintiff was not a developer of computer programs, by introducing the requirement of showing copyrightable expression of the plaintiff's work. This result is ironical given that the requirement of the copyrightable expression was at first introduced as a means to prohibit the monopoly of ideas by the plaintiffs. Even though most (87%) of the defendants in these cases were developers, due to the nature of the issue that focused on the copyrightability of the plaintiff's program, their use of the frame was limited. This is an example when the structural environment constrains the actors from fully employing their resources, the actors fail to have the opportunity to make an effective argument and probably change the structural rule in their favor. In this process in which the frame of work and the frame of authorship operated in the same way as they did in copyrightability cases, the structural rules related to the concept of the minimal requirement of originality and to computer software as copyrightable subject matter, were reproduced and reinforced.

Infringing Use

There are 72 arguments regarding the question of whether the plaintiff's copying is legitimate or infringing. As in the copyrightable expression arguments, these arguments imply that the copying did occur or that the question of copying does not matter once it is decided that copying is legitimate. The arguments regarding the infringing copying of the plaintiff's program constitute the majority (72 arguments, 39%) of the infringement arguments, and tended to increase proportionately over time.

The arguments regarding the issue of copying as infringement are the only arguments that employ a variety of frames related to the "use" of the plaintiff's work, including the use by the defendants and by any potential users. The judges used the frame of use most frequently (54 arguments, 75% of the time), followed by the frame of work (16 arguments, 22%) and the frame of authorship (2 arguments, 3%). Among the arguments that used the frame of use, most arguments (36) focused on the defendant's use, followed by the public use and benefit (12). The arguments focused on the consequence on the market or innovation least frequently (6).

When the frame of work was used, judges tended to argue that the copying constitutes infringement (10 of 16 arguments). Among the 16 arguments, 11 focused on the defendant's work and 5 focused on the plaintiff's work. When the focus was on the plaintiff's work, arguments were made in favor of the plaintiffs, but when the focus was on the defendant's work, the arguments were split. Among the 5 arguments that focused on the plaintiff's work, one case was reversed in the court of appeals, one argument was rejected because the defendant simply misunderstood the law, and one case was placed in the context of the fair use, which will be analyzed later. In

the remaining 2 cases, judges held that the copying constitutes infringement. In Data Cash v. JS&A, the plaintiff argued that ROM is a copy, but the judge used the analogy of a piano and argued that ROM is not a copy so there is no infringement. The court of appeals reversed the case and held that there is infringement because ROM is a copy. Since the district case was decided before the rule regarding the copyrightability of ROM was clearly established, the plaintiff in Data Case v. JS&A could not employ the rule on their benefit. But in the court of appeals of Data Case v. JS&A and a later case, Midway v. Artic, the plaintiff and the judge were able to use this rule that ROM is a copy. Also when the defendants in Sega v. Accolade argued that the disassembly of the object code does not constitute infringement because it is necessary in order to gain an understanding of the code, the judges changed the focus of argument and asked instead whether the object code is eligible for the full range of copyright protection. As in most of the copyrightability arguments, the judges held that the object code is copyrightable, thus the defendant infringed the plaintiff's copyright.

When the arguments focused on the defendant's work, the judges were split, but they were still more likely to decide in favor of the plaintiffs: in 7 out of 11 arguments the judges held that the copying was an infringement and in 4 arguments they decided that the copying was not an infringement. Some of the defendants used theories used in the copyrightability arguments such as the idea versus expression, and the judges rejected the arguments (Johnson v. Uniden; Johnson Controls v. Phoenix). In some of the earlier cases judges held that the defendant's work is a derivative work, thus constituting an infringement of the copyright (Midway v. Artic; SAS v. S&H; Forry v. Neundorfer). But in other cases the judges decided that the defendant's work is not a derivative work because they are not substantially

similar (Vault v. Ouaid, appeals) or because they are not fixed in a separate form (Galoob v. Nintendo).

It was found that the nature of the parties did not make a significant difference in the ways in which the arguments that focused on the defendant's work were made. The arguments that used the frame of work tended to be made in favor of the plaintiffs, although when the focus was on the defendant's work instead of the plaintiff's work, the defendants were sometimes able to prevail. All the cases that were decided in favor of the defendants involved the issue of derivative works, in which the separation of the notion of work from the notion of the plaintiff's authorship provides room for the defendants to shift the concern toward their own authorship and their work as a product of independent developing activity.

The frame of the use was employed in 55 arguments in the issue of copying as infringement. Usually the defendant's argument was that their copying of the plaintiff's program was no infringement because the program was used for legitimate reasons. The basis for most of their arguments relate to the theories of fair use and adaptation, which were a product of the recent amendment to the copyright law.

Before the theories of fair use and adaptation became prevalent in software copyright arguments, some parties and judges made arguments in terms of "legal use" or "legitimate purposes," without specific supporting doctrines. All of these arguments were made in favor of the plaintiffs. The first argument regarding the defendant's use was introduced by the judge in Midway v. Artic, when the defendant argued that copies of the plaintiff's circuit boards are not infringement because they are useful devices. The judge pointed out that because the printed circuit boards were not used for "innocent purposes," they constitute infringement. Some of the defendants

in other cases argued that their use was legitimate because its purpose was to achieve compatibility or standardization (Lotus v. Paperback), that their copying should be permissible as "repair" of the patented machines (Allen-Myland v. IBM), and that the reverse engineering and disassembly of the object code is intermediate copying, which is not infringement (Sega v. Accolade). All of these arguments were rejected. Even though Sega v. Accolade was reversed in the court of appeals, the reversal was on the ground of fair use.

The defendant in Atari v. JS&A first made an argument based on the issue of "adaptation" as an exception of infringing use, pursuant to 17 U.S.C. §117, which stated that copying is not an infringement when a new copy is an essential step in the utilization of the computer program and when such a copy is for archival purpose only. The judge was reluctant to accept this argument saying that no other court had interpreted §117, and the legislative history was scant. Interpreting §117 according to a report made by a National Commission on New Technological Uses of Copyrighted Works (hereafter CONTU Reports), the judge held that the archival exception is not applicable because it is to protect the use of a copy specifically against the risk of being destroyed by mechanical or electrical failure. The judge in Micro-Sparc v. Amtype followed this interpretation when the defendant relied on the adaptation doctrine to argue that their service to type the published written programs in magazines and to sell the disks was legal. The defendant used the theory of utilization of the program as well as that of archival copying. The judge responded that Nimmer on Copyright (hereafter Nimmer) and the CONTU Reports strictly limit the exception to "inputting" of the program and its use by the purchase of the program, thus creating and selling disks does not fall into the concept of "utilization." The interpretations of §117 which

resulted in the narrow scope of possible exceptions in these two cases became an established rule in copyright law regarding computer software, which influenced almost all the cases that later relied on this theory (Allen-Myland v. IBM; ISC v. Altech; Cmax v. UCR).

Although the doctrine of adaptation may have been designed to provide exceptions in infringement decisions defending the defendant's use of the program, the relative focus of the above arguments regarding the adaptation was on the nature of the program that need to be loaded into a diskette and are subject to the risk of being destroyed, rather than on the nature of the defendant's use. This may have had a significant influence on the ways in which the arguments were made, because a particular nature of the defendant's use of the program can be argued to have a relationship with the defendant's independent production. In other words, the defendants could have argued that their use of the plaintiff's program did not influence the process of "independent" creation of their own programs. But when the inherent focus of the arguments that used the adaptation theory was placed more in the frame of work than in the frame of the defendant's authorship, the arguments almost always found an infringement, even when the defendant was a developer. In this situation, even the defendants who had the resource of having developed his own program could not benefit from this doctrine.

On the other hand, there were 2 cases that used the doctrine of adaptation and were made in favor of the defendants. One of such cases is surprisingly Vault v. Quaid in which the defendant's program allowed a user to make copies of programs contained in floppy diskettes which had a serious potential of creating a large number of infringing copies. The judges in Vault simply refused to follow the interpretation of the previous cases that adopted

the view of the CONTU Report and Nimmer. They argued that the statutory reading itself does not suggest the narrow conception of the exception, and focused on the fact that the defendant's use of the plaintiff's program did include "non-infringing" use. Thus the judges focused their arguments on the nature of use rather than on the nature of work. The judge in Foresight v. Pfortmiller also refused to follow the narrow interpretation of the previous cases, by arguing that Pfortmiller enhanced the plaintiff's program and used it only in its business and did not sell. Therefore, distinguishing the use of the Pfortmiller from the nature of the defendant's use in other cases, the argument in this case remained focused on the frame of use.

It was found that most of the arguments that used the doctrine of adaptation focused on the nature of the work in the process of interpreting the statute, thus the judges decided that the defendant's copying of the plaintiff's work could not be an exception to finding an infringement. However, when the arguments remained focused on the nature of the use and the defendants were also developers themselves, the judges sometimes decided that the copying did not constitute infringement. It seems that the arguments can be made in favor of the defendants when the defendants effectively employ their resources (being and being perceived as a developer) and the structural rules (valuing the independent creativity of developing computer software), i.e., employ the frame of use in relation to the fame of authorship by arguing how the defendants' program still involves a process of independent creation despite their use of the plaintiff's software.

Scholars have noted that in early cases regarding the adaptations of the works of authorship in other areas of law, the new creator of an unauthorized adaptation was not deemed to be an infringer but regarded as a new author. For example, Kaplan (1967) noted that the infringement problem was being

answered by looking not so much at what the defendant had taken as to what he had added or contributed. But as in other contemporary cases, showing how much of his work he did not pirate does not seem to mean that he did not infringe the copyright in software copyright cases.

The defendants involved in the arguments regarding the issue of copying as infringement invariably focused on the frame of use, and when the frame of use was used, judges tended to argue that the copying constituted infringement (41 of 54 arguments). The defendants including those who were developers themselves were not able to shift the focus of the argument toward the nature of their developing activity. There were only 2 arguments that used the frame of authorship, and these arguments failed to employ the structural rules established in the authorship arguments in copyright law. Arguments using the frame of authorship were made by a plaintiff once and a defendant once. Both of them were rejected because they used the "sweat of the brow" arguments that had been widely criticized in other areas of copyright law. Responding to their arguments that considerable "time, effort, and money" went into developing the program, judges stated that the "sweat of the brow" evidence is not to be considered in a copyright case (Autoskill v. National Education; Sega v. Accolade, appeals). Thus, the actors in these cases failed to use the structural rules on their behalf, even when one of them had the resource to effectively use the rule because the defendant was a firm that developed a program. By explicitly rejecting the value of "labor" and "effort," as opposed to "expertise" and "independent creation," these arguments and decisions seem to have refined and reinforced the existing structural rule regarding authorship.

Fair use is a doctrine that recently began to be used in copyright cases regarding computer software. The first argument was made by a defendant in

a case decided in 1990, and the theory was frequently used each year from then on. Section 106 of the 1976 Copyright Act states that "the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." Four factors are suggested to be considered to determine whether the use made of a work in any particular case is a fair use: the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion used in relation to the copyright work as a whole, and the effect of the use upon the potential market for or value of the copyrighted work. Courts differ in terms of which factors they consider and which factors they weigh heavily. Since these 4 factors involve different frames, the ways in which the courts responded to the arguments that used this theory provide an understanding of the values created, maintained, and reinforced in the copyright arguments and decisions regarding computer software.

There are 9 cases in which the theory of fair use was applied and discussed, one of which was reversed in the court of appeals. Only 2 cases decided that the defendant's use of the plaintiff's program was a fair use. Most of the cases considered all the 4 factors and weighed each factor as the same. For example, in Cable/Home v. Network, the judges held that the defendant's device to de-scramble the plaintiff's program was made for commercial use, that the plaintiff's program was copyrighted, that a qualitative evaluation indicated the two programs were substantially similar, and that the defendant's device had a negative effect on the plaintiff's market.

The fair use arguments in Allen-Myland v. IBM and Kepner-Tregoe v. Leadership were also similar.

The court of appeals in Atari v. Nintendo was the only court that did not explicitly mention the 4 factors. But the court implicitly focused on the first factor by saying that the reverse engineering is not a fair use because its use was beyond understanding and distinguishing unprotected ideas but the use included commercially appropriating the program. In the cases that did not find a fair use, while the issue of commercial use was present in every case, the factor of the market effect was often considered the least important. For example, in Lotus v. Borland, all the other 3 factors were considered and decided in favor of the plaintiff. But the effect on the market was argued that it can be presumed by a commercial use, thus a likelihood of negative effect on the market is enough to decide that it was not a fair use. In Softel v. Dragon, 2 factors were found to work in favor of the plaintiff and 2 factors were found to work in favor of the defendant. The judge argued that the purpose was solely for profit and the portion used by the defendant was qualitatively substantial, which worked against finding a fair use. But it was found that the work is a utilitarian, functional, and factual work and that there was no evidence that the defendant's use would affect the potential market, both of which worked in favor of finding a fair use. Then the judge decided against finding a fair use based on a "good faith" concern.

On the other hand, courts that found a fair use emphasized the importance of the effect on the market while considering the purpose of use and the amount of copying less importantly. For example, Galoob v. Nintendo held that the effect on the market is the single most important factor while the court held that the defendant's videogame accessory was made for a family's non-commercial home use (focusing on the end user's

use rather than the defendant's use of the program), that the plaintiff's games were published work which gains less protection, and that the portion copied is not an important factor. The judge provided a detailed analysis of market analysis in arguing that most of the defendant's works are no longer in the market, so the plaintiff's program cannot affect the sale of products and future harm is not likely to occur, and that the defendant's product would encourage rather than discourage enthusiasm over video games in general. The court of appeals in Sega v. Accolade also argued that the issue of commercial use is insignificant and can be rebutted by the fact that the defendant's work involved intermediate use only and that the public benefits from the compatibility gained in the defendant's work. The judges also argued that even a wholesale copying should be allowed if it increases the public use, and the minor economic loss of the plaintiff caused by the defendant as a legitimate competitor should not bar a finding of fair use.

The arguments that used the theory of fair use resemble various arguments that are considered in copyrightability and infringement cases. The judges who considered the theory of fair use were more likely to decide that the defendant's work infringed the plaintiff's program. When the arguments used the issues of the defendant's use, substantial similarity, or the nature of the plaintiff's work, the judges tended to decide against the defendants. However, the market consequences were seriously considered and extensively discussed, the judge found in favor of the defendants, the market consequences were rarely considered and usually speculated when considered, as similar to the finding in the preliminary injunction arguments. The same was true with the issue of public benefit and public use. Although when the judge acknowledged the issue raised by the defendants in

Sega v. Accolade, it worked in favor of the defendant, public interest was the least frequently considered concept in the fair use arguments.

Beside the arguments regarding the theory of fair use, there were 6 arguments that used the frame of consequence on the market and innovation, most of which were initiated by the defendants and the plaintiffs rather than the judges. The judges rejected all of them. In these cases the judges simply rejected the defendants' arguments that finding an infringement would discourage innovation (Pearl v. Competition), and would drive competitors out of the market (Data General v. Grumman; Sega v. Accolade). In one case the judge ignored the plaintiff's argument that used the theory of market consequence by shifting the focus to other issues. In Vault v. Quaid, the plaintiff used the argument regarding the impact of the defendant's software that allows a user to make copies of programs. Responding to the plaintiff's argument that they lost customers, the judges argued that even if the plaintiff did lose customers, the purchasers of the program, not the defendant who made the program, were responsible. Thus the concern of market consequence that the plaintiff raised was ignored and the focus of argument was shifted to the issue of deciding the responsible party. On the contrary, in another case the judge responded to the defendant's argument which was not directly related to the market consequence by introducing a marketplace concern. The judge in Midway v. Artic responded to the defendant's analogy of a speeding-up kit used on the plaintiff's videogame to speeding-up of a phonograph record, by pointing out the difference between phonograph record and videogame in terms of the demand in the market. The judge argued that since there is enormous demand for speeded-up videogames but little if any demand for speeded-up records, the defendant's kit infringed the plaintiff's copyright.

Whenever the judges considered the market consequences in their arguments regardless of whether they were initiated by the defendants, the plaintiffs or the judges themselves, they decided that the copying does constitute infringement. Only when the argument regarding the market consequence was placed in the context of fair use, was it decided that copying does not constitute an infringement. Otherwise, arguments that used the frame of market consequence were always rejected whether the argument was made by the plaintiff or the defendant.

The arguments that used the frame of the public interest were analyzed in the previous section on the framework of the public interest versus the private property right. It was found that the arguments regarding the public access and benefit were infrequently made and these arguments were usually rejected by the judges. Especially, when the parties involved non-developers of any computer programs, the argument using the frame of public interest (especially the doctrines of publication and first sale) were never accepted. Only when both parties were developers of different programs the party that used the argument based on these theories had a chance to convince the judges, but they were not always successful. The most important consideration seemed to be whether the program had a direct linkage with the plaintiff's program or was independent created. Therefore, it is suggested that the value of the independent creation is still emphasized in the arguments using the frame of public interest, thus the structural rule regarding the authorship that works in the copyrightability cases still prevails in the arguments regarding the public interest.

In conclusion, when the arguments used the frame of the defendant's use, judges generally decided against the defendants. At first the judges did not have clear structural rules to rely on when the arguments regarding the

nature of the defendant's use of the program were introduced. Drawing on the available rules relating to the nature of work, judges began to focus the arguments on the issue of copying as infringement on the plaintiff's work rather than on the defendant's development activities. As the decisions were being made against the defendants as a result of these arguments, the defendants failed to establish a structural rule regarding their use of the program in their favor.

It was found that the nature of the actors influenced the ways in which they make arguments. For example, when the plaintiffs were non-developers, all of their arguments used the frame of use, while when they were developers their arguments included all the frames of work, authorship, and use. In the same vein, when the defendants were non-developers, they used the frame of use almost exclusively, while the defendants who developed their own programs used the frame of use more frequently, but also used the frame of work. Even though the nature of the actors constrained and enabled the plaintiffs and the defendants in a similar fashion, the result of this influence was different to the plaintiffs and to the defendants due to the mechanism by which the established structural rules operated. When the non-developing plaintiffs used the frame of the use, it did not work against them if the judges shifted the concern toward the nature of the plaintiff's work. This is because the structural rule regarding the nature of the plaintiff's work usually granted the copyright protection to computer programs. However, the use of the frame of use clearly worked against the defendants including the ones who developed their own programs, because the focus on the nature of work deprived them of the opportunities to shift the concern toward their independent developing activities.

The implication of these interactions between the structural rules and the actors' resources is clearly reflected in the ways in which the decisions were made according to the nature of the actors, in the arguments regarding the issue of copying as infringement. Differing from any of the issues from the copyright cases, in the issue of copying as infringement, it was found that if the defendants were developers, it was more likely to be decided in favor of the plaintiffs when the plaintiffs were non-developers (100% in favor of the plaintiffs) than when the plaintiffs were developers (56%). The apparent paradox is solved by examining how the plaintiff's tendency to employ the frame of use when they were non-developers, which was a constraint of the structural rule and their resources, actually helped them to render the decisions in their favor, whereas the tendency of the defendants to rely on the frame of use became a real constraint to them. This may be unintended but real consequences of the interaction between the structural rules and resources, where the apparent structural constraints turn out to be enablements for certain actors.

Also, parties had been reluctant to use arguments related to the concept of the public interest or the concept of market consequences. Although those arguments began to appear recently, introducing the frame of the public interest or the market consequence generally did not help the parties who made the arguments. Whether the reluctance of making arguments that used the frame of public interest and market consequences comes from the judges' tendency to reject the arguments or their tendency to ignore them is not clear. But it is suggested that those concerns regarding the public interest and the marketplace have yet to be established as identifiable structural rules in the copyright cases of computer software.

Structural Rules Identified in Software Copyright Arguments

The analysis of legal arguments employing the framework of authorship, work, and use reveals the ways in which structural rules are identified, reproduced, and transformed through the actors' communicative interactions. Earlier cases mainly considered the questions as to whether computer programs are copyrightable, and whether the copyright of the plaintiff's program is valid. First of all, the concept of originality was considered the most important factor among the various requirements for copyrightability. In the early cases in which the issue of originality was in dispute, judges adopted the minimalistic view on the standard of originality, that originality means only that the work "owes its origin" to the author, that the work was "independent created." By constructing the originality standard as minimal, courts broadened the scope of copyright protection. At the same time, the importance given to the value of independent creativity was established as one of the most important structural rules in copyright cases regarding computer software.

The arguments regarding the copyrightability of computer programs also employed the frame of work, especially various metaphors, in order to determine the scope of copyright protection of this new technology by making an analogy to other traditionally protected works of authorship. As many courts regarded computer programs and their screen displays as a literary work, artistic work, or audiovisual work, it was firmly established that the computer software is a copyrightable subject matter. As a result, even when the validity of a program's copyright was challenged in the validity of ownership disputes or in other infringement issues, some argument makers

made successful arguments simply by shifting the focus to the established rule that a computer program is copyrightable.

Through the copyrightability arguments, it was solidly established that computer programs are copyright as a subject matter, that the protection extends to videogames, operating system programs as well as application programs, to both literal and non-literal elements of programs, and to programs embodied in both ROMs and diskettes. The only leeway that was available to the defendants was related to the concept of the utilitarian work. As some judges accepted the arguments that the computer program is a utilitarian work rather than a literary work, or that some functional elements of computer programs should not be protected by copyright, the notion of the utilitarian work and functionality became an important structural rule that provides a potential to benefit the defendants.

The copyrightability arguments that focused on the concept of work instead of authorship had a dual implication for future arguments and decisions. On the one hand, it established that a computer program is copyrightable. Therefore, many of the copyrightability tests did not have to be conducted once it is decided that this is a computer program and a program is copyrightable. In this way, arguments focused on the work had a consequence of broadening the scope of protection. On the other hand, these arguments alienated the work from its author, providing non-developers an opportunity to claim rights in the program that were taken from the developers. As in the arguments that used the utilitarian work rationale, once the work is objectified and detached from its author, it was easier to decide not to compensate the author. Jaszi (1994) argued that ideologically, the new emphasis on the "work" minimized the threat to free exchange posed by the notion of an intimate link between the "author" and her productions.

Although this alienation of the work from the author could provide an opportunity for copyright holders to take rights from developers, as shown in the work-for-hire cases and some other cases, the concept of the work did not "replace" or "substitute" the concept of the authorship, but worked in conjunction with the authorship construct. Even in the rule establishing the copyrightability of computer software, the authorship and the creativity is implied in the concept of the literary work or the artistic work, because it was the reason they were protected in the first place although now the originality question does not have to be asked again.

The recent work-for-hire doctrine provides that the author of the work is the person on whose behalf the work was made, not the individual who created it. Thus the works of authorship is legally objectified and propertized. However, since the requirement for application of this doctrine is that the creator was an employee, and that to be an employee means that one is not an independent contractor, the person who "independently created the program" is still beyond the reach of this process of objectification and alienation from one's work. In addition, the employers' claims of authorship are rationalized in terms of "creative ideas" and "inspirations," as opposed to labor, which are concomitant with its concomitant values of originality and creativity. In this way, the authorship construct is not only alive in work-for-hire doctrine, but also its values are extended and reinforced.

The concept of authorship and work that was established and typified as structural rules in copyrightability cases also influences the ways in which the infringement cases are argued and decided. First of all, some of the issues in infringement cases such as the validity of ownership and the copyrightable expression render the infringement cases strikingly similar to copyrightability arguments and decisions. By never refuting the validity of the plaintiff's

copyright and by transforming the substantial similarity arguments into copyrightability arguments regarding the plaintiff's work, courts not only broadened the scope of copyright, but also reproduced and justified the authorship construct with its minimalistic standard.

It was only in the context of the substantial similarity issue where some changes in the structural environment occurred through the actors' interactions employing their resources and structural rules. The defendants who developed their own programs used the structural rule that requires a minimal standard of independent creation and the resources of being a developer themselves, of which consequence was more arguments made in favor of them than made in any other issues. At the same time, their arguments that used the frame of work centered around the nature of the defendant's work rather than the plaintiff's work, and they gained a more equal footing to compete with the plaintiffs between a work and a work which was severed from the notion of the plaintiff's authorship. In this process, the structural rule was not any longer applied differently for the plaintiffs and the defendants, and the structural rules began to encompass the defendant's work and the defendant's authorship as well.

Moreover, the concept of authorship interacted with the notion of work in the similarity cases as well. Among the various substantial similarity tests, the lay observer test was criticized and diminished while the extrinsic test and expert testimony were encouraged. Not only was the lay observer test criticized, the concept of a lay observer, "a reasonable person," was equalized to a computer programmer, a computer expert. Also, in the extrinsic test, the only device that was used by the courts to evaluate opposing testimonies was the background and expertise of each expert, rather than any objective test. In this process, the value of the authorship construct, i.e., creativity enough for

independent production, is again emphasized. However, this concept became explicitly adapted to the realm of computer programs by being transformed into the value of scientific expertise, knowledge, and skills. Therefore, in the similarity issue, not only were the defendants who were always disadvantaged in copyrightability arguments sometimes able to prevail, but the structural rules were slightly transformed to reflect the different aspect of computer programs from other works of authorship. In this way, applying the existing form of copyright law to a new technology that is considered to have a different functional aspect was rationalized.

As the copyrightability of computer programs becomes established, and as there are many new cases in which both the plaintiffs and the defendants are developers or both are non-developers, the question regarding the nature of the use of a program became important. The only issue in the infringement cases that extensively employed the frame of use is that of copying as infringement. Since it was not clear to the judges and other legal actors what kind of rules they had to draw to decide on the issue of use, the judges turned into the typified rule of providing copyright to computer programs. In this process, the defendants failed to shift the arguments on the concept of authorship in relation to the concept of use, even when they had a resource of being developers. Consequently, how much the defendant contributed was not considered a concern but the focus of the arguments was whether the plaintiff's copyright was a valid one. Thus the decisions tended to be made against the defendants even when they were developers. In this process, the defendants were not able to use their resources to take a full advantage of the structural environment which was not clearly determined at the time, and the structural rules regarding the plaintiff's work and the plaintiff's authorship began to control in the issues related to the use as well.

Consequently, rules that specifically and exclusively concern the nature of the use is scarce and often replaced by the already established rules regarding the authorship and work.

Finally, it was found that the public interest or market consequence is a theme that hardly becomes a basis of copyright decisions regarding computer software. Some of the actors have used the theory, and the judges tended to argue in favor of the plaintiffs when these frames were used. Rather than being outright rejected, the concept of the public interest seems to be usually ignored, or trivialized to be equal to providing monetary reward to individual authors. Also the market consequence was rarely considered, and an extensive analysis of the market situation was hardly provided. In general, arguments that use policy considerations as a rationale tended to be placed in the context of, and be influenced by, other frames or typified traditional legal rules of authorship such as the concept of independent production, rather than to operate as a decisive factor themselves. Therefore, concerns related to the public interest and the marketplace remain to be established as structural rules in future copyright cases regarding computer software.

VIII. CONCLUSION: PROCESS OF STRUCTURATION IN THE COPYRIGHT CASES REGARDING COMPUTER PROGRAMS

This study on legal arguments and decisions regarding the copyright protection of computer programs in the United States demonstrates the importance of communicative activities in structuration process. As will be discussed in more detail in the following paragraphs, the actors' use of their resource of being a developer in making legal arguments was found to be the most influential on the judges' decision-making process than any other factors. The framework of authorship, work, and use helps us understand the legal actors' relationships and struggles that are manifested in their legal arguments, because the construct of authorship, which is transformed and reproduced through the decision-making process, reflects and generates the underlying values of the legal system and the society.

In general, it was found that in copyright cases regarding computer programs, the plaintiffs were more likely to prevail than the defendants, and there was more consensus in granting copyright to the plaintiffs than in holding that the defendant infringed the plaintiff's copyright. The study examined various factors that may have influenced the ways in which the copyright decisions were made. Some of the factors that have traditionally been acknowledged as having an influence in other areas of law, such as the judges' political or educational characteristics and the human and financial resources of the parties, were not found to be related to the copyright decisions regarding computer programs. The most important variable that relates to the decision making was the nature of the actors, whether they were developers of computer programs or not. Although the judges tended to grant copyright to the plaintiff's program regardless of the nature of the

plaintiffs and the defendants, infringement decisions were clearly related to the nature of the defendants, i.e., whether the defendant developed his own program or not.

The importance of being a developer was manifested in another dimension of the decision making, regarding the nature of the computer program. Although the nature of the plaintiff's program did not relate to the ways in which copyrightability and infringement decisions were made, the nature of the defendant's program turned out to be related to decisions in an interesting way. Judges tended to grant copyright to the plaintiff's program regardless of whether it is an application program or a videogame, and whether the aspects in dispute are literal or nonliteral elements of the program. However, in making infringement decisions that usually involve two programs developed by the plaintiff and the defendant, the judges found an infringement even more likely when the defendants developed products that have characteristic that are not clearly harmful to the plaintiff or other users such as accessories to the plaintiff's program or a device to enhance the plaintiff's program, than when they developed competing products which are functionally so identical that the plaintiff is very likely to suffer from it. This finding clearly illustrates that the central question that the courts considered was the independent developing activity of the defendant rather than any other related concerns such as the function of programs or market consequence of the defendant's program.

Examining the relationship between the decisions and the various other factors revealed the importance of being a developer of computer programs to prevail in copyright cases. This finding posed an interesting question when it is compared to some critics' argument that the authors' rights are taken to be given to the copyright holders in the U.S. copyright law,

which has been shaped through the struggle between authors and publishers. This seeming paradox will be reconciled by analyses of legal arguments that unveil the communicative interactions between plaintiffs and defendants, including authors and copyright holders.

In order to understand the mechanisms by which copyright decisions are made, this study conceptualized legal arguments made by the plaintiffs, defendants, and judges as a critical nexus that helps us explain the relationship between the decisions and other factors. In analyzing legal arguments, this study employed various approaches that were suggested by scholars and critics. Critical scholars and historians have suggested to focus on examining the ways in which the copyright system is shaped by struggles among the stakeholders. Thus the notions of developers versus copyright holders, developers versus non-developers, and plaintiffs versus defendants were employed as a main framework to examine the copyright arguments and decisions. Also, the frames of authorship, work, and use were found to be particularly useful in understanding the stakeholders' relationships and struggles that are manifested in their legal arguments, and in exploring the underlying values that are reflected and generated through the decision making processes regarding copyright protection of computer programs.

In the contemporary copyright discourse regarding computer programs, the idea of individual creation is constantly praised in numerous aspects. The obsession with "originality" in conceptions of copyright that Kaplan and other scholars have noted seems to be apparent in the copyright cases regarding computer programs as well. In earlier cases in which the question of the copyrightability of computer programs was addressed, originality was presented as the most important requirement for copyrightability. At the same time, the judges adopted the minimalistic view on the standard of

originality, which only requires a potential author to make something "of his own" or "independently." The authorship concept is thus dissociated from the Romantic notion of "genius" and then reassociated with the meanest levels of creative activity. The construct of authorship has been mobilized yet remained central through the legal actors' constant efforts to legitimize their interests in computer programs. Since most of the plaintiffs were developers and copyright holders at the same time in earlier copyrightability cases, the concept of authorship praising the minimal amount of independent production was not so much a product of the struggle between the developers and the copyright holders as a product of the common interests of both parties. The rule that makes it easier to become an author thus rationalized extending copyright protection to a new kind of subject matter, computer programs.

Another important aspect of discourse in the early copyrightability cases was raised by the question as to what is the copyrightable subject matter and whether computer programs can fall into that category. In order to make a decision regarding this new technology, judges analogized computer programs to a literary work or an artistic work, and videogames to an audiovisual work, both of which had been traditionally protected by copyright. As more and more judges and other legal actors followed this view, the computer program as a copyrightable subject matter (regardless of its form, function, and embodiment) was solidly established and typified as an important structural rule in copyright law, thus legitimately becoming a vehicle for a significant expansion of copyright protections to non-developers as well. On the other hand, when the judges focused their arguments on the nature of the work sometimes, they tended to limit copyright protection if they perceived computer programs as a utilitarian work, probably because it

was perceived easier not to compensate the author when the work was objectified and detached from its author.

While arguments focusing on the concept of work could be used for both broadening and limiting the scope of copyright, the concept of work alienated the work from its author and objectified the work, thus the leverage of publishers and other purchasers of authors' rights was increased. Critical scholars have suggested that it was through this use of the concept of work the copyright law of the printing press gave entrepreneurs a monopoly over the products with little regard to, or concern for, the authors who produce the product (see Patterson and Lindberg, 1991). Copyright arguments and decisions regarding computer software were continuously shaped by the interactions between these two seemingly contradictory concepts: the concept of authorship that was supported by common interests of developers and copyright holders, and the concept of work that seem to embrace the interests of non-developers rather than those of developers. These two concepts, however, did not replace or substitute each other. Nor did they remain the same constructs over time. The analysis of interactions between legal rules and actors' resources illustrates how these two concepts are mobilized in relation to each other through communicative activities of legal actors, and become constraints and enablements for future interactions of the legal actors.

The tension between the concept of work and that of authorship was keenly manifested in the cases that employed the work-for-hire doctrine, which renders the person, on whose behalf the work was made, the author of the work, when a work is deemed to have been made "for-hire." Under this doctrine, the alienation of creative workers from the products of their labor is formally and legally complete. But surprisingly, the notion of authorship with its concomitant value of originality is employed to support this doctrine.

Because the prerequisite for the applicability of this doctrine is that the creator was an "employee" which is considered as an opposite concept of "independent contractor," the creator who "independently developed" the program is out of the reach of this alienation and objectification her work. Moreover, the employers' claims of authorship are rationalized in terms of "creative ideas," "supervision," and "inspirations," all of which are concurrent value of authorship. In this way, the emphasis given to the value of individual creativity is reinforced, and the authorship construct is extended to encompass the employer's creative ideas and inspirations.

The construct of authorship and that of work also comprised a critical part of the structural environment in which infringement decisions were made. The most simple and direct influence of these structural rules was found in the ways in which the legal actors relied on them in dealing with the issue of the validity of ownership of copyright and the question as to whether the copied portion was a copyrightable expression. These two issues comprised almost half of the arguments in infringement cases, and the plaintiffs, whether they were developers or non-developers, received a great amount of benefit by applying these traditional copyrightability rules. It was because these rules were typified and objectified in cases where the plaintiffs were usually developers and copyright holders at the same time, thus tended to grant copyright to the plaintiffs. As a result, the structural rules relating to independent production and to the computer program as a copyrightable subject matter were reproduced and reinforced in infringement cases.

It was only in the context of substantial similarity issue where changes in structural rules occurred. As most of the arguments in the similarity issue compare the plaintiff's work and the defendant's work, thus centered around the nature of work, the concept of the authorship was severed from the

plaintiff's work. The structural rule regarding authorship that usually gave plaintiffs more advantage was thus not operating here. At the same time, as the arguments focused more on the defendant's work than the plaintiff's work, the structural rule regarding the computer programs as a copyrightable subject matter provided a similar application to the defendant's program. As a result, the defendants in the similarity issue gained more equal footing to compete with the plaintiffs with their works, and the structural rule focusing on the concept of work was transformed in a way that it encompasses the defendant's work as well as the plaintiff's work. In addition, as most of the defendants in the similarity issue developed their own programs, many of them were able to use their resources of being developers in shifting the focus of arguments from work to authorship by arguing that they have the "skills," "experience," "knowledge," and "talent" to develop their programs "independently." The concept of independent creation and expertise that had become objectified structural rules constrained legal actors' arguments but also enabled some actors who had traditionally been disadvantaged by the rules, when they employed their resources effectively, i.e., by being developers and being perceived as independent creators by the judges. This is a striking evidence that a structural change is possible due to the duality of structure that becomes both the medium and the outcome of the interactions.

Another way in which the concept of authorship interacted with the concept of work was found in the judges' application of similarity tests. In determining similarities and differences between the two "works," judges criticized and diminished the lay observer test and encouraged the extrinsic test. Some judges even argued that a computer expert and programmer was considered a lay observer (a reasonable person) in copyright cases.

Consequently, most of the similarity cases were thus decided by expert

testimony. When the different parties' testimonies contradicted each other, which was usually the case, the only device to evaluate the testimonies used in the courts was the expertise' background and knowledge. Therefore, even in the arguments that focused on the concept of work, the importance was given to the "expertise" and "skills" that are concurrent yet a slightly distorted value of authorship. Artistic creativity that had been emphasized in other areas of copyright, and independent creativity that had been emphasized in earlier cases of software copyright, was now transformed to "scientific expertise, knowledge, and skills." This transformation seems to reflect the tension between the acknowledgment of the unique aspect of computer programs and the need to apply the existing form of copyright law to the new subject matter. Through this transformation of the rule, the value of authorship remains to be emphasized, and extending the copyright law to computer programs is rationalized.

As the copyrightability of computer programs became objectified, and as many new cases began to involve developers as both plaintiffs and defendants and involve non-developers as both plaintiffs and defendants, the question regarding the nature of the use of a program became significant. The issue of use was mostly considered regarding the question as to whether the defendant's copying of the plaintiff's program constituted infringement. Because no clear rules regarding the use of computer programs had been established yet, judges tended to turn into the existing structural rules regarding the authorship and the work.

The consequence of this process was again an advantage given to the plaintiffs, because the focus of the arguments tended to be on the plaintiff's work, even when the defendants were developers themselves. Some defendants were able to prevail in few cases in which the arguments

remained focused on the nature of the defendant's use which implicitly suggested that the use did not make the defendant's work a product of "less independent" creation. In this way, the arguments regarding the use of a program were greatly influenced by the concept of authorship and that of work. Despite the fact that a new kind of issue was introduced, which can create a structural environment where the possibility of structural change is great, and despite the fact that most of the defendants in these cases had the resource of being developers themselves, they were not able to make legal arguments in their favor. The reason for this was that the new rules that they mostly relied on were contextualized by the existing structural rules, especially the ones that traditionally disadvantaged the defendants. In other words, had they focused the arguments on the defendant's authorship or the defendant's work, relating to which more favorable structural rules had been created in the similarity issue, it may have been more effective than using new rules that had not been tested (such as adaptation and fair use) or the existing rules that were unfavorable to them (such as focus on the plaintiff's work or the plaintiff's authorship).

However, the processes regarding the use of the program seems not so much to be a result of strategic activities as unintended consequences of interactions between structural rules and resources. Both the plaintiffs and the defendants who were non-developers were constrained to focus their arguments on the issue of use rather than work or authorship according to the existing structural environment. But the focus on the concept of use did not work against the plaintiffs who were non-developers because the rules were in favor of them. On the contrary, the focus on the use became a real constraint to the defendants who were non-developers. As a result, different from in any other issues of copyright cases, in the issue regarding the nature

of use, defendants were even more likely to lose the case when the plaintiffs were non-developers than when the plaintiffs were developers. This is thus an unintended yet real consequence of the interaction between the structural rules and the resources, where the apparent structural constraints turned out to be enablements for certain actors.

The implication of the arguments and decisions made regarding the use of a program is significant. Structural rules that specifically concern the nature of the use are still scarce, and they tend not to be developed because they are often replaced by the rules regarding the authorship and work. In this process, the structural rules regarding the authorship and work are again reproduced and typified.

As Jaszi (1991) argued that the public/private contradiction may not capture the true essence of the fundamental conflict of interests that underlie copyright, concerns regarding the public interest and marketplace turned out to be hardly a basis of copyright decisions regarding computer programs. When it did become a basis, the concepts and meanings of the public interest and market effect were distorted and the decisions tended to be made in favor of the plaintiffs rather than the defendants. For example, the public interest was often trivialized to mean the providing of a monetary reward to the individual authors, and an extensive analysis of market consequence was rarely provided. Arguments that used these policy considerations tended to be placed in the context of, and be influenced by, other rules of authorship or work. As these considerations rarely operate as a decisive factor themselves, parties seem to have been reluctant to use these concerns as a rationale for their arguments. Therefore, workable rules related to policy considerations are yet to be created in future copyright arguments and decisions regarding computer programs.

IX. DISCUSSION

This study examined how legal actors who have different interests and resources interact through their communicative activities and how these interactions using structural rules and resources shape the copyright law regarding computer programs. The structural rules mainly concerning the concept of authorship and work at first enabled the developers and copyright holders to make effective arguments to extend copyright protection on their behalf. When the cases began to involve more actors who are developers but not copyright holders and the actors who are not developers but claim their rights in the programs, the struggle between the developers and non-developers were manifested in their arguments focusing on the concept of work and that of authorship. The constructs of authorship and the work have been mobilized through the actors' interactions and in the process of constraining and enabling the actors, the structural rules concerning the concept of authorship and work have been also transformed and sometimes reproduced.

The implication of these dynamics can be described in two dimensions. The first is the structural rules that have extended copyright protection to almost all the aspects of computer programs that can be shown to be independently produced. These rules can work as enablements when the actors use their resources of being developers effectively. At the same time, the authorship construct has been mobilized and transformed throughout the copyright cases. The overall incoherence of the law's account of "authorship" may be best understood as reflecting a continuing struggle between the economic forces that would be best served by the further objectification of

creative endeavor and the ideological persistence of creativity and individualism that Jaszi noted.

The second dimension regards the stakeholders of the copyright system of computer programs. Actors who develop their own programs, thus who can claim themselves as "authors" have the most important resource in making legal arguments. This is a consequence of the struggle (or cooperation) between authors and publishers in early copyright cases. On the other hand, non-developers who are usually copyright holders tried to alienate the work from its author in order to prevail in later cases. As the notion of author tends to contextualize many arguments focusing on the work, this was not always successful. However, as demonstrated in the arguments regarding the concept of use, non-developers who are plaintiffs may benefit from the structural rule that tends to favor the plaintiffs, which was a result of earlier cases that usually had developers-copyright holders as plaintiffs.

Therefore, the findings of this study demonstrate the importance of the role of communication in structuration, because the only way that the legal actors were able to legitimize their interests and possibly transform the existing structural rules was through their communicative activities. The nature of the actor, i.e., whether she was a developing entity, was found to be a single most important factor that influences the decisions made by the judges. However, only when the legal actor could successfully present herself as a party that involved with developing computer programs, the judges were more likely to accept her arguments. When the actor was a developer but she focused her arguments on the nature of the work rather than her developing activity, the actor tended not to have any advantage over the other party. Therefore, it was the legitimacy gained by communicating the nature of the

actor, rather than the nature of the actor itself, that made the difference in the ways the judges made decisions. This result has particular significance for the study of communication, in that the importance of the strategic use of structural rules and resources exercised in communication activities can be applied to any other areas of communication that involve efforts to influence the authority, let alone to other conflicted areas of law.

The result of this study is somewhat contradictory to previous conclusions made by some scholars that the American copyright law is protecting publisher's property rights while disregarding author's moral rights. It was found that the author's and developer's rights were even more likely to be protected than those of publishers as copyright holders, and the authors' rights in computer programs included both moral rights in terms of rewarding their effort and expertise and property rights that can also be transferred to others. This is not a comparative study that tries to suggest that U.S. copyright is more author-oriented or society-oriented in any way. What it does show is how the value of the author's independent creativity and expertise became emphasized through the interaction between the copyright holders and developers. Although the concept of creativity and expertise tended to provide advantage to the developers in making their arguments, it was not always the case, and more importantly, it was an intended and unintended result of the interactions between the actors using their resources and rules. This was a process of structuration in which the copyright system is shaped and reproduced through the continuity and transformation of structural rules that function as the product and antecedent of the actors' practices.

Some scholars' argument was that legal rules used in the copyright law reflect how they overlook the users' concerns as opposed to developers'

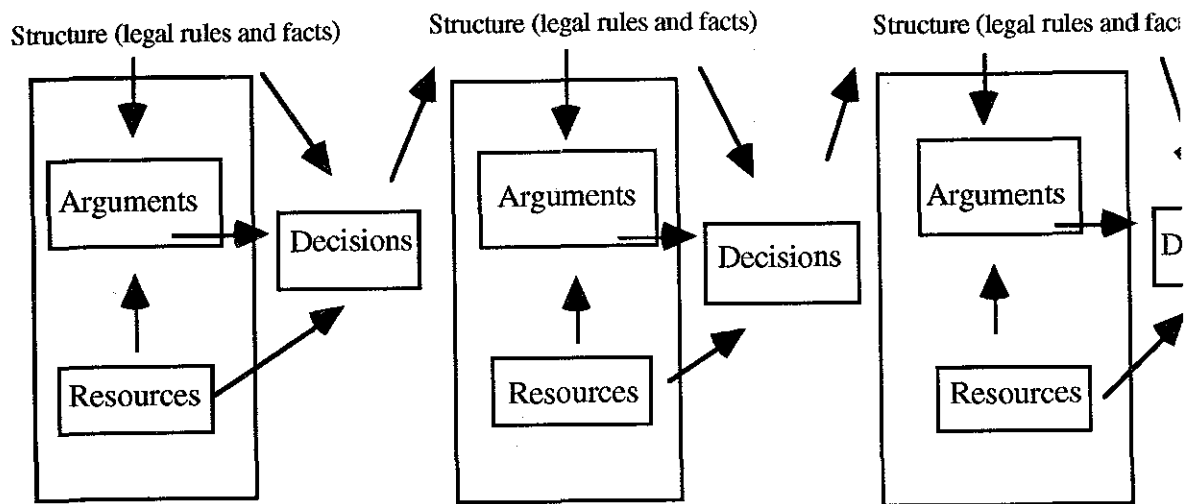
concerns, which is consistent with the implication of this study. First of all, the nature of the legal cases usually involved authors and publishers rather than users. This is in part attributed to the fact that litigation usually costs large sums of money and effort. Although it was found that allocative resources in terms of revenues, the number of employees, and the age of the firms were not significantly related to the decisions, one of the indirect ways in which the allocative resources play a role in this copyright system of computer software may have been beyond the scope of the data of this study. The adequate level of financial ability must have been critical in allowing the firms or individuals to file a suit against others or respond to others. It is possible to speculate that many individuals and firms did not have an opportunity to initiate litigation, and as a result, the legal cases in the copyright protection of computer software tended to involve developers and copyright holders rather than users, and bigger firms among the developers. The fact that the actors in the legal decisions mainly consist of copyright holders and developers may result in a limitation in providing policy guidelines that can be applied to all the actors involved in the creation, distribution, and the use of computer programs.

In addition, the legal discussion surrounding the copyright protection of computer programs does not include many issues on possible consequences or implications on the users or on the market, or on the public interest. The minimal discussion of the public interest ironically focuses on rewarding the authors' creativity and efforts. It is suggested again that the U.S. copyright law reflects and reproduces the norms and values embedded implicitly and explicitly in a society, which value and reward scientific expertise and specialized knowledge. It is also suggested that the power in terms of knowledge and expertise is reproduced not only by the process of

acknowledging and protecting knowledge and expertise, but also in the process of decision making that influences the access to computer programs, which become important sources of skills and expertise.

X. APPENDICES

1. FIGURE: THE PROCESS OF STRUCTURATION THROUGH COMMUNICATIVE ACTIONS



2. LIST OF SOFTWARE COPYRIGHT CASES

1. Accolade, Inc. v. Distinctive Software, Inc., Unlimited Software, Inc., Distinctive Management, Inc., Copy. L. Rep. (CCH) P26,612 (D.C.A. 1990).
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14. Atari Games Corp. and Tengen, Inc. v. Nintendo of America, Inc. and Nintendo Co., Ltd., 18 U.S.P.Q.2D (BNA) 1935 (D.C.A. 1991); Copy. L. Rep. (CCH) P26,703.
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20. Atari, Inc. v. Ken Williams d/b/a On-Line Systems, Copy. L. Rep. (CCH) P25,412 (D.C.A. 1981), 217 U.S.P.Q. (BNA) 746.
21. Autoskills, Inc. v. National Educational Support Systems Inc., 793 F. Supp. 1557 (D.N.M. 1992); 24 U.S.P.Q.2D (BNA) 1107; Copy. L. Rep. (CCH) P26,948.
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23. Clifford Scott Aymes v. Jonathan J. Bonelli d/b/a Island Swimming Sales, Inc. and Island Recreational, 21 U.S.P.Q.2D (BNA) 1716 (D.N.Y. 1991); Copy. L. Rep. (CCH) P26,805.
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30. Computer Associates International, Inc. v. Altai, Inc., 775 F. Supp. 544 (D.N.Y. 1991); 20 U.S.P.Q.2D (BNA) 1641; Copy. L. Rep. (CCH) P26,783.
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33. Data Cash Systems, Inc. v. JS&A Group, Inc., Joseph Sugarman and Mary Stanke, 480 F. Supp. 1063 (D.I.L. 1979).
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38. Datastorm Technologies, Inc. v. S-To-Go-Inc., 1989 U.S. Dist. LEXIS 18295 (D.T.X.).
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Corporation, 659 F. Supp. 449 (D.G.A. 1987); 2 U.S.P.Q.2D (BNA) 1385; Copy. L. Rep. (CCH) P26,088.

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3. CODING SCHEMES FOR THE ANALYSIS OF ARGUMENTS

File Name: Short name-court level-year

Name: Name of the case (X v. X)

Citation:

Date: YYMMDD

Court: District/appellate division

State

Judge: Name (underline the writer of the opinion in appellate cases)

Characteristics: appointing President (party)
school graduated
age

Legal Topics: Authorship/Copyrightability/Infringement

Procedural Status: Summary judgment/Preliminary injunction/Final judgment

Parties: P: Name of the plaintiff

Nature of the plaintiff (developer/copyright owner/both developer and copyright owner at the same time/retailer, etc.)

D: Name of the defendant

Nature of the defendant (developer/copyright owner/both developer and copyright owner at the same time/retailer, etc.)

Subject: The kind of computer programs in issue:

1. system programs / operating system programs / application programs
2. literal elements (source code / object code) / non-literal elements (structure, sequence, and/or organization, screen display and user interfaces, function or purpose)

Facts: Brief facts of the case and procedures

Focusing on : Who is the author, developer, copyright owner of the original program in issue?

If the program in issue is not one, what other programs, how they are developed?

Who sought what relief claiming what?

Arguments per each Q (issues and theories):

1. Questions: The specific questions asked and tried to be answered "in" the arguments (answers)

2. Issues (small questions): underline disputed issue(s)

Copyrightability -	Validity -	Certificate
	Scope --	Originality
	--	Authorship
	--	Fixed in tangible medium
	--	Literary work

Infringement -	Ownership of copyright --	copyright certificate
		- Copyrightability (validity and scope)
		- Work made for hire

Copying -	Access + Substantial similarity
	Copyrightable expression (idea/expression)
	- extrinsic (expert) and intrinsic (lay) tests

Krofft

- structure, sequence v. purpose

Whelan

- abstraction test (filtering, and comparison)

Nichols v. Universal

- utilitarian work

- adaptation (essential step/ archival)

- total concept and feel

Roth v. United

- iterative test

E.F. Johnson v. Uniden

If preliminary injunction case,

Probability of success on the merits

Irreparable harm

Balance of harm

The public interest

Or,

Irreparable harm + Probability of success on the merits

Irreparable harm + serious issues and Balance of harm

3. Judge's argument style (own argument only / own order but including parties' arguments as well / primarily following the party(s)'s argument order)

4. Code of Arguments:

Summarize the arguments in the court opinions in the order made by the judges. When the judges' arguments were responding to the other actors' arguments, include the other actors' arguments as well after P: and D:.
Define one argument unit when the judge was dealing with one issue using a legal theory, a test, or supporting evidence. A sample of coding arguments is provided in the end of this coding sheet. The possible legal theories are presented below.

*Theories that are used to discuss each issues

Idea v. expression -- 17 U.S.C. §102 (b)

(merger/inseparability, scenes a faire, limited
ways of expression)

Utilitarian (functional) work

Archive

Public domain (Publication)

Derivative work

Work made for hire

Fair use: 4 factors -

The purpose and character of use

The nature of the copyrighted work

The amount and substantiality of the portion used
Effect on the market (17 U.S.C. §107)

Personal use

First sale

Also define the main frame used by the each actor (authorship/nature of the work/nature of use of the program). An argument is coded as having a frame of the work when the argument is focused on the nature of the computer program, i.e., whether the program was a utilitarian work or an artistic work, whether the part of the program considered is an expression or idea, whether the two programs considered are similar or not. An argument is coded as having a frame of authorship when the argument is focused on the process of developing the program, i.e., which actor provided more input in developing the program, whether an actor has a background and skill to possibly develop the program, etc. An argument is coded as having a frame of use when the argument is focused on the ways in which the program was used by another actor or the third party, i.e., whether an actor's use of the program developed by the other actor was legitimate. See page 87 of the text for examples of defining the frame of the arguments.

Also provide headings before the summary of the arguments in order to indicate the issue under which the argument is made.

P:

D:

J:

5. Define the Metaphors used by each actor:

Utilitarian work

Literary work

Audiovisual work

Artistic work

6. Did the arguments include alleged infringer's effort to avoid copying?

Decisions: In summary judgment and preliminary injunction cases,
Motion granted or denied
In appeals case,
Affirmed or reversed
For or against deciding Infringement
Plaintiff or defendant wins
For or against copyright holder (if applicable)
For or against developer (if applicable)

* A sample coding

In *Data Products v. William Rappart* (Copyright Law Decisions ¶26,723), the opinion stated on page 24,225:

Finally, the defendants argue that any modifications made to the TAS or cable TV program packages were valid under 17 U.S.C. §117. The argument is limited in scope: it would serve to protect the defendants only from infringement claims which are based on the modification of the programs for the use of Sunflower or its subsidiaries (Jetmore or Cablevision, Ltd.). It would not provide protection from the claims of infringement arising from the use of the programs by S T Enterprises or its subsidiaries. 17 U.S.C. §117 (1990 Supp.) provides in part:

Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy of adaptation of that computer program provided . . . (provision of 117 is presented here)

DPI argues that §117 is inapplicable, since the modifications were not performed in the process of inputting the programs into the Sunflower computer, but were performed later. See, e.g., *Micro-Sparc, Inc. v. Amtype Corp.*, 592 F.Supp.33 (D.Mass. 1984). However, as Judge O'Conner recognized in *Foresight Resources Corp. v. Pfortmiller*, 719 F.Supp. 1006, 1009-10 (D.Kan. 1989), cases such as *Micro-Sparc* which apply 117 in a narrow manner are against the weight of recent authority and contrary to the intent of Congress. The better view is that §117 is designed to protect software purchasers who make modifications or enhancements to the software for their own use only. *Id.*, at 1010.

But again, §117 has only a limited application in the present case. Under the statute, any modifications or enhancements to the DPI software would not constitute an infringement to the extent that they were used solely by Sunflower and its subsidiaries, Jetmore and Cablevision, Ltd. Any use of the software by S T Enterprises or its subsidiaries would not receive any protection from §117.

The above arguments are coded as:

1) infringement

D: Any modifications made were valid under 17 U.S.C. §117 (adaptation for utilitarian purpose and archival purpose).

--- Frame: use

--- Theory: adaptation

J: §117 has only limited application here because modification in this case is allowed to the software for their own use only, and D's other companies and subsidiaries (not only the ones who purchased the software at first) used the modification (*Foresight v. Pfortmiller*, *Micro-sparc v.*).

--- Frame: use

--- Theory: adaptation

4. TABLES

Table 1: Cases in Different Circuits

Circuit Courts	Frequency of Cases
1	5
2	16
3	13
4	9
5	11
6	3
7	13
8	2
9	30
10	6
11	4
12	0
D.C.	2
Federal	1
Total	115

Table 2: Cases by Legal Topics

Topic of the Case	Frequency of Cases
Copyrightability	6
Infringement	22
Copyrightability+Infringement	75
Ownership	12
Total	115

Table 3: Cases in Different Time Periods

Time Periods	Frequency of Cases
1978-80	4
1981-83	28
1984-87	19
1988-90	31
1991-93	33
Total	115

Table 4: Cases by Subject Matters

Subject Matter of the Case	Frequency of Cases
Operating system programs	17
Application programs	65
Video game programs	33
Total	115

Table 5: Cases by the Nature of the Plaintiffs

Nature of the Plaintiffs	Frequency of Cases
Developers	7
Copyright holders	30
Developers/copyright holders	77
Unclear	1
Total	115

Table 6: Cases by the Nature of the Defendants

Nature of the Defendants	Frequency of Cases
Developers	68
Copyright holders	18
Retailers, etc.	21
Copyright Registrar	2
Unclear	6
Total	115

Table 7: Cases by the Nature of the Case

Nature of the Case	Frequency of Cases
Developer against developer	59
Developer against non-developer	24
Non-developer against any	32
Total	115

Table 8: Cases by Decisions on the Scope of Copyright Protection

Decisions (Scope)	Frequency of Cases
Limiting copyright protection	43
Expanding copyright protection	69
Only the ownership issue	3
Total	115

Table 9: Cases by Decisions on the Copyrightability of the Subject Matter

Decisions (Copyrightability)	Frequency of cases
Copyrightable	26
Not copyrightable	3
Total	29

Table 10: Cases by Decisions on Infringement

Decisions (Infringement)	Frequency of Cases
Infringement occurred	65
Infringement did not occur	42
Total	107

Table 11: Frames used in the Judges' Arguments

Frames	Frequency of Cases
Work	Plaintiff 100
	Defendant 62
Authorship	Plaintiff 27
	Defendant 17
Use	by Defendant 36
	Public 14
	Market consequence 7
Total	261

Table 12: Frames Used in Different Time Periods

Time Periods	Frames		
	Work	Authorship	Use
1978-83	55 (80%)	5 (7%)	9 (13%)
1984-87	34 (76%)	7 (16%)	4 (9%)
1988-90	31 (46%)	14 (21%)	23 (34%)
1991-93	42 (53%)	16 (20%)	21 (27%)
Total	162 (62%)	42 (16%)	57 (22%)

Table 13: Contexts of the Arguments in Different Time Periods
Contexts

Time Periods	Copyright*	Owner	Valid	Similar	Express	Infringe
1978-83	25 (36%)	2 (3%)	9 (13%)	11 (16%)	8 (12%)	14 (20%)
1984-87	18 (40%)	2 (4%)	1 (2%)	14 (31%)	3 (7%)	7 (16%)
1988-90	14 (21%)	5 (7%)	7 (10%)	16 (24%)	2 (3%)	24 (35%)
1991-93	1 (1%)	8 (10%)	4 (5%)	13 (17%)	26 (33%)	27 (34%)
Total	58 (22%)	17 (7%)	21 (8%)	54 (21%)	39 (15%)	72 (28%)

* Copyright: Copyrightability

Owner: Ownership disputes

Valid: Validity of copyright in infringement cases

Similar: Substantial similarity in infringement cases

Express: Idea versus expression in infringement cases

Infringe: Copying as infringing use in infringement cases

Table 14: The Use of Frames according to the Context of the Arguments

Contexts	Frames						
	Work		Authorship		Use		
	P*	D	P	D	D	Public	Market
Copyright	50 (86%)	-	-	7 (12%)	-	-	1 (2%)
Owner	-	-	8 (47%)	9 (53%)	-	-	-
Valid	12 (58%)	1 (5%)	4 (19%)	2 (10%)		2 (10%)	-
Similar	1 (2%)	48 (89%)	-	5 (9%)	-	-	-
Express	32 (82%)	2 (5%)	4 (10%)	1 (3%)	-	-	-
Infringe	5 (7%)	11 (15%)	2 (3%)	-	36 (50%)	12 (17%)	6 (8%)
Total	100 (38%)	62 (24%)	25 (10%)	17 (7%)	36 (14%)	14 (5%)	7 (3%)

* P: Plaintiff's work or authorship

D: Defendant's work or authorship or use

Public: Public interest

Market: Market consequences or innovation

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