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Services and Intellectual Property Rights

by

Rodney de C. Grey

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SERVICES AND
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Services and Intellectual Property Rights

The purpose of this paper is to enquire into the interest of the services sector, or the services industries collectively and individually, in the negotiation now beginning in Geneva under GATT auspices, to strengthen the international regime of intellectual property rights (patents, copyright, trade marks, trade secrets, etc.). The services industries are, of course, directly interested in the attempts being made to negotiate some sort of general agreement, in some fashion related to the GATT, regarding trade and investment in services, and to work out, under the chapeau of such a general agreement, some agreements with regard to particular service sectors -- especially in regard to those where there is not in place a sector-specific functional international agreement -- e.g., insurance, banking, other financial services. These negotiations are going forward under the authority of the decision of Trade Ministers taken at Punta del Este in September 1986.¹ It is not the purpose of this paper to examine this proposal for a negotiation about services, but rather to examine how the services industries may be affected by another key segment of the Uruguay Round: namely, the negotiation about the "trade-related aspects of intellectual property rights" (known in GATT jargon as TRIPs).

These negotiations on TRIPs are proceeding under the authority of the Punta del Este declaration. The text approved by ministers, after prolonged prior discussion by officials in Geneva, provides the following terms of reference for the negotiation on TRIPs:²

In order to reduce the distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to

- legitimate trade, the negotiations shall aim to clarify GATT provisions and elaborate as appropriate new rules and disciplines.

Negotiations shall aim to develop a multilateral framework of principles, rules and disciplines dealing with international trade in counterfeit goods, taking into account work already undertaken in the GATT.

These negotiations shall be without prejudice to other complementary initiatives that may be taken in the World Intellectual Property Organization and elsewhere to deal with these matters.

Like the negotiations on trade in services, these negotiations on trade-related aspects of intellectual property are being conducted according to the "General Principles Governing Negotiations" approved by ministers at Punta del Este. Briefly, these principles are: transparency of negotiations; consistency with the GATT; the unity ("part of a single whole") of the negotiations; balanced concessions ("to avoid unwarranted cross-sectoral demands"); "differential and more favorable treatment" for developing countries; the waiving of "reciprocity" with regard to developing countries; "special attention" to the position of least-developed countries.³ These principles are not mere words; they will, as the negotiations move forward, provide a framework and a set of tests to assess the negotiated results.

We can begin our examination of the interests of the services industries in the intellectual property rights negotiations in the Uruguay Round by spelling out in more detail what the proponents of such negotiations seek to secure from their trading partners at the table in Geneva. Given that the United States has been the main advocate of such a negotiation, we can best do this by summarizing the United States' position:

- "Infringement of intellectual property rights ... can severely distort and impede international trade by depriving innovators, creators, and inventors of rewards and opportunities generated by innovations that enhance production and export capacity and demand for traded goods and services" (emphasis added).

- "Trade distortions ... arise when ... sales of production of innovation ... are lost to foreign infringement activities ..."
- "Trade distortions occur disproportionately in technology-intensive products ..."
- "Certain countries fail to enforce intellectual property laws adequately" or sanction "abuse of intellectual property rights".
- "The Contracting Parties (to the GATT) should conclude an enforceable multilateral trade agreement against trade-distorting practices arising from inadequate national protection of intellectual property" (emphasis added).⁴

If the U.S. description of the situation in regard to the international intellectual property rights system is accurate, then it follows that the services industries have a stake in the outcome of these negotiations.

Broadly speaking, the interests of the services industries can be grouped into two categories. One is the interest of services industries the export position of which depends directly, in some degree, on the working of the intellectual property rights systems in the country to which they export. Three examples of such services industries are informatics, consulting engineering and franchising. The exporting of information by electronic means ("informatics") depends, to some extent, on the working of the copyright system(s). Consulting engineering contracts frequently involve such intellectual property matters as access to patented processes, to material protected by copyright or to objects the design of which is protected by registration and to trade secrets ("know-how"). Franchising involves the licensing of the right to use trademarks (or "service marks") and "know-how". The other category of services industries' interest in intellectual property rights negotiations is the possibility of strengthening the international system with regard to the protection of rights in service products, as well as products (such as compact discs) which can be thought of as "embodying" services. If it is the case that technology-intensive goods are also service-intensive, it

follows that the working of the intellectual property rights system affects of the value of the services inputs into such goods. Indeed, it is in the high-technology goods sector that the intellectual property rights system works least effectively, as rights are ill-defined and the means of their enforcement is not well-adapted to such products. Consequently, the copying of products of innovation (or theft of rights) is easy to carry out and difficult to police.

We shall examine these categories of services industries' interests in the intellectual property rights negotiation in more detail below. But before doing so it is necessary to comment briefly on the question of "what is a traded service" - and indeed, on "what is a service," and then to look briefly at the present international system for the protection of intellectual property rights, particularly as it relates to services.

The decision of the United States to press for negotiations for some sort of comprehensive agreement to regulate or control the use of restrictions on trade and foreign direct investment in services industries has generated a substantial literature, some by government officials concerned to analyze the issues, some by representatives of services industries, some by lawyers and economists. We need not attempt to review this literature here,⁵ but it is essential for our purpose to note certain broad conclusions which have emerged.

One important conclusion is that, while services industries are responsible for a large share of employment, they account for a much smaller proportion of world trade. A recent study by the U.S. Office of Technology Assessment is authoritative: "More than 70 per cent of all Americans work in the service sector of the economy. In nations otherwise as different as the United States, Japan and the United Kingdom, more people find jobs in services industries than in manufacturing, and services account for more

than half domestic product ... While the services make a significant contribution to the U.S. balance of payments, direct trade in manufacturing remains much larger. The share of services in total world trade has remained more-or-less constant at 17 to 18 per cent over the past 15 years."⁶

The reasons why services, as such, are responsible for such a low share of world trade are clear enough. First, there is the fact that many services are rarely traded, such as personal care (hair-cuts, dry cleaning, laundry), although when sold to tourists, they should conceivably count as exports. Second, many services require the physical establishment of the service provider in the country of import; returns from foreign direct investment in such a physical presence represent only in part a return on an export of services (e.g., managerial competence, as in international banking); in much larger part, they are a return on capital, generated in combination with foreign factors of production (land or location) and labour. Third, many services are either sold as "embodied"⁷ in goods or as inputs into goods. We may distinguish between services embodied in goods, to use the approach of Jagdish Bhagwati (e.g., recordings, books, films, architectural plans) and those goods which are "service-intensive".

As Herbert Grubel pointed out recently, in an admirably terse letter to the editor of Fortune: "...services exported after they have been embodied in goods are worth much more than direct exports of services. As much as 90% of a computer chip's value may come from services industry inputs; even wheat contains large amounts of services that were embodied in material inputs needed to grow wheat."⁸ Professor Grubel refined his argument in a recent article for The World Economy⁹ where he concluded that international trade in services occurs in only two categories. One category is that when goods "involving non-factor services" are traded internationally. For that major category the trade policy issues are about trade in goods, there is no need to launch a

negotiation on services for this category. The other category "requires that people, capital, firms or goods temporarily move across borders", either to secure services (as in tourism or aircraft repair) or to deliver services (as in banking, insurance). For that category, Grubel argues (correctly, in my view) that the issues are about immigration and the right of establishment.

Consistent with this view, it is not surprising that U.S. representatives are giving more emphasis to what has come to be called "the right to do business" or the "right of commercial presence" in the services discussion in Geneva. Nor is it surprising that, in the private sector, the running has been made by insurance companies and consulting engineering companies and other services industries where the ability to sell services in a foreign market requires either some sort of right to be present in the market, in a legal sense, or a right to have qualified personnel enter the foreign country and render their services or carry out transactions for as long as may be required by the nature of the service concerned. The services negotiations in Geneva, as such, may well turn out to be about the right of establishment, in the conventional sense, and the right of temporary entry of professionals. Certainly, these have been key issues in the Canada-U.S. "free trade" negotiations. It follows, too, that looking at the broad range of service industries, their interest in the Geneva negotiations lies in the conventional negotiations about barriers to trade in goods, as Professor Grubel points out; a narrower range of services industries will be interested in the negotiations directed at strengthening the international system of intellectual property rights.

Both Bhagwati and Grubel have, perhaps in the interests of clarity, made the trade policy issues too simple. When we look at how trade in goods and services is carried out in the real world, perhaps the most obvious feature is that the bulk of world trade is carried out by large corporations and that their trade activity involves dealing with a

complex of conventional trade laws requirements, financial regulations, questions of establishment, perhaps such issues as product liability, the temporary movement across borders of key personnel, certain intellectual property rights, and so forth. The typical international trade transaction is not a U.S. tourist purchasing a piece of imitation tribal art in Gabon and importing it into the United States, nor is it typically the one-off purchase of say 30,000 dozen pairs of work-gloves by a textile products importer in Winnipeg from an unrelated firm in Korea. Such types of transactions may be numerous, but, in terms of volume and value, we should look in the main at transactions by major corporations. For example, if we analyzed, or merely listed, the transactions between say, a U.S. automobile firm and its Canadian subsidiary we would see that a whole complex of issues or concerns are involved, or have been involved: questions of establishment; the right of engineering and managerial staff to enter and work, temporarily or permanently, in Canada or in the United States; movement by various media, including telecommunications, of services embodied in goods, such as engineering drawings or specifications, which perhaps involve such intellectual property rights as trade secrets (manufacturing know-how); and, of course, the right to use trade marks and model names. To take another example: one could analyze, say, the export of a steel-mill and the related contract for consulting engineering services in such terms. It will quickly be perceived that intellectual property rights are frequently an element in a given service or goods transaction across a frontier. The intellectual property right may, in a given case, be so uncontroversial as to pass unnoticed. In other transactions, such as the import of a video game, involving the use of computer software protected by copyright or the import of computer memory chips which is held to infringe a domestic patent, or the import of a drug the patent on which is subject to compulsory licensing, the trade transactions clearly involve intellectual property rights. It is to be noted that all these recent cases involve service-intensive goods. Even more obvious are those much publicized cases of the copying for resale of video-cassettes which are

protected by copyright; an obviously trade-distorting practice involving services embodied in goods.

Intellectual Property Rights Systems

Again this background, we should look at the international intellectual property rights system, noting the problems which have given rise to the agreement reached at Punta del Este to negotiate - under GATT auspices rather than under the auspices of the institutions of the intellectual property rights system - with regard to the trade distorting effects of what are held to be defects in the system, particularly as they bear on services activities.

One important characteristic or feature of the intellectual property rights system is that, at the level of national legislation, it is not unified. In most countries there are separate statutes for each form of such property rights. Copyrights, patents, trademarks, trade secrets, etc. are separate categories of intellectual property rights, each with its own unique logic, rules and terms. In each country each system has developed separately and there is no overwhelming pressure for moving substantially to unified systems.¹⁰ Indeed there is pressure, due to recent technological innovation, toward further fragmentation (e.g., in regard to software and semi-conductor chips).

It follows that there are important differences between national systems in each of these separate areas of intellectual property law. An obvious example is the provision in the Canadian Patent Act¹¹ which contemplates compulsory licensing for pharmaceutical products, and which has been objected to by the U.S. authorities, on behalf of U.S. pharmaceutical companies doing business in Canada. Another important

difference is the absence of a copyright system altogether in certain countries, or the restriction of copyright protection to nationals, in others. Clearly, these divergences provide scope for what adversely affected owners of rights in other countries may regard as "piracy". A recent example is the unauthorized copying in Singapore and in Indonesia of music tapes that are protected by copyright in many other countries. In the case of these two countries, pressure by the U.S. industry and government has resulted in the creation of stronger protection for foreign copyright owners under domestic legislation.¹² These are two examples of cases in which it is the potential export market which is involved; U.S. (and U.K.) copyright owners can protect themselves in their own domestic markets under domestic legislation, but they are not able to protect themselves effectively in a potential foreign market for a product which is easily copied (e.g., music tapes) and for which there is large-scale consumer demand. Both these examples involve service-intensive goods or if we prefer, goods embodying services.

Another major feature, one that follows from the lack of unification of national systems and the diversity as between national systems in each sector of intellectual property law, is the fragmented character of international regimes. While there may be no compelling case and, in any event no great possibility, for trying to create a single international system for intellectual property rights overall, there is no comprehensive, functionally effective international regime. This is true despite the existence since 1883 of a sort of umbrella agreement on intellectual property rights - the so-called Paris Convention (Convention for the Protection of Industrial Property) and despite the existence of the World Intellectual Property Organization, which provides an administrative centre (in Geneva) for some of the international arrangements.¹³ Moreover, in each separate category of intellectual property rights, there is no single international regime. In the area of copyright, for example, there are at least four

major multilateral agreements, plus some important regional (and bilateral) agreements.¹⁴ There have been efforts made to develop an international patent regime, with substantive provisions, to form the basis for a degree of uniformity as between national systems, but these efforts have been unsuccessful because of the differences of view between developing countries and major developed countries with regard to the working of a patent system. For developing countries, the operation of an international patent regime is a key part of the broader issue of how and on what terms they can secure access to new technology.¹⁵

The differences between the various national intellectual property rights systems, or the inadequacies in many such systems, when looked at from the point of view of intellectual property rights holders in countries with highly developed systems, such as the United States, have made clear that in this sector, at least, of commercial rights, the concept of national treatment has limitations. It is of some interest that, at a time when "national treatment" is being advanced as one of the key negotiating objectives in the Geneva services negotiation, it has become clear that national treatment may not be enough to protect foreign intellectual property rights holders if the national system at issue is inadequate.

One method of trying to deal with this problem would be to try to develop an international agreement providing for substantially more rigorous national systems. However, as we noted above, in regard to patent law, such an approach has not been successful because of the continuing difference of view between developed and developing countries. Much the same situation prevails in regard to copyright.

An alternative approach, that adopted by the United States and endorsed, in a limited sense in the Punta del Este declaration, is to address the trade distortions resulting

from inadequacies of intellectual property rights laws (including enforcement) as a GATT trade policy issue. This would, presumably, involve a procedure analogous to or modelled on the GATT complaint and dispute settlement procedures,¹⁶ and, if formally integrated into the GATT, as the United States has most recently proposed, would involve the sanction of the withdrawal of GATT concessions.¹⁷

Services Under Existing Intellectual Property Rights Systems

If we are to reach some conclusions about what sort of interest the services industries may have in a negotiation aimed at creating GATT-like or GATT-incorporated consultation and dispute settlement procedures, we should first consider what rights the various services industries now have under intellectual property regimes.

As regards services which are sold directly to users (e.g., car rental) the trade mark legislation of certain countries provides for the protection of so-called "service marks". In Canada the Trade Mark Act provides for marks used to distinguish goods and for marks used to distinguish services.¹⁸ In the United States the Lanham Trade Mark Act of 1946 defines a services mark as "a mark used in the sale of advertising of services to identify the services of one person and distinguish them from the services of others"¹⁹.

The availability of adequate protection for such marks is of major importance in regard to the cross-border franchising of services. Clearly, if in a given jurisdiction there is not reasonable protection for the service mark of the franchisor, such a firm may be reluctant or unable to sell franchises in that jurisdiction. One major trading country in which one might assume U.S. franchisors would wish to sell franchises is the United

Kingdom. The U.K. report on Intellectual Property and Innovation noted that the U.K. Trade Marks Act of 1938 did not provide for trade marks for services ("such as banking or laundry"). The Trade Marks (Amendment) Act of 1984 provides authority for such marks and was brought into operation on October 1, 1986.²⁰ Presumably this has now provided a degree of protection for services firms contemplating investing in services facilities in the United Kingdom (e.g., MacDonald's) or proposing to licence service marks under franchise systems.

The U.S. preparatory work for the services negotiations drew attention to the lack of adequate legal protection for trade marks and brand names that are important for franchisors. The U.S. National Study on trade in services asserts:²¹

Because of the importance of trademark protection in franchising, it is worth noting four problem areas that franchisors have encountered with respect to trade marks. First, the majority of foreign countries permit registration of a mark without prior use. As a result, a franchiser may be preempted from using its own mark in any country where a shrewd and frequently unscrupulous individual foresaw that the franchise system might expand there and took steps to register the mark first. Then, in order to use the mark, the franchiser must "buy out" the registered owner, who may not have intended to use the mark at all. Second, a number of countries do not accept service marks for registration. Thus, most business format franchisors must attach their service mark to goods, and owners of service marks must rely on general unfair competition laws, which provide less satisfactory protection than the trade mark laws. Third, a few countries are considered to be almost indifferent to the enforcement of trade mark rights. A related complaint is that some judicial systems may be so slow and inefficient that effective protection is denied. Finally, franchisors are concerned about a "linking" requirement proposed in at least one country to impose on non-national marks. This would require that the franchisee own a Spanish-language mark that is "linked" to the franchiser's mark before the mark can be registered. Such a requirement would have the effect of encouraging and facilitating post-term competition by franchisees in that country under a mark which, in the public's mind, is identical to the foreign franchiser's mark.

In the detailed inventory of restrictions reported as having been encountered by U.S. franchisors wishing to sell franchises in other countries, there are seven citations against developed countries, out of a total of thirty-four. Five of these involve

allegations of inadequacies in intellectual property rights systems; for example, in regard to franchising in Venezuela, it is stated that "trade marks must be registered to be protected because courts lack injunctive authority to halt violations."²² The other three citations involve the practices of Hong Kong, Indonesia, Pakistan and Taiwan.⁶ Taiwan and Indonesia have been long known as jurisdictions in which there was inadequate protection for foreign owners of intellectual property rights.⁷ Bilateral pressure by developed countries, particularly by the United States has led to the enactment and enforcement of more rigorous intellectual property rights in both these countries, following considerable publicity being given to the copying of books and recorded music tapes without the permission of copyright owners.

Before turning to note the intellectual property issues which arise in regard to international transactions in certain other services sectors, we should note that, for franchisors, issues of competition law and policy may be of greater importance. It is only recently that the Commission of the European Communities clarified the situation of franchisors under EC competition law. In the United States, a body of anti-trust jurisprudence has developed in regard to franchising operations; this body of law sets a number of limits in the operations of franchisors.⁸

A rather different complex of intellectual property rights issues arises in relation to consulting engineering. This is a service sector in which services are rendered by professionals applying their knowledge in the country of import; access to computer processing in the exporting country is often involved. On a typical "turn-key" project, the consulting engineering enterprise may be making available access to a patented process, to technical know-how, perhaps to trade secrets, possibly to a trade-name. The importance of these various intellectual property rights will vary very substantially from one project to another.

It may be the case that in international discussions, particularly in the discussions over several years in UNCTAD on "transfer of technology" issues,⁹ too much attention has been given to the question of access to the technology created in developed countries which is embodied in patents and trade secrets, and not enough attention paid to organizational and management techniques which are required to make adequate use of such technology. The writer once visited a major hydro-electric construction project in a developing country being carried out under the direction of a major Canadian engineering consulting firm. The on-site problems and the on-site possibilities of "transfer of technologies" and know-how were not, in fact, in regard to knowledge of power-generation engineering or the design of equipment. There was on-site an excess of engineers but an almost a total absence of skilled foremen. Moreover, the local engineers seemed unaware of the importance of "walking the job" - of close personal surveillance of day-to-day construction activities by engineering staff. The skills which needed to be "transferred" to developing countries were organizational and detailed managerial "know-how" rather than the technology protected by intellectual property rights systems. Inevitably, these issues appear differently in Geneva, and are apt to be charged with North-South rhetoric.

We need not review here the history or state of the debate in UNCTAD, nor consider in any detail how the issue of transfer of proprietary technology (that is, technology embodied in intellectual property rights) has been addressed in other fora.¹⁰ For our discussion there are perhaps only two important factors to note. One is that from the point of view of Canada, the United States and other developed countries, it is possible that the continued competitive ability of their consulting engineering firms will continue to depend, increasingly, on control of proprietary technical information. This is the view expressed in the recent study by the U.S. Congressional Office of Technology Assessment.²⁸ Second, it is quite possible that, as the intellectual property rights

question begins to be examined in the Uruguay round, certain developing countries will inject into the discussion the whole range of issues about the modalities of technology transfer North-South that have been painfully and obviously examined in the UNCTAD transfer-of-technology conferences. These would enter the Uruguay round through the open-door of the obligation, accepted, as noted above, at Punta del Este, to provide for "differential and more favourable treatment" for developing countries.

If the Uruguay Round intellectual property rights discussion were to become mired down in such a fashion, an incentive would be given to the United States and other countries to negotiate these issues bilaterally - a course which the United States has been following in regard to copyright issues in Taiwan, Indonesia and Singapore, for example, and not without success. To the extent that the United States proceeds, during the period of the Uruguay Round to address intellectual property issues bilaterally, the Geneva negotiation will tend to become focussed on the evaluation of panel dispute-settlement procedures.

Consulting engineering is an example of what we may call a direct service export: the vendor of the service takes professional skills to the importer. But to describe the international transaction in such simple terms is possibly misleading. The consulting engineering firm's activities may involve scrutiny and detailed supervision (as well as providing technical specifications for the procurement) of substantial quantities of goods to be imported, and the carrying out of numerous movements of information by a variety of mechanisms, including the use of telecommunications networks linked to computer facilities. A consulting engineering project is a complex series of various types of services and goods transactions bundled together; it is only for analytical or descriptive purposes that we can speak of consulting engineering being essentially the sale of professional skills carried to the import market by professional personnel. In

the real world, trade may take place between corporations in complexes of transactions which may be dis-aggregated at customs, but not elsewhere.

This leads us to consider the services sector in which issues of intellectual property rights, particularly as they bear on trade, are clearly critical to the corporation involved, are much publicized, and most intractable: that is the set of intellectual property rights issues involved and evolving in the design, manufacture and use of computers. There appear to be two major issues. One is the issue of how rights can be defined with regard to computer "software" (that is, to sets of operating instructions), and how the concepts of intellectual property law can be applied with respect to the design or manufacturing processes of computer chips (that is, of complex, miniaturized high-speed circuits). The traditional concepts of a patent for invention and an author's right to control reproduction of his written (or artistic) work do not fit chip technology or the technology of computer programming, nor is the frontier between these two aspects of computer design and use clear or fixed. This confusion arises essentially from the fact that the design of a semi-conductor, a micro-processor or any miniaturized set of circuits is in itself a set of instructions which fulfills precisely the same function as a programme in "software" form.

It is useful to recall that circuit designs for radios and television sets have been patentable, although most such patents have long since expired. It was the control over certain key patents on circuitry necessary to construct television receiving sets which for many years enabled the owners of such patents in Canada to limit imports of television sets from Japan;²⁹ only when the last key patent expired did it become possible to import a range of Japanese television receiving sets into Canada. The problem in many jurisdictions is to decide what should be protected, if there is to be protection by copyright or by some variation of copyright, and what should be protected

by patent, which has traditionally offered protection for a shorter period than is afforded under conventional copyright. In the United States, copyrights have been explicitly extended to "computer programs" (by the Patent Policy Act of 1980, amending the Copyright Act of 1976; a legal commentator has stated that the Copyright Act now "expressly protects computer programs in their written form, but does not provide explicit protection for programs in machine readable form."³⁰

In 1980-81, the United States International Trade Commission (ITC), which conducts investigations of unfair competition by imports, such as infringement of a U.S. patent by importation, under Section 337 of the Tariff Act of 1930,³¹ addressed the issue of whether software protected by copyright could be protected against infringement by importation. In the Video Games Case the ITC issued an "exclusion" order against a number of video-games being imported from Japan, which were competing with a video-game of which a U.S. company had purchased (from the Japanese originator) the U.S. rights.³² This decision appeared to extend copyright protection to programs in machine-readable form.

More recently, a U.S. court has explicitly extended copyright protection to the program or instructions incorporated in a microprocessor, thus recognizing that there is only a narrow range of functional difference between a set of instructions contained in a software program and a set of instructions incorporated in a chip.³³ (The process of "unbundling" instructions from the design of a microprocessor and assigning that function to a "software system" is appropriate for certain computer users; for others the program or elements of it can be incorporated in the chip - as in the Video Games case.)

Following this decision, other U.S. microprocessor/semiconductor makers have sought protection of the courts under the Copyright Act against alleged infringement of U.S. copyrights by imports.³⁴ Possibly the most important development for the U.S. industry appears to be the agreement by IBM and Fujitsu, devised by an arbitrator, rather than imposed by the courts.³⁵ It is important to note that with the exception of the last case noted, what was at issue was infringement of U.S. rights in the U.S. market, not rights in the exporting country or in third markets. These infringements of rights, or failure to create legal rights, cannot be reached by action under U.S. intellectual property rights laws (including Section 337 of the Tariff Act) which affect only rights under U.S. jurisdiction.

In parallel with what appears to have been an extension of the copyright system from the protection of the written or literary presentation of a set of computer instructions to protection of instructions incorporated in semi-conductor design, the U.S. intellectual property rights system has been modified to give more explicit protection to semi-conductor design, or rather, as one commentator has asserted, a new form of intellectual property right has been created "which is a hybrid of traditional patent and copyright law" or a "sui generis" system of international property protection for "chips."³⁶ It may be that this "hybrid" will be a model for new and broader forms of intellectual property rights that are designed to give protection to what can be called "functional works".

From the point of view of this paper the important feature of the Semiconductor Chip Protection Act of 1984 is that it extends protection to foreign semiconductor producers on a basis of bilateral reciprocity: that is, protection is given to foreigners if their country protects U.S. producers as it protects its nationals. Karen Ammer has summarized this feature of the Act:

"Foreign-owned chips, if first commercially exploited in the United States, may gain protection under the Act where both the owner's country and the United States are parties to a treaty affording protection to mask works (the essential design device for making semiconductors). Foreign owners may also acquire protection subject to a Presidential finding and proclamation that a foreign nation extends reciprocal protection to mask works of U.S. origin."³⁷

Following the introduction of the U.S. policy of protecting the rights of foreigners in the U.S. market only on a basis of reciprocity, other countries hastened to provide better legal protection for mask works.

At the same time, U.S. producers have sought protection (through the International Trade Commission) against patent infringement by the importation of semiconductors covered by particular patents or where the manufacturing processing is the subject of a patent. Because such products are often imported as components of finished products or sub-assembled the effect of any exclusion order can be substantial. The recent case in which Texas Instruments sued Samsung of South Korea involves a potential ban on imports of computers, facsimile machines, and telecommunications equipment incorporating Samsung's dynamic random access memory chip.³⁸ Clearly, the size of the U.S. market enables the U.S. to impose some discipline on other countries in this area; however, it remains that piracy of software and of chip design or chip manufacturing process is hard to police and that such new rights as have been articulated in the U.S. and in other countries, under U.S. pressure, are hard to enforce.

Given the impact of the U.S. legislation, the situation may be clearer with regard to chip design and manufacture than is the system with regard to software. Here the difficulties flow from the changing character of software, or, more accurately, of how microprocessors are to be instructed. The OTA study cited above concludes:

"... software is evolving in the direction of programs that users can modify to suit individual requirements (fourth-generation languages). If customers can define or change the function of purchased software, will it be possible to protect the functional features? ... there seems no easy way out of such dilemmas"³⁹

That is the position as seen from the perspective of a U.S. congressional research body. In Canada the language of the proposed amendments to the Copyright Act seems to be relatively broad and comprehensive in effect. It is proposed that "literary work" be defined to include "computer programs" and that computer programs be defined as " a set of instructions that is expressed, fixed, embodied or stored in any manner and that can be used directly or indirectly in a computer in order to bring about a specific result".⁴⁰

The question of how intellectual property rights can be created and protected in computer software and in microprocessor design involves detailed technical issues which we need not examine further in this paper. However, we have given these issues some emphasis for two reasons. First, the production of software is a major high-technology service activity. Programs can move across frontiers, either electronically or by being recorded on disks or tapes. Software can be viewed as a traded service but the interests of software producers would appear to be less involved in the potential articulation of some general GATT-like provisions governing service trade, or even a sector-specific agreement, than they are in the development of a more effective intellectual property rights system, whether under GATT or WIPO. Second, semiconductor mask works, the subject of the sui generis regime enunciated in the Semiconductor Chip Protection Act, and semiconductors produced by the use of such mask works, are major examples of service-intensive and technology-intensive goods. Given the large and growing volume of trade in semiconductors (and goods incorporating semiconductors), it is clear that for the service industry concerned, their major interest

as regards the international trade policy system is in the emerging regime of intellectual property rights affecting the trade of goods incorporating their services.

Another service sector which has faced considerable intellectual property rights problems in regard to the trade in goods incorporating their services is the sector comprising musicians and other performing arts. Here there have been essentially two different issues. One is in economic terms and less important: that is the possibility that devices will be available to the general public to make high quality copies of musical recordings. Devices to make duplicate cassettes (tapes) or to copy recordings from conventional disk records onto cassette tapes have been available for years. More recently the prospect that digital audio tape (DAT) would enable individuals to copy onto these new tapes at levels of fidelity equal to the provided laser disk recordings has revived the controversy as to how copying by individuals can be controlled. This is not essentially a trade problem, except that DAT machines will be traded. It is rather a problem, as cassette tape recording has been, for regulation in each jurisdiction (for example, by imposing a tax on the sale of blank cassette tapes). The same logic applies to the copying of video tapes. However, if copyright law is either inadequate or unenforced in a given market, there is scope for copying and selling by persons unauthorized. This was the situation in Singapore and Indonesia; it was alleged that large numbers of unauthorized recordings were sold in Singapore and Indonesia (and in third countries). Both these countries are reported to have revised their copyright law and to be enforcing their law with greater vigour.⁴¹ Here is a case where the interest of a service industry (the performing arts industry) is not in a traded service but in traded goods which embody their specific services; of course, to a degree their interest is bound up with the interests of the producers of the goods embodying their services—that is, the record companies. This is also a case where exports to third countries are involved, not imports into the originating country. That being the case, domestic

legal mechanisms (such as Section 337 of the U.S. Tariff Act or national patent, trade mark and copyright systems) used in regard to infringement of rights by importation, are of no avail. These services industries, therefore, have an interest in elaborating an international regime under which their export interests - their interests in the export of works protected by intellectual property systems - could be advanced.

The United States, which has perhaps more elaborate trade policy legislation than any other country, has addressed this issue. Section 301 of the Trade Act of 1974 (the U.S. negotiating mandate for the Tokyo Round) provides authority for retaliatory action by the U.S. administration against trade policies by other governments that are found to be "unfair". Under this section the actions and policies of other governments can be investigated and retaliatory action can be taken which may or may not be in accord with or be provided for in any international treaty. For example, it was under Section 301 that the U.S. Administration inquired into the effect on U.S. interests of Canadian legislation relating to so-called "border broadcasting". Other cases have involved such issues as restrictions on the right of U.S. firms to sell marine or automobile insurance in countries such as Argentina and South Korea.

The fact that there may be, as yet, no treaty or international agreement providing for retaliatory actions in such situations does not mean, of course, that such actions are in breach of international law -- rather, there is no international regime to appeal to.⁴²

It is precisely the absence of an effective and functional regime for the protection of intellectual property rights that led the United States to propose negotiations under GATT on trade-related aspects of intellectual property. In the interim United States has sought other means for taking retaliatory action against those countries which failed

to protect U.S. intellectual property rights - either because the laws in those countries are held to be inadequate or are not being enforced. Given that most countries which fall into this category are developing countries which benefit from preferential rates of duty on their exports of goods to the U.S market, under the U.S. version of the UN-sponsored Generalized System of Tariff Preferences (GPS), it has seemed not illogical to U.S. legislators to contemplate that those benefits should be denied to offending countries. Accordingly, this was provided for in the U.S. Trade and Tariff Act of 1984, which inter alia amended the U.S. legal provisions covering the Generalized System of Preferences by making the extent of the protection of the intellectual property rights of foreign nationals one of the criteria for eligibility for the GPS. The 1984 Trade Act also added failure to protect such rights to the list of unfair acts of foreign governments which could be proceeded against under Section 301.⁴³

These two provisions, and the specialized regime for the protection of semi-conductor mask works, noted above, are important elements of the U.S. approach to protecting intellectual property rights in U.S. domestic markets and in export markets. The approach may be summarized somewhat as follows:

1. Better definition and extension of rights under U.S. law and more vigorous enforcement by the courts and by semi-judicial bodies, such as the USITC, to limit infringement of such rights by importation.

2. Secure more adequate intellectual property rights protection in export markets, by:
 - (a) providing for foreign access to the U.S. market on the basis of bilateral reciprocity; and
 - (b) threatening retaliation against countries which do not protect

the intellectual property rights of U.S. firms, most notably at the present juncture, by the threat to withdraw the benefits of the GSP from such countries.

3. Improve the international regime, possibly under WIPO auspices⁴⁴ but not by giving away the rights of U.S. firms under the guise of "special and differential treatment" for developing countries (essentially as proposed by certain developing countries in the UNCTAD negotiations on a transfer of technology code).
4. Seek some sort of international arrangement which will add to the scope and the international respectability of U.S. retaliatory authority, given that the threat to withdraw GSP is not relevant to all countries.

The Uruguay Round negotiations about intellectual property rights relate to the fourth of these components. U.S. spokesmen have always phrased their objectives in terms of adding a dispute settlement mechanism to the intellectual property rights system. They have proposed that this should be done under GATT auspices because it is the trade-distorting effects of the inadequacies in the intellectual property rights system which are at issue. However, what makes the GATT dispute settlement mechanism work is the possibility that at the end of the process the complainant may be authorised to retaliate. At present, the United States would be in default of its GATT obligations with respect to tariffs (or quotas on imports) if it raised a tariff rate on goods (or imposed an import quota) because it had concluded that the exporting country was failing to protect intellectual property rights. Clearly, the problem relates to exports. As far as the import market is concerned, U.S. trade and intellectual property laws provide considerate scope for remedies, up to and including the exclusion of the goods

-concerned from the United States; that is, the ITC can order the goods concerned not be allowed to be imported.

Prospects:

The negotiations in Geneva address only part of the U.S. approach as we have set it out above. The services industries we have noted as having substantial interests in the better working of the intellectual property rights system have each to judge to what extent the proposed addition to the system - that is, adding some sort of dispute settlement mechanism under GATT auspices - is really necessary. There is some prospect that the group of developing countries in the Uruguay Round, which is not eager to increase U.S. (or developed country) leverage in the international intellectual property rights system (over and above that afforded by the possibility of denying GSP benefits) will attempt to focus the negotiation on the need to provide "special and differential" treatment for developing countries in this area of the negotiations, as in others.

This would be a reasonable expectation or extrapolation of the UNCTAD discussions on the transfer of technology code.

Many developing country spokesmen in Geneva, and in international agencies, believe that a less rigorous intellectual property rights system is necessary to insure that developing countries have adequate access to the technology developed in industrialized countries. They believe that such technology is used under the shelter of patents and copyright, to exploit developing countries. There is more here than mere tactics. What is involved are strongly held convictions that the patents and copyright system creates

exclusive, that is, monopoly rights and therefore monopoly rents, and that this is not an unimportant reason for the gap in wealth between the North and the South.

It will therefore be necessary for the developed countries making the running on this issue in Geneva (primarily the United States) to consider whether they really do need increased bargaining leverage to deal with such trade problems as may be thrown up by perceived inadequacies in intellectual property rights systems. From the point of view of U.S. producers of intellectual property (many of which, as we have noted, are services industries) a great deal has already been achieved by the combination of bilateral pressure, in regard to export markets, and by more rigorous use of U.S. trade and intellectual property rights legislation, in regard to imports. These services industries clearly have a major interest in the effective working of the international intellectual property rights system, but it is not evident that they have any real interest in the pursuit of negotiations in Geneva, particularly if that turns into a debate about "special and differential treatment", rather than into a discussion of how U.S. retaliatory authority should be integrated into the GATT framework.

What is the Canadian interest?

Clearly the interests of Canadian service industries such as software producers, are likely to be rather more affected by the workings of the Canada/U.S. free trade agreement. It is likely that, if the bilateral trade agreement creates, over time, the basis for significant integration of policy as between Canada and the United States, that there will be substantial harmonization of intellectual property law. There was already the issue of the licensing of drug patents in which U.S. pressure has been evident.

~~Canada benefits now,~~ and will do so even more in the future, from U.S. pressures on third countries to provide adequate protection for the intellectual property of foreigners. Canadian service industries will then have an interest in the working of U.S. bilateral reciprocity provisions as they bear on third countries, and on the workings of the U.S. system with regard to imports. Canada has had one unfortunate experience with the working of Section 337, but it would be easy to exaggerate the importance of that case.⁴⁵ It is clear enough that the U.S. courts, even in the absence of a section 337, could provide protection for U.S. intellectual property rights as regards imports.

For Canadian service industries, like U.S. service industries, the Uruguay Round intellectual property rights discussions seem to hold little promise. Indeed, if it opens up a North-South debate in which Canada will be obliged to echo U.S. statements, it could be unproductive, if not counter-productive.

1. GATT, Press Release, Ministerial Declaration on the Uruguay Round, GATT/1396, 25 September 1986, p. 11.
2. GATT, Op. cit., p. 9.
3. GATT, Op. cit., pp. 4-5.
4. The summary is based on GATT/Prep/Com. (86) W46, July 8, 1986.
5. There is a selected bibliography in a forthcoming IRPP publication by R. de C. Grey on the services negotiations.
6. U.S. Congress, Office of Technology Assessment: International Competition in Services, OTA-OTE-328, Washington, D.C., July 1987, p.3.
7. Jagdish N. Bhagwati, "Splintering and Disembodiment of Services and Developing Nations" 7 The World Economy No. 7, June 1984, 133-143.
8. Herbert G. Grubel, "Hidden Services:" Letter to the Editor, Fortune, July 20, 1987.
9. Herbert G. Grubel, "Traded Services are Embodied in Materials or People" 10 The World Economy, No. 3 September 1987, 319-330.
10. In the legal profession intellectual property rights are usually grouped between the covers of one text book, for beginners. For this study we have relied on Earl W. Kintner and Jack L. Lahr: An Intellectual Property Law Primer, 6th Edition, 1975; MacMillan, New York, (for the U.S. system) and Peter Burn: Guide to Patent, Trade Mark, and Copyright Law in Canada, Coles, Toronto, 1977. (This book contains, as appendices, the Canadian Patent Act, the Canadian Trade Marks Act, the Canadian Copyright Act (which has attached to it as Schedule II the text of the Revised Berne Convention on copyright). We have also consulted the 1986 report by the U.K. Department of Trade and Industry: Intellectual Property and Innovation, HMSO, London, Cmd. 9712. See also Helena Stalson: Intellectual Property Rights and U.S. Competitiveness in Trade, Washington, D.C., National Planning Association, 1987.
11. It is not proposed, in this paper, to examine the controversy about Canadian compulsory patent licensing for drugs, although it could be argued that pharmaceutical research is a service activity and therefore that there is a significant service input into pharmaceuticals.
12. On Indonesian copyright, see Steven Jones: "Indonesia Moves to Bolster Copyright Laws" Wall Street Journal (Europe), September 15, 1986. On Singapore copyright, see Roger Beal: "Action Against Offenders Stepped Up" Financial Times, London. FT, November 3, 1986; Steven Butler: "Singapore Tightens Laws on Unauthorized Copying" FT, January 27, 1987; Rachal Davies: "Singapore Protects U.K. Copyright" FT Commercial Law Reports, May 1, 1987.
13. Convention Establishing the World Intellectual Property Organization, signed at Stockholm on July 14, 1967, WIPO, Geneva, 1980.
14. Cf. U.K., "Whitford Committee Report" (Copyright and Design Law/Report of the Committee to Consider the Law on Copyright and Designs, HMSO, London 1977, Cmdnd 6732. Although focussing on recommending changes in U.K. law, the Witford

Report is a detailed and comprehensive study of the law of copyright and designs, and it compares a number of different national systems.

15. There is a useful description of the international patent system and of the various agreements in UNCTAD: The Role of the Patent System in the Transfer of Technology to Developing Countries, UN Publication E. 75, II, D. 6, Chapter II.
16. The GATT complaint and dispute settlement procedures were formulated in an "understanding" negotiated in the Tokyo Round (see GATT: Basic Instruments and Selected Documents (BISD). 26th Supplement. (26S), p. 211, and further elaborated by GATT Ministers in 1982 (see BISD 295, p. 13). The most detailed study of the system is in the new Analytical Index to the GATT (as yet unpublished, but circulating in photocopy) pages XXIII - 1 to 129.
17. The U.S. presented its proposal on TRIPs to the negotiating group in late October 1987; according to press reports it involved the concept of retaliation "including the withdrawal from an offending entry of GATT tariff and other concessions." William Dullforce: "U.S. Seeks Boost for Intellectual Property Rights," London, Finance Times, October 19, 1987.
18. Canada, Trade Market Act, 1952-53, C. 49 section 2.
19. Kintner and Lahr, Op cit., p. 226. Chapter 4 is a detailed discussion of the U.S. law of "Trademarks and Franchising".
20. U.K. DTI op. cit. (For 10 Supra) p. 15.
21. USTR: U.S. National Study on Trade in Services, December 1986, p. 277.
22. loc. cit.
6. USTR Computer Group: Selected Impediments to Trade in Services (OECD Supplemental Report, Revision 6) 55-61.
7. See fn. 12 Supra.
8. Kintner and Lahr: op. cit., 302-314.
9. For the UNCTAD work on technology transfers, see UNCTAD, op. cit. (fn 15 supra); P. Roffe: "UNCTAD: Transfer of Technology Code/Fifth Session of the UN Conference" 18 Journal of World Trade Law, No. 2, March-April 1984, 176-182; P. Roffe: "UNCTAD: Code of conduct on Transfer of Technology/Sixth Session of the UN Conference" 19 Journal of World Trade Law, No. 6 November - December 1985, 669-672. See also UNCTAD: Control of Restrictive Practices in Transfer of Technology Transactions, UN publication E. 82, II, p. 8 1982 (a useful review of the legislation of various countries, not including Canada).
10. Another international body which has addressed the issue of technology transfer in the consulting engineering sector is the UN Economic Commission for Europe. See A.F. Ewing: "EEC: The Consulting Engineer in International Transactions" 16 Journal of World Trade Law, No. 3, May-June 1982, 276-279.
28. OTA, op. cit. (for 6 supra): p. 153.

29. The present writer was involved in the Canada/United States consultations on the Canadian Radio Patents issue.
30. The Patent Policy Act: Public law No. 96-517. See Keith Ann Stiverson: "Recent Decision/Copyright Infringement as an Unfair Act: The Galaxian Video Game case at the ITC" 14 Law and Policy in International Business, No. 2 1982, 521-545.
31. In the history and jurisprudence of Section 337, see Kaye, Phia, Hutzberg: International Trade Practice, Colorado Springs, Shepherd's/McGraw-Hill, 1981, Part II.
32. Stiverson, op. cit., 522-523. This article reviews in detail the various difference between the ITC decision and various U.S. court decisions on copyright in computer programs.
33. B.R. Schlender: "Copyright Ruling on Chips to Aid Makers in U.S." Wall Street Journal Europe, September 25, 1986.
34. Peter Waldman: "National Semi-Conductor Exports Trade Secrets Suit" Wall Street Journal Europe, December 19, 1986.
35. Michael W. Miller: "Fujitsu Gains From Order in IBM Case Could be Costly" Wall Street Journal Europe, September 16, 1987; "IBM-Fujitsu Outcome Breaks New Ground in High-Tech Disputes," Wall Street Journal Europe, September 18, 1987.
36. Karen A. Ammer: "The Semiconductor Chip Protection Act of 1984" 17 Law and Policy in International Business, No. 2 1985, 395. This important article surveys the development in detail and provides a detailed guide to U.S. literature on this issue.
37. Karen A. Ammer: op.cit, 405.
38. Louise Kehoe: "Samsung Faces Import Ban For Infringement of U.S. Patents" Financial Times London, September 23, 1987 and "???" Chips Patent Windfall Sweeps Asia" Financial Times, November 18/1986. USITC publication 2034: In the Matter of Certain Dynamic Random Access Memories, Components, Theory and Products Containing Same, Washington, November 1987.
39. OTA op. cit., p. 321.
40. House of Commons, Canada, Bill C-60.
41. See footnote 12, supra, The "pirating" of video-cassettes also occurs in developed countries, e.g., Canada. According to the Toronto Globe and Mail, Canadian police seized 22,000 "pirated" video cassettes in 1987, and fines and one jail sentence were imposed. "Video Raids Up In 1987, Group Says" Globe and Mail, January 2, 1988.
42. Section 304 of the Trade and Tariff Act of 1984 amended Section 301 of the 1974 Act extensively; it makes clear that failure of a foreign government to provide "adequate and effective protection of intellectual property rights" is to be considered an "unreasonable" act, which, upon investigation and report, may lead to retaliatory action by the United States Section 503 of the Act amended the

provisions governing the Generalized System of Preferences by making the extent of protection of the intellectual property rights of foreign nationals one of the criteria for the extension of eligibility under the GPS.

44. For WIPO efforts to devise an international regime on software, see: Anon: "WIPO: Legal Protection of Computer Software" 17 Journal of World Trade Law, No. 6, November - December 1983, 536-544.
45. The "Wallbank" Case: GATT, Contracting Parties, Basic Instruments and Selected Documents, 30th Supplement.

