Institutional Utilitarianism and Intellectual Property

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What roles should be played by the government and the marketplace in the production and distribution of information goods (that is, the goods that are now protected by the intellectual property system)? In this Article I will be exploring the institutional-utilitarian perspective on this issue. Institutional utilitarianism, as its name suggests, is a version of utilitarianism that focuses on the impact of institutions on total utility.¹

The institutional utilitarian pays particular attention to two practical problems that institutions must respond to. The first practical problem (from the perspective of utilitarianism) is that self-interest is pervasive; agents are motivated disproportionately by their own utility as against total utility. Self-interest leads agents to interact strategically, a fact which institutions need to respond to. The second practical problem is that agents must make choices with limited information. One role of institutions is to increase the information available to agents. As we will see, these two practical problems play a significant role in the institutional utilitarian’s account of the relative advantages of the government and the marketplace, and thus in his account of their appropriate roles in the production and distribution of information goods.

A FRAMEWORK FOR ANALYSIS

In thinking about the production and distribution of information goods, it is helpful to divide all goods according to two characteristics which are commonly used in economics. A given good can be either rival or non-rival, and it can be either excludable or non-excludable.

A non-rival good is one where uses do not conflict. For example, we might distinguish between a text, that is, a pattern of words, and a book, that is, a particular physical object in which a text is instantiated. The

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¹ The term "institutional utilitarianism" comes from Russell Hardin, Morality Within the Limits of Reason (1988).
text is a non-rival good—an unlimited number of people can be reading the same text without interfering with one another. The book, on the other hand, is a rival good—it is hard to imagine more than five or six people reading the same book, and certainly that many people would be interfering with one another as they tried to read it.

The clearest examples of non-rival goods are forms of information, including computer software, recorded music, inventions, works of literature, and scientific knowledge. However, examples that are not informational in character are also important, if a bit harder to see. These include things such as national defense, the beam of light from a lighthouse, and a large park, among others.

A non-excludable good is one that cannot be provided to one person without being provided to everyone. Examples traditionally include national defense (again), general environmental conditions, and television or radio broadcasts. In defending a country from invasion, for example, it is hard to provide defense selectively—leaving out, say, one individual. The ozone layer provides non-excludable benefits, and its destruction threatens non-excludable harms. It is worth noting that although it is difficult to exclude individuals from television or radio broadcasts, it is quite possible to exclude them from the content of those broadcasts, for example by the use of encoding. Examples of excludable goods abound; most goods are clearly and easily excluded. A car, for example, can be driven by one person alone; similarly food, clothing, and shelter are virtually always provided to a single person or small groups rather than to everyone.

There are two ways that one can think about a good being non-excludable. One might restrict this category to goods which cannot possibly be used exclusively. The problem with this approach is that very few goods seem to fit, particularly when exclusion by contract is considered. On the other hand, one might include in it goods which can only be used exclusively at great expense—the expense going to "fencing": that is, using some means to prevent others from making use of the good. Fencing can range from actual fences, to locks, to contractual arrangements, to property rights. The problem with this approach is that it does not provide a precise distinction. How expensive is too expensive? When the expense is greater than the benefits that exclusion provides? What are those benefits? This is an issue we will return to.

Dividing goods according to these two characteristics, we get four general types of goods, which can be displayed in a table. I have also indicated the institution which typically provides each type of good. Our
interest is in the upper left category, and the lower right category is not important here.

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<thead>
<tr>
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<th>Excludable</th>
<th>Non-Excludable</th>
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<tr>
<td>Non-Rival</td>
<td>Information Goods</td>
<td>Public Goods</td>
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<td>?</td>
<td>Government</td>
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<td>Rival</td>
<td>Regular Property</td>
<td>Not important</td>
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<td></td>
<td>Marketplace</td>
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The reason that there is a genuine puzzle about the roles that the government and the marketplace should play in the production and distribution of information goods can be seen clearly in this table. Information goods share one characteristic with the goods normally handled by the marketplace (they are excludable) and one with the goods normally handled by the government (they are non-rival). By extrapolation from the upper right, we might suppose that the government should play a primary role in the production and distribution of information goods. By extrapolation from the lower left, we might give that role to the marketplace.

To determine the institutional-utilitarian perspective on this issue, we need to have very brief versions of the institutional-utilitarian accounts of the advantages of the government and the marketplace at hand. For the institutional utilitarian, the most important difference between the government and the marketplace is that the government has coercive power. In particular, it can receive involuntary payment for goods that it provides (it can tax), and it can impose involuntary contracts (it can legislate). These powers are the source of both the strengths and the weaknesses of the government. They are the source of its strengths because they make it possible for the government to solve collective action problems, strategic difficulties generated by the first practical problem mentioned at the outset of this paper—that self-interest is pervasive.2

A collective action problem is a situation in which individuals have an incentive to “free-ride,” or take advantage of the efforts of others. For example, while air pollution can be reduced significantly by the use of catalytic converters, I can receive the benefits of reduced pollution

whether or not I individually incur the cost of buying a catalytic converter, as long as enough other people do so. Thus, I have an incentive not to buy it. But since everyone faces the same incentive structure, it might happen that no one buys a catalytic converter, and we all end up worse off. The government, by legislating the use of catalytic converters, can overcome this particular collective action problem and make us all better off. Pure public goods (that is, non-rival, non-excludable goods) present a collective action problem, since free-riders cannot be excluded from obtaining the benefits these goods provide. On the institutional-utilitarian account, this fact justifies government provision of these goods.

The government's coercive powers are also the source of its weaknesses. Since the government can force people to pay for something or to act in some way, it can ignore the details of consumer preferences. In contrast, in a market environment producers succeed or fail in proportion to their responsiveness to consumer preferences. Not only does the process of exchange in a market provide an incentive for the producer to determine those preferences, it also provides the information about preferences itself. That is, the market acts as a discovery process, revealing the preference structures of its participants by way of their voluntary exchanges.

For excludable, rival goods, the market serves two functions. It provides the incentive for goods to be produced and tends to allocate those goods to their best use. We have already seen how it provides an incentive for production. That the market tends to allocate a good to its best use can be seen most easily in a concrete case. The owner of a home, for example, has an incentive to find someone who values that home more than he does; in fact, he has an incentive to find the person who values that home most of all (and has the money to buy it—an important restriction). Both of these functions are quite important for rival, excludable goods, and this is the basis for the standard account of market provision of this class of goods.

For the institutional utilitarian, then, the advantage of the government is that it can overcome collective action problems, while the advantage of the marketplace is that exchange more effectively gathers (at least certain kinds of) information. What is not so clear, however, is how one should choose between these two advantages. In the case of the goods normally handled by the government and the market, the question is moot. Non-excludable, non-rival goods (public goods) cannot be exchanged, and excludable, rival goods do not tend to pose collective action problems.
My suggestion in this Article is that the best way for framing the debate about excludable, non-rival goods (information goods) is to see that the advantages of both the government and the marketplace apply. The goods pose particular collective action problems, which the government can remedy, but are also capable of being exchanged, with the resulting gain in information. Thus, deciding on the appropriate form of provision for these goods involves deciding which advantage is more important, or discovering some way of obtaining both advantages.

However, rather than seeing the issue as one of dramatic alternatives—either complete government provision or complete market provision—I think it is best to see the process of provision as composed of four functions which can be performed either by the government or by private parties in a market context. The advantages of the government and the marketplace apply to each function. So, too, does the debate about the appropriate roles for the government and the marketplace. The four functions are production, reward, fencing, and fine-tuning. These functions can be seen most clearly by way of an example. An apartment building, for instance, must be built (produced) if it is going to be used. If it is going to be built in a market context, those who build it must expect compensation (reward). If that compensation is to be provided by market forces, there must be some means of excluding those who do not pay from using the building (fencing). Since there are many ways of fencing in the apartment, the possibility arises of optimizing (fine-tuning) that fencing, to minimize cost or to achieve other purposes. For example, if the fencing is in the form of governmentally enforced property rights, it is possible for the government to fine-tune the rights granted, perhaps by zoning laws. Fine-tuning might include bundling certain rights together, placing restrictions on various rights, limiting the time that rights hold, or limiting the circumstances under which they hold.

There are important connections between the four functions which place them in a natural order. In particular, if production is done privately, there must be some form of reward (to provide an incentive). If reward is done privately, there must be some form of fencing (to permit exchange). On the other hand, if fine-tuning is done publicly, then some element of the fencing must be provided publicly as well (because fine-tuning must be done by way of modifications to the fencing).

These connections allow us to place the five primary alternative combinations of government and private action in a useful order: complete government provision, government provision of everything but production, government provision of everything but production and reward, government provision of everything but production and reward, and fine-
tuning, and complete private provision. The rest of this Article will be concerned with exploring instances of each of these five possibilities applied to the particular problem of non-rival, excludable goods.

GOVERNMENT PRODUCTION

It has never been proposed, to my knowledge, that the government be responsible for the production of all non-rival goods. Still, I think it is useful to think about this possibility. Issues that will be important for the later cases can be seen in sharp relief in this case.

It is worth noting that the government is responsible for the production of a great deal of information. This includes research that is done in government laboratories and research centers, research that is done as part of its provision of pure public goods, such as that which is sponsored by the defense department, and research within the university research system that is funded by government grants.

This last example is a tricky one. There is certainly a difference between research that is done in a government lab and research done at a private university that is funded by a government grant. Insofar as the research is done after a grant proposal is approved by people acting on behalf of the government, however, it appears to closely resemble a case of the government contracting-out work. The government is producing the research in the sense that it has decided what should be done, and is simply paying someone to do it. The government must, somehow, possess the knowledge necessary to decide what should be done.

This model could be extended to the production of all non-rival goods, including inventions, software, books, and so forth. There could be a department of software production which either directly produced all software, or analyzed software proposals and funded the ones it thought to be potentially useful.

The advantages of this approach would be substantial. The production of information goods poses an immediate collective action problem. Unlike a rival good, which is typically used by a single individual, information goods are typically used by large numbers of people—the larger the better. The fact that they can be so used is a great benefit of these goods; their cost can be spread out over the entire class of users. On the other hand, spreading this cost creates the collective action problem. Collectively, the users want the good and are willing to pay for it. Individually, they would just as soon free-ride—let the others pay for the good and use it for free. Government production solves the collective
action problem by eliminating the free-riding option. Everyone pays for the good through taxes.

Unlike a rival good, which is allocated to its best use by the market process, a non-rival good need not be allocated at all—uses do not conflict, so the least valuable use does not directly conflict with the most valuable use. Government production would permit the goods to be applied to the widest possible number of uses, thereby maximizing their value.

The department of software production would also have significant disadvantages. The image of a government issued word processor or spreadsheet is not an appealing one. It seems unlikely that the government would reflect, as accurately as the marketplace has, the individual needs and desires that people bring to these tools. Perhaps it would, in pursuit of efficiency, try to produce a single word processor that was all things to all people. Private firms can (and do) try to do the same thing. As we saw, however, private firms must compete with other firms to survive, and receive information about the consumers’ preferences by way of sales—information that they cannot ignore. In contrast, the department of software production would be quite capable of ignoring those preferences.

In addition, the department of software production seems likely to be uncreative. Why is this so? Most genuine innovations are unpredictable, going against the grain of conventional wisdom; an individual or group of individuals pursue some vision that they have. Innovators seem the least likely to be able to persuade a government bureaucracy that they are worth funding. Thus, it is likely that many creative ideas would be ignored by the department of software production.

We will find that the advantages and disadvantages of government performance of each of the other three functions involved in provision will resemble those we have just discussed for government production. The government will be able to solve a particular collective action problem, providing benefits, but will fail to gather important information as effectively as the market might, and will fail to be as innovative as the market. The collective action problem, information, and innovation involved in each case will be different, however.

PRIVATE PRODUCTION, GOVERNMENT REWARD

A closely related but significantly different proposal has been made with regard to the goods protected by patent law. Michael Polanyi ar-
gues for it in a 1944 article, *Patent Reform*. He proposes that the government be responsible for rewarding innovation, but not for producing it.

Polanyi is quite aware of the difficulties with government production discussed above. He suggests that "[n]owhere . . . could the characteristic powers of private capitalism be more properly applied than in promoting pioneer inventions." He holds this view because "time and again it is the most unorthodox suggestions, deprecated by all experts, which prove to contain the most valuable possibilities." In addition, "inventions . . . must conform to the system of mutual adjustments operating between all centres of production, and must be informed by that completely localized, private outlook which the operation of such centres breeds and requires." These two issues, the importance of creativity and the importance of detailed information about costs and benefits, are precisely the same ones we pointed to. He believes, however, that the difficulties which would arise with government production need not arise with government rewards.

In Polanyi's system people invent things as they currently do, and register their inventions in a manner similar to the present patent system. They do not, however, then possess the right to exclude others from the use of the invention. It is applied wherever it is useful, by whomever desires to use it. Users are required to license the invention, but there is no payment required for this license. All that is required of licensees is that they provide the patentee with information on the value of the invention. This information has to be in a form that will permit the patentee to make "their own assessment of the economic value created by the invention." If this assessment is properly substantiated, "[t]he Government would undertake to pay annually to patentees a fixed fractional part—perhaps one tenth to one third—of the approved total of assessed values created by the invention during the previous year." Polanyi thinks that only a fractional part of the value needs to be paid because "the total usefulness of inventions . . . is bound to . . . increase quite considerably . . . by the proposed free accessibility of inventions to all." Thus, to match current earnings from patents would require only a fractional payment.

4. Id. at 64.
5. Id.
6. Id. at 65.
7. Id. at 67.
8. Id.
9. Id. at 68.
Polanyi’s scheme shares many of the benefits of government production without all of the disadvantages. In particular, his approach overcomes the collective action problem involved in the production of information goods, once again by forcing everyone to pay for the goods by taxes. In addition, because the goods are privately produced by companies that will go out of business if they do not meet the needs of the consumers, information about those needs is gathered effectively.

The disadvantages of government reward are connected with the reports made by the licensees, and the final report made by the patentee to the government. The effectiveness of the whole system depends on their accuracy, but it is not clear how that accuracy will be obtained. Polanyi suggests that

[i]n order to avoid the danger of corruption and arbitrary oppression which is never far removed from the grant of Government subsidies, the whole procedure of their assessment should be made fairly rigid. The return on which they are based should include only data endorsable by accountants’ certificate.  

He then suggests that

[i]f for inventions, dealing with the manufacture of known products by improved methods, the economies achieved could be established accurately enough without much trouble. In the case of entirely new commodities or services made available through a new invention, data concerning the commercial profitability of their production would be required.

A number of significant difficulties arise almost immediately. How are accountants supposed to be able to certify how much of the profits of a company producing a new product are the result of the invention as against effective marketing, or organization, or efficiencies of production? They could not do this with the information they have now, nor with the information Polanyi’s approach supplies them. Sophisticated statistical techniques permitting comparison between companies would be required. Even so, such techniques are notoriously difficult—it is almost impossible to make sure that one has controlled for all relevant factors. The difficulty the accountants would face would be multiplied when they were asked to determine the value of interdependent inventions, as they surely would.

Since many if not most of the inventions valuable to a company are produced by others in the same industry, there would be a significant problem gathering accurate data. Competitors would have an incentive to minimize the apparent value of the inventions. How would the ac-

10. Id.
11. Id.
countants overcome this fact? Would they be allowed access to proprietary information in order to verify a competitor’s claims? Permitting such access would have a number of negative side effects. For example, companies might avoid using a marginal invention rather than permit this sort of access.

For that matter, how would the government verify the reports it receives? It would presumably have to develop a massive bureaucracy comparable in power and scope to the Internal Revenue Service to explore these reports and the information about production, marketing, and so forth that underlie them.

It might be helpful to draw a contrast with the operations of the market. Similar puzzles exist—how does a company decide what the various contributions of marketing, organization, and efficiencies of production are? In a market context, it decides as well as it can, and those companies that decide well thrive because they allocate their resources well, while those that decide poorly go out of business or get taken over.

How does the marketplace determine the relative value of goods—that is, how does a company decide how valuable a good is to another company without looking at its books? It decides as well as it can, charging as high a price as it can while still making the sale. Those that decide well thrive, and those that do not, fail. In other words, as we have already noted, the market acts as a discovery process, forcing companies to obtain the best information they can, and choosing those that do so well by means of profit and loss.

Once again the disadvantages of government performance of the function are connected with the accumulation of information. In this case the limited information has to do with value to users, while in the previous case it had to do with the needs and preferences of users. The basic point remains the same, however. The market, acting as a discovery process, is more effective at gathering relevant information than the government.

Polanyi’s requirement that the process be made rigid in order to limit fraud is a realistic one, but it also points to the way in which innovation would be restricted by government rather than private action. In a market context, more efficient or informative means of determining value will be developed and propagated by individuals and businesses pursuing profits. There would be no corresponding process were the government providing the rewards.

Thus, government performance of the reward function has advantages and disadvantages that resemble those associated with its perform-
ance of the production function. It can overcome the collective action problem involved in providing the reward, but it will also not gather information about value (or the appropriate level of reward) as effectively as the market, nor will it be as innovative about means for gathering that information.

**Market Reward, Government Fine-Tuning**

The third possibility is for the market to provide the reward, and thus to obtain the information about value. For the market to provide the reward, however, there must be some means of exclusion, or fencing, since the market operates by exchange. Introducing fencing, however, introduces the possibility of fine-tuning that fencing to achieve other goals. In particular, in the case of non-rival goods, there is the possibility of fine-tuning the right of exclusion to permit maximal access while still permitting the exclusion necessary for private rewards. It is desirable to maximize access because information goods are non-rival, and for non-rival goods the least valuable use does not conflict with the most valuable use. Economists often model intellectual property systems in order to assist in providing the optimal balance between incentives and access. I will now turn to a careful exploration of one such model.

A particularly interesting account is given by William Landes and Richard Posner in their 1989 article *An Economic Analysis of Copyright Law.* As indicated by the title, they are modeling the copyright system, while Polanyi was concerned with the patent system. At the level of generality we are considering, the differences between the copyright and patent systems are not too significant.

An interesting point about their account is that total welfare is maximized without considering the effect of higher prices for consumers due to monopoly, normally an important concern in this sort of model. This factor "drops out" of Landes and Posner's account. Instead, their account focuses exclusively on the interests of producers. It might seem that producers would want maximally strong protection, but Landes and Posner argue that this is not the case. Strong protection has two effects: it makes the information goods they produce more valuable, but it also makes them more costly to produce. This is because producers use previously produced information goods as raw materials in the production of

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13. *Id.* at 341.
14. *Id.*
their own information goods. For example, a novel might use elements of the plot of a previously published novel. Strong protection increases the cost of these previously produced information goods and thus increases the cost of production of the new information goods.

At some point short of complete protection, the costs of increased protection exceed the benefits; producers will support protection just short of that level, where they have the highest net profits (as against gross profits, which are highest at complete protection). Thus, according to this model, optimal copyright protection will be weaker than complete protection.

Obtaining this less than complete protection, however, appears to involve a collective action problem. Collectively, the producers want protection to be of this form. However, if there are complete property rights in information (that is, government fencing but not fine-tuning), then individually the producers will take advantage of all the protection that is available. The government can solve this collective action problem by providing the fine-tuning along with the fencing.

For this policy to be reflected in the copyright protection provided by the legal system, the officials implementing the system (whether legislators or judges) must not only know that less-than-complete protection is optimal, they must also be able to determine particular ways in which it is better to have less than complete protection. This requires them to know the relevant detailed interests of the producers, and the purpose of Landes and Posner's model is to provide them that information.

The first thing we need to understand is the manner in which copyright protection can be made more or less complete. Landes and Posner explain that in their model “[t]he level of copyright protection involves such considerations as the degree of similarity between two works before infringement can be found, the elements in a work that can be protected, and the period of time for which the work is protected.”15 These are the terms by which fine-tuning can be performed.

The most important example of less-than-complete protection that Landes and Posner argue for is the non-protection of ideas. This is an instance of limiting “the elements in a work that can be protected.”16 According to Landes and Posner, a work is “the joint output of two types of input, only one of which is protected by copyright law.”17 The two types of input are ideas and expression, with only expression receiv-

15. *Id.* at 334.
16. *Id.*
17. *Id.* at 349.
ing protection. Landes and Posner believe that their model can ground this instance of fine-tuning in economic terms.

As we saw, Landes and Posner point out that prior works provide some of the raw materials for a new work. They suggest that creating a new work typically involves borrowing or building on material from a prior body of works, as well as adding original expression to it. A new work of fiction, for example, will contain the author's expressive contribution but also characters, situations, plot details, and so on, invented by previous authors.\(^\text{18}\)

This example, then, connects the two elements of their theory thus far considered. It suggests that a work of fiction will contain new expression and old ideas. The producer of a work of fiction will prefer that the expression be protected (so that he can recoup his investment) and that the ideas not be protected (so that the cost of production is lower).

However, this picture is too simple; it does not consider the interests of all producers. Not all works of fiction consist of new expression and old ideas—some works of fiction must include new ideas (since the ideas being used were "invented by previous authors").\(^\text{19}\) The originators of those ideas will prefer that ideas receive protection, so that they can recoup the investment they made in producing them.

For non-protection of ideas to be a successful case of fine-tuning protection, we must compare these two interests and determine that the interest of the producers in lowering the cost of production is greater than the interest of the originator of the idea in recouping his investment. It is at this point that the model is intended to supply the government officials with detailed information about the interests of the parties involved. Landes and Posner argue that the model demonstrates that the producers' interests are greater than the originators. I will argue that this conclusion cannot be reached on the basis of the model alone.\(^\text{20}\)

We first need to determine the strength of the producers' interests in reducing the costs of production. Landes and Posner provide a list of the costs involved. They suggest that if works received complete copyright protection (that is, if ideas were protected), authors who were inclined to use the ideas from another work would face a number of costs. An author in that position "would have to invest time and effort in coming up with an original idea for his work, or to substitute additional expression for the part of his idea that overlapped the first author's, or incur licens-

\(^{18}\) Id. at 332.

\(^{19}\) Id.

\(^{20}\) The originator of the idea may be a producer who wishes to use ideas originated by others. We still have to determine if his interests as a producer outweigh his interests as an originator.
ing and other transaction costs to obtain the right to use the first author's idea."\textsuperscript{21} It is not clear to me what the second alternative is, but the basic choice seems to be to either come up with a new idea or pay for the use of the first author's idea. The costs associated with these options are the source of savings for the producer if ideas are not protected.

We now need to explore the strength of the interest of the originator of an idea in recouping his investment. Landes and Posner suggest that "the costs involved in coming up with the kind of new idea normally embodied in an expressive work usually are low relative to the time and effort of expressing the idea."\textsuperscript{22} It is not clear to me why the comparison with the cost of expression is relevant—it is much more expensive to build an engine than a car radio, but both components of a car are protected. However, the implication seems to be that the cost of coming up with the sort of idea that appears in a work of fiction is low.

Now we encounter a puzzle. If the costs of coming up with a new idea are low, then the interest of the originator of an idea in recouping his investment is weak. This conclusion is consistent with Landes and Posner's claim that his interest is outweighed. However, it also follows that if the costs of coming up with a new idea are low, the interest of the producers in reducing their costs of production by reducing the cost of the idea component is also low. They can cheaply avoid the cost of paying for the use of the first author's idea by coming up with a new idea on their own. This fact is inconsistent with Landes and Posner's claim that the interest of the producer is greater than the interest of the originator.

At this point in the argument, we do not know enough about the interests of the parties involved to permit the fine-tuning in question. The producers of the new work and the originator of the idea have conflicting interests which, as far as we can tell, are equal in strength. It is important to recognize that this conclusion would follow just as straightforwardly if the cost of coming up with a new idea was high—the producer's interest in reducing the cost of production would increase, so but would the originator's interest in recouping his investment. The two interests are necessarily tightly linked. While it is possible that further empirical work might demonstrate that one interest was greater than another, it would appear that we can get no further within the framework of a deductive model. In particular, the model does not provide the government officials with the detailed information about the interests of

\textsuperscript{21} Landes & Posner, supra note 12, at 348.
\textsuperscript{22} Id. at 348.
the participants that is required for fine-tuning the protection provided by the government.

Landes and Posner discuss the idea/expression distinction at further length, but do not provide any resolution to the puzzle we just examined. However, one consideration they bring up is worth discussing on its own merits. They state that "[a]n alternative to distinguishing between ideas and expression . . . would be to confine copyright protection to original works, or to a work insofar as it was original, much as in the case of patent law." 23 That is, novel ideas would be protected in just the same way as novel expression, so there would be no need to distinguish the two. They suggest that "[t]he problem is that originality or novelty is an even more debatable quality of fiction than of mechanical and other technical processes." 24 As a result "authors and publishers would find it hard to know in advance of litigation whether they actually had a property right." 25 They seem to be suggesting that rights which can only be specified by way of litigation would be excessively costly.

This last point is reasonably plausible; it amounts to the claim that ideas in fiction are non-excludable—the fencing costs are just too high. In terms of our table, according to this argument ideas are non-excludable, non-rival goods rather than excludable, non-rival goods. However, this response does not solve the fundamental problem raised earlier. Landes and Posner's model is intended to permit fine-tuning copyright law by showing us how complete protection should be. The basis for this fine-tuning was supposed to be a trade-off between higher costs of raw materials and higher rewards. We end up with no trade-off. If, like expression, a good can be protected, it is protected. If, like an idea, a good cannot be protected, it is, of course, not protected at all. If we know that protecting ideas is, practically speaking, impossible, we do not need to concern ourselves with the fact that ideas are raw materials for future works to determine that they should not be protected. We also do not need to model the interests of the parties involved to come to this conclusion. In effect, this last argument changes the treatment of the idea/expression distinction into a fencing issue rather than a fine-tuning issue.

For our purposes, the most important point is that the model does not provide the government officials with the detailed information about the interests of the parties involved required for fine-tuning. While the idea/expression distinction is the central example Landes and Posner

23. Id. at 350.
24. Id.
25. Id.
consider, the interests of the participants are somewhat difficult to see. For this reason, it might be helpful to explore a somewhat clearer example of the problems facing government officials who attempt to fine-tune on the basis of their knowledge of the interests of the parties involved.

Landes and Posner make reference to an issue currently making its way through the courts, whether copyright protection ought to extend to “the visual ‘desktop’ on which the computer operator views ‘icons’ representing documents, files, programs, and so on, and to the organization and sequence by which the operator is led through a program.”26 As they point out, the argument against copyright protection “is that the visual aspects in question have become so standardized in the computer market that copyright protection would enable the copyright holder as a practical matter to exclude competing manufacturers of computers.”27 That is, the holder of the copyright on the visual desktop would be able to extend his monopoly to include computers as well. On the other hand, the visual aspects are “expressions,” and their status as standards “is a tribute to the expressive skills of the particular manufacturer and should not be deemed to convert expression into idea.”28 This approach suggests that there was a significant investment in the production of the visual desktop that deserves reward.

Landes and Posner suggest, however, that they hope the debate will be resolved not by the semantics of the words ‘idea’ and ‘expression’ but by the economics of the problem and, specifically, by comparing the deadweight costs of allowing a firm to appropriate what has become an industry standard with the disincentive effects on originators if such appropriation is forbidden.29

In terms of their model, the visual desktop is a raw material for future production, and the interests of future producers are greater than that of the producer of the visual desktop.

Why is the interest of the producer of the visual desktop not as significant? They suggest that the disincentive effects for that producer of not permitting such protection would be small, since “the probability that a particular display format will become the industry standard is small.”30 In addition, “presumably there are significant returns over and above copyright to a firm that achieves such a position,”31 and “the nar-

26. Id. at 351.
27. Id.
28. Id. at 352.
29. Id.
30. Id.
31. Id.
rowly expressive aspects of the display”\textsuperscript{32} will be protected anyway. In short, a producer would not make investments on the basis of expecting to become an industry standard, because that is so unlikely, and a producer who does create an industry standard receives some income from it. Since the disincentive effects are small (due to the initial low probability that a product will become an industry standard) and the limitation of access is costly (other computer makers are practically excluded), it seems plausible to suppose that the interests of those who produce new goods using the visual desktop as a raw material would outweigh the interests of the producers of the visual desktop.

However, this ignores the possibility that over time, producers of goods like the visual desktop might well become increasingly sensitive to the forces that make a good an industry standard. They might learn, in other words, how to increase the probability that their products will become industry standards, and might make investments accordingly. Bill Gates, the chairman of Microsoft, a company that is quite concerned with making its products into industry standards, suggested in 1981 that a standard is likely to result where a company “properly documents, properly trains, properly promotes a particular package and through momentum, user loyalty, reputation, sales force, and prices builds a very strong position within that product [category].”\textsuperscript{33}

This example can also be used to see the way that private fine-tuning might be more innovative than government fine-tuning. The government fine-tuning suggested by the example from Landes and Posner is to deny property rights where a product has become an industry standard. If the fine-tuning is done privately, firms might devise less drastic alternatives. For example, firms aiming to become the supplier of the standard operating system might choose to put some of their rights in the public domain, simultaneously encouraging developers to develop for their system and increasing the attractiveness of their system to users. Thus, a firm might put the right to use the look and feel of their interface into the public domain, renouncing the right to stop others from using it. This might be important to developers who want to develop across platforms, and users who must work across platforms. Any number of other innovations in the fine-tuning of rights might develop in a competitive atmosphere.

It is worth noting that Landes and Posner’s discussion has brought out the fact that industry standards can pose additional collective action

\textsuperscript{32} Id.
problems that might justify government fine-tuning. As Gates acknowledges in his discussion of standards, such standards can lead "to a natural monopoly." The private ownership of a natural monopoly leads to potential for abuse, which might be prevented by government regulation. In addition, the government can play a role in assisting in the development of industry standards, which provide a significant benefit to users. This role might require fine-tuning as well.

The advantages and disadvantages of government performance of the function of fine-tuning, then, resemble those of government performance of the functions of production and reward. The government can solve a collective action problem, that of negotiating less than complete protection. Properly performing this task, however, requires that it have information which it will find difficult to collect, information about the relative interests of participants in the copyright system.

On this account, however, if the market is simply incapable of performing the function of fine-tuning because of associated collective action problems, then government performance of this function, even if imperfect, would seem to be the only alternative. In the next section we will explore an account that I take to be a form of market fine-tuning. Market fine-tuning would not involve universal changes in the property rights associated with information, but rather adjustments to obtain particular benefits.

**MARKET FINE-TUNING, GOVERNMENT FENCING**

Edmund Kitch's account of the patent system, laid out in his 1977 article *The Nature and Function of the Patent System,* can be understood as a response to the difficulty of knowing the interests of the participants in the patent system. He assimilates the argument for intellectual property to arguments for regular property, and focuses on the benefits of privately arranged coordination. In my terms, this permits private fine-tuning while still having the government provide fencing. The organizing principle of Kitch's article is actually a related issue, a detailed comparison of the patent system with the prospect system that assigns mineral rights, such as rights to undiscovered gold. An exploration of that aspect of Kitch's article is beyond the scope of this Article, so I will focus on the issues relevant to our concerns.

To see Kitch's assimilation of patents to regular property, we need

34. *Id.*
to understand the aspect of regular property he is interested in. He suggests that the patent "literature has focused heavily on prepatent investment and postpatent use, while the general property rights literature has seen the function of property rights in the context of a continuous, interlocking process of both investment and reward."\(^{36}\) That is, he is focusing attention on the usefulness of property rights in the context of a process of development (continual investment and reward). Where a good must be developed to be of full value, and especially where that development requires or benefits from coordination, property rights will be useful. As we will see, these requirements hold for many instances of ordinary goods and also many information goods.

Kitch lists a number of benefits to property rights in goods which need to be developed to be of full value. On my reading, the benefits can be put into two classes—those that facilitate coordination, and those that reduce fencing costs. Those that facilitate coordination permit private parties to perform the work of fine-tuning—that is, distributing the relevant rights in an efficient way. These benefits reflect the advantages of private fine-tuning over public fine-tuning, since the participants themselves will do the distributing, removing the necessity for a central authority to know all the interests of the participants. Those that reduce fencing costs are intended to show the benefits of government fencing over private fencing. I will start by considering the benefits that facilitate coordination.

The first such benefit is that a patent system "increases the efficiency with which investment in innovation can be managed."\(^{37}\) This benefit follows from exclusive ownership, since "[n]o one is likely to make significant investments searching for ways to increase the commercial value of a patent unless he has made previous arrangements with the owner of the patent."\(^{38}\) Because of this, the patent owner can "coordinate the search for technological and market enhancement of the patent's value so that duplicative investments are not made and so that information is exchanged among the searchers."\(^{39}\) Thus, for example, should someone devise a new engine and receive patent protection for that design, no one will look for techniques to render that design more efficient without contacting the patent holder. This will allow the patent holder to coordinate such research, avoiding duplication and other inefficiencies.

This corresponds to one of the benefits of exclusive ownership of

36. Id. at 275.
37. Id. at 276.
38. Id.
39. Id.
regular property—Kitch uses the example of forty acres of land. No one is likely to invest in plans to improve that land, say by building a house on it, without first contacting the owner. This allows the landowner to coordinate the investments of developers—reporting, for example, that someone else considered building a house on it, but found after considerable research that the land was not suitable.

The second benefit of exclusive ownership of patentable information is that investments can be made to increase the value without worrying that the increased value will be appropriated by a competitor. As Kitch suggests,

[i]n the case of many patents, extensive development is required before any commercial application is possible—for example the laser, the transistor, nylon, and xerography. The investments may be required simply to apply existing technology to the manufacture and design of the product and be so mechanical in their application as to be unpatentable.\(^4\)

A producer is unlikely to invest in this sort of development unless he has some hope of recovering his costs.

Again, the comparison with forty acres of land is appropriate. Someone might landscape the land, bringing in no materials that they independently own, simply moving the dirt around. The value of this landscaping can only be recouped if the land is owned by the individual who paid for the landscaping, and so will only be done if the land can be exclusively owned.

A third benefit Kitch lists is that exclusive ownership permits unification of control, and such unification can lead to important efficiencies. He first considers an example from regular property theory, ownership of mineral rights, suggesting that “[f]or instance, a single main shaft may be sufficient for all mines, or the works of one mine might threaten the safety of another. Unification of control may provide the most efficient solution.”\(^4\)^ In a similar way, “two patents may be so closely related that it makes sense to look for improvements to both at once.”\(^4\)^ If exclusive ownership is permitted, a single owner can purchase both patent rights and reap the benefits of increased efficiency.

Benefits of this general sort could be thought up at great length. The essential point for our purposes is that property rights permit firms to privately coordinate in the process of developing a good, whether that good is rival, like forty acres of land, or non-rival, like patentable infor-

\(^{40}\) Id.

\(^{41}\) Id. at 285.

\(^{42}\) Id.
INSTITUTIONAL UTILITARIANISM

When firms privately coordinate, their decisions will, of course, reflect their interests. When we considered Landes and Posner's account of government fine-tuning, it was information about these interests that posed the difficulty for government officials. As with the other cases we have considered, government fine-tuning has an advantage solving the collective action problems associated with fine-tuning, while private or market fine-tuning has the advantage of more effectively gathering information.

We can now turn to the second set of benefits Kitch considers. These, I want to suggest, can be seen as benefits to publicly provided fencing. Here the analogy with regular property is also clear. If we could only use those objects we had the individual power to fence in, we would waste quite a lot of resources on fencing, and still be quite poor. The public provision of fencing by means of property rights makes it possible for us to greatly increase the number of goods we can own and also greatly reduces the cost of that ownership. This public provision exploits the second power of government, to create involuntary contracts. Rather than incurring the costs that would be required for everyone to contract with everyone else to leave one another's property alone, we have a collection of involuntary contracts that are known as property rights.

Kitch lists three advantages to public provision of fencing in the case of patentable information. His comparison is explicitly with a system relying only on trade secrecy, which is the method of fencing most likely to be used for the purposes of private fencing. First, he suggests that property rights reduce "the cost of maintaining control over technology."43 Someone relying on trade secrecy must make special arrangements with employees and others who must have access to the information. These arrangements can be quite costly.

The second advantage is closely related. The protection offered by patent rights makes contracting easier,44 because of a problem peculiar to secrets: "[d]isclosure of the secret imperils its value, yet the outsider cannot negotiate until he knows what the secret is."45 No one would be willing to negotiate a contract without knowing the value of what he was contracting for, but once he knows what he is contracting for, he already has what he wants—the secret. Patent protection allows the owner of

43. Id. at 279.
44. Id. at 277.
45. Id. at 278.
the patent to reveal the information without fear of the outsider making use of it without compensation.

Finally, Kitc h argues that property rights improve "the structure of the returns to innovation." According to this claim, the use of "self-help" (that is, private fencing) inefficiently distorts the direction of research toward information that is easily protected by secrecy or whatever other forms of self-help are used.

The first two advantages involve reducing costs that are faced individually by every producer of information goods. Each producer must make extensive contracts with employees, users, potential clients and the like. Each would prefer to have a set of contractual limitations apply to others, and to bypass those limitations themselves. The government can solve the potential collective action problem involved by imposing a "standard contract," (that is, intellectual property rights) on everyone. The third advantage reduces a cost imposed on consumers in general. We would prefer that resources were applied according to general usefulness, rather than according to the ease with which information goods can be privately fenced. It appears to be impossible for us to contract individually with all the producers to achieve this end, since each of us would prefer to let others do the work. The government can resolve the problem by imposing a solution on everyone.

**Market Fencing**

The most thorough account of the benefits of the private provision of fencing of information goods has been laid out by Tom Palmer in his 1989 article *Intellectual Property: A Non-Posnerian Law and Economics Approach.* Palmer's argument is intended to cover a broader range of issues than we are considering here, and will require a bit of reconstruction to serve our purposes.

A bit of reconstruction is necessary because Palmer argues that information goods, which he calls "ideal objects," are "truly archetypical cases of pure public goods." They are, he claims, non-excludable as well as non-rival. He suggests that "since the cost of reproduction of an idea is virtually zero (as it need only be thought), it can be very difficult, if not impossible, to exclude nonpurchasers from enjoying the benefits of [an ideal object's] production." Since his primary concern is with in-

46. Id. at 279.
48. Id. at 275-76.
49. Id. at 275.
tellectual property law, where exclusion is definitely achieved (albeit by state action), it is surprising that he thinks they are non-excludable. In addition, as we will see, he suggests a number of ways by which private parties can exclude nonpurchasers, including for example, technological fencing (such as copy protection). It is worth mentioning that he argues that the concept of a public good is a misleading one, since "'publicness' is not a characteristic inherent to goods, but is a function of the manner in which they are produced,"\(^{50}\) and he moves from that point to consider the possibility of fencing ideal objects.

However, as a consequence of seeing the problem underlying intellectual property as one of non-excludable, non-rival goods rather than excludable, non-rival goods, he arranges his argument as a refutation of the claim that the market cannot supply pure public goods. While arguments can certainly be made to this effect, they are considerably more difficult than the arguments necessary to show the advantages of private fencing over public fencing in the case of excludable, non-rival goods. In effect, I will argue, Palmer makes these simpler arguments along the way, and we can extract them for our purposes.

The first element of Palmer's account that we need to concern ourselves with is a conception of the process by which property rights normally emerge.\(^{51}\) On this account, property rights are "the product of an evolutionary process of interaction among interested parties that is later ratified through legal sanctions."\(^{52}\) The negotiations among the interested parties reflect the particular characteristics of the goods in question, including characteristics related to their fencing. According to Palmer, the "central element in the spontaneous emergence of property rights is scarcity, or the possibility of conflicting uses."\(^{53}\) It is this scarcity which provides the parties involved with the incentive to engage in the interactions crucial to the evolutionary process. It is during this evolutionary process that information about fencing is gathered. The parties involved, facing scarcity and the resulting fencing costs, negotiate with one another in an effort to reduce their costs. Those solutions that work tend to be used again, while those that do not are abandoned.

For our purposes, this very simple picture is sufficient. On this account, public provision of fencing in the case of ordinary property is efficient because it makes permanent private solutions that have been developed over years of experience. Repeating solutions to repeating

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\(^{50}\) Id. at 284.

\(^{51}\) Id. at 274.

\(^{52}\) Id. at 280.

\(^{53}\) Id. at 279.
problems of scarcity eventually make their way into common law, and then perhaps into statutory law. New instances of ordinary property arise in response to new conditions of scarcity, as, for example, when a previously abundant good ceases to be abundant, or a previously valueless good becomes useful for some purpose.

The second element of Palmer’s account is the point that information goods have a unique relationship to scarcity.\(^5\) I have already discussed how my view differs from Palmer’s on the issue of information goods’ excludability; however, the point about scarcity follows from their non-rivalry. As we noted earlier, in the case of non-rival goods one function of the marketplace (allocating goods to their best use) is not necessary—uses do not conflict. In that sense, after production these goods are not scarce.

It is worth mentioning, as Kitch points out, that there is scarcity involved in the overall process; he suggests that “[t]here is... a scarcity of resources that may be employed to use information, and it is that scarcity which generates the need for a system of property rights in information.”\(^5\)\(^5\) In his account, Kitch focuses our attention on the resources used in the development of information goods, and those resources are scarce.

However, all that we need for Palmer’s argument is the fact that information goods have a distinctive relationship to scarcity. This fact is sufficient grounds for supposing that the extension of existing property rules to these goods does not follow automatically, as it would if a new good with no unusual properties came into being. Once the microwave oven was invented, for example, there was no question that it would be treated just as regular ovens are for the purposes of the fencing provided by property law.

The third element of Palmer’s account that we need to consider is his claim that intellectual property rights are not the outcome of an evolutionary process of the sort we discussed above.\(^5\)\(^6\) Rather, intellectual property is a holdover from grants of monopoly given by royal prerogative.\(^5\)\(^7\) There was not a three stage process starting with individuals negotiating in response to scarcity, their solutions solidifying into the common law, and finally the common law being reflected in statutory law. Rather, the statutory law came first. Thus, the information that this process obtains has not yet been obtained with regard to these goods.

54. Id. at 278-79.
55. Kitch, supra note 35, at 275-76.
56. Palmer, supra note 47, at 280.
57. Id.
The fourth element of Palmer's account that is important for us is his argument that private alternatives to public fencing do exist. These include technological fencing, bundling ideal objects with other goods, bundling information goods with other goods and selling the entire unit exclusively, and contractual arrangements. He also discusses marketing strategies, such as exploiting the opportunity to be first in the market. While a detailed consideration of these possibilities would be required to fully assess Palmer's argument, for our purposes the existence of these possibilities is enough to complete the argument for private fencing that we have been extracting from Palmer. This argument allows us to point to the information that private provision can be expected to provide and the innovation that it might make possible.

If private fencing were the means by which information goods were protected, the evolutionary process of interaction would take place as interested parties pursued their profits. Since these parties would be intimately aware of the costs of the fencing, the advantages of alternative forms of fencing and even alternatives to fencing (more on this in a moment), they would be in a position to develop fencing techniques which respond to the distinctive relationship to scarcity that information goods possess. Not only would they be in a position to develop these techniques, they would have a substantial incentive to do so, since those who did so effectively would thrive, while those who did not would perform poorly. Perhaps contractual fencing would predominate, or perhaps more innovative means of technological fencing would develop. For example, computer makers might build resources for copy protection into their systems. They would have an incentive to do so since that would encourage developers to develop software for their machine, which would in turn encourage consumers to buy their machine. Consumers might prefer machines with lots of software and built-in copy protection to machines with very little software and no built-in copy protection.

The important point, however, is that we do not have to know in advance what forms of fencing might develop, or how that fencing might exploit the distinctive relationship to scarcity that information goods possess. In fact, it is our ignorance, our inability to know the best approach in advance that represents the potential gain from privately provided fencing. This is the information which government officials will find it difficult to gather. It is comparable to the information about pref-

58. Id. at 288-89.
59. Id.
60. Id. at 295-300.
erences in the case of software production, information about value in the case of Polanyi's reformed patent system, or information about the interests of producers in the case of Landes and Posner's model of the copyright system.

This version of Palmer's account suggests that there might come a time when something that looked quite like current intellectual property made its way into common law and then statutory law (in fact, trade secrecy law can be understood as such a case). However, it is important to point out that there is no way to short circuit the process, since the process itself gathers the information. In addition, it is equally possible that the end result would be quite different from current law.

I have already suggested one hypothetical example of innovation in fencing techniques that might result from private fencing—the case of computer makers providing resources for copy protection in their systems. Palmer provides a more dramatic and suggestive example—advertising supported radio. Radio programs are provided free to listeners, and costs are recovered from advertisers. There are two points we should note about this example. First, as it stands now, advertising supported radio does make use of copyright law—songs and programs are copyrighted, and this plays an important role in the ability of their producers to recoup their costs. Second, this is an example of an alternative to fencing, rather than an example of innovation in fencing. The possibility of alternatives to fencing is a consequence of the distinctive relationship of non-rival goods to scarcity, and is one of the more interesting ways that innovation might occur. For now, we need only note that innovation is quite possible in the realm of fencing, and that therefore the fact that private provision is more effective at innovation is relevant here as well.

Thus, the same issues that were raised for each of the other functions can be raised for government provision of fencing. Fencing potentially involves collective action problems, since the producers and consumers of information goods collectively prefer protection but individually prefer to appropriate without payment. On the other hand, determining the most appropriate form of fencing requires that information be gathered, information which might be more effectively gathered by the market as a discovery process.

**CONCLUSION**

My objective in this Article has not been to argue for market or government performance of each of the functions involved in the provi-
sion of information goods. Rather, my goal has been to provide an institutional-utilitarian framework for debate about this issue. One important element of that framework is the breakdown of provision into four components. The other important element is the use of considerations of strategic structure (that is, collective action problems) and limits of information to bring out the relative advantages of the institutions of the government and the marketplace.