

INTELLECTUAL PROPERTY RIGHTS: AN EVOLUTIONARY REAPPRAISAL

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Intellectual Property Rights: An Evolutionary Reappraisal

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Information is a joint product. Consider, as an illustration, the recent development of the Internet.

The Internet itself is the product of rapidly accumulated new ideas, artfully built one on top of the other. Further development, from the Internet, to its currently popular subset, the World Wide Web, required two additional major steps. The idea of the Web—the “information” that constitutes the living basis for the Web, in other words—was the joint product of all the many earlier, new ideas plus two key additions.

First, Tim Berners-Lee in Geneva, at the European Laboratory for Particle Physics, devised HyperText Markup Language (HTML). Although hypertext was not by then a new idea, the Berners-Lee implementation was. HTML led to widespread hypertext linking among documents. But the ready viewing of these linked documents required the next effort, in this ultimately joint process. Marc Andreessen and colleagues at the University of Illinois, its National Center for Supercomputer Applications, produced an HTML browser—Mosaic. Thus the Web was possible—now widespread linked documents could also be universally represented and viewed with the Mosaic web browser. (Andreessen would then go on, with Jim Clark, to found a company, Netscape, and its rapidly evolving Web browser, Netscape Navigator.¹)

¹As we shall see, whether and how Netscape is a commercial venture obtrudes as a topic for the analysis that follows.

So information is a joint product.² Each new idea is itself a separate innovation. Typically, that innovation is applied against a foundation of earlier new ideas, with the earlier innovations already melded together. The result is further accretion to the grand joint effort—Sir Isaac Newton’s “standing on the shoulders of giants.” The tradition of footnote references in scholarly publications, such as this, is another illustration.

INTELLECTUAL PROPERTY RIGHTS

Intellectual property rights (IPR) convey individual control over a piece of the joint edifice. IPR is the application of a political construct from the material world—the construct of property—to the Platonic world of ideas, our mental pictures of the material and not-so-material world. The essential effect of property rights is political. Property rights convey power, the capacity to control, in this case ideas or information.

The standard argument for intellectual property rights balances the desire for further innovation against an equal desire for dissemination of such useful new ideas. IPRs are deemed necessary to motivate the creative mind’s production of innovation. Such innovations will not be brought forward, so the argument goes, unless the source of the creativity can expect financial reward. On the other hand, control over the idea—the monopoly that is conveyed—should not ultimately prevent dissemination of a useful idea, or else wider benefits are not realized. This concern extends to the jointness of information so that the monopoly does not obstruct later innovations that can follow. Policy devices that effect the balance between innovation and dissemination include licensing and a finite life for the right.

A distinguished tradition of scholarship has developed this view into a sophisticated congeries, with work such as Arrow (1962) and Nordhaus (1969) notable milestones on the path.

Adoption of the intellectual property rights regime leads, it seems clear, to secondary, broader effects. For one, an individual’s economy can become predicated on IPR—holding intellectual property rights becomes the basis for making a living. For another, the IPR regime also takes on what might be dubbed a truth function. A trademark, for instance, takes on the role of signaling authenticity and a certain level of quality. So false use of a trademark must be squelched to protect the income of the trademark holder, but also to preserve the signals unsullied.

²Although each person’s individual experience is unique, and not directly mediated by another—the enjoyment of a sunset for instance—even the categories into which that experience is cast are influenced by the person’s social history.

AN EVOLUTIONARY PERSPECTIVE

The information edifice is living, constantly changing. If we take an evolutionary perspective, how do we assess the intellectual property rights regime? Does individual control over pieces of the joint product serve the technical—and particularly the social—evolution that necessarily underlies the information edifice? That is the central question I seek to join here.

Meheroo Jussawalla's work has illuminated numerous corners of economics. Intellectual property rights is just one of them. However, she has seen fit to ground herself in the IPR tradition, while she also invites us to take the necessary steps and understand its evolutionary passage (Jussawalla, 1992; Jussawalla & Oniki, 1994). In the present inquiry I accept her implicit call to seek for a bridge across these views.

Flexibility and Rigidity Together

Technical and social evolution require both flexibility and rigidity, at the same time. The further development of the World Wide Web illustrates this usefully.

The original HTML document-linking scheme amounted to a standard that was made to be broken. For enhanced capabilities, on the Web page, consensus needs to form around a new version and consecutively for each successive version. The more quickly consensus can form, and then the process start once again to the next level, the faster the pace of evolution. The beta version of Netscape's Web browser, Navigator 4.0, recently released, is an example of such consensus forming. As with prior generations, Navigator 4.0 brings new capabilities not previously possible on a Web page. Netscape still has more than a 60% share of the world's Web browsers and, although it now shares with Microsoft and its Internet Explorer, has led the consensus process.³ The torrid pace of the change is evident, with some new generations appearing in a matter of months.

Flexibility is essential, in such a process, to allow successive new consensus to form. At each cycle there first is a departure from the earlier consensus as new ideas generate, then there is the gathering of a new consensus. In the illustration reflected in the Web, new capabilities for Web pages are proposed, although these make obsolete older browsers; then a consensus forms a new standard to incorporate some of these elements. Flexibility is the essence of such swings between novelty and stasis.

³Netscape's relations with two standards bodies, the World Wide Web Consortium and the Internet Engineering Task Force (IETF), are an integral sidebar to this story. A larger question is the role of a private company in a public standards process. Part, anyway, of an accurate characterization puts Netscape into both the innovation and the consensus. Netscape both feeds innovation into the process and also provides some of the social "sink" necessary for consensus.

In the history of the security package that Netscape created for the Web, we see some of the process that underpins flexibility.⁴ For the security software, Netscape made the source code available for others to develop further. The wider developer community can participate—create a “joint product”—both with new ideas and in the build-up to the next consensus.

On the flip side, Netscape made only object code available for its browser and server software. Netscape did not release the source code because a stable Application Programming Interface (API) is important if outside developers are to produce extensions to the browser. We might say some vertical integrity—some rigidity—is necessary, along with the flexibility. Overall the principal rigidities in the flow of the process, the markers that signal stasis, are the periodic consensuses.

The necessary rigidities are also social in character. Rather than control being put in the hands of an individual, the points of stability are the result of a consensus. Control is held jointly, rather than by any individual. (By Netscape keeping the Navigator API, it becomes entrusted as keeper of the consensus.)

Evolution, in this illustration, turns on flexibility and rigidity together. The control that is reflected in the rigidity is social, rather than individual.

A Group Process

In the evolutionary process portrayed here—rapid alternation between spates of innovation and periodic new consensuses—intellectual property rights are not the first point of departure. Indeed, Netscape has given a goodly portion of its software away.⁵ Rather, Netscape has institutionalized—we might say regularized—a style of operations that was created by, and has become the mainstay of, the Internet. The spirit is captured by a quote from Bill Joy, co-founder of Sun, and its vice president for R&D, “the smartest people in the world don’t all work for us. Most of them work for someone else. The trick is to make it worthwhile for the great people outside your company to support [your work]” (Schlender & Martin, 1995, p. 120[7]). He might have added, “and for you to support their work.”

The Internet “style,” now implicitly championed by a set of companies with Netscape the visible standard-bearer, is pointedly a group process. This only acknowledges the jointness of the product.

⁴The following review of some Netscape policy derives in part from discussion with Donna Simonides, Director, Developer Relations & Licensing, Netscape.

⁵Specifically, Netscape’s software is available for evaluation. After evaluation, object code for the browser client and its server are free to students and others are expected to register and pay. For the security software, the source code license is free to educational users and there is a fee for commercial users.

In the pure form of the process, developed around the Internet, software engineers present their code to be considered by the community of Internet developers. Through an informal but established interaction, the group melds the current crop of new ideas into the next emerging consensus, where it can become—briefly—the next standard. All the while the elements for yet the next round of new ideas, and next consensus, are stirring.

Rather than individually claim the rents that accrue to intellectual property, the participants aim to move the Internet ahead quickly. At the same time, a cornerstone of the process is the freedom, indeed the encouragement, of each individual to pursue his or her own creative muse. Both individuals and group receive due emphasis to reach the end result.

Several companies have taken steps toward this style, among them Sun and Oracle. Netscape has particularly transplanted key elements of the style to the commercial world, contrary to usual commercial practice. Prominently, rather than strictly control access to its software, it makes portions freely available, as discussed earlier. Typically Microsoft is cast as the counterpoint to this group of companies; it is positioned as the antithesis to the new style. The conflict focuses on whether “a single company will control” future developments.

A “winner take all’ mentality” is the view of Microsoft overall, as captured in a press quote from an industry entrepreneur, Rob Glaser (1996, p. 48), former executive of Microsoft and now with his own company, Progressive Networks, a developer for both Microsoft and Netscape, who goes on to suggest “that [mentality] may be ill suited to the business environment of the Net, which is heavily influenced by . . . strains of sharing and openness in Internet culture.” This mentality is counterpoised to a style in which “one company doesn’t dominate the industry by having control of its APIs, development tools and standards,” as delineated by Mark Andreessen (1995, p. 8), co-founder of Netscape. There arises an almost overt tussle over whether control will be held by one actor or by the group.⁶

There has also been a broader adoption of core features from the group process. This broader change does not forego intellectual property rights and so is a less dramatic departure from the past, but in other respects it has the essential elements. Impelled by urges to “open systems,” an informal standards process has now become common. Although not necessarily producing open results, the group process structures the new approach. A set of companies concerned with some technological next step form an informal group—typically named a “forum” for the technology—and proceed toward a standard much as described earlier.

⁶Not quite, though: The rhetoric implicitly castigates Microsoft for the perceived threat that it might hold control by itself; but that rhetoric stops at acknowledging shared control, typically saying only that “no one controls.”

A Model?

Is this illustration from the Internet, and the companies that have followed, a model for “good” evolution, both technical and social? For the present anyway it can only be suggestive. As a phenomenon itself it is widely seen as a strikingly successful course of innovations—numerous, rapid, and widespread, indeed global. As a style of industry conduct it is enjoying widening adoption, despite features contrary to previously accepted tenets. More fundamentally, the group process at its heart faithfully reproduces the ceaseless ferment that defines the unending construction of the information edifice.

At the same time any definitive normative prescriptions will call for substantially more detailed inspection. The purpose here is to suggest a basis for initial assessment.

ASSESSING INTELLECTUAL PROPERTY RIGHTS

As the central task here I seek to assess the intellectual property rights regime from the evolutionary perspective. Viewed against the suggestive evolutionary model described previously, IPR derives from a marginal analysis, rather than one that takes account of the full context. IPR centers on the individual creation of new ideas, conveying control over the marginal addition to the information edifice. It is not particularly concerned for the social group process, the living context whereby the edifice continues to grow and evolve. IPR strengths are with the individual aspects, but not the social.

From this view, two specific judgments of IPR marginal control over joint product are clear:

- First—strongly, from the social side—IPR works against the flexibility necessary for successful evolution. The rigidity that IPR creates—control of the marginal addition, placed in the hands of the individual—militates against the flexibility needed for rapid cycles through repeated consensuses. Individual control is not well suited to the quick changes. (The problem, from this view, is that the IPR rigidity is individual in character; the useful evolutionary rigidity, the consensus, is social.)
- Second—more subtly, from the individual side—although IPR emphasizes the individual’s role in creativity, it does not betoken the social process in which that creativity may also flourish. To partake in the evolution of the edifice, the new idea must find its place in the social flow. That same flow may also be the creative spur that catalyzes the new idea in the first place.

At the same time, IPR has an equally vital strength. IPR does emphasize the role of the individual, it affirms that individual autonomy is essential to successful innovation. We must note again that Meheroo Jussawalla (Jussawalla & Oniki, 1994) for instance, has called us to understand these balances carefully.

In the framework that is implicit in this inquiry, both individuation and the blending of individual new ideas are essential and equal components. The two are paired, Janus faces, one or the other. Competition, particularly among new ideas, gives the individual a flexible place to assert new ideas; equally, community among these competitors makes possible a new, stable working place.

We notice that our illustrative case, of the Web and beyond, succeeded to produce creative, new ideas, without resorting necessarily to the financial rewards of intellectual property rights. In this case the fundamental argument for IPR, as incentive, is not confirmed. Also, dissemination of Web innovations has been very rapid and widespread, thus meeting the other side of the argument for IPR as well. Again, do we conclude that IPR be replaced with something like the illustrative model? For now, the analysis is intended as stimulus to further discussion. Pretty clearly, policy for the dynamics of standard setting is also a subject in that dialog.

THE “WEB” EVOLUTION MODEL AS POLICY OPTION

If we consider the illustrative model as a policy option, two dimensions become grist for explicit analysis. One is the size of the group that benefits; the other is the speed of the evolutionary process.

With a group process at the center of the evolution mechanism, who is in and who is out of the group becomes basic. The question is already evident with IPR, when a corporation holds the intellectual property right. Typically, the scientist/inventor has assigned his or her individual rights to the company for a nominal sum. Here the boundary for the group is defined by the corporate border. Distribution of wealth and perceived equity-with-reciprocity or instead inequities become concomitant issues. The deployment of IPR regimes for technology imports into developing countries highlights the question; wealth distribution among entire societies becomes the focus.⁷

The usual concern with speed asks what may be done to speed up the process. For instance, will a patent holder offer licenses economically so that

⁷Again, Meheroo Jussawalla (Jussawalla & Oniki, 1994) guides our understanding of intellectual property rights between developing societies and the industrialized world (see related work by Reichman, 1993, and Drahos, 1995).

next steps can build? In our illustrative, alternative model, the question swings around to be asked from the opposite direction. The pace of change is so rapid that the question has become: What rate of change does the human makeup find compatible? The question becomes literally the human capacity for change. The subject has become an explicit concern in the world of almost-too-quick Web innovations.

Finally, if considering a new regime, we have to ask about the two secondary effects noted to devolve from IPR—as they were dubbed there, the truth function and making a living.

For a truth function in an alternative group process model,⁸ the interesting question is the extent to which the community takes up traditional means. Rather than rely on impersonal markers such as trademarks, person-to-person contact traditionally enforces the reality check. A real limit on such personal means is presumably the separation and anonymity imposed by geographic distance in a mass-produced world. Yet the Internet community has been remarkably successful at enforcing etiquette, for instance, at great remove, literally around the world, through the electronic links.

Can Netscape “make a living” when it gives its software away? Netscape says that its software is available for evaluation; those who find it desirable are invited to establish a commercial relationship with the company. Not all do, but enough have done so to make Netscape a profitable company. More interestingly, other companies are now trying the unusual commercial approach. Most tellingly, archrival Microsoft has apparently been forced also to give away some of its software, in response, presumably not a path that Microsoft would otherwise have chosen.

In the meantime, we have grist for a dialog to assess traditional intellectual property rights and alternative regimes. The group process of Web evolution offers one backdrop for asking what may serve the organic information edifice.

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⁸This discussion has dealt with the case of factually based material. Fantasy material, particularly for pleasure, such as movies and music, is a separate subject.

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