ACCESS TO KNOWLEDGE
IN THE AGE OF INTELLECTUAL PROPERTY

edited by

Gaëlle Krikorian and Amy Kapczynski

ZONE BOOKS · NEW YORK

2010

The publisher wishes to acknowledge the generous support
of the Open Society Institute.

ZONE BOOKS
1226 Prospect Avenue
Brooklyn, NY 11218

Printed in the United States of America.

Distributed by The MIT Press,
Cambridge, Massachusetts, and London, England

Frontispiece: Graeme Arendse, *Chimurenga Library*
(photo Stacy Hardy).

Library of Congress Cataloging-in-Publication Data

Access to knowledge in the age of intellectual property /
edited by Gaëlle Krikorian and Amy Kapczynski.
p. cm.
Includes bibliographical references.
ISBN 978-1-890951-96-2
1. Intellectual property. I. Krikorian, Gaëlle, 1972–
II. Kapczynski, Amy.

K1401.A929 2010
346.04'8—dc22

2009054048

An Uncertain Victory: The 2005 Rejection of Software Patents by the European Parliament

Philippe Aigrain

On July 6, 2005, the European Parliament voted by a large majority to reject the Directive on the Patentability of Computer-Implemented Inventions proposed by the European Commission Internal Market directorate-general.[1] This event marked a milestone in the access to knowledge movement: For the first time, it obtained a major political decision after a mass mobilization of citizens and civil-society groups and a wide-ranging open debate reaching well beyond the action of specialized NGOs.

Software plays an essential role in many activities and fields of technology and science. Europe's legal recognition of software patents would have represented a very severe blow to the existence of a freely usable common body of knowledge.[2]

Software is information, expressed in a formal language, about how to process information. A computer program is a form of mathematical statement, and it is so regardless of whether it is used in a computerized pasta machine, for text processing, or to compute some exotic sort of number. Software has opened a new world of information processing that has deeply transformed human activities: thought, expression, communication, and creation. It has also changed the conditions of innovation in many fields of technology. Technology still deals with what Richard Stallman has called "the perversity of matter": the fact that material things break, heat up, wear out, are hard to manufacture consistently, and can be combined one with the other only at a very limited scale and with careful planning.[3] But these core technological challenges have been localized, broken down into their components. Their physical complexity has been confined. Some technical objects can be "reduced" to information-processing modules taking their input from receivers and sending their output to simple effectors. Sometimes, though, material, energetic, biological, or systemic complexity resists such reduction. These are the most important technical challenges in environmental or biological innovation, for instance. For example, a

seed is more that just genetic material—it is also an environment in which the genes will be expressed and in which the future plant will start developing.

The case for patents as an incentive to innovation and the effects of granting them are radically different in the information domain and in the physical domain. Information-domain patents (software patents, genetic-information patents) lead to monopolies on the free reproduction of information and to arbitrary prices completely disconnected from production and even research costs. Actually, in the software domain, even much narrower monopolies, such as copyright, lead to extreme dominant positions when they are combined with network effects. In such cases, the effect of patents is to cement these monopolies. Because innovation in software is combinatorial (combining components) and incremental (refining functionality) and often results from transferring an idea from one domain to another, software patents block future innovation and its dissemination by creating patent thickets—accumulations of patents through which an innovator can no longer find a possible way to create an innovation without infringing on patents.[4] In contrast, for mechanical devices or chemical processes, patents can be worked around, and this often results in new ways of dealing with material challenges.

Described at this general level, information-domain patents are excellent for rent seekers, but useless, at best, and harmful most often, for innovation and access to knowledge. However, the promoters of software patents are not found only in pure-information industries such as proprietary software. Industry or research labs that are active in mixed domains, such as consumer electronics or mobile-phone devices, would like to have the best of both worlds: the plasticity and ease of innovating in the software domain and the patent protection that has been judged useful for material objects. They have summarized this view in a formula: "Why would it be impossible for us to patent a phone or hi-fi, now that there is plenty of software in it, when we were able to patent it before?" But what exactly do they want to patent? Is it the phone's physical components—for instance antennas, which remain necessary in software radio and whose patentability is not disputed—or a piece of software for the digital generation of a sine curve that is a pure mathematical method used in hundreds of fields other than telephony?[5] This distinction became the nexus of the software-patents debate, and one of the most surprising outcomes of the debate was to see a few members of the European Parliament becoming able to argue in detail with industry lobbyists on such complex issues.

In July 2005, after the vote to reject the proposed directive on patentability, there were shouts of victory from many sides. The almost unanimous vote was obtained by a mix of antisoftware-patent votes and prosoftware-patent votes. The former were pleased to reject the directive, since it did not appear possible to obtain majority for a text that would make a clear and updated statement that software

and software-based information-processing methods are not patentable. The latter were resigned to rejecting the directive when it became clear that a prosoftware-patent text would never obtain majority. There is little doubt that at least the vote was a defeat for those who wanted to turn the practice of the European Patent Office of granting patents on software and software-based information-processing methods into law. However, the situation after this vote is one of great uncertainty, since the practice remains. This essay intends to help the reader understand what made possible this outcome and where things stand today in Europe.

BATTLES OVER SOFTWARE PATENTABILITY PRIOR TO 2005

To do so, we need to begin with a bit of perspective.[6] Ten years before the vote of July 6, 2005, the European Parliament had already rejected a directive extending the scope of patentability. On March 1, 1995, the European Parliament rejected by 240 votes to 188 (with 23 abstaining) a directive that permitted the patenting of gene sequences and of organisms that contain modified or otherwise patentable gene sequences. However, it took only three years for this victory to be reversed, with the adoption of Directive 98/44 by the European Parliament in 1998. During these three years, an innovative combination of lobbying techniques was put in place by industry players, a mix of agrifood biotech and pharma biotech companies that were interested in gene-sequence patentability.[7]

Part of the innovation in these efforts lay in the use of new forms of rhetoric. In the drafting of legal documents, the normative form is to define the scope of a permission or an interdiction by a sequence of alternate statements such as "Freedom of expression is a fundamental right, however, its exercise can be restricted by judicial authorities based on established reasons of national security or the protection of persons." When this form of legal discourse is used, the substance lies in the second provision. Directive 98/44 used this normative form by first stating that human gene sequences are not patentable inventions, because they are discoveries, but then claiming that they are patentable "when they are isolated from the human body or otherwise produced by means of a technical process." Because any gene sequence that is known is always isolated or otherwise produced by a technical process, this amounted to saying: "Human gene sequences are not patentable inventions, but are patentable inventions." Opponents denounced this rhetoric as analogous to Orwellian Newspeak, but were unable to prevent the directive from being adopted. However, civil-society groups quickly developed the ability to detect such rhetorical sleights-of-hand, and they were quick to detect its repeated use in the 2002 proposal for a directive on the patentability of computer-implemented inventions, in which the term "computer-implemented inventions," a

neologism, was defined as referring to the underlying principles of software. This allowed those who drafted the proposal to say, in effect, "Software or algorithms remain unpatentable, but they can be patented under the name of computer-implemented inventions." Such Orwellian tactics were successful, however, and efforts to promote the patentability of software continued in Europe right up to the victory of patentability opponents in 2005.

Software patents were progressively recognized in the United States from the end of the 1980s on and became common in the 1990s.[8] The European Patent Office (EPO) therefore was subjected to increasing pressure from its customers to align the European practice with the U.S. standard of patenting software.[9] However, there existed a major obstacle to such an alignment: the provision in Article 52 of the European Patent Convention (EPC) that lists a number of things that cannot be patented because they are not inventions,[10] including computer programs, mathematical methods, and business methods, etc. In a series of cases (IBM 1997 and 1998, Philips 2000), the EPC therefore used its in-house Chamber of Appeal to create surrealistic case law that was soon incorporated in its examination guidelines. This case law used Article 52(3) of the EPC, which states that the exclusion from patentability applies only to the excluded entities "as such." It claimed that the excluded entities could be patented if they had "a technical effect" or if "technical considerations" were necessary to produce them.[11] According to this new case law, tens of thousands of software patents were granted by the EPO.[12]

However this home-made case law was fragile, since there is good evidence from managers of the EPO themselves that the EPC wording in the case of software was meant only to declare that a physical invention could still be patented, whether or not it contained software.[13] The EPO and its representatives within the European Commission consequently proceeded to make the law more explicitly favor patentability in accordance with practice by working along two parallel tracks.[14]

The first one was to hold a diplomatic conference for deleting the inconvenient exclusions from the EPC.[15] The initial proposal simply deleted all exclusions from patentability, including, for instance, exclusions for games or methods of teaching. After some debate developed, it was proposed to delete only the exclusion of computer programs. However, from the end of 1998 on, NGOs advocating for free or open-source software started alerting decision makers about the risks of software patentability for the freedom to innovate in software. This debate had reached a sufficient scale by 2000, when the diplomatic conference was held in Munich, to motivate national delegates to refuse to amend the convention until progress had to be made along the second track: producing European legislation on the patentability of software. The then fifteen countries of the European Union voted fourteen to one against deleting the exclusion . . . for the time being.

The proposal for a directive then was prepared by a number of steps that had been initiated from 1996 on. A green book on the future of patents in Europe was discussed,[16] mostly in specialized patent circles. In 1997, the European Commission published a communication on the follow-up to the green book that included an explicit mention of a directive to come. Until 1998, almost no software practitioners were involved in the debate. (The only one speaking at the London conference on March 23, 1998, took a clear stand against any form of software patentability.) However, from 1998 on, developers of free and open-source software, small and medium-sized shareware enterprises, and a number of academics started to alert the public and decision makers about the risks of accepting patents on software. These concerns were relayed within the European Commission by the Information Society general-directorate. A lively internal debate echoed the external debate that was developing in Europe. A provisional compromise was struck between the relevant commissioners: A new consultation of stakeholders and citizens would be launched on October 19, 2000. In parallel, some European Union members states such as the UK initiated a consultation of their own, while others, such as Germany, commissioned studies, and still others, such as France, created committees that were asked to recommend a policy.

The biased manner in which the Internal Market general-directorate handled the analysis of opinions submitted in answer to its consultation did a lot to weaken its case. The Foundation for a Free Information Infrastructure, an NGO dedicated to keeping innovation open in the software field, had asked stakeholders to transmit their opinion through them. This was an answer to the fact that the European Commission admitted nonpublic responses to its consultation. The Internal Market and Services directorate-general of the European Commission assigned a previously unknown consultant to produce an analysis of contributions. His report discarded 90 percent of the answers (all those—opposed to software patents—that were transmitted through the Foundation for a Free Information Infrastructure) as having been initiated by a specific party. Even then, half of the remaining answers were opposed to software patents. The report had to declare that those in favor were more significant in terms of sales and employment. Meanwhile, a large body of knowledge and evidence started to accumulate on the nature of software patents and their effects where they were already in place.

THE JUNE 25, 2002 DIRECTIVE

When the European Commission adopted a proposal for a Directive on the Patentability of Computer-Implemented Inventions on June 25, 2002, it was basically proposing to turn into law the existing practice of the EPO of granting patents

on software and methods for processing information in the information domain. There was one difference, and a significant one, that testified to the effects of prior debates: The directive was not proposing to accept patent claims on software, "as this could be seen as allowing patents for computer programs 'as such.'"[17] The directive was presented as not following the U.S. practice of granting patents on business methods and claimed not to allow patents on algorithms. The former affirmation was quickly debunked when analysis of existing patents showed that it was enough for a business method to be implemented in software and to produce some improvement for it to be patentable. The latter claim was based on a radical misrepresentation of the relationship between algorithms and software, since algorithms are nothing other than the underlying principles of software, while the whole idea of patenting software is to grant monopolies on these principles. In fact, the use of "computer-implemented inventions" in the title was deceptive, because "computer-implemented inventions" were basically defined as software.[18]

The proposed directive then went through the complex European legislative process, consisting of two parallel readings in the European Council, which represents member States, and in the elected parliament. When both are in serious disagreement, the council has the stronger power, which means that the parliament could make its point only by rejecting the directive. It is generally reluctant to do such a thing, because a majority of its members committed to creating EU-level legislation. The European Council produced its first reading before the parliament did so. It was prepared by a "working party on intellectual property (patents)." In this group, more than half of the then fifteen member states were represented by patent offices, and representatives of the EPO sat on the commission bench. The council set out to amend the commission proposal by allowing software claims, thus aligning the directive with EPO practices. However, the council decided to wait for the parliament's reading before formally adopting its own position.

This position was adopted in a vote on September 24, 2003. It came as a thunderbolt. The parliament adopted amendments submitted by the Culture Committee (rapporteur, Michel Rocard, socialist), by the Industry, Trade, Research and Energy Committee (rapporteur, Elly Plooij van Gorsel, liberal) or by members of the European Parliament who often were drawing inspiration from proposals by civil-society groups. These amendments adopted a strict definition of what can be considered to be "technical," putting it in relation with physical devices and processes, and clarified that patents can be granted only when innovation lies in this physical, technical domain. Civil-society initiatives used the possibility for any European resident or group to petition the European Parliament on issues of its competence: Leading computer scientists signed a detailed analysis of the reasons to reject software patents,[19] while one hundred and fifty thousand citizens signed

Demonstration against software patents in Germany, June 2004.

a petition against software patents initiated by the Foundation for a Free Information Infrastructure. The amended text constituted a clear and detailed rejection of all the mechanisms by which software patentability had been sneaked into the practice of the EPO.

There was such a shock that patent lobbyists started expressing publicly the view that patentability issues were truly too serious to be the object of democratic decision making. Until then, prosoftware-patent lobbying had been restricted to behind-the-doors contacts with the European Commission and members of the European Parliament, while opponents argued on substance and conducted public workshops. A significant change developed in the next two years, when advocates for software patents developed an all-out lobbying campaign, including the establishmentment of a "Campaign for Creativity" that backfired when it appeared to be a lobbying-consultant initiative funded by Microsoft and SAP, without any link to real software practitioners.[20] Some opponents of software patents also adopted a communication campaign, in particular, the NoSofthawarePatents.com campaign conducted by Florian Müller with support from MySQL and Red Hat.[21] In the last weeks before the July 2005 vote, communication efforts on both sides culminated

with distributions of free ice cream, demonstrations, and boat fights on the canals close to the European Parliament building near Strasbourg.

Before that climax, the reading of the proposed directive had proceeded with great pain in the council. A text was produced by the Irish presidency, under fierce criticism due to its interests as a tax haven for holders of intellectual property rights,[22] and a "political compromise" was recorded on May 18, 2004. It was a confusing text that basically reiterated the propatent, first-reading position, but installed it under smokescreens of complex language. Various opponents produced translations to normal language in the days that followed its adoption.[23] It took four meetings and several votes before a qualified majority was reached, on March, 7, 2005, to adopt this text formally. Whether there was a truly qualified majority is still open to doubt, because one country (the Netherlands) later changed its vote, and another (Poland) protested that its vote had not been properly recorded. The fragility of this decision eased the path toward rejection of this "compromise" position by the parliament. After the climax of lobbying mentioned above, it became clear that there was no majority in the parliament for adopting a text that would please the patent advocates and proprietary-software lobbies. So everyone rallied to reject the text, and each claimed that doing so was a victory for its views. The text was rejected by the unprecedented majority (for a rejection) of 648 in favor, 14 against, and 18 abstentions.

WHAT MADE THE "VICTORY" POSSIBLE?

How was such an unexpected result obtained? It resulted from the synergy between several movements, each of which had built a serious case in its domain. At the urging of Harmut Pilch, the Foundation for a Free Information Infrastructure accumulated a broad body of empirical knowledge on actual patenting practices in Europe that served as the basis for scholarly work in both Europe and the United States. It was not long before active opponents of patentability knew much more about what software patents looked like, who owned them, and how many of them there were than their defenders. This was useful for building four different cases: a case for innovation, a scientific case, a political case, and a case based on academic research into the actual effects of software patents, each of which mobilized different communities.

The case for innovation gave rise to a mass mobilization of software developers well beyond developers of free and open-source software. This group was by far the largest in terms of direct action. It included individuals who on their own initiative flew to Brussels to talk to members of the European Parliament. The members of parliament were not used to encountering twenty-year-old

programmers wanting to give them pedagogic explanations of the impact of software patents on innovation, and they listened carefully. Hundreds of engineers of the large European companies that were supporting software patents signed the Foundation for a Free Information Infrastructure petition against the patentability of software.[24]

But there was also a scientific case, which mobilized fewer people, but which gave impressive intellectual credibility to the opposition.[25] The scholarly economics community was divided, but a leading group of economists signed a letter against software patents a few days before the vote. More importantly, the organizations of small and medium-sized European shareware enterprises made known their own opinion on the subject, making clear that they did not share the propatent view of the Union of Industrial and Employers' Confederations of Europe, the large-company employer organization. This had a major influence on bringing a small part of the conservative members of parliament, who traditionally speak for a lot of small and medium-sized shareware enterprises to a critical view of software patents. In reaction, some large companies created an ad-hoc organization of small and medium-sized shareware enterprises whose members were spin-off companies, directly or through university partnerships. In a similar move, Microsoft created an ad-hoc proprietary software-publisher organization when it became clear that the general software employer organizations and the professional societies were reluctant to support their view.

All this would have probably not been sufficient without a political case also being built. The European Parliament has a culture of cross-party work that rests significantly on the relationships between advisers, assistants, and sometimes members of parliament. The 2003 vote in which many parties split their votes (the conservatives, the socialists, the liberals) cannot be understood without reference to the lively discussions between young advisers and assistants in corridors, cafeterias, and Brussels pubs. These conversations took place in a context where public debate was also raging. The Green Party organized a number of seminars, some debates in which contradictory views were expressed, others more one-sided, but presenting the various facets of the antisoftware-patents movement.

In these seminars and more generally in the literature on software patents, scholarly work conducted in the United States had an important impact, building a case against patents based on academic research into the actual effects that the patents had produced. As I noted, the United States had introduced software patents at the end of the 1980s, and they were granted ever more massively, especially from 1994 on. The United States thus provided a real-life experiment, even if the true impact of changes in the scope of patents will in reality take much longer to be fully evident. A number of studies had a devastating impact. The Bessen-Maskin

and Bessen-Hunt papers demonstrated an inverse correlation between an increase in software patenting and investment in research and development.[26] Work by Brian Kahin highlighted the huge costs of patent litigation and the increasing share of innovation budgets dedicated to patents and patent risks.[27] Evidence of a massive unbalance in the number of patents held by U.S.-based companies (and to a lesser extent Asian companies) compared with European companies also made obvious that from a specific European viewpoint, software patents were not more desirable than from a global viewpoint.

WHERE DO THINGS STAND?

The title of this essay, "An Uncertain Victory," calls for an explanation. After the vote of the European Parliament, we are in a regime of the status quo. The EPC still declares mathematical methods, computer programs, and so on to be not patentable as such. The EPO continues granting patents on software and software methods for processing information or doing business. Litigation and counterlitigation are limited, due to the obvious legal uncertainty: Companies are piling up software patents in Europe without using them, for the time being, while software developers keep ignoring them. Contrary to what happens in the United States, it is only in areas of standardization that the concrete effects of software patents are felt: Several standards have been blocked by patent jeopardy, for instance, JPEG 2000 and the internationalization of domain names in the Internet Engineering Task Force (IETF).

There are clear signs that patent-related institutions, the European Commission, and the propatent lobbies are busy working on other ways to give a firmer legal status or at least a stronger practical effect to software patents. The emphasis has first been on litigation and jurisdiction. The commission has been trying for ages to install a European Community Patent associated with a single European jurisdiction.[28] Critics fear that the creation of a specialized jurisdiction would have the same effect as when sucthe creation of the specialized Court of Appeal of the Federal Circuit through which software patentability was introduced in the United States in the 1980s and 1990s. This effort has been blocked so far by linguistic conflicts between member states, though the situation may change, since some opposing countries, such as France, have now seemingly decided to sign the London Protocol, an agreement that would allow institution of the European Community Patent to proceed. In parallel, the EPC is pushing for the European Patent Litigation Agreement, because this agreement would permit exporting the scope of decisions from one member state to another. Harmonization of patent examination in the Substantive Patent Law Treaty managed by the World Intellectual Property

Organization (WIPO) is another track by which the U.S. standard of software patentability could be exported to Europe. However, it seems to be blocked by the conscious opposition of emerging and developing countries in the organization.[29]

The trend toward modifying the substantive definition of rights indirectly (for instance, in scope) by acting on enforcement is not restricted to patents: One sees it also in the area of copyright, from the World Intellectual Property Organization Copyright Treaty to the U.S. Digital Millennium Copyright Act and the by-products of the European Copyright Directive or the proposed broadcasters' treaty.[30] It also uses instruments that apply to all intellectual property right titles, such as the intellectual property right enforcement directives and the recently initiated proposal for an international Anti-Counterfeiting Trade Agreement. These very abstract texts are much more difficult to debunk than texts extending the scope of intellectual property rights. It remains to be seen whether civil society, scholars, and public-interest-oriented policy makers will be able to make clear for all what is at stake in these more obscure corners. It may also be that a more frontal approach will be taken, for instance through a new diplomatic conference for the revision of the EPC. But the awareness built though the eight years that led to the July 2005 uncertain victory is still there.

During the period between the two votes in the European Parliament, the scale of the international access to knowledge movement changed. Prior to 2004, it was mostly an initiative of specialized international English-speaking NGOs, with some national counterparts in other countries. Today, it is a powerful coalition of better-coordinated NGOs and key emerging countries (Brazil, Argentina, India, and Chile), with growing support from other developing countries. It has obtained support from new segments of public opinion: scientists and policy circles well beyond those traditionally interested, including, for instance, those concerned with climate-change issues. The movement that led to the 2005 victory is one of the factors that helped access to knowledge to become credible in the public's mind and on the international scene.

NOTES

1 This title was in itself exemplary of the tactics put in place by the directorate-general when it proposed the directive. Because a strong opposition to patenting software existed, the drafters tried to hide the fact that the object of the directive was to recognize software patents. They did so by using the neologism "computer-implemented inventions," which was defined in the text as equivalent to software, but could be understood by some readers as

meaning physical inventions using software. See below for more on such tactics. The text of the proposal, 2002/0047/COD, is available on-line at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52002PC0092:EN:NOT (last accessed February 27, 2010).

2 On December 27, 2004, the Indian Parliament had adopted a last-minute amendment to the new Indian patent law, imposed by its obligations under the TRIPS agreement. This amendment rejected software patents that had been temporarily authorized in the case of embedded software by a governmental decree in 2002. The Indian rejection was clearer in its legal effect than the European Parliament vote, but it did not obtain the same publicity, because it was overshadowed by the acceptance of patents on chemical molecules.

3 See, for example, Richard Stallman, "Software Patents—Obstacles to Software Development," talk presented on March 23, 2002, at the University of Cambridge Computer Laboratory, available on-line at http://www.cl.cam.ac.uk/~mgk25/stallman-patents.html (last accessed March 25, 2009).

4 Recently, some analysts have put into question the risk of patent thickets blocking innovation in software, based on lack of evidence that innovation blockage has materialized in the United States. I claim that the case of standards provides evidence of adverse effects of patent thickets on the dissemination of innovation, if not on its initial stages, which generally proceed in total ignorance of patents. See Jim Bessen, "Software Patent Myopia," *Technology Innovation and Intellectual Property*, December 12, 2007, available on-line at http://www.researchoninnovation.org/WordPress/?p=90 (last accessed March 25, 2009).

5 This is a real example. See the WO2004082129 patent by Nokia: Methods, devices and a software product for generating a sinusoidal signal, available on-line at http://www.wipo.org/pctdb/en/wo.jsp?wo=2004082129 (last accessed February 28, 2010). Do not imagine that the world "devices" in the title refers to anything physical. Claims include: "8. A software product for generating a sinusoidal signal of a desired frequency (f) at a sampling rate (fs), which software product comprises a program code for determining the nth sample of the first output sample sequence."

6 For a longer-term perspective on patentability issues, see the entry s.v. "Patentability" in the *Critical Dictionary of Globalization*, available on-line at http://mondialisations.org/php/public/art.php?id=9274&lan=EN (last accessed March 25, 2009).

7 For an interesting account of the lobbying strategies, see Shail Thaker, "The Criticality of Non-Market strategies," KSM'03, available on-line at http://www.kellogg.northwestern.edu/biotech/faculty/articles/shail.pdf (last accessed March 16, 2010).

8 A massive increase came after the 1994 U.S. Patent and Trademark Office review. See "Working for Our Customers," 1994, available on-line at http://www.uspto.gov/web/offices/com/annual/1994/pg1-5.pdf (last accessed March 26, 2009).

9 For a justification of the use of the word "customers," see my "11 Questions on Software Patentability Issues in the U.S. and in Europe," Software and Business Method Patents: Policy Development in the U.S. and Europe, Center for Information Policy, University of Maryland, December 10, 2001, available on-line at http://paigrain.debatpublic.net/docs/elevenquestions (last accessed March 26, 2009).

10 In patent law, inventions must be susceptible of industrial application, must be new, and must involve an inventive step. The statement that computer programs are not inventions in that sense refers to the term "industrial application" being understood (in European patent law) as industrially produced physical devices and physical processes in industry.

11 The actual details are more complex, since ever more adorned concepts were designed, such as "further technical effect," "technical considerations," etc. in order to open even wider the door to patentability.

12 Between twenty and thirty thousand, according to the database produced by the Foundation for a Free Information Infrastructure (FFII), available on-line at http://eupat.ffii.org/patents/stats/index.en.html (last accessed February 28, 2010).

13 For a remarkable account of the debates in the 1970s on software patentability, see Christian Beauprez, "In Defence of the Software Author: A Study of Copyright and Patent Law Interactions," August 2004, available on-line at http://circa.europa.eu/Public/irc/markt/markt_consultations/library?l=/copyright_neighbouring/legislation_copyright/beauprez_christian/_EN_1.0_&a=d (last accessed March 26, 2009). In the United States, the debate was initially not even about copyright, software, and sui generis protection, as many now believe, it was between copyright and "no IPR [intellectual property rights] at all." See also Gert Kolle, "Technik, Datenverarbeitung und Patentrecht—Bermerkungen zur Dispositionsprogramm—Entscheidung des Bundesgerichtshofs GRUR 1977–02," pp 58–74, available on-line at http://eupat.ffii.org/papers/grur-kolle77/index.de.html (last accessed March 26, 2009).

14 The assessment and evolution of patent law within the European Commission was mostly done by seconded experts from the EPO or from national patent offices. Even during the legislative process for the 2002 directive proposal, the representatives from the EPO representatives sat on the commission bench in the European Council working group and answered questions for the commission.

15 The EPO and the EPC are intergovernmental: some countries that are not members of the European Union are members of the EPO and parties to the EPC. A diplomatic conference had the great advantage of requiring neither a debate nor a vote in the European Parliament.

16 A green book is a document produced by the European Commission to solicit views of stakeholders on a topic or proposed legislation.

17 "Explanatory Memorandum: Objective of the Community Initiative" (regarding Article 5), available on-line at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52002PC0092:EN:HTML (last accessed March 26, 2009).

18 See the discussion of Article 2 of the proposal in *ibid*.

19 A detailed comment on the vote on September 24, 2003, can be found in my September 30, 2003 speech in the Petition Committee of the European Parliament, available on-line at http://eupat.ffii.org/log/03/epet0929/aigrain/AigrainEpet030930.en.pdf (last accessed March 27, 2009), where I presented the petition by European computer scientists. On the date of this speech, I was no longer working with the European Commission, and I spoke as a simple member of the computer-science community.

20 See "Campaign for Creativity: EU Gene Patent Lobbyists Taking Up Software," available on-line at http://wiki.ffii.org/CampaignForCreativityEn (last accessed March 27, 2009).

21 See http://www.nosoftwarepatents.com (last accessed March 27, 2009).

22 Ireland has adopted a policy of low taxes on patent revenues, with a 9 percent tax in general and 0 percent in those geographical areas eligible for European Structural Funds, allocated by the European Union to provide support for the poorer regions of Europe and support for integrating European infrastructure. This has given rise to a massive delocalization of intellectual property assets to Ireland. For instance, in 1990, IP licensing between France and

Ireland was balanced. In 2005, there was a balance of eighteen thousand million euros in favor of Ireland. Ireland is now in competition with other IP tax havens, such as Estonia.

23 See, for instance, the analysis (in French) by François Pellegrini, available on-line at http://linuxfr.org/2004/07/27/16908.html, or mine (in English), available on-line at http://paigrain.debatpublic.net/docs/analysis-compromise.html (both last accessed March 27, 2009).

24 At the time, the engineers opposing patentability included people from systems integrators such Siemens and Thalès, from consumer electronics companies such as Philips, and from large telco suppliers such as Nokia.

25 "Petition to the European Parliament on the Proposal for a Directive on the Patentability of Computer-Implemented Inventions," in Philippe Aigrain and Jesus Gonzalez-Barahona (eds.), "Open Knowledge," special issue, *Upgrade, The European Journal for the Informatics Professional* 4, no. 3 (June 2003), available on-line at http://www.upgrade-cepis.org/issues/2003/3/up4-3Petition.pdf (last accessed March 28, 2009).

26 James Bessen and Eric Maskin, "Sequential Innovation, Patents and Imitation," *MIT Research Report* (2000); James Bessen and Robert M. Hunt, "An Empirical Look at Software Patents," Working Paper 3/17R, Federal Reserve Bank (2004), republished in *Journal of Economics and Management Strategy* 16, no. 1 (March 2004): pp. 157–89; these and many other papers are all accessible on-line at http://www.researchoninnovation.org (last accessed March 27, 2009).

27 Brian Kahin, "What's Wrong with the Development of Intellectual Property Policy?" Beitrag zur Konferenz der Heinrich Böll Stiftung "Die Zukunft der globalen Güter in der Wissensgesellschaft—Auf der Suche nach einer nachhaltigen Politik zum Schutz des geistigen Eigentums, Novemer 8, 2002, Berlin, available on-line at http://www.wissensgesellschaft.org/themen/publicdomain/wrongipp.pdf (last accessed March 27, 2009). See also James E. Bessen and Michael J. Meurer, "The Private Costs of Patent Litigation," Boston University School of Law Working Paper no. 07-08, Second Annual Conference on Empirical Legal Studies, available on-line at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=983736 (last accessed March 16, 2010).

28 In contrast with the European Patent, which rests on the intergovernmental EPC, the EPO would rest on European Union (community) law. The European Community Patent would theoretically be less expensive, and the single jurisdiction would ensure more consistent case law.

29 See Viviana Munoz and Sisule Musungu's essay, "A2K at WIPO: The Development Agenda and the Debate on the Proposed Broadcasting Treaty," in this volume.

30 The broadcasters' treaty is a text that would generalize specific rights for broadcasters over the signal they transmit (such rights exist for parties to the Rome Convention, which does not include the United States) and would create specific legal protection against circumvention of technical-protection measures similar to provisions in the World Intellectual Property Organization Copyright Treaty, the U.S. Digital Millennium Copyright Act, and the 2001/29 European Directive for other copyrighted works. Some would like to extend the scope of the treaty to Webcasting or at least simulcasting (the simultaneous transmission of video or sound on the Internet to many users). The proposed treaty is very vociferously debated, with opponents stressing the risks for democracy of digital locks on television that prevent fair use and criticism and the uselessness of creating a new propertylike right for broadcasters. The treaty is presently stalled in the WIPO.