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What's So Great about Nothing? The GNU General Public License and the Zero-Price-Fixing Problem

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NOTE

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[T]he Linux philosophy is "laugh in the face of danger."

Oops. Wrong one. "Do it yourself." That's it.[1]

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* I would like to thank Professors Rebecca Eisenberg, Don Herzog, and Molly Van Houweling for their extremely helpful comments on previous drafts. I would also like to thank Carey Cuprisin, Alicia Frostick, and Kamal Ghali for fruitful conversations and criticisms. In the interest of full disclosure, I should mention that I run Linux.

1. Posting of Linus Torvalds to linux.dev.kernel, http://groups.google.com/group/linux.dev.kernel/msg/74ee0b1d6420cd08 (Oct. 16, 1996, 2:00 a.m.) (punctuation altered to conform to American usage).

INTRODUCTION

In 1991, Linus Torvalds released the first version of the Linux operating system.[2] Like many other beneficiaries of the subsequent dot-com boom, Torvalds worked on a limited budget. Clad in a bathrobe, clattering away on a computer purchased on credit, subsisting on a diet of pretzels and dry pasta,[3] hiding in a tiny room that was outfitted with thick black shades designed to block out Finland's summer sun,[4] Torvalds programmed Linux.

Like some other beneficiaries of the subsequent dot-com boom, Torvalds created a product that is now used by millions. He owns stock options worth seven figures.[5] Computer industry giants, such as IBM, Novell, and Sun, have invested time and energy in his work.[6] But unlike many other beneficiaries of the subsequent dot-com boom, Torvalds gave Linux away for free.[7]

For free? Well, not exactly. Linux was released[8] under a software license known as the GNU General Public License ("GPL").[9] The GPL allows users

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2. LINUS TORVALDS & DAVID DIAMOND, JUST FOR FUN: THE STORY OF AN ACCIDENTAL REVOLUTIONARY 87 (2001) (noting that version 0.01 of the Linux operating system was uploaded on September 17, 1991). *But see* Linux World News Desk, *LinuxWorld Exclusive: Linus Discloses *Real* Fathers of Linux*, LINUX WORLD (May 17, 2004), http://www.linuxworld.com/story/44851.htm (citing Torvalds's response to an accusation that he didn't create Linux: " 'Ok, I admit it. I was just a front-man for the *real* fathers of Linux, the Tooth Fairy and Santa Claus' ").

3. Torvalds describes his work schedule on Linux as "program-sleep-program-sleep-program-eat (pretzels)-program-sleep-program-shower (briefly)." TORVALDS, *supra* note 2, at 78. To be fair, Torvalds also admits to purchasing pizza and beer. *Id.* at 93.

4. *Id.* at 60, 64.

5. *See* Gary Rivlin, *Leader of the Free World*, WIRED, Nov. 2003, http://www.wired.com/wired/archive/11.11/linus_pr.html. Torvalds's wealth is mostly the result of donations. Red Hat and VA Linux, companies that make money by selling services associated with Linux products, granted Torvalds stock options when they went public. *Id.* This wasn't the first time Torvalds had money donated to him; shortly after he released the first version of Linux, a fan took up a collection to help Torvalds pay off his computer. TORVALDS, *supra* note 2, at 64. Neither Red Hat nor VA Linux had any legal obligation to Torvalds.

6. Linux at IBM, http://www.ibm.com/linux (last visited June 12, 2005); Novell and Linux, http://www.novell.com/linux/ (last visited June 12, 2005); Sun and Linux, http://www.sun.com/software/linux/index.xml (last visited June 12, 2005).

7. Torvalds's first public announcement of the nascent Linux operating system describes the project as "free." Posting of Linus Benedict Torvalds to comp.os.minix, http://groups.google.com/groups?selm=1991Aug25.205708.9541%40klaava.Helsinki.FI (Aug. 25, 1991 23:12:08 PST). The word free is ambiguous in this context. FREE SOFTWARE FOUNDATION, THE FREE SOFTWARE DEFINITION (2004), http://www.gnu.org/philosophy/free-sw.html (explaining that free can mean at least "free as in beer," referring to the price, and "free as in speech," referring to the ability to modify and distribute the code). In this Note, I use "free software" or sometimes "open source software" to refer to software released under the GPL. This is not quite proper; while software released under the GPL is both free and open source, not all open-source or free software is released under the GPL. *See* FREE SOFTWARE FOUNDATION, CATEGORIES OF FREE AND NON-FREE SOFTWARE (2001), http://www.gnu.org/philosophy/categories; OPEN SOURCE INITIATIVE, THE OPEN SOURCE DEFINITION (2005), http://www.opensource.org/docs/definition_plain.php.

8. The original Linux copyright license allowed users to use and modify the program, as long as the code was not sold and any improvements were released in both object and source code. TORVALDS, *supra* note 2, at 94. See *infra*, notes 11–14 and accompanying text for an explanation of object and source code. Torvalds released the source code under the GPL, cited *infra*, note 9, shortly thereafter. TORVALDS, *supra* note 2, at 96.

9. FREE SOFTWARE FOUNDATION, GNU GENERAL PUBLIC LICENSE (1991), http://www.gnu.org/copyleft/gpl.html [hereinafter GPL]. GNU is a recursive acronym, which stands for *G*NU's *N*ot *U*nix.

to give copies of the software to friends or family—in fact, to the world at large.[10] And while most commercial software is released in the form of object code—instructions to a computer, consisting of unintelligible strings of ones and zeros[11]—software released under the GPL must give the user access to what is known as source code:[12] the human readable translation of those instructions.[13] For the user who just wants to run the software, only object code is required.[14] But source code availability may indirectly help even typical users. The GPL allows anyone to use the more easily decipherable source code to modify the software and redistribute those modifications to the world at large.[15] These modifications could range from minor bug fixes to the reuse of source code in an entirely different project.

But the GPL has a catch: it strictly lays out the terms on which future distributions can be made. To be covered by the license, a user who gives out modified code must release the entire work under the GPL, and must include notice of the terms of the license for all subsequent distributors.[16] The developer distributing the modified code is free to charge any price she wants to transfer the program to the next user.[17] But because the distribution must be made under the GPL, the developer must give that user the right to transfer the program to anyone, at no charge.[18] Once the software has been

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10. "You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium. . . ." GPL, *supra* note 9, § 1.

11. For an example of object code in hexadecimal rather than binary, see Stephen M. McJohn, *The Paradoxes of Free Software*, 9 GEO. MASON L. REV. 25, 26–27 (2000).

12. GPL, *supra* note 9 ("The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program)."). It has been argued that the GPL is ambiguous about the right to run the program. Robert W. Gomulkiewicz, *De-Bugging Open Source Software Licensing*, 64 U. PITT. L. REV. 75, 84–85. From a legal enforcement perspective, this is idle speculation; people who release software under the GPL almost certainly think that they are giving a license to copy and use the software. *See id.* at 85. Nobody else has standing to sue.

13. JAMES P. COHOON & JACK W. DAVIDSON, C++ PROGRAM DESIGN 13–14 (1997). Throughout this work, "code" and "source code" are used interchangeably.

14. *See* McJohn, *supra* note 11, at 27. But even users who have no wish to modify the source code may get benefits from its availability. *See* GENTOO FOUNDATION, INC., GENTOO LINUX FREQUENTLY ASKED QUESTIONS, http://www.gentoo.org/doc/en/faq.xml#differences (last visited Oct. 29, 2005) (explaining that compiling the source code with options specific to your computer enhances security and speed). Some, including the author of this Note, believe that compiling your own operating system entirely from source code significantly enhances geek cred. *See* Question About Gentoo's Speed, http://www.linuxquestions.org/questions/archive/5/2003/05/1/58112 (last visited June 12, 2005).

15. GPL, *supra* note 9, § 2.

16. GPL, *supra* note 9, §§ 1, 2. If the user fails to comply with these terms, of course, she would be in violation of copyright. *See* Eben Moglen, *Freeing the Mind: Free Software and the Death of Proprietary Culture*, 56 ME. L. REV. 1, 7 (2004) (discussing his efforts in enforcing the GPL); James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, LAW & CONTEMP. PROB., Winter/Spring 2003, at 33, 65.

17. GPL, *supra* note 9, at preamble, § 1; FREE SOFTWARE FOUNDATION, SELLING FREE SOFTWARE (2005), http://www.fsf.org/licensing/essays/selling.html.

18. *See supra* note 10 and accompanying text; *see also* GPL, *supra* note 9, § 2(b) ("You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the

transferred from the original owner, the market cost will tend toward the cost of distribution.[19]

The GPL has outgrown its humble origins. It started out as a vehicle by which individuals could swap software they had personally written.[20] But these days, computer giants IBM, Sun, and Novell, among others, have incorporated software released under the GPL into their business plans.[21] Red Hat, IBM, and Novell all offer similar Linux services,[22] but use code supplied to each other under the GPL.[23] The GPL now facilitates cooperative research among competing software developers.

When competitors collaborate, antitrust law raises its head.[24] Collaborations are, of course, allowed.[25] Sometimes, these alliances result in new products that could not have been made available without cooperation.[26] But competitors can also collude to boost illicit profit through behaviors that restrain fair market competition. Agreements that facilitate divvying up the ill-gotten swag of a cartel give rise to treble damages and jail time.[27]

Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.").

19. *See* Klaus M. Schmidt & Monika Schnitzer, *Public Subsidies for Open Source? Some Economic Policy Issues of the Software Market*, 16 HARV. J.L. & TECH. 473, 477–78 (2003). And the marginal cost of distribution is, in this era, vanishingly small—the price of bandwidth or the price to copy a CD. *Id.*

20. The founder of the GNU project, Richard Stallman, explained at the time: "[I]f I like a program, I must share it with other people who like it. Software sellers want to divide the users and conquer them, making each user agree not to share with others. I refuse to break solidarity with other users in this way." RICHARD STALLMAN, THE GNU MANIFESTO (2005), http://www.gnu.org/gnu/manifesto.html.

21. *See supra* note 6.

22. Among other things, all three offer services to help companies migrate to Linux. Migration Center, http://www.redhat.com/migrate (last visited Sept. 12, 2005); Migrating to Linux the Novell Way, http://www.novell.com/linux/migrate (last visited Sept. 12, 2005); The Linux at IBM Competitive Advantage, http://www.ibm.com/linux/competitive/windowsToLinux.stml (last visited Oct. 23, 2005).

23. In particular, all three use and contribute to the Linux kernel, the heart of the operating system. RED HAT LINUX, RED HAT EXPANDS LINUX KERNEL DEVELOPMENT GROUP (Feb. 1, 2000), http://www.redhat.com/en_us/USA/home/company/news/prarchive/2000/press_linuxkernel.html; Robert McMillan, *$1 Billion Well Spent? An Interview with Big Blue's New Boss*, LINUX PLANET, Apr. 24, 2003, http://www.linuxplanet.com/linuxplanet/interviews/4768/1; John Koenig, *Q-A with Matt Asay of Novell and OSBC*, IT MANAGER'S J., Mar. 14, 2005, http://management.itmanagersjournal.com/article.pl?sid=05/03/09/0129225.

24. *See* U.S. DEP'T OF JUSTICE, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY 12 (1995), http://www.usdoj.gov/atr/public/guidelines/0558.pdf (explaining how the Department of Justice would evaluate intellectual property shared among major firms). *See also* Freeman v. San Diego Ass'n of Realtors, 322 F.3d 1133, 1140 (9th Cir. 2003) ("Antitrust laws acknowledge these benefits [of cooperation], but still treat the arrangements with skepticism, for seemingly benign agreements may conceal highly anticompetitive schemes.").

25. *See, e.g.*, Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 23 (1979) ("Joint ventures and other cooperative arrangements are also not usually unlawful . . . .").

26. *See id.* at 17.

27. 15 U.S.C. § 1 (2000) (making contracts, combinations, and conspiracies in restraint of trade potentially felonies); 15 U.S.C. § 15(a) (2000) (allowing recovery of treble damages in civil suits for violation of antitrust laws). For an example of one swag-division scheme that fell afoul of Section One, see Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263, 301 (2d Cir. 1979)

Under Section One of the Sherman Act,[28] the Supreme Court has excoriated competitors who conspire to fix prices.[29] In *United States v. Line Material Co.*,[30] several companies held patents that were collectively needed to manufacture a particular fuse.[31] The patent holders granted one another the rights to sublicense the other's patents to third parties, but bound licensing parties to charge certain prices on the fuse.[32] Thus, no company could produce the fuse without charging a particular price.[33] Notwithstanding limited exemptions granted to some holders of patents,[34] the Supreme Court held that "when patentees join in an agreement . . . to maintain prices on their several products, that agreement . . . is unlawful per se under the Sherman Act."[35]

Under *Line Material*, [36]competitors cannot exchange licenses that require fixed prices to be charged.[37] Now imagine that two competing software manufacturers, CompuTrust and MonopoSoft, want to pool some of their intellectual resources—in particular, software code. Because the code is protected by copyright, the two competitors must grant each other rights to the code. They choose to do so under a hypothetical license called the General Fixing License ("GFL"). Now comes the wrongful division of swag: the

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("There is a vast difference, however, between actions legal when taken by a single firm and those permitted for two or more companies acting in concert . . . [A] monopolist may, assuming he acquired his power legally, charge any nonpredatory price for his product, but agreements among competitors to raise prices have been recognized as *per se* violations of the Sherman Act since *Socony–Vacuum*.").

28. Sherman Antitrust Act, 15 U.S.C. § 1 (2000).

29. United States v. Trenton Potteries Co., 273 U.S. 392, 397–98 (1927) (holding that uniform price-fixing is per se unreasonable); United States v. Socony–Vacuum Oil Co., 310 U.S. 150, 218 (1940) (reaffirming *Trenton Potteries*, 273 U.S. 392).

30. 333 U.S. 287 (1948).

31. *Id.* at 290–91.

32. *Id.* at 293. Actually, there was some question as to whether the agreement bound all parties to charge fixed prices, but the court found that at least one party would have to fix prices. *Id.* at 295.

33. *Id.* at 297.

34. One such exemption was established in United States v. Gen. Elec. Co., 272 U.S. 476, 488–90 (1926), which held that because the patent monopoly granted by the U.S. government gave the patent holder the right to charge monopoly prices, a license agreement restricting the price that a single licensee could charge was not a violation of antitrust law. The *Line Material* court upheld that exemption, but narrowed it considerably. *Line Material*, 333 U.S. at 299–306.

35. *Line Material*, 333 U.S. at 314.

36. While *Line Material* involved patents, "the competitive concerns with copyrights, trademarks or other forms of intellectual property are about the same as those applying to patents." HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY 252 (3d ed. 1999).

37. *Line Material*, 333 U.S. at 311; *see also* United States v. Masonite Corp., 316 U.S. 265, 282 (1942) (applying per se rule to price-fixing among patent holders); United States v. New Wrinkle, Inc., 342 U.S. 371, 378 (1952) (applying prohibitions of Sherman Act to particular use of patent licenses). The application of the per se rule in the context of intellectual property licensing has come under some modern fire; it may well not serve the strictures of *Broadcast Music*, discussed *supra* Part I. But "the Court has not addressed the question in either the Chicago or the current, post-Chicago era." LAWRENCE A. SULLIVAN & WILLIAM S. GRIMES, THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK 870 (2000).

GFL requires that anyone who uses the resulting code must "cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole *for two thousand dollars.*"[38]

By exchanging software under licenses that control the price charged for subsequent licenses, the two competitors can fix uniform prices on their competing products. Because CompuTrust's final software product contains MonopoSoft code, CompuTrust must abide by the terms of the GFL.[39] In order for end users to legitimately use CompuTrust's product, they must have permission to run not only CompuTrust's code, but also MonopoSoft's. Thus, CompuTrust can sell a license to its complete product only if it can grant sublicenses to third parties from MonopoSoft. The GFL gives CompuTrust permission to grant those sublicenses, but only if it charges its customers two grand.[40] Following the same reasoning, MonopoSoft will also be bound to charge two thousand bucks. Presto: the GFL fixes prices, and is per se illegal.[41]

The per se rule against price-fixing applies regardless of the price being fixed.[42] Although two thousand dollars may be clearly excessive, the GFL would be per se illegal even if it fixed a lower price. Two thousand dollars would be as illegal as two hundred dollars; two hundred dollars would be as illegal as two dollars; and two dollars would be as illegal as two cents.[43] When it comes down to it, even zero prices have run afoul of antitrust law.[44]

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38. The language of the GFL has been chosen here to mostly mirror the language of the GPL. *See* GPL, *supra* note 9, § 2(b) (emphasis added).

39. Using someone else's code requires a competitor to abide by the creator's license because without a license, the competitor would be in violation of copyright law. 17 U.S.C. § 106 (1)-(2) (2000) (establishing that copyright holder has exclusive right to authorize others to reproduce and prepare derivative works).

40. If the rest of the GFL were similar to the GPL, fees for transferring copies would be allowed. Two thousand dollars would then be a minimum—but equally illegal—price. *Cf. supra* note 17.

41. *See supra* note 37.

42. United States v. Trenton Potteries Co., 273 U.S. 392, 397 (1927) ("[T]he Sherman Law and the judicial decisions interpreting it are based upon the assumption that the public interest is best protected from the evils of monopoly and price control by the maintenance of competition."). Despite some more recent uncertainty regarding price restraints, discussed *infra* Part I, even very recent cases acknowledge that a price-fixing cartel is per se illegal. *See* Elliot Indus. v. BP Am. Prod. Co., 407 F.3d 1091, 1123 n.29 (10th Cir. 2005) (detailing elements of claim that agreement is a per se violation of antitrust laws).

43. Catalano, Inc. v. Target Sales, Inc., 446 U.S. 643, 647 (1998) ("It is no excuse that the prices fixed are themselves reasonable."); *Trenton Potteries Co.*, 273 U.S. at 397–98 (holding that because fixing prices "involves power to control the market and to fix arbitrary and unreasonable prices" agreements fixing prices are per se unreasonable regardless of reasonability of price); United States v. Trans-Missouri Freight Ass'n, 166 U.S. 290, 338 (1897).

44. *See* Home Placement Service, Inc. v. Providence Journal Co., 682 F.2d 274, 279 (1st Cir. 1982) ("[A] combination was formed which, in effect, fixed a maximum price of zero . . . . This is sufficient concerted action to bring defendant's conduct within the ambit of section 1."). At this point, it is sufficient to note that the *Home Placement* court did not apply a per se rule. The agreement in this case can be distinguished from the GPL. *See infra* note 138.

Section 2(b) of the GPL restrains prices on sublicenses in a way that is equivalent to the zero-price GFL.[45] Specifically, it requires that any derivative work be licensed to third parties "at no charge."[46] But while it is easy to imagine CompuTrust and MonopoSoft greedily raking in profits from above-market pricing under the GFL, it's harder to contemplate Linux developers rubbing their hands in glee as they rack up sale after sale at the prices of zero, nothing, and no charge. There is something different about nothing.

Over the last few years, some generalized worries about competition and the GPL have surfaced in law review articles,[47] one lawsuit,[48] and discussions in the Linux community.[49] Another recently filed lawsuit alleges more specifically that software manufacturers releasing software under the GPL have engaged in horizontal price-fixing.[50] Responses to these worries have ranged from dismissive to comprehensive.[51] While some of the lengthier

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45. *Compare* GPL *supra* note 9, at § 2(b), *with supra*, text accompanying note 38.

46. GPL, *supra* note 9, § 2(b).

47. *See* Charles M. Gastle & Susan Boughs, *Microsoft III and the Metes and Bounds of Software Design and Technological Tying Doctrine*, 6 VA. J.L. & TECH. ¶7, ¶¶39–43 (2001) (discussing technological tying with regard to open source software). This Note does not grapple head-to-head with the charge levied by Gastle & Boughs largely because contrary to their implication, *see id.* at ¶38–39, Apache is not released under the GPL. APACHE SOFTWARE FOUNDATION, LICENSES (2005), http://www.apache.org/licenses. The GPL has also been accused of copyright misuse, an offense whose elements are related to antitrust violations. *See* Christian H. Nadan, *Open Source Licensing: Virus or Virtue?*, 10 TEX. INTELL. PROP. L.J. 349, 368 (2002). *Cf.* Robin Feldman, *The Open Source Biotechnology Movement: Is It Patent Misuse?*, 6 MINN. J.L. SCI. & TECH. 117, 118 (2004) (noting that the principles of the GPL as applied to biotechnology "implicate the doctrine of patent misuse"); Greg Vetter, *Infectious Open Source Software: Spreading Incentives or Promoting Resistance?*, 36 RUTGERS L.J. 53, 143 n.229 (2004) (noting that the possibility of copyright misuse increases in likelihood when terms are read to attach broadly to subsequent licenses).

48. *See* SCO's Answer to IBM's Am. Countercl. at 16, SCO Group, Inc. v. IBM Corp., No. 03-CV-0294 (D. Utah Oct. 24, 2003), *available at* http://www.groklaw.net/pdf/AnswerAmendCC.10-24-03.pdf (claiming that among other things, the GPL violates antitrust laws). This claim was removed from later filings. *See* SCO's Answer to IBM's Second Am. Countercl. at 20, SCO Group, Inc. v. IBM Corp., No 03-CV-0294 (D. Utah Apr. 23, 2004), *available at* http://www.groklaw.net/pdf/IBM-141-1.pdf.

49. *See, e.g.*, Posting of Deven T. Corzine to wine-license mailing list, http://www.winehq.org/hypermail/wine-license/2002/07/0016.html (Jul. 15, 2002, 11:59:10) (discussing whether GPL would run afoul of antitrust laws)Posting of Claus Färber to list-fsf-eu-discussion@faerber.muc.de, http://mail.fsfeurope.org/pipermail/discussion/2002-arch/002647.html (20 Mar 2002 15:57:00) (discussing theoretical possibility that Free Software could violate antitrust laws); Posting of James Heald to http://lists.gnu.org/archive/html/fsfe-uk/2003-12/msg00007.html (Dec. 3, 2003, 20:50:59) (noting that the GPL may fix prices artificially in violation of potential EU antitrust law).

50. Compl. with Req. for Inj. Relief at 3, Wallace v. Free Software Foundation, Inc., filed 4/28/2005, 1:05-cv-00618-JDT-TAB (S.D. Ind. 2005), *available at* http://www.groklaw.net/pdf/Wallace-Complaint.pdf (alleging that the Free Software Foundation has "conspired and agreed with individual software authors and commercial distributors of commodity software products such as Red Hat Inc. and Novell Inc. to artificially fix the prices charged for computer software programs . . .") [hereinafter Wallace Complaint].

51. For one example of dismissive rhetoric, see Stephen Shankland, *SCO Attacks Open-Source Foundation*, CNET News.com, Oct. 28 2003, http://news.com.com/2100-7344_3-5098610.html?tag=nefd_top (describing Eben Moglen's response to SCO's claim that the GPL violates antitrust laws as well as the U.S. Constitution). Moglen's dismissiveness—at least with respect to SCO's claims that the GPL violates the Constitution—is not inappropriate. A somewhat

responses touch on general worries about competition, and even mention potential pricing restraints in the GPL, they gloss over worries about price-fixing.[52] And while the Open Source Development Lab[53] has warned Linux developers not to discuss prices amongst themselves, it fails to note that the GPL itself explicitly mentions a price of zero.[54] While the fate of Linux and the GPL is interesting to legal academia,[55] the practice of sharing software expressed in the GPL is beginning to spread to other fields.[56] Uncertainties about antitrust issues, if not addressed, may hamper the wider adoption of public sharing in these other fields.[57]

This Note argues that Section 2(b) of the GPL, which requires that sublicenses be granted at no charge, is a permissible price restraint. The justification for this is . . . nothing. Or, rather: a *price* of nothing on future distributions can and should be distinguished from non-zero prices. Although the vast majority of price-fixing is per se illegal, restraints on price that are necessary to achieve important procompetitive goals may be evalu-

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lengthier answer can be found at Jason B. Wacha, *Taking the Case: Is the GPL Enforceable?*, 21 SANTA CLARA COMPUTER & HIGH TECH. L.J. 451, 476–80 (2004).

52. *See* Wacha, *supra* note 51, at 478–79 (asserting with little discussion of relevant case law that the GPL does not constitute price-fixing because it has pro-competitive effects).

53. The Open Source Development Lab is Linus Torvalds's current employer whose mission is "to be the recognized center of gravity for Linux." OPEN SOURCE DEVELOPMENT LABS, ABOUT OSDL (2005), http://www.osdl.org/about_osdl/. As part of this mission, the lab launched the Linux Legal Defense Fund. OPEN SOURCE DEVELOPMENT LABS, LINUX LEGAL DEFENSE FUND (2005), http://www.osdl.org/about_osdl/legal/lldf.

54. OPEN SOURCE DEVELOPMENT LABS, ANTITRUST POLICY (2005), http://www.osdl.org/docs/antitrust_policy.pdf.

55. If nothing else, discussions surrounding the GPL have sparked excellent work discussing the future of intellectual property in a connected world. *See, e.g.*, LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD (2001); Yochai Benkler, *Coase's Penguin, or, Linux and the Nature of the Firm*, 112 YALE L.J. 369 (2002).

56. J. H. Reichman & Paul F. Uhlir, *A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment*, LAW & CONTEMP. PROB., Winter/Spring 2003, at 315, 430–31 (arguing that the Linux license can serve as a model for a similar scientific community where "any exclusive rights granted by intellectual property laws [would be used] to exclude exclusivity itself"); Press Release, IBM, IBM Statement of Non-Assertion of Named Patents Against OSS, http://www.ibm.com/ibm/licensing/patents/pledgedpatents.pdf (last visited Jan. 18, 2005).

57. *See* Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 700 (1998) (noting that antitrust uncertainty could undermine attempts to pool intellectual property rights). There is some evidence that antitrust worries have at least hampered the adoption of the GPL in computer software. In 1999, several people noticed that reiserfs, a file system now used in the Linux kernel, had adopted a version of the license that was incompatible with the GPL. Zack Brown, *Kernel Traffic #44*, KERNEL TRAFFIC, Nov. 22, 1999, at subheading 4, http://www.kerneltraffic.org/kernel-traffic/kt19991122_44.html (noting that reiserfs mentioned the wrong license, and made exceptions to the license incompatible with the GPL). The incompatible license plainly stated "it is the policy of Namesys to license its software on reasonable terms which are in accord with the antitrust laws. While one might argue that the GPL violates the antitrust laws, you should contact us and I believe you will find that we are willing to license in accord with those laws." *Id.* Although Namesys now licenses reiserfs under the GPL, *see* Reiserfs License (2004), *available within archive at* http://ftp.namesys.com/pub/reiserfsprogs/reiserfsprogs-3.6.19.tar.gz, *as* reiserfsprogs-3.6.19/COPYING, other software manufacturers, wary of antitrust's harsh consequences, may hold back.

ated under the less restrictive rule of reason,[58] which weighs the anticompetitive consequences of a practice against the procompetitive results.[59] Part I demonstrates that GPL-based software could not be freely shared and modified without Section 2(b)'s restriction on price. The import of this is that Section 2(b)'s restraint on price is ancillary to goals that serve competition, and thus a per se rule should not be applied.

The prohibition on price-fixing arises out of two separate concerns about competition. First, antitrust law seeks to protect consumers from higher prices fixed by cartels rather than by a competitive market.[60] Second, antitrust law relies on market competition to produce higher-quality products.[61] The remainder of this Note demonstrates that the use of the GPL is consistent with the goals of antitrust law. Establishing that the restraint is ancillary to other considerations does not determine whether the agreement violates antitrust law; instead, the restraint's effect on competition must be evaluated.[62]

Part II claims that the worry regarding higher prices is alleviated by fixing a price of nothing on subsequent licenses. This price matters because a price of nothing distinguishes valid pricing schemes, designed to reduce high transaction costs associated with software licensing, from invalid schemes designed to reap supracompetitive cartel profits.

Part III addresses the concern about competition in software quality. In particular, Part III contends that the GPL's pricing restraint will result in lower quality software only when consumers straightforwardly choose lower prices over higher quality. Furthermore, the GPL reduces barriers to entry, even for software manufacturers who may not adopt the GPL. The GPL accomplishes this by charging nothing: access to source code allows others to adopt or mimic GPL software without significant investments.

While prior analysis has concluded that the GPL escapes antitrust scrutiny, it has failed to articulate how the GPL's pricing restraint should be evaluated.[63] This Note concludes that when it comes to the GPL, something is great about nothing.

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58. Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 23 (1979).

59. Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 30 (1911).

60. United States v. Trenton Potteries, 273 U.S. 392, 397 (1927) ("[T]he Sherman Law and the judicial decisions interpreting it are based upon the assumption that the public interest is best protected from the evils of monopoly and price control by the maintenance of competition.").

61. *See Id.*

62. *See id.*

63. Wacha, *supra* note 51, at 476–80.

I. THE GPL'S PRICING RESTRAINT SHOULD BE EVALUATED UNDER THE RULE OF REASON

Software is like sex; it's better when it's free.[64]

This Part argues that the GPL's pricing restraint should be evaluated under the rule of reason instead of a per se prohibition. While a per se prohibition would immediately invalidate the GPL's pricing restraint, the rule of reason would allow a balancing of the restraint's effects—both positive and negative—on competition.[65]

While antitrust jurisprudence has repeatedly held that restraints fixing prices are per se violations of the Sherman Antitrust Act,[66] this requirement has not been read to absolutely bar all price-fixing activity. In *Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*,[67] the U.S. Supreme Court warned against literal application of the price-fixing doctrine.[68] Broadcast Music ("BMI") and the American Society of Composers, Authors, and Publishers ("ASCAP") collectively owned limited rights to "[a]lmost every domestic copyrighted composition."[69] Radio stations, wishing to play tunes on a regular basis, had little desire to negotiate broadcasting rights with individual composers.[70] In response, BMI and ASCAP created a "blanket license" that allowed each station to play any piece of music in the BMI/ASCAP repertoire in exchange for a percentage of the station's revenue.[71]

In the case below, the Court of Appeals ruled that the blanket license joined together composers and publishers in a conspiracy that fixed a price on broadcast rights.[72] The appeals court censured this literal price-fixing as per se illegal.[73]

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64. This quotation is generally attributed to Linus Torvalds. WIKIQUOTE, LINUS BENEDICT TORVALDS, http://en.wikiquote.org/wiki/Linus_Torvalds (last modified Oct. 11, 2005); Posting of Jim Kingdon to dc.org.linux-users, http://groups.google.com/groups?selm=m2d95ews6d.fsf%40harvey.cyclic.com (April, 11, 1996 3:00 a.m.). Torvald's brave sentiment must be balanced with the bumper sticker on his wife's car: "coffee, chocolate, men: some things are better rich." Gary Rivlin, *Leader of the Free World: How Linus Torvalds Became Benevolent Dictator of Planet Linux, the Biggest Collaborative Project in History*, 11 WIRED MAGAZINE, Nov. 2003, at 152, 207, *available at* http://www.wired.com/wired/archive/11.11/linus.html.

65. *See, e.g.*, Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 66–67 (1911).

66. *See* cases cited *supra* notes 29 and 43; *see also* Nynex Corp. v. Discon, Inc., 525 U.S. 128, 133 (1998) (mentioning price-fixing per se rule with approval).

67. 441 U.S. 1 (1979).

68. *Id.* at 9.

69. *Id.* at 5.

70. *Id.* at 18–19. In fact, the Court found that negotiating individual licenses would be downright prohibitive. *Id.* at 19.

71. *Id.* at 11–12.

72. *Id.* at 8.

73. *Id.* at 7.

Cautioning that "[l]iteralness is overly simplistic and often overbroad,"[74] the Supreme Court noted that the per se rule against price-fixing should be applied only in situations where courts have sufficient experience with the anticompetitive nature of similar business arrangements to reject them as a whole.[75] As such, the Court refused to find BMI's blanket license to be per se illegal.[76] Instead, the *Broadcast Music* court applied the less restrictive rule of reason to the blanket license.[77] In contrast with the per se rule, which would have automatically rejected the pricing restraints, the rule of reason allowed the Court to balance the blanket license's potential harmful effects on competition with the beneficial ones.[78]

Later opinions, following in *Broadcast Music*'s footsteps, have noted that the difference between application of the per se rule and the rule of reason may turn on whether the pricing restraint in question is considered naked or ancillary to the procompetive goals.[79] A "naked" restraint is one that has no purpose other than to fix prices, or achieve another anticompetitive result.[80] By contrast, an "ancillary" restraint may generate procompetitive results.[81] Seen in this light, ancillary restraints are responsible for creating new and different products that could not be achieved by other means.[82]

Section I.A suggests that the GPL's zero-price-fixing term is a restraint ancillary to a goal of the license: it guarantees that successive generations of the software are made available on terms that allow for easy exchange. Section I.B argues that the free exchange of software creates a new, evolving product not attainable by more conventional software licenses. Thus, because the GPL's pricing restraint is needed to allow the free exchange of

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74. *Id.* at 9. On the same point, see also Dagher v. Saudi Refining Inc., 369 F.3d 1108, 1117 (9th Cir. 2004) ("There are *some* price-fixing arrangements that violate the letter of the Sherman Act but are legal nonetheless.") (emphasis in original).

75. *Id.* at 9.

76. *Id.* at 24–25.

77. *Id.* (remanding case to lower court for "assessment [of blanket license] under the rule of reason").

78. *Id.* at 19–21 (discussing justifications for the blanket license rather than condemning it outright).

79. *See, e.g.*, *Dagher*, 369 F.3d at 1118; Nat'l Collegiate Athletic Ass'n v. Bd. of Regents of the Univ. of Okla., 468 U.S. 85, 109 (1984) (referring to price arrangement as "naked restriction"); Nat'l Soc'y of Prof'l Eng'rs v. United States, 435 U.S. 679, 689 (1978) (referring to restraint as "ancillary"); Cal. Dental Ass'n v. Fed. Trade Comm'n, 526 U.S. 756, 763–64 (1999) (discussing various degrees of nakedness).

80. HOVENKAMP, *supra* note 36, at 194 ("At one extreme, a 'naked' restraint is one that is thought to have little potential for social benefit, and thus that can be condemned under a '*per se*' rule . . . .").

81. *Id.* ("[A]n 'ancillary' restraint is one that arguably serves a legitimate and socially beneficial purpose.").

82. *Broad. Music*, 441 U.S. at 21–22 (noting that the blanket license was "to some extent, a different product"); *NCAA*, 468 U.S. at 101 (refusing to apply per se rule where "horizontal restraints on competition are essential if the product is to be available at all").

software, and because the free exchange of software allows the creation of new products, the restraint should be evaluated under the rule of reason.

A. *The GPL's Pricing Restraint Is Needed to Allow the Free Exchange of Software*

This Section argues that the GPL's pricing restraint is ancillary to the goal of the license. As such, under *Broadcast Music* the restraint should be analyzed with an eye toward its potential effects on competition and not under the per se prohibition.[83] The "different product"[84] that the GPL creates is not merely the software itself[85] but also freely exchangeable source code, with accompanying efficiencies.[86]

If the GPL's requirement that sublicenses be granted to third parties at no charge is an ancillary restraint on price, the goals of the license would not be achieved if the pricing restriction were excised from the license.[87] In order to demonstrate that this is the case, the purpose of the license must be examined in greater detail. The aim of the GPL is explained in the preamble to the license.[88] It states:

> Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.[89]

There are two ways to alter the GPL's bundle of rights with respect to sublicensing so that it would not set a price. First, the GPL could remain silent as to sublicensing. Alternately, it could require that sublicenses be granted to third parties without specifying a cost. Neither option would allow the free exchange of software.

Most obviously, the goal of software that can be freely passed from one person to another cannot be attained if the license is silent on future distribu-

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83. *Broad. Music*, 441 U.S. at 19–21.

84. *Id.* at 22.

85. The method of software production enabled by the GPL is, however, also unique. *See supra* Part I.B.

86. This is particularly true since the GPL is not an exclusive license. Any software licensed under the GPL can be relicensed under other terms. GPL, *supra* note 9, at § 10 ("If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission."). While the GPL only mentions distribution in "free" programs, it's well-accepted that even for-profit distribution is acceptable. *E.g.* Reiserfs Credits File (2004), *available within archive at* http://ftp.namesys.com/pub/reiserfsprogs/reiserfsprogs-3.6.19.tar.gz, *as* reiserfsprogs-3.6.19/CREDITS; *see also* GPL, *supra* note 9, at preamble.

87. *See supra* notes 79–82 and accompanying text.

88. GPL, *supra* note 9, at preamble.

89. *Id.*

tion rights.[90] If the GPL did not require that future distribution rights were passed on, a software maker distributing software under the GPL could simply specify that the user could not pass the software on to anyone else.[91]

But even if the GPL merely required that the price of sublicense rights could be determined by the individual distributors, it would fail to achieve its stated objectives. The problem arises because software released under the GPL rarely has one—or even ten—authors. In fact, some open source projects number thousands of developers.[92] In order to distribute software without violating copyright, licenses must be obtained from every contributing software author.[93] If each author could demand that the work *as a whole* could only be distributed at a particular cost, authors who demanded different payments could not jointly work on a project.[94] And if authors could set distribution rates on only their portion of the code, scores of transactions—prices for every piece of source code added by a new author—would need to be conducted in order to make even minor programs available. Furthermore, authors could set the price for redistribution arbitrarily high, effectively blocking the purchase of further redistribution rights. Without a uniform framework for redistribution, larger projects, such as word processors or operating systems, would be essentially impossible.[95]

The GPL's pricing restraint, in furtherance of the goal of free software, performs an "aggregating service."[96] As in *Broadcast Music*, the GPL coordinates the work of thousands of programmers, with at least thousands looking to download the software that they produce;[97] the resulting product contains millions of lines of code.[98] Individual transactions with each of

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90. FREE SOFTWARE FOUNDATION, WHAT IS COPYLEFT? (2005), http://www.fsf.org/licensing/essays/copyleft.html (last visited Sep. 12, 2005) ("If middlemen could strip off the freedom, we might have many users, but those users would not have freedom.").

91. For an example of a license like this, see Microsoft Windows XP Professional End-User License Agreement, http://www.microsoft.com/windowsxp/pro/eula.mspx (last visited Aug. 28, 2005) (giving rights to run on one computer and to transfer product one time but explicitly forbidding any other methods of sharing product).

92. BERT J. DEMPSEY, ET AL., *A Quantitative Profile of a Community of Open Source Linux Developers* (1999), http://www.ibiblio.org/osrt/develpro.html. Note that this study took place far before Linux's major growth in the last five years.

93. 17 U.S.C. § 106 (2000). Because the copyright statute gives authors exclusive rights to distribute their work, *id.*, distribution of a work containing pieces copyrighted by ten authors requires a license from each author.

94. This requirement of licensing "as a whole" is derived from the GPL itself. GPL, *supra* note 9, at § 2(b).

95. An additional problem is that allowing individual authors to set prices on later transfer rights runs into the GFL problem—it would allow competitors swapping code to dictate at least one another's minimum prices.

96. *Cf.* Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 21 (1979).

97. The number of Linux users is unknown, but it numbers at least in the hundred thousands and possibly in the millions. For a ballpark estimate, see The Linux Counter, http://counter.li.org (last visited Aug. 28, 2005).

98. DAVID A. WHEELER, MORE THAN A GIGABUCK: ESTIMATING GNU/LINUX'S SIZE, v. 1.07 (Jul. 29, 2002), http://www.dwheeler.com/sloc/redhat71-v1/redhat71sloc.html (estimating there are thirty million lines of source code in Red Hat 7.1). Of course, according to SCO, at least a million of

these authors would slow the circulation of GPL-based software to a ponderous crawl.[99] By contrast, the zero-pricing restraint obviates the need to police downloads for appropriate payment and removes worries about setting individual costs.

The GPL's pricing restraint is therefore ancillary to the goal of freely exchanged software. While it may have some effects on price, it is needed to achieve a goal other than price-fixing.[100] So long as that goal serves competition, under *Broadcast Music*, the ancillary restraint should be evaluated under the rule of reason and not a per se prohibition.[101]

B. *Freely Exchanged Software Is a New Product Allowing Software Evolution*

Section I.A established that the GPL's pricing restraint was needed to allow software to be freely exchanged. Yet the free exchange of software is hardly a necessary condition for software production; in fact, many software programs currently exist that harshly limit the exchange of software.[102] This Section argues that the free exchange of software serves competition by allowing for faster, more robust evolution of computer code. "Evolution" here is intended literally: free software shares two important characteristics with evolving systems.

First, free software favors the survival of the fittest.[103] Because source code is available, users are not limited to passively informing software developers about bugs in the code; they can also track down the bugs' origins in source code.[104] While many individual users alone may not have the expertise to solve all problems, bugs become easy to fix "when exposed to a

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those suckers must have been stolen. *See* THE SCO GROUP, THE SCO GROUP'S OPEN LETTER TO THE OPEN SOURCE COMMUNITY FROM DARL MCBRIDE, (Sept. 9, 2003), http://ir.sco.com/ReleaseDetail.cfm?ReleaseID=117587. *But see* Response to Darl McBride's Open Letter from Eric Raymond & Bruce Perens to Darl McBride, CEO, of The SCO Group (Sept. 9, 2003), http://www.catb.org/~esr/writings/mcbride2.html (offering to sell readers of this Note a bridge if they believe McBride).

99. *See Broadcast Music*, 441 U.S. at 20.

100. The competitive nature of the goal that the license achieves is evaluated in more detail in Section I.B.

101. *Broad. Music*, 441 U.S. at 7 n.10 (noting that a per se rule "ineluctably doom[ing the license] to extinction" should not apply where the license is not a "naked restraint").

102. *See supra* note 91. To be fair, Microsoft has made some code needed to interact with Windows available, partially in response to the open source threat. *See* Shared Source Licensing for Developers, http://www.microsoft.com/resources/shardsource/licensing/developer.mspx (last visited Oct. 30, 2005). But the vast majority of Microsoft's code base is still closed. *See* Joseph Scott Miller, *Allchin's Folly: Exploding Some Myths about Open Source Software*, 20 CARDOZO ARTS & ENT. L.J. 491, 496 (2002).

103. ERIC S. RAYMOND, THE CATHEDRAL AND THE BAZAAR: MUSINGS ON LINUX AND OPEN SOURCE BY AN ACCIDENTAL REVOLUTIONARY 30–31 (2001).

104. *Id.* at 31

thousand eager co-developers pounding on every new release."[105] Or, more colloquially, "[g]iven enough eyeballs, all bugs are shallow."[106]

Because the life cycle of free software can be extraordinarily rapid, the software evolves—and improves—at a quicker rate than priced software.[107] Software disseminated under the GPL does not require elaborate purchase or tracking schemes,[108] and software updates need not come on an annual—or even a monthly—basis.[109] The end result is that bugs are swiftly eradicated, and users receive the benefits of added features almost immediately.

Second, free software rapidly speciates. Because the source code is readily available, a person wishing to write a word processor need not start from the ground up. Instead, the GPL allows the wholesale appropriation of source code from other projects.[110] The end result is a fabulous wealth of choice. For instance, while many software users recognize that Windows and Mac OS are two competing graphical user interfaces, users of open source software can choose between KDE, fvwm, AfterStep, Sawfish, Window Maker, Enlightenment, fluxbox, blackbox, metacity, XFCE, IceWM, olvwm, mwm, wmz, CDE, the Gnome Desktop, and more than seventy other potential graphical interfaces that are compatible with Linux.[111]

"Free software" is a valid goal because it provides evolutionary advantages. If everyone has authorization to modify free software, thousands of users will fix bugs, hundreds of hackers will contribute new features to a new software product, and scores of coders will create competing programs

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105. *Id.* at 30

106. *Id.* Raymond attributes this saying to Torvalds, but he seems to be the first to have voiced the sentiment in this particular way.

107. For more in this vein, see Ko Kuwabara, *Linux: A Bazaar at the Edge of Chaos*, FIRST MONDAY (Feb. 18, 2003), http://firstmonday.org/issues/issue5_3/kuwabara; RICHARD P. GABRIEL & RON GOLDMAN, MOB SOFTWARE: THE EROTIC LIFE OF CODE, http://www.dreamsongs.com/MobSoftware.html (last visited Sep. 12, 2005).

108. *See supra* Part I.A.

109. *See* RAYMOND, *supra* note 103, at 29 (noting that the Linux kernel was released more than once a day in its early stages). Many large-scale projects released under the GPL post "nightly builds." *E.g.* Nightly Builds, http://www.mozilla.org/developer/#builds (last visited Sep. 12, 2005).

110. RAYMOND, supra note 103, at 32. While it may sound dreadfully inefficient to have two people taking two similar projects in slightly different directions, Raymond notes that this "almost never" happens. *Id.*

111. Window Managers for X, http://xwinman.org (last visited Sep. 12, 2005). Don't forget to check out the not-quite comprehensive list of "others" and "other desktops." Admittedly, some of the more obscure ones are not useful; there are, however, valid reasons to have several drastically different desktop environments. For instance, I run fluxbox on my small-screened laptop with puny processing power, and KDE on my more powerful, more spacious desktop. By contrast, the Michigan Law Review computers all run the latest version of Windows on computers that perform sluggishly to say the least. Not all examples of speciation involve programs that perform similar functions in the same environment. Unlike Windows, which runs only on PC hardware, or Mac OS, which runs only on Macintosh hardware, versions of Linux are available that run on PCs, Macs, DEC Alphas, and SPARC workstations. MILO, LINUX SUMMARY, http://www.osdata.com/oses/linux.htm (last visited Sep. 19, 2005). Software released under the GPL adapts with relatively minimal difficulty to different environments, including environments as harsh as the iPod. *See* iPod on Linux Main Page, http://ipodlinux.org/Main_Page (last visited Sep. 19, 2005) (describing effort to run Linux on Apple's iPod, a music player that lacks the hardware found in the more typical computational environments listed above).

that accomplish similar goals by different means. Code that cannot be freely exchanged cannot easily spawn a new system.[112] Software that is released under the GPL is not just free: it *evolves* in a way that the non-free alternative does not.

Thus, the goal of free software serves competition by encouraging the evolution of free software. Without reproduction, there can be no evolution. And without free exchange, free software can't reproduce.

II. A PRICE OF NOTHING ON SUBSEQUENT DISTRIBUTIONS DEMONSTRATES THAT THE GOAL IS NOT TO RESTRAIN COMPETITION

> *Some people have told me they don't think a fat penguin really embodies the grace of Linux, which just tells me they have never seen a[n] angry penguin charging at them in excess of 100 mph. They'd be a lot more careful about what they say if they had.*[113]

The recognition of procompetitive gains does not immediately end scrutiny of a pricing restraint.[114] Instead, a finding of significant benefits begins inquiry into possible anticompetitive effects of the restraint.[115] One major worry with respect to price-fixing is that competitors who agree to maintain prices will reap supracompetitive profits.[116] This Part argues that a price of nothing—in specific circumstances[117]—prevents supracompetitive pricing.

Section II.A develops a framework for determining when fixed prices should be allowed, using *Broadcast Music* as a guide. Section II.B then applies this framework to the GPL.

A. Broadcast Music: *A Framework for Evaluating Nothing*

This Section argues that nothing—as a price on subsequent distributions—can alleviate worries of cartel pricing under certain conditions. When

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112. Proprietary code from one project can be used in other projects under two circumstances: either the owner of the proprietary code must agree to give up the source code or the source code must be reverse engineered. Both are possible, but the former depends on the whim of the original author and the latter yields code which is harder to read.

113. Posting of Linus Torvalds to comp.os.linux.announce, http://groups-beta.google.com/group/comp.os.linux.announce/msg/fea2a95e1ea56490 (June 9, 1996 21:29:02 GMT).

114. *See supra* notes 58–59 and accompanying text.

115. *See supra* notes 58–59 and accompanying text. In fact, supposedly procompetitive justifications that are fronts for harming competition are roundly rejected. *E.g.*, Nat'l Coll. Athletic Ass'n v. Bd. of Regents of Okla., 468 U.S. 85, 116–17 (1984) (rejecting justification that ticket sales must be preserved because they cannot compete in a free market); Arizona v. Maricopa Med. Soc'y, 457 U.S. 332, 348 (1987) (noting that, despite claims of competitive worries, effect of pricing restraint might be a "masquerade for an agreement to fix uniform prices"); Nat'l Soc'y of Prof'l Eng'rs v. United States, 435 U.S. 679, 696 ("In sum, the Rule of Reason does not support a defense based on the assumption that competition itself is unreasonable."); United States v. Topco Assoc., 405 U.S. 596, 611–12 (1972) (noting that the justification that competition itself is ruinous is not "sufficient to warrant condoning horizontal restraints of trade").

116. *See* United States v. Trenton Potteries, 273 U.S. 392, 397–98 (1927).

117. *See infra* Part II.A.

individual transaction costs are high and distribution costs are, by comparison, nonexistent, a price of nothing fixed on additional access rights can save substantial individual effort without risking supracompetitive pricing.

Broadcast Music allowed literal price-fixing in part because the market for music broadcasting made individualized license transactions prohibitively expensive.[118] Despite great difficulties in supplying single licenses, a large number of consumers wanted a large number of producers to provide broadcast rights upon demand.[119] In contrast to demand, supplying transactions individually would have been onerous. Separate fees per transaction would have been difficult to report and nearly impossible to police.[120]

These market conditions create initial conditions for one form of legalized literal price-fixing: *individual transactions are too costly.* They also imply a solution: *structure transactions in groups.*

Broadcast Music, however, didn't give its blessing to all group-structured transactions. The district court, when overturning the blanket license, had suggested that BMI adopt a per-use license instead.[121] Both per-use and blanket licenses would have been forms of aggregating transactions. Yet the Court disfavored the per-use license: "per-use licensing . . . might be even more susceptible to the *per se* rule than blanket licensing."[122] Consider the rationale: the blanket license differed from the per-use license in that it was "sold only a few, rather than a thousand, times."[123] The blanket license reduced the need for monitoring and enforcement.[124] And most importantly, the blanket license transformed BMI and ASCAP from a "joint sales agency" into "a separate seller offering its blanket license, of which the individual compositions [were] raw material."[125]

BMI's blanket license can be recast in explicit price-fixing terms. The cost of the blanket license did not depend on the number of songs played.[126] Its cost consisted of an initial entrance fee and a uniform charge of nothing for each additional song.[127]

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118. Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 14–15 (1979).

119. *Id.*

120. *Id.* at 20.

121. *Id.* at 7 n.10.

122. *Id.* at 17 n.27.

123. *Id.* at 21.

124. *Id.*

125. *Id.* at 22.

126. *Id.* at 5.

127. *Id.* This characterization of pricing is also mentioned by William Landes, *Indirect Liability for Copyright Infringement: An Economic Perspective*, 16 HARV. J.L. & TECH. 395, 399 (2003); William M. Landes, *Copyright, Borrowed Images, and Appropriation Art: An Economic Perspective*, 9 GEO. MASON L. REV. 1, 6 n.18 (2000) (describing BMI as a two-part pricing scheme with initial access charge plus zero marginal cost). *See also* Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 209 (1996) (endorsing flat fee plus no charge for marginal use scheme for distributing intellectual property).

While the court dismissed per-song licensing on the grounds that it may actually have been illicit price-fixing,[128] fixing the marginal price of broadcast rights after the first song sent the message that the worry really *was* transaction costs: rather than attempting to benefit from every transaction, a price of nothing allowed the market to redefine what a transaction really was in a way that reduced transaction costs.[129] In short, fixing subsequent transfers at zero signaled that transaction costs, rather than supracompetitive pricing, were really what drove the licensing scheme.[130] Furthermore, while it was possible that maximum prices—or even non-zero minimum prices—may have masked a price-fixing scheme, it simply wasn't plausible that zero prices would do so.[131]

The framework for evaluating nothing is thus provided by *Broadcast Music*. The market must be one where exchange costs dictate the aggregation of transactions. While fixing prices on each individual transaction could risk supracompetitive pricing, an access fee followed by a fixed price of nothing guarantees that the procompetitive goal of reducing transaction costs is not dominated by anticompetitive worries about prices set by cartel.

B. *Applying the* Broadcast Music *Framework to the GPL*

This Section argues that the GPL's pricing restraint fits into the *Broadcast Music* framework developed above. As to the market conditions, individual transactions under the GPL are difficult to negotiate,[132] thousands of authors and consumers are involved,[133] and new software releases occur swiftly enough that negotiating permissions among these parties is nearly impossible.[134] In contrast, distribution—over the Internet or by CD—grows continually cheaper.

The distribution condition is likewise fulfilled. The GPL, recall, sets no price on the initial transfer of software:[135] the company providing the intellectual property can charge whatever the market can bear for that transfer. Instead, the GPL requires distributors to include unlimited access rights at no charge.[136] Thus, as in *Broadcast Music*, the GPL's license solution fixes

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128. *Broad. Music*, 441 U.S. at 17. *See also* Arizona v. Maricopa Med. Soc'y, 457 U.S. 332, 348 (1982) (noting that fixed maximum prices, despite procompetitive assertions, could be used as a masquerade to fix uniform prices).

129. *Broad. Music*, 441 U.S. at 21–22.

130. *See id.* at 21–22 (arguing that transaction costs distinguish the two group licensing schemes).

131. *Broadcast Music* has been criticized on the grounds that it may mask a price discrimination scheme. *See id.* at 30–32 (Stevens, J., dissenting). Whether this worry exists in *Broadcast Music* or not, the GPL's price of nothing on future access rights bypasses this concern: price discrimination is near impossible in markets with easy resale.

132. *See supra* Part I.A.

133. *See supra* notes 92–93.

134. *See supra* notes 108–109.

135. GPL *supra* note 9, at preamble, § 1.

136. GPL *supra* note 9, at § 2(b).

the transaction cost problem by mirroring the market: it allows for an initial fee followed by essentially unlimited usage.[137]

Likewise, it's simply implausible that the GPL could be used to raise prices above competitive levels. Because the GPL sets the price of future software at zero,[138] and because it does not restrict who the software can be passed on to, most software released under the GPL is available for download at no charge.[139]

What's so great about nothing? Nothing, here, is great because it demonstrates that the point of literal price-fixing is to address the rising transaction costs associated with pooling intellectual property. Instead of worrying that the goal is a "naked restraint[] of trade with no purpose except the stifling of competition,"[140] charging nothing for subsequent transfers guarantees that the pricing restraint will not give rise to supracompetitive prices.

III. A PRICE OF NOTHING ON FUTURE ACCESS RIGHTS PROTECTS COMPETITION ON PRODUCT QUALITY

Really, I'm not out to destroy Microsoft.

That will just be a completely unintentional side effect.[141]

While Part II established that the use of the GPL would not result in supracompetitively high prices, unnaturally depressed prices, fixed without market competition, may result in consumers receiving inferior products.[142] This Part addresses the competitive quality of software released under the GPL. It argues that the use of the GPL improves consumer welfare in the software market.

In *Arizona v. Maricopa County Medical Society*, the Court refused to allow maximum prices for medical services.[143] Even if the price caps instituted by the medical society would have lowered the price of medical services, "a

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137. *Cf. supra* Part II.A

138. This is not to imply that all prices of zero are acceptable. In *Home Placement Service, Inc. v. Providence Journal Co.*, 682 F.2d 274 (1st Cir. 1982), a newspaper forced a real estate listing service to charge nothing to potential customers. *Id.* at 279. Because both the paper and the listing service targeted renters, the requirement fixed a price of zero. *Id.* That case can be easily distinguished from the GPL because neither the market nor the distribution conditions were met: the market for viewing housing ads is not dominated by transaction costs and the price of nothing was placed on the initial access fee, not merely on subsequent transfers.

139. *See supra* note 19 and accompanying text.

140. White Motor Co. v. United States, 372 U.S. 253, 263 (1963), *quoted in* Broad. Music, Inc. v. Columbia Broad. Sys., Inc., 441 U.S. 1, 20 (1979).

141. David Diamond, *The Way we Live Now: Questions for Linus Torvalds*, N.Y. TIMES, Sept. 28, 2003, § 6, at 23 (quoting Linus Torvalds).

142. *See, e.g.*, Arizona v. Maricopa Med. Soc'y, 457 U.S. 332, 348 (1982); Albrecht v. Herald Co., 390 U.S. 145, 152–53 (1968) ("[S]chemes to fix maximum prices, by substituting the perhaps erroneous judgment of a seller for the forces of the competitive market, may severely intrude upon the ability of buyers to compete and survive in that market.").

143. *Id.*

price restraint that tend[ed] to provide the same economic rewards to all practitioners regardless of their skill, their experience, their training, or their willingness to employ innovative and difficult procedures"[144] could gravely harm consumer welfare. Furthermore, lowered prices might have artificially "discourage[d] entry into the market and may [have] deter[red] experimentation and new developments by entrepreneurs."[145]

While the GPL allows the distributor to charge any price for the initial transfer,[146] the distribution rights that must be granted at no charge mean that anyone who receives the software can undercut the distributor's initial price. The price of the software will thus tend toward the price of distribution.[147] BMI's blanket license can be distinguished from the GPL on these grounds; recall that in *Broadcast Music*, BMI charged an access fee equal to a percentage of the radio station's revenue.[148]

This Part argues that the GPL's lowered prices, and potentially lowered productivity, will only drive out other software when competition favors lower-priced alternatives over higher quality. Section III.A contends that if software released under the GPL drives out higher-quality for-price software, it does so only when consumers do not value the additional quality enough to pay the price premium. Section III.B dispatches the more worrisome argument that network effects in computer software may create long-term inefficiencies. Because the GPL mandates open access to the source code, competitors can easily break in to any network dependent on GPL-based software.

A. *Free Software Displaces Priced Software Only under Competitive Circumstances*

This Section argues that free software will displace superior-quality priced software only when consumers prefer the lower-priced alternative. The GPL and similar copyright licenses may reduce incentives for software developers to create.[149] Furthermore, the availability of free software could lead consumers to abandon paying versions of the software.[150] The end result is that for-price manufacturers producing superior products might be forced

144. *Id.* at 348.

145. *Id.*

146. GPL, *supra* note 9, at preamble, § 1.

147. *See supra* note 19 and accompanying text.

148. *See supra* note 71 and accompanying text.

149. *See* David S. Evans & Bernard J. Reddy, *Government Preferences for Promoting Open-Source Software: A Solution in Search of a Problem*, 9 MICH. TELECOMM. & TECH. L. REV. 313, 388 (2003).

150. *See, e.g.*, Posting of P. Douglas to http://news.zdnet.com/5208-9595-0.html?forumID=1&threadID=2014&messageID=42424&start=13 (Mar. 2, 2004); Wallace Compl., *supra* note 50; Letter from Darl McBride, CEO, The SCO Group, to Unnamed Congress Person (Jan. 8, 2004), *available at* http://www.osaia.org/letters/sco_hill.pdf.

out of business. The potential for quality problems with software released under the GPL is significant.[151]

Even if these assertions are true, this argument is insufficient to condemn software released under the GPL under antitrust laws. Antitrust law protects "competition, not competitors."[152] It does not command that an industry produce the best possible product with no respect to price; instead, it seeks to assure that an industry produces the optimum product that consumers are willing to purchase. Assuming a competitive market, a no-cost alternative will only drive out a higher-quality higher-priced product because consumers have decided that the additional quality is not worth the price.[153]

Antitrust law will not protect higher-quality products from competition.[154] In *National Collegiate Athletic Association v. Oklahoma Board of Regents of the University of Oklahoma*,[155] the NCAA attempted to justify reducing output of televised games by arguing that increasing television coverage would erode game attendance.[156] While personal attendance at football games is widely considered superior to watching broadcasted coverage, television shows are substantially cheaper. The Supreme Court, however, refused to protect the obviously superior product of game attendance.[157] "[A]t bottom the NCAA's position is that ticket sales for most college games are unable to compete in a free market."[158]

Likewise, if people generally prefer free software to paying for higher-quality software, it doesn't matter that some software manufacturers may be inconvenienced. At bottom, software makers who object are really objecting to the fact that they are unable to compete in the market.[159]

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151. The existence of these problems are, however, hotly disputed. *See supra*, Part I.B.; *see also* RAYMOND, *supra* note 103, at 67–111 (arguing that open source acts as a gift and reputation economy, providing incentives to create); TORVALDS, *supra* note 2, at 245–49 (arguing that most human activity is motivated by fun, not money); Yochai Benkler, *Coase's Penguin, or; Linux and the Nature of the Firm*, 112 YALE L.J. 369, 426–34 (2002) (noting that people perform some activities less when they are paid for them). *See also* iPod on Linux FAQ, http://ipodlinux.org/FAQ#What_is_this.3F (last visited Sep. 19, 2005) (answering the question "[w]hy would you want to do that?" not with "because we hope to make a stunning profit" but with "[f]or a number of reasons, but mainly because we can."); Bad_CRC, All Your Base Video, http://www.planettribes.com/allyourbase/AYB2.swf (2001) (photoshopping the phrases "all your base are belong to us," "you have no chance to survive make your time," and "somebody set us up the bomb" into a large number of pictures accompanied by music for no financial reason).

152. Brown Shoe Co. v. United States, 370 U.S. 294, 320 (1962) (emphasis removed).

153. Some consumers may prefer paying for the high-quality version, but there's no reason antitrust law should insist that everyone else subsidize their preferences by banning the no-cost version.

154. Nat'l Collegiate Athletic Ass'n v. Bd. of Regents of the Univ. of Okla., 468 U.S. 85, 116–17 (1984).

155. Id.

156. *Id.* at 115–16.

157. *Id.*

158. *Id.* at 116.

159. *Cf. id.*

B. *Access to Source Code Reduces Anticompetitive Network Effects*

When it comes to antitrust, computer software may raise special concerns: because of network externalities, perfect competition may be illusory. This Section argues that software released under the GPL minimizes the market distortions associated with software networks.

Anticompetitive effects may arise in the computer software field because the software that one user adopts can affect what software another user adopts.[160] For instance, if one person uses a particular word processor that relies on a proprietary file format, others are more likely to do so. The ease of sharing the same file format, or of being able to instruct others in ways to use particular features, adds more value to the software than just the sum of its features.[161] Software thus has a tendency to attract more users when its preexisting user base is large. This tendency is known as a network effect, because the interaction of users creates a network that reinforces the use of one particular piece of software.[162] In the software industry, network effects tend to reduce competition by raising barriers to entry.[163]

Network effects may have troubling implications for long-term competition.[164] A software product may become dominant at some initial time, by clever marketing or actual superiority. Once it has achieved that dominance, its common usage will make it difficult for people to switch at a later time to new and superior software. Concerns about interoperability may convince others to stay with the original software, rather than switching to a competitor.

The antitrust worries associated with network effects are not unique to the GPL, but because financial remuneration is limited, they may have additional force.[165] Because there are financial limitations on recouping investments in intellectual property that is released under the GPL, software released under the GPL may not add features as quickly as they would be added to a program where users regularly pay for a new version. The software in question could thus fail to maintain its superiority over time.[166] This

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160. *See* Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 483, 491 (1998).

161. *Id.* at 488.

162. *See id.*; *see also* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 396–97 (2003).

163. *See id.*

164. *See id.* at 396–97, 399–400.

165. *See id.*; *see also* Lemley & McGowan, *supra* note 160, at 500–21 (detailing several antitrust lawsuits that are based on worries surrounding network effects).

166. For those familiar with Linux desktop usage figures, widespread adoption sufficient to dominate a network sounds like a pipedream. It is difficult to obtain estimates of Linux usage, as users need not register or purchase software licenses. Reasonable estimates, however, range around one percent. Grant Gross, *Is the Age of Desktop Linux Approaching?*, PC WORLD, Oct. 23, 2003, available *at* http://www.pcworld.com/news/article/0,aid,113069,00.asp. Markets other than the desktop market may, however, play a role. Mozilla Firefox, a browser released under the GPL (as well as under other licenses), has grabbed twelve percent of the desktop market shortly after its initial release. Nouvelle étude Firefox sur 29 pays d'Europe: La France poursuit sa progression et la

becomes a problem because network effects may prevent the adoption of software that provided those features. Even if all consumers would prefer to pay for the new software, worries about interoperability might prevent a sizable number of people from switching to the new software.

The question of software inferiority is empirical and—as software released under the GPL lacks sufficient market share at this point—entirely hypothetical. But network effects in software are only particularly troublesome because the software market has high barriers to entry: competitors must not only write a software program from scratch, but must guess as to how to make it work with the dominant product.[167]

While software released under the GPL might reduce a developer's ability to recoup creative investments, in comparison with the typical copyright license, the GPL drastically reduces the barriers to entry. Most obviously, under the GPL, a competitor could easily make innovative changes to the available source code, and release a new improved work that nonetheless used the standards of the dominant software.[168] This new software could easily interact with the network because it would be, essentially, only a modified version of the original network-dominating software.[169] This modified version, of course, would have to be released under the GPL.[170]

But even those who don't choose to release their software under the GPL will benefit from its open-access principles. Consider what happens to those who prefer another software license.

First, the widespread availability of software released under the GPL would not preclude the use of other licenses. Potential competitors are not restricted to making improvements to GPL source code; they can always develop their own program. In the absence of dominant GPL software, this endeavor would entail a great deal of time and effort.

But the GPL's provision of source code for the price of nothing reduces barriers to entry. The typical software copyright license, uninterested in facilitating the sharing of intellectual property, does not provide source code. This means that competitors usually lack the blueprints that explain how to interact with the dominant software network.[171] The result is that competitors to proprietary software need to build competing software from the ground up. Even then, their activities are restricted by worries that file formats may not be precisely identical, leading to botched transfers and incomplete interoperability. In contrast, under the GPL, the source code of the software is

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Finlande passe les 30%, http://www.xitimonitor.com/etudes/equipement10.asp (July 17, 2005). And depending on how market share is defined, software released under the GPL may have near-monopolies on computing clusters or other scientific uses.

167. *See* LANDES & POSNER, *supra* note 162, at 396 ("But the antitrust concern with network externalities is not centrally about technological inferiority but about barriers to entry.").

168. *See* LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 103–05 (1999).

169. *Id. at 105.*

170. GPL, *supra* note 9, at §§ 1, 2.

171. LESSIG, *supra* note 168, at 107.

available. Competitors can download and view that software without binding themselves to distribution of their software on its terms.[172]

Source code makes software standards transparent.[173] Instead of having to reverse engineer file format protocols, potential competitors can directly examine the code and determine exactly how to interoperate with the network-dominant software.[174] This drastically reduces the barriers to entry for a competitor who wishes to write the code from the ground up.[175] A competitor who does not wish to release code under the GPL may nevertheless have a significant advantage competing with code released under the GPL, as compared to the more typical copyright license.

The availability of source code reduces barriers to entry by addressing compatibility issues. When the source code is not provided, network effects can be a very real problem: it is difficult to ensure compatibility if the operating requirements of one program cannot be discerned. But programmers that provide source code spell out the standards for interacting with their software.[176] Nothing—or supplying source code at no charge—is great because it ensures easier compatibility.

Copyright law would not require developers who viewed source code to license it under the GPL. While it would be copyright infringement to copy the code directly, copyright protects the expression of ideas, not the idea itself.[177] Searches through bug archives might help developers of non-GPL software to find ways to solve similar tricky problems, without either directly copying code or reproducing a substantially similar version.[178] A competitor could therefore learn from the mistakes of GPL developers while creating a competing version that would not have to be released under the GPL.

Thus, with respect to the GPL, competing developers can create competitive works at a substantially lower cost than if the GPL-based software had been released under a typical copyright license. If the competition wished to use the code in a later piece of software, the GPL's price of nothing on access rights allows that. If the competition wanted to see how to program a competing piece of software that interacts with other GPL-based

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172. *See* GPL, *supra* note 9 (only requiring release of software under the GPL for works copying source code released under the GPL).

173. LAWRENCE LESSIG, THE FUTURE OF IDEAS 57–58 (2001).

174. *Id.* at 60–61.

175. *See Id.* at 49; Nicholas D. Wells, Note, *Government Use of Free Software*, 33 PUB. CON. L.J. 565, 575 (2004) (noting lowered barriers to entry); Evans & Reddy, *supra* note 149, at 388. *Cf.* Joseph P. Kendrick, Comment, *Does Sound Travel in Cyberspace?*, 8 J. SMALL & EMERGING BUS. L. 39, 40–41 (2004) (arguing that open music licenses reduce barriers to entry).

176. LESSIG, *supra* note 173, at 57–61.

177. *See* Baker v. Seldon, 101 U.S. 99 (1880) (stating generally applicable version of rule); Whelan Associates, Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222, 1236 (1986) (applying idea/expression dichotomy in computer software context).

178. Several open source bug archives are freely searchable online. *E.g.*, Linux Kernel Tracker, http://bugzilla.kernel.org/ (last visited Nov. 1, 2005) (allowing general public to search for software bugs, both past and present, and providing sections of code that solve those problems).

projects, the GPL allows that as well. And what if a competitor just wanted to learn about programming techniques? Nothing—or the free availability of access rights—lets her do that as well.

So nothing, surprisingly fertile, turns out to be great for yet another reason: it requires producers of GPL-based software to make available tools to prevent GPL-based software from excluding proprietary software.

Conclusion

Price-fixing has long been considered per se illegal. This per se prohibition on price-fixing is justified because price-fixing can lead to both higher prices for consumers and lowered quality. The Supreme Court has recognized, however, that literal price-fixing that nonetheless achieves procompetitive goals should not be condemned.

Had the GPL required that distributors give licenses to third parties only by charging a specified amount, it would have engaged in price-fixing. But specifying a price of zero is only price-fixing in the literal sense: there's something great about nothing.

Specifically, "nothing" guarantees that the dangers associated with price-fixing can be averted. It is impossible to charge a supracompetitive price when the parties involved can redistribute the software for free. Likewise it is impossible to dominate the market with inferior software if your open access requirements allow competitors to mimic your source code, your algorithms, or your data access routines. Nothing—as a price both on transferring software and on accessing the source code—allows competitive worries about pricing to disappear.