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Original Sin

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I. INTRODUCTION

In 1810, a British man named Frederick Hasselborough discovered a small uninhabited island halfway between New Zealand and Antarctica while looking for new sealing grounds. He named it Macquarie Island, after the Governor of New South Wales. At the time it was a beautiful and lush island full of penguins, seals, and sea birds. When Hasselborough and his sealers departed, they left a growing army of rats, mice (from the ships), and rabbits (bred for food), none of which faced a natural predator on the Island. Cats were then introduced to kill the assorted rodents, which they did with glee, as well as an estimated 60,000 seabirds a year.[2]

In the 1980s, bird lovers had enough, and they petitioned the Government of Australia to kill the feral cats until by 2001 the island was feline-free. Unfortunately, this left rabbits with no natural predator and soon the entire island was completely overrun with 130,000 rabbits (and even more rats). As every gardener knows, rabbits, unlike cats, like vegetables. And soon the rabbits on Macquarie Island ate the vegetation that had previously stabilized the steep slopes of the island and provided shelter for burrow-nesting seabirds. The resulting ecological damage was severe, leading to the extermination of nine species of birds and several penguin-killing landslides.[3]

The above example illustrates how even well-intentioned governmental efforts to eliminate what is perceived as a predator (cats) in order to protect something else (seabirds) may throw a market into disequilibrium, resulting in adverse unintended consequences that may harm the very thing the government wanted to protect.

In the last few years, antitrust regulators throughout the world have tried to kill something they perceived to be a predator, namely holdup via Standard Essential Patents ("SEPs"). In the United States, the Federal Trade Commission ("FTC") did so directly in the consent decree that it reached with Motorola Mobility, which largely prevented Motorola from obtaining injunctions on SEPs. Similarly, the U.S. Department of Justice, Antitrust Division ("DOJ") did so indirectly in stating that it did not intend to challenge the IEEE patent policy that provided that the royalty base on SEPs should not be calculated on the entire device but rather on the smallest salable unit that practices the claim, typically the chipset within the phone.

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[2] Keith Springer, *Planning processes for eradication of multiple pest species on Macquarie Island – an Australian case study*, *available at* http://www.issg.org/pdf/publications/Island_Invasives/pdfHQprint/2Springer.pdf.

[3] Australian Dept. of the Env't, *Macquarie Island: from rabbits and rodents to recovery and renewal* (2014), *available at* http://www.environment.gov.au/system/files/pages/f47bc054-b46d-40f2-85a5-7825525bfb48/files/fs-macquarie-island.pdf.

Like the Australian Government, however, these regulators only took aim at a subset of the problem. For example, U.S. regulators have done nothing to hold companies to the RAND commitments that they made on software patents outside of the standard-setting context, even when the underlying technology had market power and was, in fact, essential to the commercial success of smartphones. These patents are known as Rand Encumbered Patents (or "REPs"). Moreover, U.S. regulators have taken no action to limit the power of software patents, which read on relatively trivial user interface features such as "swipe-to-open," or even less significant design patents, such as the rounded corners of the iPhone and iPad.

The dissimilar treatment of SEPs on one hand, and REPs and design and UI software patents on the other hand, was dramatically illustrated by President Obama's intervention to lift the exclusion order that Samsung obtained against Apple (on SEPs), but his failure to take action to lift the exclusion order that Microsoft had obtained against Motorola (on REPs).

While SEPs could be a potential predator in the hands of a firm that wants to raise the costs of its rivals, the Administration's intervention on SEP enforcement, while doing nothing with respect to non-SEPs, can have three unintended consequences:

1. Because cross-licenses are determined on a portfolio-wide basis, with SEPs being used to offset royalty demands on non-SEPs within the counterparty's portfolio, the elimination of SEPs as a counterweight means non-SEP software patents are now increased in value in a negotiation or litigation with an SEP holder. If we assume that in the status quo the exclusive power of non-SEP software patents are set at an optimal level, this increase in the value of non-SEP patents vis-à-vis SEP holders can lead to higher prices and diminished innovation in the market.
2. Because firms can no longer obtain injunctions if they declare their patents as essential to SSOs, but can obtain injunctions if they do not, firms can have increased incentives to invest in proprietary technologies outside of the standard-setting context. As a result, technologies that would have been protected by enforceable RAND commitments may no longer be so protected.
3. Because operating companies bringing lawsuits on SEPs are now subject to antitrust scrutiny, there is an increased risk that operating companies will sell their SEP portfolios to trolls who can monetize these patents with less antitrust risk.

II. THE PURPOSE OF PATENTS

Ideas are thought of as public goods because everybody can copy them (consumption is non-excludable) and their use by one person does not diminish the amount of the idea available for others (consumption is non-rivalrous). Thus, it is argued that in the absence of government intervention, ideas are less likely to be expressed and exploited because the innovator cannot fully enjoy the fruits of his or her labor.

Government intervention in the form of patent policy is intended to solve this market imperfection by allowing inventors either to exclude others from copying their work, or to charge royalties to those whom they permit to copy their work. Thus, the purpose of patents is to create innovation that would not exist in the absence of protection. As Section 8 of Article One of

the Constitution provides, the purpose of providing exclusive rights for a limited time to inventors is to "promote the Progress of Science and useful Arts."

But neither the Constitution, nor economic theory, provides an easy answer to the question of how much exclusivity is appropriate to incentivize innovation. Indeed, it is a very difficult task to determine an optimal scope and duration of a patent that will balance the loss in static efficiency (higher prices for consumers) against a gain in dynamic efficiency (as we increase exclusivity towards the optimal point) or a loss of dynamic efficiency (if we increase exclusivity beyond the optimal point).

Instead, regulators and courts seem to solve this problem through assumption—that Congress has set the optimal duration and scope and therefore that any increase in duration or scope beyond that point harms consumer welfare.

III. THE PROBLEM WITH SOFTWARE PATENTS

There are very good reasons to believe that patents are necessary to incentivize firms to create the next great drug or medical device. That is because such inventions have historically required large teams that spend billions of dollars in research and development ("R&D"). Who would undertake such an investment if their efforts could be copied by others?

Take the case of pharmaceutical companies. Today, U.S. pharmaceutical companies on spend about $51.1 billion on R&D, representing approximately 17.8 percent of their total sales.[4] Given that only two of every ten marketed drugs earn sales in excess of their R&D expenditures,[5] few would spend billions to create a new drug, complete years of double-blind tests, and achieve FDA approval if others would be free to immediately copy the approved drug.

The same argument does not hold true with respect to software.

First, as James Bessen and Nobel Laureate Eric Maskin point out, innovation in software is typically sequential and complementary, building upon the work of others in incremental steps. This is in contrast with the pharmaceutical model, where innovation is discrete—for example, the creation of an entirely new molecule. Bessen and Maskin explain that "[f]or industries like software or computers, theory suggests that imitation may *promote* innovation and that strong patents (long-lived patents of broad scope) may actually *inhibit* it."[6] In fact, these authors report that "firms that obtained the most software patents (largely firms in the computer and electronics hardware industries) actually *reduced* their R&D spending relative to sales after patent protection was strengthened."

Second, unlike pharmaceutical R&D, which typically takes place within a single organization, software innovation can take place between unaffiliated programmers working together on different pieces of a single project on a virtual team. This can result in an efficient

[4] Pharmaceutical Research and Manufacturers of America, 2014 Biopharmaceutical Research Industry Profile 27 (2014), *available at* http://www.phrma.org/sites/default/files/pdf/2014_PhRMA_PROFILE.pdf.

[5] *Id.* at 50.

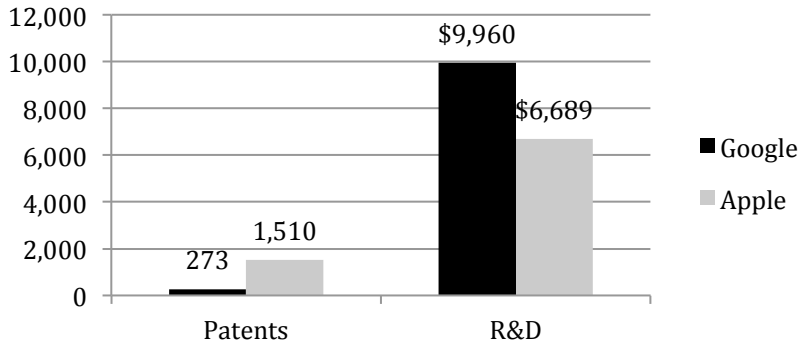
[6] James Bessen & Eric Maskin, *Sequential innovation, patents, and imitation*, 40 RAND J. ECON. 611, 612 (Winter 2009), *available at* http://scholar.harvard.edu/files/maskin/files/sequential_innovation_patents_and_imitation.pdf.

organizational structure, without a physical plant, without an HR department, made up of volunteers who are passionate about their project. As even Microsoft has acknowledged, "a key long term advantage that Linux will enjoy is the massive pool of developers willing to improve areas of the core platform. Microsoft will never be able to employ a similar head count."[7]

Third, because software is a complement both to hardware and to service, there exist a number of organizations who are willing to subsidize software innovation. It is for this reason that the largest contributors to Linux are companies like IBM, Intel, Cisco, and Red Hat, each of which makes more money the better and cheaper software becomes. IDC, for example, estimated that the open source Linux operating system generated over $14 billion in hardware sales in 2013 alone.[8]

While Microsoft and Apple, the two most vocal proponents of software patents, may argue that they are unlikely to invest in new software products without exclusivity granted by patents, the truth is that they have. For example, Microsoft's first patent application was dated 1985, well after the commercialization of DOS, Excel or Word.

In fact, Apple, a company widely praised as one of the most innovative technology companies in the world, spends far less in R&D than Google, a firm that until its acquisition of Motorola Mobility had few software patents. Specifically, Apple spent $6.7 billion on R&D between 2001 and 2009 (approximately 4 percent of sales), while amassing a patent portfolio of over 1,510 patents. In contrast, Google, generally considered an equal in terms of innovation, spent $9.96 billion on R&D during the same time (approximately 12.3 percent of sales) while only amassing a total of about 273 patents.



As Steve Jobs said, "[i]nnovation has nothing to do with how many R&D dollars you have."[9] Indeed, the most important operating systems in history were developed without any patent (or even copyright) protection and were both spearheaded by a single individual, who was then joined by others in a fragmented team based entirely on volunteer labor.

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[7] Tom Adelstein, *Do Linux advocates have anything to fear from Microsoft?*, LINUXTODAY (May 27, 1999), http://www.linuxtoday.com/developer/1999052701010NWSM.

[8] Darren Yates, *Matching databases to Linux distros*, itnewslabs (Sept. 1, 2014), http://www.itnews.com.au/Lab/391529,matching-databases-to-linux-distros.aspx.

[9] Stephen Nale, *The 100 Greatest Steve Jobs Quotes*, Complex (Oct. 5, 2012), http://www.complex.com/pop-culture/2012/10/steve-jobs-quotes/its-about-the-people-you-have.

For example, UNIX was developed by a Bell Laboratory programmer named Ken Thompson in three months over the summer of 1969. Over the next year, Thompson refined the program with the help of his friend and co-worker Dennis Ritchie (who had earlier invented the C language by himself).

Because Bell Labs was forbidden by a 1956 Consent Decree with the DOJ to enter any business other than telephony, neither Ritchie nor Thompson were allowed to charge for or even support UNIX. They did both, distributing copies of the source code as well as bug fixes throughout academia, where the best programmers in the world worked on UNIX for free. This led directly to the development of Mach at Carnegie Melon (which later was used for Windows NT and iOS), BSD at Berkeley and later Sun Solaris.

The spread of Linux mirrored the spread of UNIX, with a Finnish undergraduate named Linus Torvalds releasing a free version of the PC-based operating system under Richard Stallman's General Purpose License ("GPL"). Known as Copyleft (as opposed to Copyright) protection, the GPL provided that anyone was free to copy, modify, and distribute Linux, provided that others would be permitted to copy the modifications they distributed. In other words, the GPL mandates the freedom to copy as opposed to the freedom from copying. Notably, because the GPL prohibits preventing others from copying innovations, the GPL actually mitigates one free-riding problem—the prospect that somebody will make a fortune from another's innovation and then close the code.

And despite this mandated copying, more than 11,000 developers from more than 1,200 different companies have contributed to Linux.[10] IDC estimated that the Linux kernel was worth $40 billion in 2010, and it is worth significantly more now.[11] Today, 97 percent of the most powerful computers in the world use Linux,[12] and 75 percent of enterprises use Linux as their primary cloud platform.[13] Linux powers TiVo, Android, the Kindle Fire, and virtually all smart devices in the world.

And it's not just operating systems. The world-wide-web (developed by Tim Berners-Lee) and the TCP/IP protocol (developed by Vint Cerf and Bob Kahn) were both open source projects. Today, 80 percent of all web-servers are run by open source software. Basically, the software that powers the entire modern economy was developed without patents.

So much for patents being required to incentivize software innovation.

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[10] Linux Foundation, *Who Writes Linux: Linux Kernel Development: How Fast it is Going, Who is Doing It, What They are Doing, and Who is Sponsoring It* (2014), http://www.linuxfoundation.org/publications/linux-foundation/who-writes-linux-2015.

[11] Bryce Royer, *Gift Economy for Business owners: The $40 billion enterprise?*, Gift Economy (Aug 31, 2014), http://www.gifteconomy.ca/gift-economy-for-business-owners-the-40-billion-enterprise/.

[12] Steven J. Vaughan-Nichols, *Linux dominates supercomputers as never before*, ZDNET (June 24, 2014), http://www.zdnet.com/article/linux-dominates-supercomputers-as-never-before/.

[13] Linux Foundation, World's Largest Linux User Trends, Enterprise End User Report (2014), *available at* http://www.linuxfoundation.org/publications/linux-foundation/linux-end-user-trends-report-2014.

IV. THE PROBLEM WITH DESIGN PATENTS

Although design patents have a much longer history than software patents, they are equally problematic. At the outset, it is important to note that design patents are intended to protect only purely aesthetic innovations. If the innovation has any utility, it is, by definition, not able to be protected by a design patent.

It is very difficult to make the argument that significant periods of exclusivity are necessary to incentivize the creation of a beautiful object. While good design is rare, it is not something that is expensive or something that you get more of when you pay the artist more money. Indeed, as noted above, Apple, who by all accounts produces some of the most beautiful objects in the world, spends less money on R&D than other leading software companies.

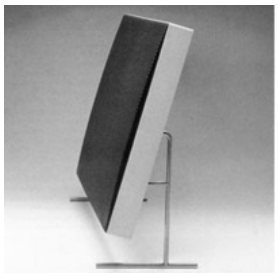
In fact, it is easy to see how patents actually retard innovation in design. Consider the example of fashion design, an area where designers readily copy each other with little fear of patent infringement litigation. Yet, it is the threat of copying that forces designers to come up with new styles each year and to differentiate their designs in terms of quality material and construction. Do we believe that design would change as rapidly as it does in the absence of copying?

The same is true with respect to smartphones, where no consumer could mistake the craftsmanship and quality of the glass and metal iPhone with the plastic encased Samsung phone. Even Apple would acknowledge that Samsung never copied what Jobs would describe as the soul of the iPhone. And yet, instead of redoubling its efforts to differentiate the iPhone through real innovation (instead of simply making it larger like the Samsung device), Apple chose to petition the government and courts for help.

What's more, copying design is not a bad thing. Consider, for example, how Jony Ives copied many of Apple's most famous designs from Dieter Rams at Braun.

Braun (1958)

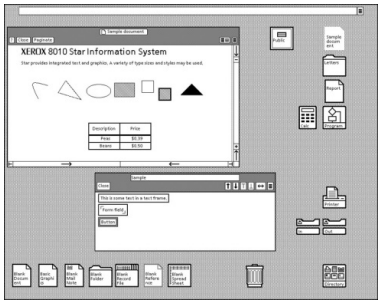
Apple (2001)



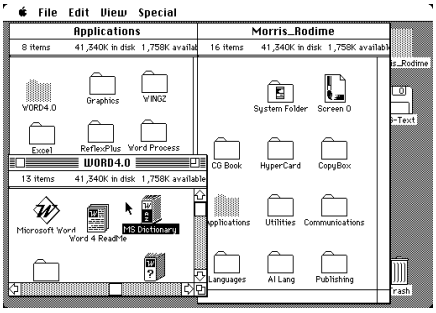
Braun (1960)

Apple (2007)

Copying ideas from others was not, of course, a new thing for Apple, as a quick comparison between the Xerox Star and Macintosh reveals.



Xerox Star (1981)



Macintosh Apple (1984)

As Steve Jobs, quoting Pablo Picasso, once said: "Good artists copy. Great artists steal."[14] Again, this is not to criticize Jobs, Ives, or even Picasso, all of whom not only made faithful and great copies of the original, but also substantially innovated in doing so. It is simply to point out that copying isn't always a bad thing. Especially if you do a good job.

V. THE PROBLEM WITH SEPS

SEPs are patents that read upon various standards like 3G and 4G. They are declared essential to various standard-setting organizations like ETSI or IEEE, which means that in the view of the declarant the standard cannot be practiced without infringing upon the patent. In the case of ETSI and IEEE, the declarant promises that he or she will make the patent available on (Fair) Reasonable and Non-Discriminatory ("FRAND") terms.

Telecommunication protocols are quite complex with hundreds—if not thousands—of pages of documentation. It is not surprising, then, that there are thousands of patents that are declared as essential to protocols like 4G, with each declared patent representing only a small piece of the standard.

While the vast number of SEPs may seem significant, 90 percent of SEPs are held by ten companies. As a result, the value of an individual SEP is quite small, though the value of an entire portfolio may be significant. However, because firms cannot bring patent infringement litigation on hundreds of patents at once, the only way to bring a counterparty to the negotiating table is to threaten an injunction.

Prior to 2012, firms were able to obtain injunctions on valid and infringed SEPs. In theory, this presented a significant problem because there was a risk that a firm holding a single SEP would be able to threaten an injunction against a rival, thus forcing the rival to pay up to its entire expected profit stream to avoid being enjoined. Knowing this, the argument went, firms would be unlikely to invest in designing and marketing smartphones that implemented SEPs.

There was, of course, little empirical evidence that this had occurred given that no smartphone had ever been excluded from the United States by way of injunction on an SEP and the threat of such injunctions had not actually forced Apple to either pay royalties on SEPs or

[14] Dan Farber, *What Steve Jobs really meant when he said 'Good artists copy; great artists steal'*, CNET (Jan. 28, 2014), http://www.cnet.com/news/what-steve-jobs-really-meant-when-he-said-good-artists-copy-great-artists-steal/.

dissuaded them from designing and marketing a smartphone chock full of differentiating features. Still, the threat remained.

VI. PATENT BALANCE

The smartphone patent wars pitted Apple and Microsoft, two firms that held a significant number of non-SEP software and design patents, against members of the Android ecosystem, including firms like Samsung, Motorola and LG, all of whom held a significant number of SEPs.

These competing portfolios were used against each other in litigation, with Apple suing Samsung on patents such as swipe to unlock and the rounded corners of the iPhone and iPad, and Samsung countersuing with patents that read on 3G and other telecommunication protocols.

Meanwhile Microsoft threatened dozens of Android OEMs with exclusion orders and injunctions for allegedly violating a series of non-SEP software patents such as those related to Exchange ActiveSync. Significantly, Microsoft had earlier made a unilateral but enforceable commitment to make the Exchange Active Sync patents available on RAND terms under the so-called Interoperability Principles.[15]

Motorola Mobility responded to Microsoft's threats by bringing its own patent infringement action on a series of SEPs in the Western District of Washington. At the same time, Motorola sought an exclusion order against Microsoft for infringing upon these SEPs.

Motorola Mobility argued that its SEPs were worth approximately 2.25 percent of the end device price, which in the case of a $500 smartphone represented about $10. Although Microsoft and Apple argued that the royalty rates that Motorola sought for its significant portfolio of SEPs were too high, the truth was that Motorola's rates were either comparable to or lower than what these firms wanted for their non-SEPs. In fact, Microsoft argued that its REPs were worth between $5 and $10 per unit[16] and Apple argued that its design patents were worth up to $40 per unit.[17]

VII. UPSETTING THE ECOSYSTEM

The FTC intervened, commencing an investigation and later obtaining an Order against Motorola Mobility under Section 5 of the FTC Act, arguing that seeking injunctions on SEPs violated Motorola's FRAND obligations.

The IEEE then implemented a patent policy that expressed the view that the royalty base for SEPs should be based upon the smallest salable unit that implemented the patent's claim. This was a position long supported by Microsoft and Apple in litigation and would result in a

[15] Microsoft, *Microsoft Interoperability Principles*, https://msdn.microsoft.com/en-us/openspecifications/dn646764.

[16] Adnan Riaz, *Microsoft Will Earn Billions From Android Smartphone Sales*, SEEKING ALPHA (Jan. 7, 2014), http://seekingalpha.com/instablog/15378722-adnan-riaz/2556211-microsoft-will-earn-billions-from-android-smartphone-sales.

[17] Kyle Russell, *Apple Has "Objectively Insane" Patent Demands For Samsung*, BUS. INSIDER (Mar. 11, 2014), http://www.businessinsider.com/apples-insane-patent-demands-for-samsung-2014-3.

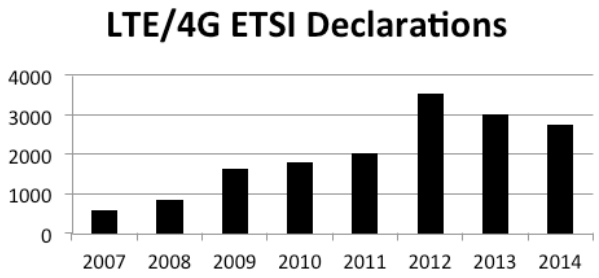
substantial reduction in the value of SEPs. The IEEE then submitted the patent policy for a business review at the DOJ, and the agency said that it would take no action against the policy.[18]

While the FTC and DOJ reduced the value of SEPs, they have taken no action against REPs. Specifically, neither the FTC nor the DOJ has taken any action against Microsoft for seeking an injunction on its own RAND encumbered patents. Moreover, the Head Economist at the DOJ wrote that Apple's incentives to innovate would be dulled if they weren't free to seek injunctions on their software and design patents.[19] There was no empirical evidence cited for that proposition.

Let's look at the results of this policy shift.

First, because the combined effect of the inability to obtain injunctions along with the DOJ's endorsement of a rule that royalties should be based on the smallest salable unit was to substantially reduce possible royalties on SEPs, one might expect that firms would reduce the number of patents that they are willing to declare as essential to SSOs. Firms would potentially be better off not participating in standard setting and instead seek injunctions against firms whose devices infringed upon their broadly written non-SEP patents.

Indeed, Qualcomm, Nokia, and Blackberry have stated that members like them may "reduce participation or withdraw from IEEE-SA altogether, no longer submit contributions, or not file LoAs,"[20] which are the Letters of Assurance that constitute the RAND commitment. It is probably too early to see an effect on actual declarations to SSOs for existing protocols, but it is interesting to note that the number of 4G patents declared to ETSI declined significantly in 2013, right after the SEP order was signed between Motorola Mobility and the FTC.



A second potentially negative effect is that SEP holders, fearing antitrust liability for monetizing their SEPs, may transfer them to trolls believing that enforcement of SEPs would expose them as operating companies to antitrust liability. Indeed, in the middle of the SEP

[18] Letter from Renata B. Hesse, Acting Ass't Attorney Gen., Dept. of Justice, Antitrust Division, to Michael A. Lindsay, Esq., (Feb. 2, 2015), http://www.justice.gov/atr/public/busreview/311470.htm.

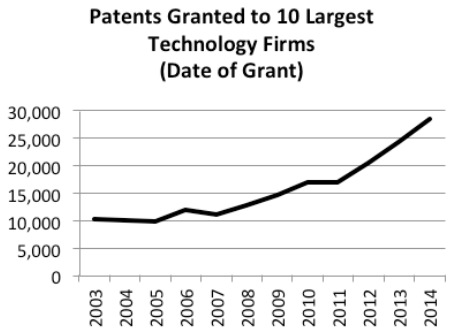
[19] Fiona M. Scott-Morton, Deputy Assistant Attorney General for Economic Analysis, Dept. of Justice, Antitrust Division, *The Role of Standards in the Current Patents Wars*, *available at* http://www.justice.gov/atr/public/speeches/289708.pdf.

[20] Email from Qualcomm, Nokia, NSN and Blackberry to the Members of the SASB (June 5, 2014), *available at* http://grouper.ieee.org/groups/pp-dialog/email/msg00284.html.

investigation of Motorola Mobility, Ericsson sold 753 SEPs to Unwired Planet.[21] Then Nokia sold thousands of SEPs to MOSAID[22] and then sold the vast majority of its operating business to Microsoft, effectively becoming a troll itself.[23]

Third, without the threat of countersuit on SEPs, firms like Microsoft may have an even greater ability to use the threat of injunctions on their own REPs. That's exactly what happened, with Microsoft forcing Android OEMs to pay it between $5 and $10 for each Android device they sell or face exclusion from the U.S. market. Over the last three years, it is anticipated that this has made Microsoft (and cost consumers) approximately $5.15 billion,[24] all without objection from any antitrust regulator.

Fourth, by removing the counterweight of SEPs, non-SEP software patents are now even more valuable than before. This could further spread the proliferation of software patents, both offensively and defensively. Looking at patent grants to the largest U.S. tech firms, this appears to be occurring.



Sadly, even open source firms like Google have been forced to obtain thousands of patents a year. This seems to be the worst example of defensive patenting, which Richard Posner describes as "a social waste."[25]

VIII. CONCLUSION

For those of us that believe in free markets, government intervention in the economy should always bear a heavy burden of providing clear empirical and theoretical evidence that there is a market imperfection and that government intervention is better than the status quo.

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[21] Ingrid Lunden, *Unwired Planet Has Bought 2,400+ Wireless Patents From Ericsson To Beef Up Its Patent Fights Against Google, Apple And RIM*, TECHCRUNCH (Jan. 10, 2013), http://techcrunch.com/2013/01/10/unwired-planet-has-bought-2400-wireless-patents-from-ericsson-to-beef-up-its-patent-fights-against-google-apple-and-rim/.

[22] Omar Al Akkad & Boyd Erman, *Mosaid to manage major patent portfolio for Nokia, Microsoft*, GLOBE AND MAIL (Sept. 1, 2011), *available at* http://www.theglobeandmail.com/globe-investor/mosaid-to-manage-major-patent-portfolio-for-nokia-microsoft/article592881/.

[23] Simon Phipps, *Microsoft plus Nokia: Pending patent troll?*, INFOWORLD (Sept. 3, 2013), http://www.infoworld.com/article/2612346/patents/microsoft-plus-nokia--pending-patent-troll-.html.

[24] Liam Tung, *Microsoft is making $2bn a year on Android licensing - five times more than Windows Phone*, ZDNET (Nov. 7, 2013), http://www.zdnet.com/article/microsoft-is-making-2bn-a-year-on-android-licensing-five-times-more-than-windows-phone/.

[25] Richard A. Posner, *Why There Are Too Many Patents In America*, ATLANTIC (July 12, 2014), *available at* http://www.theatlantic.com/business/archive/2012/07/why-there-are-too-many-patents-in-america/259725/.

And the reason is not just because markets, like ecosystems, are complex. Rather it is because in seeking the right answer, well-intentioned regulators are going to hear most from those who earn rents from the market imperfection. Thus, any intervention is not likely to make the market competitive; rather, it is likely to exacerbate or create another market imperfection. This is especially true in the case of patents, which have diffuse costs to consumers and rivals but concentrated benefits to patentees. Indeed, the principal complainants in the SEP dispute were two of the largest companies in the world—both of whom have maintained their market positions for decades by way of their strong patent portfolios.

Government intervention in the form of software patents does not meet this heavy burden. There has been no empirical evidence that exclusivity was necessary to incentivize useful and cool software or beautiful design. Nor has there been any evidence that increasing the power of non-SEPs by reducing the value of SEPs would increase output.

This is not to suggest that banning injunctions on SEPs is a bad idea. Certainly, there is a risk that SEPs could be used to transfer profits from implementers to SEP holders. And certainly it is true that damages on SEPs, like all other software patents, need to be reduced. Yet, in both cases, these interventions have been on the side of those who earned outsized profits from their own patents, which is, of course, exactly what public choice theory would predict. Indeed, let's recall the history of patents. They were granted by the English Monarchy to stimulate foreign investment in industries like silk by shielding investors from competition from local merchants.[26] They soon devolved into government granted monopolies over commodities like starch and salt and imposed a (not so) hidden tax on consumers. Consumer outrage led to the passage of the Statute of Monopolies in 1624 that made all previously issued patents null and void and imposed a requirement that all new patents actually require a new invention.

And yet despite these reforms, the Economist, a paper founded in part to critique patents, wrote in 1851, "The granting [of] patents 'inflames cupidity', excites fraud, stimulates men to run after schemes that may enable them to levy a tax on the public, begets disputes and quarrels betwixt inventors, provokes endless lawsuits . . . The principle of the law from which such consequences flow cannot be just."[27]

Thus we return to the Macquarie Island. The original sin was the introduction of an invasive species: the cats, the rabbits, and the mice. The introduction of the cats killed the rabbits and the rats, but also the birds. The selective intervention to kill the cats killed the vegetation, the soil, along with a few penguins and even more birds. The solution, in the end, was to return to kill the rabbits and the mice as well.

Hopefully, software patents are next.

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[26] CHRISTINE MACLEOD, INVENTING THE INDUSTRIAL REVOLUTION: THE ENGLISH PATENT SYSTEM, 1660-1800 11 (1988) (citing letter from Sir Antonio Guidotti to Thomas Cromwell).

[27] Iman Lordgooei, *Bear Market Litigation: Showing the Relationship Between Patent Litigation and a Down Economy*, 27 U. PA. J. INT'L ECON. L. 1077 (2006) (citing *The Economist*).