TAMING COMPLEX INTELLECTUAL PROPERTY COMPENSATION PROBLEMS

By

Roy Weinstein
Ken Romig
Frank Stabile

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I. INTRODUCTION

The protection of intellectual property rights is intended to encourage innovation and stimulate creative activity. The importance of such efforts was recognized by the framers of the Constitution, who granted Congress the power "to promote the progress of science and useful arts, by securing for limited time to authors and inventors the exclusive right to their respective writings and discoveries."[1] It is this clause that ultimately gave rise to this country's patent and copyright laws.

Economically efficient boundaries of intellectual property rights are difficult to define. If patents are excessively broad, inventors are able to lay claim to more than their true contribution and also may stifle inventive activity. If patents are too narrow, the social return from invention will exceed the private return, resulting in insufficient investment in research and development. Further, since by definition, patents interfere with competition by conferring monopoly power, the societal hope is that competition will be encouraged sufficiently by securing the returns to inventive activity such that the private gains from innovation will more than offset the loss in competitive activity.

Difficulty defining the proper boundaries of intellectual property gives rise to frequent patent disputes. These include disagreements as to whether patents should have issued in the first place (i.e. "validity" of the patent). Additional contested areas relate to whether patents are enforceable or infringed by the alleged trespasser. A nineteenth-century attorney obtained a patent on a four-wheeled horseless carriage which he then asserted against all automobile manufacturers. This sounds far too broad and anticompetitive. On the other hand, many entrepreneurial types, particularly those found in Northern California, oppose overly broad or strong patent protection that interferes with inventive activity or subsequent uses of inventions.

Several additional elements have been added to the mix. First, our economy has placed a greater emphasis on intellectual property. Not surprisingly, the number of patents issued has increased dramatically. Second, the cost of acquiring adequate patent portfolios has become substantial, regardless of whether the patents are used for offensive purposes (i.e. the production of goods and services) or defensive purposes (i.e. as a potential defense should litigation arise). Finally, the current state of patent law is in flux, such that patent litigation is characterized by far greater uncertainty than in previous decades, leaving patent holders unsure as to the value of
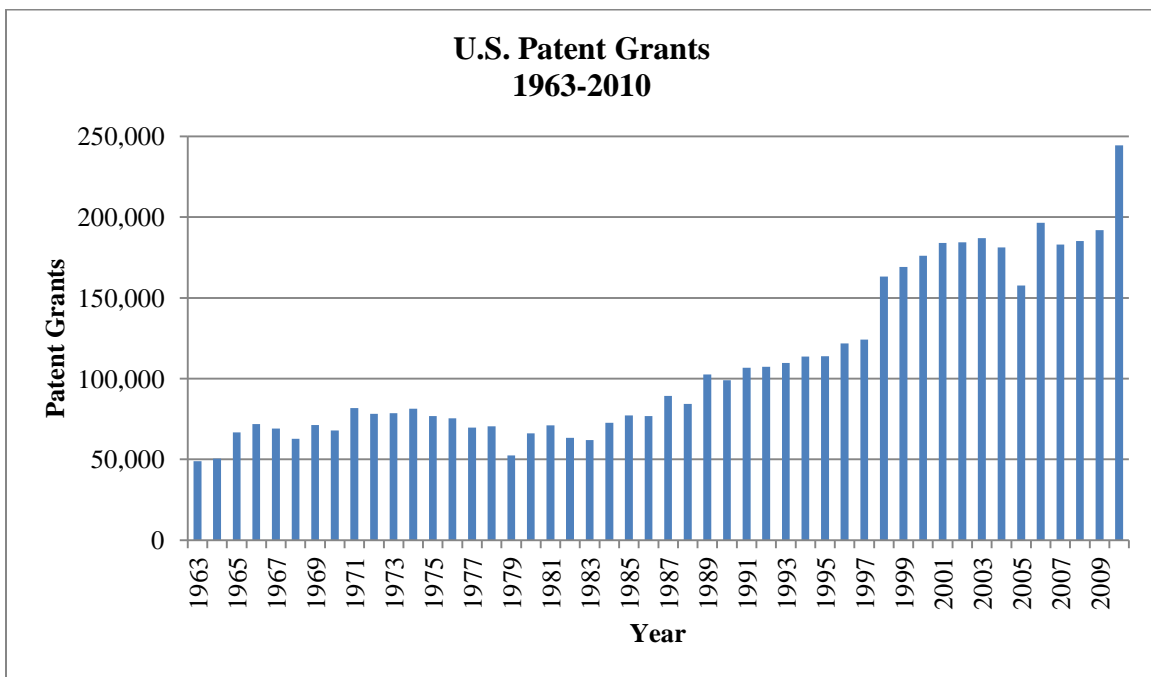
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[1] "The Constitution of the United States," Article I, Section 8, Clause 8.

intellectual property owned or available for acquisition. These topics, plus a recommended advance in how patent rights should be addressed, comprise the substance of this paper.

II. THE INCREASING IMPORTANCE AND COST OF INTELLECTUAL PROPERTY

There has been a substantial increase in the number of patents issued by the United States Patent and Trademark Office ("USPTO"). In 1963, the USPTO issued approximately 50,000 patents. By 2010, the number of patent grants had grown to approximately 250,000.[2] Patent offices around the world also are granting tens of thousands of patents each year (see charts below).

**U.S. Patent Grants
1963-2010**

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[2] Unites States Patent and Trademark Office website (www.uspto.gov).

Patent Grants by Patent Office
2010
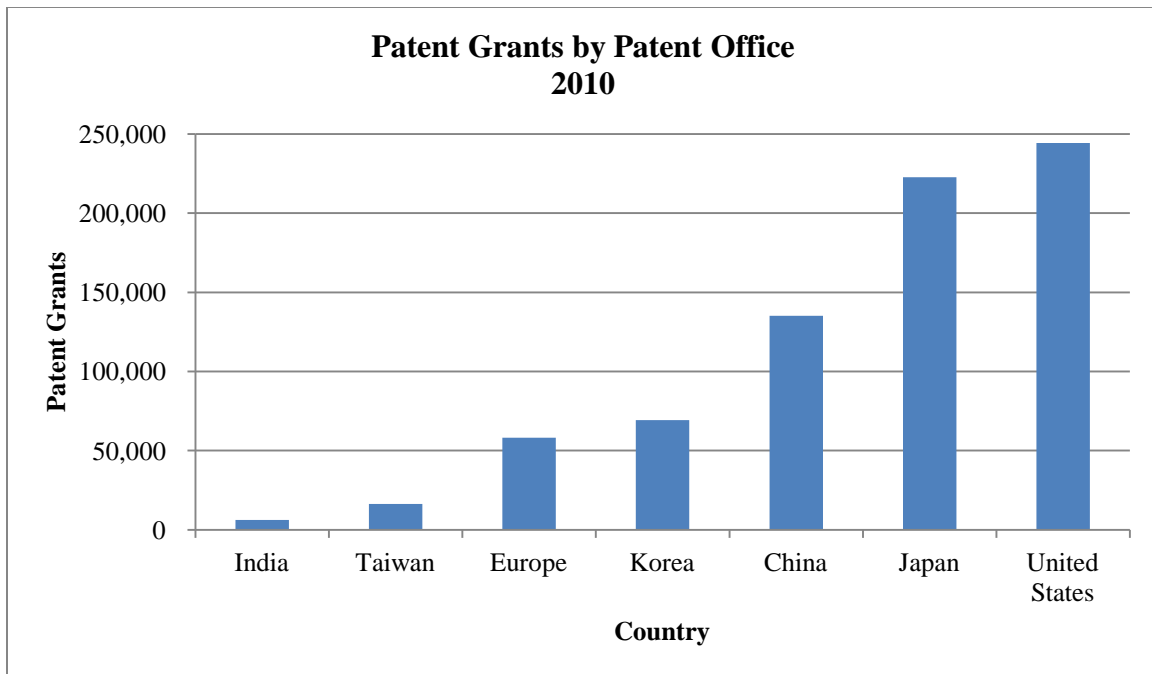
As products have become more complex, they have required multiple rather than single patents. In 1876, the USPTO issued Alexander Graham Bell U.S. patent number 174,465 for "Improvement in Telegraphy;"[3] the first telephone was protected by this single patent. By comparison, the Apple iPhone is protected by more than 200 patents, not including patents licensed by Apple from third parties.[4] Toyota's Prius is protected by 2,000 patents, not including patents Toyota licenses from others and patented components that Toyota purchases from outside vendors.[5] The increased need for intellectual property is reflected in the size of patent portfolios – the 20 entities with the largest patent portfolios hold over 450,000 U.S. patents and nearly 3.5 million patents worldwide (see table below).[6]

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[3] U.S. Patent No. 174,465.
[4] Gilroy, Lindsey and Tammy D'Amato, "How Many Patents Does it Take to Build an iPhone?" *Intellectual Property Today*, 2011.
[5] *Ibid.*
[6] Espacenet patent database and USPTO patent database.

20 Largest Patent Portfolios

	Entity	Worldwide	U.S.
		(No. of Patents)	
	(1)	**(2)**	**(3)**
1.	Panasonic (Matsushita Electric)	431,626	31,035
2.	Hitachi	390,364	33,768
3.	Toshiba	310,181	28,295
4.	Samsung Electronics	294,728	36,757
5.	Canon	284,226	35,627
6.	Sony	254,136	30,526
7.	Seiko Epson	201,766	18,416
8.	Fujitsu	199,232	23,693
9.	LG Electronics	171,319	11,912
10.	Ricoh	141,718	10,757
11.	IBM (International Business Machines)	139,343	58,234
12.	Fujifilm	128,071	15,006
13.	General Electric	98,151	20,471
14.	Honda Motor	93,404	12,163
15.	Hynix Semiconductor	68,504	7,204
16.	HP (Hewlett Packard)	57,916	21,204
17.	Microsoft	55,846	18,611
18.	Intel	45,914	20,122
19.	Hon Hai Precision Industry	33,799	10,174
20.	Cisco Technology	12,566	6,755

Intellectual property has become expensive. Although initial filing and annual maintenance fees on a per patent basis are modest, patent portfolios are costly to maintain when thousands of patents are involved. Infringement litigation has produced huge jury awards and settlements, separate and apart from the cost of litigation itself. Google's purchase of Motorola's phone business provided Google with access to more than 17,000 patents, enabling it to better defend itself in infringement litigation. The deal has been valued at $12.5 billion.[7] A brief summary of patent acquisitions, settlements, and jury awards is set forth below.

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[7] Efranti, Amir and Spencer E. Ante, "Google's $12.5 Billion Gamble," *The Wall Street Journal*, August 16, 2011.

Patent Acquisitions, Settlements, and Jury Awards

	Year	Payer	Payor	Technology	Amount	Description
					($ Millions)	
	(1)	(2)	(3)	(4)	(5)	(6)
1.	1991	Eastman Kodak	Polaroid	Photography	$925	Settlement
2.	2003	Microsoft	Eolas	Internet	521	Jury Award
3.	2004	Intel	Intergraph	Computer Chip	675	Settlement
4.	2006	RIM	NTP	Wireless Email	613	Settlement
5.	2010	Boston Scientific	Johnson & Johnson	Medical Device	1,730	Settlement
6.	2011	Apple, EMC, Ericsson, Microsoft, RIM, Sony	Nortel	Wireless and Networking	4,500	Purchase
7.	2011	Johnson & Johnson	Bruce Saffran	Medical Device	593	Judgment
8.	2011	Apple	Nokia	Smartphone	608	Settlement
9.	2011	DISH Network, EchoStar	TiVo	DVR	500	Settlement
10.	2011	Google	Motorola	Wireless Handsets	12,500	Purchase

III. A REVIEW OF RECENT CASE LAW

Until recently, the computation of damages in patent infringement litigation was straightforward. The template was *Georgia-Pacific*,[8] which required a review of 15 *Georgia-Pacific* factors in order to arrive at a royalty rate "adequate to compensate for infringement."[9] The analysis was built upon assumptions that the patent-in-suit is valid, enforceable, and infringed, and the parties (i.e. the patent owner and the infringer) entered into a "hypothetical negotiation" shortly before infringement began. The hypothetical negotiation framework was used to determine the amount that a licensor and licensee would have agreed upon at the time the infringement commenced if both had been reasonable and voluntarily trying to reach an agreement. Typically, the negotiators were assumed to have information as to future sales and profitability of products that embody the patent in suit.[10]

Only three of the *Georgia-Pacific* factors (1, 2, and 12) reference an actual royalty rate. The other 12 factors are directional, i.e. up or down from a starting point royalty rate determined in accordance with factors 1, 2, and 12. Factor 1 examines "royalties received by the patentee" for licensing the patent-in-suit. Factor 2 addresses "rates paid by the licensee (i.e. the infringer) for other patents *comparable* to the patents-in-suit. Factor 12 directs the expert to examine industry standard rates customarily associated with "comparable businesses." In essence, these three factors establish appropriate benchmarks (i.e. "comparable") to use as a starting point.

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[8] *Gerogia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (1970).
[9] The Patent Act of 1952 (35 U.S.C. §284).
[10] This is known as the "Book of Wisdom" (see *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*, U.S. 689, 698, 53 S. Ct. 736, 77 L. Ed. 1449 (1933)).

Traditionally, the analysis began with a review of license agreements involving the parties (Factors 1 and 2), as well as publicly available royalty rates obtained from public filings and databases such as RoyaltyStat (Factor 12). This produced the requisite starting point with respect to the hypothetical negotiation. The starting point would then be subject to adjustment based on a review of the remaining 12 factors.

This analysis was tempered by *Grain Processing*[11] and *Rite-Hite*.[12] In *Grain Processing*, the court determined that royalties paid by an infringer cannot exceed design around costs. It is difficult, however, to calculate design around costs. Typically, input from the parties is required along with technical experts who usually have widely disparate views of the availability of commercially viable non-infringing alternatives depending upon whether they were retained by plaintiffs or defendants. In *Rite-Hite*, the court decided that in order for the royalty rate obtained during the analysis of the *Georgia-Pacific* factors to be applicable to the entire base of infringing sales, the patented feature (as opposed to other factors) must be responsible for customer demand. This commonly referred to as the "entire market value rule." The entire market value rule raises an apportionment problem – how much of the value of the product embodying the patent-in-suit is attributable to the patented feature, and how much is attributable to other factors (e.g. other patents, experience, marketing, brand name, etc.).

ResQNet[13] and *Lucent*[14] complicated the traditional analysis of the *Georgia-Pacific* factors. *ResQNet* and *Lucent* focused on the requirement that licenses analyzed for the purpose of determining a reasonable royalty must be "comparable" and must bear some relationship to the claimed invention. In view of *ResQNet* and *Lucent*, comparable licenses can only include licenses to the patent-in-suit itself, essentially removing from consideration licenses contemplated under *Georgia-Pacific* factors 2 and 12. Often, however, the patent had never been licensed before; even if there were prior licenses, they may have included additional patents and know-how. Furthermore, if the patent had been licensed separately, economic conditions may have changed and the uses to which the patented technologies were put may be different. This leaves the expert with no license agreements with which to determine a baseline royalty.

In the past, when reliable license agreements with which to determine a baseline royalty rate did not exist, one would typically rely on the "25 to 33 percent rule." According to this rule, a licensor might expect to receive a royalty equal to 25 to 33 percent of the anticipated profits from products or services embodying the patented technology as the starting point in a negotiation. This changed with *Uniloc*,[15] where the Federal circuit found that the 25 to 33 percent rule failed "to tie a reasonable royalty base to the facts of the case at issue." Additionally, it emphasized the importance of apportionment, stating that damages should reflect

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[11] *Grain Processing Corp. v. American Maize-Products Company*, 185 F. 3d 1341 (1999).
[12] *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F. 3d 1538 (1995).
[13] *ResQNet.com, Inc. v. LANSA, Inc.,* 594 F. 3d 860 (2010).
[14] *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F. 3d 1301 (2009).
[15] *Uniloc USA Inc., et al., v. Microsoft Corp., et al.*, 2010-1035 Fed. Cir., January 4, 2011.

the "invention's footprint in the market place" and that evidence should be "linked to the economic demand for the claimed technology." The 25 percent rule did none of these things.

Accordingly, when no starting point based on license agreements exists, *ResQNet*, *Lucent*, and *Uniloc* effectively eliminated the tools traditionally relied upon to determine a baseline royalty, rendering analysis of the remaining *Georgia-Pacific* factors meaningless. The question, then, is where to turn.

IV. BARGAINING THEORY

Given the recent constraints in determining a baseline royalty rate in the construct of a hypothetical negotiation, a new and more rigorous approach is required. This paper proposes that bargaining theory, specifically the theory of bilateral monopoly and the Nash Bargaining Solution serve that purpose. Instead of trying to determine a baseline royalty rate and make adjustments to that rate through an analysis of the *Georgia-Pacific* factors, when comparable license agreements do not exist, the analysis should proceed with an examination of the incremental benefits created by the patent and the relative bargaining positions of each party.

A bilateral monopoly is a market in which one buyer and one seller operate.[16] A common example described in economic texts involves the market for union labor, where labor unions on one side of the table negotiate with employer firms on the other with respect to labor contract terms.[17] Economic theory does not precisely specify the price that will result from these kinds of negotiations; instead, theory teaches that the outcome will be found within an indeterminate range.[18] This range is determined by each party's "walk away" price. For the buyer (i.e. the defendant or hypothetical licensee), this price represents any price above the highest possible price it is willing to pay. For the seller (i.e. the plaintiff or hypothetical licensor), the walk-away price represents any price below the lowest possible price it is willing to accept. The range of prices between the seller's minimum price and the buyer's maximum price constitute a range of mutually acceptable prices.[19]

In the context of a license negotiation, or a damages analysis as part of infringement litigation, one would expect the licensor's walk-away price to equal the profits it could expect to make if no agreement were reached, as it would not make any agreement that would result in its being made worse off. This is referred to as the licensor disagreement profit. For the licensee, the walk-away price is equal is to the profits it would expect to make if the parties were unable to reach agreement. This is referred to as the licensee disagreement profit.

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[16] Pindyck, Robert S. and Daniel L. Rubinfeld, *Microeconomics, Sixth Edition*, Pearson Prentice Hall, 2005, pp. 370-371.

[17] Samuelson, Paul A. and William D. Nordhaus, *Economics, Fourteenth Edition*, McGraw-Hill, Inc., 1992, pp. 258-259.

[18] Stigler, George J., *The Theory of Price, Fourth Edition*, MacMillan Publishing Company, New York, 1987, pp. 215-216.

[19] Chatterjee, Kaylan and William Samuelson, "Bargaining Under Incomplete Information," *Operations Research*, Vol. 31, No. 5, September-October 1983, pp. 835-836.

The problem, however, is that the theory of bilateral monopoly does not offer a solution as to where in this range the final-negotiated price will fall.

The Nash Bargaining Solution ("NBS") provides a generally accepted framework for identifying and evaluating factors that influence negotiation outcomes between parties.[20] The original intention of the NBS was to furnish a sound theoretical methodology for understanding various types of bargaining problems, i.e. what transaction prices will emerge from trade between nations; or what wage rates will result as the product of negotiations between employers and their employees.[21] As discussed above, the common element associated with these problems and similar ones was that outcomes to these types of negotiations were thought to be indeterminate, i.e. economists either could not provide an answer, or the answer included a wide range of possible observations.[22] Nash furnished tools that allow one to narrow and sometimes eliminate this range of indeterminacy.

Nash obtained his solution to negotiations between parties by first describing a set of conditions that one would expect to exist in the outcome of any reasonable royalty negotiation. These conditions include the following:

a) The solution should be such that no other feasible outcome is better for one side and not worse for the other. Economists refer to this condition as a Pareto Optimum, named after the 19th century Italian economist, Vilfredo Pareto.

b) Negotiators should behave rationally such that neither side is worse off reaching an agreement than would be the case if the parties failed to reach agreement.

Mathematically, Nash demonstrated that the only point that satisfies the conditions outlined above is the one obtained by solving the following constrained maximization problem:

$$max(\pi_1 - d_1)(\pi_2 - d_2)$$

Where: π_1 is the licensing profit for the patent holder/licensor
π_2 is the profit for the infringer/licensee from licensing
d_1 is the disagreement profit for the patent holder/licensor
d_2 is the disagreement profit for the patent infringer/licensee

The equilibrium payoffs are:

[20] Nash, John F., "The Bargaining Problem," *Econometrica*, Vol. 18, No. 2, April 1950, pp. 155-162. Nash, John F., "Two-Person Cooperative Games," *Econometrica*, Vol. 21, No. 1, January 1953, pp. 128-140.
[21] Nash, John, "The Bargaining Problem," *Econometrica*, Vol. 18, No. 2, April 1950, p. 155.
[22] Stigler, George, J., *The Theory of Price, Fourth Edition*, MacMillan Publishing Co., 187, pp. 215-216.

$$\pi_1^* - d_1 = \pi_2^* - d_2$$

$$\pi_1^* + \pi_2^* = \Pi$$

Where: π_1^* and π_2^* are the equilibrium payoffs for the licensor and licensee, respectively, and Π is the total incremental profit created from licensing.

Solving yields the Nash Bargaining Solution:

$$\pi_1^* = d_1 + \frac{1}{2}(\Pi - d_1 - d_2)$$

$$\pi_2^* = d_2 + \frac{1}{2}(\Pi - d_1 - d_2)$$

$$\pi_1^* + \pi_2^* = \Pi$$

If d_1 and $d_2 = 0$, meaning that without a license, neither the licensor nor the licensee obtains benefits from the patented technology, then:

$$\pi_1^* = \frac{1}{2}\Pi$$

$$\pi_2^* = \frac{1}{2}\Pi$$

Application of the Nash Bargaining Solution demonstrates that if neither the licensor nor the licensee are able to monetize the patented technology without reaching a license agreement, the parties split the incremental profits created by licensing. However, if the patent holder is a producing entity capable of practicing the patented technology or the infringer can turn to non-infringing alternatives, the result of the NBS need not be 50/50. This result follows because alternatives available to the parties outside of reaching agreement (i.e. the disagreement profits of each) affect the relative bargaining power of licensors and licensees. The more valuable these alternatives, the greater the bargaining power. Enhanced relative bargaining power based on alternatives results in an increased claim on the incremental profits created by licensing such that a 50/50 split of the benefits is not inevitable.[23]

With these conditions in mind, in order to implement the NBS framework in a patent licensing context, one would need to consider (a) the licensor disagreement profit, (b) the licensee disagreement profit, and (c) the total profits obtained given infringement. If these three data points are available or subject to estimation, a reasonable royalty can be calculated in accordance with the NBS framework as licensor disagreement profit plus one half of (total profit

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[23] See, for example, Choi, William and Weinstein, Roy, "An Analytical Solution to Reasonable Royalty Rate Calculations, *IDEA, The Journal of Law and Technology*, Volume 41, No. 1, 2001, pp. 54, 55. See also, Jarosz, John C. and Chapman, Michael J., "Application of Game Theory to Intellectual Property Royalty Negotiations," in *Licensing Best Practices, Strategic, Territorial and Technology Issues,* edited by Robert Goldscheider and Alan H. Gordon, John Wiley & Sons, 2006, pp. 247-258.

less licensor disagreement profit less licensee disagreement profit). In essence, the NBS assigns each party the profit it respectively would obtain from not reaching agreement and splits the remaining profits equally.

This suggests that in certain circumstances, the starting point for negotiations involves an equal split between patent holder and infringer of profits associated with use of the invention. This follows from the fact that since a patent grants the patent holder an absolute right to prevent others from using the invention, the patent holder has the power to prevent others from obtaining profits associated with infringement, i.e. without permission to use the patent, the infringer's profits associated with use of the patent are equal to zero. Similarly, if the patent holder is a non-producing entity and does not offer products that make use of the patent, the patent holder's profits associated with use of the patent (either by the infringer or on its own) also fall to zero if the infringer fails to take a license. Under these circumstances, a 50/50 split of the profits associated with use of the patent is a reasonable and likely starting point for negotiation. This is a sensible and fair outcome since both parties benefit from a license agreement. Given this starting point, relevant *Georgia-Pacific* factors would then be considered to adjust the implied royalty rate (i.e. up or down) so as to appropriately tailor the outcome of the hypothetical negotiation. In this context, by "relevant," we refer to *Georgia-Pacific* factors other than factors 2 (rates paid by the licensee for use of other patents comparable to the patent in suit) and 12 (customary portion of the profit paid to allow for use of analogous inventions), since both of these factors produce empty cells under *ResQNet* and *Lucent*. Use of the Nash Bargaining Solution also means that we have addressed *Georgia-Pacific* factors 6, 7, 8, 9, 10 and 11, all of which are associated in some way with the profits created if the parties reach agreement (i. e. "Π" in the discussion above). This leaves *Georgia-Pacific* factors 3 (whether the license is exclusive or non-exclusive), 4 (the licensor's licensing policy), and 5 (the commercial relationship between the parties) available for adjusting the Nash Bargaining Solution up or down.

V. THE NASH BARGAINING SOLUTION IS NOT THE SAME AS THE 25 PERCENT RULE

The 25 percent rule is a rule-of-thumb that damages experts have used in the past to determine a starting point in a negotiation. The 25 percent rule suggests "that the licensee pay a royalty rate equivalent to 25 percent of its expected profits for the product that incorporates the intellectual property at issue."[24] The logic behind the 25 percent rule is that the licensee and licensor should share the profits generated by products that make use of the intellectual property, but that the licensee should retain the majority (i.e. 75 percent) to account for development, operational and commercialization risks, and other contributed intellectual property and know-

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[24] Goldscheider, John and Carla Mulhern, "Use of the 25 Per Cent Rule in Valuing IP," *les Nouvelles*, December 2002, pp. 123-133. Also see, Parr, Russell, L., *Intellectual Property Infringement Damages, Second Edition*, John Wiley & Sons, 1991, pp. 171-174 and Lee, WM. Marshall, "Determining Reasonable Royalty," *les Nouvelles*, September 1992, pp. 124-128.

how. For many years, the courts accepted experts' use of this rule in determining reasonable royalties in infringement litigation.[25]

Despite this acceptance, practitioners have criticized the 25 percent rule for its failure to account for the actual contributing value of the specific patent at issue. For example, if the infringer requires a license to multiple patents, the 25 percent rule blindly assumes that each of these patents confers the same value to the infringer, regardless of whether the patent covers many crucial features of the infringing product or merely one minor aspect. Clearly, this is an inappropriate measure of the value of intellectual property as each patent contributes a distinct value to the infringer.

Unlike the 25 percent rule, bargaining theory offers the 50/50 split of the *incremental* benefit of the patent as a starting point in any negotiation. The NBS does not imply that all patents contribute the same value to the end product. Instead, it concludes that the patent owner and infringer will share evenly the actual benefits of the patent. By measuring the incremental profits earned by the infringer from its use of the patent, the expert is able to tie the damages analysis to the specific facts of the litigation at hand.

Additionally, apart from any adjustments associated with Georgia-Pacific factors 3, 4, 5 and 7 (see discussion above), the expert can adjust the 50/50 split based-upon an analysis of the relative bargaining position and negotiating power of each party. Further, if disagreement profits of either party (*d*) are not zero, the relative bargaining power of the parties shifts and the profit split moves away from 50/50. If the plaintiff/licensor is a producing entity that competes with the defendant/licensee, other things equal, its claim on the profit split is greater than 50 percent. On the other hand, if commercially viable non-infringing substitutes are available to the defendant/licensee, its claim on the profit split increases.

VI. USE OF BARGAINING THEORY IN PATENT LITIGATION

A number of scholarly discussions of the application of bargaining theory to intellectual property licensing and infringement litigation have been published.[26] Indeed, the academic literature recognizes that the use of bargaining theory to license negotiations is "based on sound economic principles as well as common sense" and "can be extremely useful in helping

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[25] *Civix v. Expedia*, F.Supp.2d (2005) and *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831 (2010).

[26] See, for example, Putnam, Jonathan D. and Andrew B. Tepperman, "Bargaining and the Construction of Economically Consistent Hypothetical License Negotiations," *The Licensing Journal*, August 2004; Jarosz, John C. and Michael J. Chapman, "Application of Game Theory to Intellectual Property Royalty Negotiations," Chapter 17, *Licensing Best Practices, Strategic, Territorial and Technology Issues*, edited by Robert Goldscheider and Alan H. Gordon, 2006; Lemley, Mark A. and Carl Shapiro, "Patent Holdup and Royalty Stacking," *Texas Law Review*, June 2007; Tanpitukpongse, T. Paul and Kanav Hasija, "Game Theory: A Zooming and Sliding Method for the Determination of Reasonable Royalties in Patent Damages, The Inaugural Samsung-Stanford Conference on Patent Remedies, February 18, 2011; Richard F. Cauley, *Winning the Patent Damages Case, A Litigator's Guide to Economic Models and Other Damage Strategies*, Oxford University Press, 2011, pp. 29, 30; Scherling, John. B. and Sullivan, Ryan M., "Rational Reasonable Royalty Damages, A Return to the Roots," *Landslide,* November/December 2011, pp. 55-58.

negotiators arrive at a more informed and sensible price for the intellectual property to be shared."[27]

An even split of the benefits using bargaining theory also has gained acceptance by the courts. In *Amakua*,[28] a 50/50 split of the benefits "based on bargaining theory consistent with a 'Nash Equilibrium' outcome" was accepted by the U.S. District Court for the Northern District of Illinois.

In *Sanofi-Aventis*,[29] the U.S. District Court for the District of New Jersey recently accepted the admissibility of an expert's application of bargaining theory in patent infringement litigation. In the opinion, the court found that, unlike the 25 percent rule, the expert's use of bargaining theory was tied to the specific facts of the case.[30]

In *Oracle*,[31] the Court stated that "[t]he Nash bargaining solution involves complex mathematical formulas and equations that would surely be incomprehensible to that average juror." We respectfully disagree with the Court's opinion. As previously discussed, the NBS must satisfy two very simple conditions: (1) no other feasible outcome is better than one side and not worse than the other and (2) neither side is worse off reaching an agreement than if no agreement were reached. Additionally, the "complex mathematical formulas" can be reduced to a single sentence: each negotiating party receives the profit it would have made absent an agreement and splits the remaining profits equally. These concepts are easily understandable by jurors.

We also note that the role of an expert witness is to "assist the trier of fact to understand the evidence or to determine a fact at issue."[32] An expert may testify as long as the testimony is based on sufficient facts or data, the testimony uses reliable principles and methods, and these principles and methods were reliably applied to the facts of the case. None of these conditions exclude testimony based on the complex nature of the concepts applied. Indeed, the expert's job is to simplify the complex tools and methods relied upon to make them relatable to the jury.

In many instances, experts are expected to offer opinions that are based on complex principles. Specifically, antitrust litigation often requires the expert to determine the

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[27] Jarosz, John C. and Michael J. Chapman, "Application of Game Theory to Intellectual Property Royalty Negotiations," *Licensing Best Practices: Strategic, Territorial and Technology Issues,* edited by Robert Goldscheider and Alan H. Gordon, 2006.

[28] *Amakua Development LLC v. H. Ty Warner, et al.*, 2007 WL 2028186 (N.D. ILL.)

[29] *Sanofi-Aventis Deutscland GmbH, et al., v. Glenmark Pharmaceuticals Inc., USA, et al.*, 2011 WL 383861 (D.N.J.)

[30] *Ibid.*

[31] Order Granting in Part Motion to Strike Damage Report of Plaintiff Expert Iain Cockburn, *Oracle America, Inc. v. Google Inc.*, No. C 10-03561 WHA, July 22, 2011.

[32] Federal Rules of Evidence, Article VII, Rule 702.

cross elasticity of demand between a product and its substitutes.[33]   Additionally, in patent litigation, courts have asked experts to perform regression analyses and determine demand curves to aid in damages calculations. The NBS is no more complicated than any of these other concepts and should not be dismissed based solely on this issue.

In conclusion: Recent changes in case law have eviscerated traditional patent damages analysis by (1) severely limiting use of "comparable" license agreements, (2) eliminating application of the 25 percent rule, and (3) requiring a showing of the direct relationship between the accused functionality on the one hand and sales or profits of products that embody this functionality on the other, i.e. the "footprint of the invention." Use of the Nash Bargaining Solution allows one to address all three of these issues. Use of the Nash Bargaining Solution allows one to address all three of these issues, and seems to satisfy current Federal Circuit requirements with respect to reasonable royalty analyses.

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[33] See *Brown Shoe Co. v. U.S.*, 82 S. Ct. 1502, 8, L.Ld. 2d. 510.

About the Authors

Roy Weinstein is an economist and Managing Director at Micronomics. Mr. Weinstein has been engaged in economic research and consulting since 1969. Areas of expertise include industrial organization, antitrust economics, the valuation of intellectual property, wage and hour litigation, statistics, econometrics and the calculation of economic damages. He has testified as an economic expert in numerous jurisdictions and has spoken before the American Bar Association, the National Association of Attorneys General, the National Association of Business Economists and the Los Angeles County Bar Association. Mr. Weinstein's articles have been published in the *Journal of the Patent and Trademark Office Society,* the *Journal of Law and Technology* and the *Antitrust Bulletin*. He received his Bachelor of Business Administration degree *cum laude* with honors in economics from City College New York and his Master of Arts degree in economics from the University of Chicago. He is a recipient of the Career Achievement Award from the Business and Economics Alumni Society of the Baruch School at City College.

Ken Romig is a Director at Micronomics. He has been engaged in economic consulting and research activities for more than 20 years. He has consulted on intellectual property, standard setting, antitrust, breach of contract and other issues that have arisen in general litigation matters. He also has conducted analyses pertaining to lost profits and the calculation of economic damages. These analyses have included reasonable royalty calculations, relevant market studies, and investigations of product pricing. Mr. Romig has considerable experience in the semiconductor industry, and has consulted with major manufacturers and suppliers of DRAM, semiconductor equipment and specialty products. Mr. Romig is an expert in the collection, construction and management of very large and complex databases. He has broad knowledge of database design, analysis and data mining.

Frank Stabile is an Associate Consultant at Micronomics. He has extensive experience with respect to the calculation of reasonable royalties and lost profits in connection with infringement litigation. He also has valued patents outside the context of litigation. Industries studied include semiconductors, pharmaceuticals, telecommunications, and medical devices.

About Micronomics

Micronomics is an economic research and consulting firm located in Los Angeles, California. Founded in 1988, it specializes in the collection, tabulation and analysis of various types of economic, financial and statistical data. Areas of expertise include industrial organization, antitrust, intellectual property, the calculation of economic damages, and employment issues. Industries studied include banking and financial services, computer hardware and software, entertainment, health care, insurance, medical products and devices, motion pictures, oil and gas, pharmaceuticals, semiconductors, sports, supermarkets, telecommunications, and tobacco. Clients include law firms, publicly and privately held businesses, and government agencies. In January 2011, Micronomics joined ERS Group.

About ERS Group

ERS Group is the preeminent economic and statistical consulting firm for analyses related to employment matters. Founded in 1981, with offices in Tallahassee, Washington, D.C., San Francisco and Los Angeles, its statistically sound studies provide clients with a better understanding of their organizations and decision-making processes. Its research has been used by clients in high stakes employment litigation and regulatory matters involving allegations of discrimination in hiring, promotion and compensation. ERS Group's national reputation is founded on the unparalleled experience of its economists and testifying experts. Its reach extends to more than 3,000 clients, including Fortune 500 companies, prominent law firms, universities, government agencies, and industry trade associations. Its experts also have been asked to share their experience and knowledge with regulatory agencies such as the Office of Federal Contract Compliance and the Equal Employment Opportunity Commission.