Taming Complex Intellectual Property Compensation Problems

Roy Weinstein,* Ken Romig,** and Frank Stabile***

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 “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” 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 incentive to invest 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.

* Roy Weinstein is an economist and Managing Director at Micronomics in Los Angeles. Areas of expertise include industrial organization, antitrust economics, the valuation of intellectual property, 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 can be reached at rweinstein@micronomics.com.

** Ken Romig is an economist and a Director at Micronomics in Los Angeles. 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. Mr. Romig can be reached at kromig@micronomics.com.

*** Frank Stabile is a Consultant at Micronomics in Los Angeles. He has extensive experience with respect to the calculation of reasonable royalties and lost profits in connection with infringement litigation. Industries studied include semiconductors, pharmaceuticals, telecommunications, and medical devices. Mr. Stabile can be reached at fstabile@micronomics.com.

1 U.S. Const. art. I, § 8, cl. 8.
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. For example, in the nineteenth-century, an attorney obtained a patent on an “improved road engine’ powered by ’a liquid-hydrocarbon engine of the compression type’”—in other words, a four-wheeled horseless carriage—that was then asserted against all automobile manufacturers. This patent 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 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 Article.

I. 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 (see chart below). Patent

---

5 Id.
offices around the world also are granting tens of thousands of patents each year (see charts below).

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;” 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. Toyota’s Prius is protected by 2,000 patents, not including patents that Toyota licenses from others and patented components that Toyota purchased from outside vendors. The increased need for intellectual property is reflected in the size of patent portfolios—the twenty entities with the largest patent portfolios hold over 450,000 U.S. patents and nearly 3.5 million patents worldwide (see table below).  

<table>
<thead>
<tr>
<th>Entity</th>
<th>Worldwide (No. of Patents)</th>
<th>U.S. (No. of Patents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Panasonic (Matsushita Electric)</td>
<td>431,626</td>
<td>31,035</td>
</tr>
<tr>
<td>2. Hitachi</td>
<td>390,364</td>
<td>33,768</td>
</tr>
<tr>
<td>3. Toshiba</td>
<td>310,181</td>
<td>28,295</td>
</tr>
<tr>
<td>4. Samsung Electronics</td>
<td>294,728</td>
<td>36,757</td>
</tr>
<tr>
<td>5. Canon</td>
<td>284,226</td>
<td>35,627</td>
</tr>
<tr>
<td>6. Sony</td>
<td>254,136</td>
<td>30,526</td>
</tr>
<tr>
<td>7. Seiko Epson</td>
<td>201,766</td>
<td>18,416</td>
</tr>
<tr>
<td>8. Fujitsu</td>
<td>199,232</td>
<td>23,693</td>
</tr>
<tr>
<td>9. LG Electronics</td>
<td>171,319</td>
<td>11,912</td>
</tr>
<tr>
<td>10. Ricoh</td>
<td>141,718</td>
<td>10,757</td>
</tr>
<tr>
<td>11. IBM (International Business Machines)</td>
<td>139,343</td>
<td>58,234</td>
</tr>
<tr>
<td>12. Fujfilm</td>
<td>128,071</td>
<td>15,006</td>
</tr>
<tr>
<td>13. General Electric</td>
<td>98,151</td>
<td>20,471</td>
</tr>
<tr>
<td>14. Honda Motor</td>
<td>90,404</td>
<td>12,163</td>
</tr>
<tr>
<td>15. Hynix Semiconductor</td>
<td>68,954</td>
<td>7,204</td>
</tr>
<tr>
<td>16. HP (Hewlett Packard)</td>
<td>57,916</td>
<td>21,204</td>
</tr>
<tr>
<td>17. Microsoft</td>
<td>55,846</td>
<td>18,611</td>
</tr>
<tr>
<td>18. Intel</td>
<td>45,914</td>
<td>20,122</td>
</tr>
<tr>
<td>19. Hon Hai Precision Industry</td>
<td>33,799</td>
<td>10,174</td>
</tr>
<tr>
<td>20. Cisco Technology</td>
<td>12,566</td>
<td>6,755</td>
</tr>
</tbody>
</table>

9 Id. at 34.
10 In order to create the 20 Largest Patent Portfolios table, the authors constructed a list of the top twenty patent holders based on a 2010 list issued by the IFI Claims Patent Service. See Tom Kivett, 2010 Patent Grants at All-Time High—Up 31 Percent over 2009—A Sign That Recession Failed to Slow Patent Flow, IFI CLAIMS Patent Service (Jan. 09, 2011, 7:00 PM), http://ificlaims.com/index.php?page=news&type=view&id=2010-patent-grants-at. The authors then searched the Espacenet and USPTO databases for patents assigned to each of these twenty companies, eliminating those patents that expired by searching for patents with application dates within 20 years of the date of the search (Aug. 12, 2011). See EUROPEAN PATENT OFFICE, ESPACENET PATENT SEARCH, http://worldwide.espacenet.com/advancedSearch?locale=en_EP (last visited Feb. 2, 2013); USPTO PATENT FULL-TEST AND IMAGE DATABASE, http://patft.uspto.gov/netahtml/PTO/search-adv.htm (last visited Feb. 2, 2013). Because the Espacenet database limits the number of obtainable results to 100,000, the authors initially limited their search according to set date ranges. They then added the results from these separate searches together to procure the total number of patents for each of the twenty companies. After obtaining the worldwide and U.S. patent totals for each company, the twenty companies were re-ordered from most worldwide patents to fewest.
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.\(^\text{11}\) The deal has been valued at $12.5 billion.\(^\text{12}\) A brief summary of patent acquisitions, settlements, and jury awards is set forth below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Payer</th>
<th>Payor</th>
<th>Technology</th>
<th>Amount ($ Millions)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1991</td>
<td>Eastman Kodak</td>
<td>Polaroid</td>
<td>925</td>
<td>Settlement</td>
</tr>
<tr>
<td>2</td>
<td>2003</td>
<td>Microsoft</td>
<td>Eolas</td>
<td>521</td>
<td>Jury Award</td>
</tr>
<tr>
<td>3</td>
<td>2004</td>
<td>Intel</td>
<td>Intergraph</td>
<td>675</td>
<td>Settlement</td>
</tr>
<tr>
<td>4</td>
<td>2006</td>
<td>RIM</td>
<td>NTP</td>
<td>613</td>
<td>Settlement</td>
</tr>
<tr>
<td>5</td>
<td>2010</td>
<td>Boston Scientific</td>
<td>Johnson &amp; Johnson</td>
<td>1,730</td>
<td>Settlement</td>
</tr>
<tr>
<td>6</td>
<td>2011</td>
<td>Apple, EMC, Ericsson,</td>
<td>Nortel</td>
<td>4,500</td>
<td>Purchase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microsoft, RIM, Sony</td>
<td>Wireless and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Networking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2011</td>
<td>Johnson &amp; Johnson</td>
<td>Bruce Saffran</td>
<td>593</td>
<td>Judgment</td>
</tr>
<tr>
<td>8</td>
<td>2011</td>
<td>Apple</td>
<td>Nokia</td>
<td>608</td>
<td>Settlement</td>
</tr>
<tr>
<td>9</td>
<td>2011</td>
<td>DISH Network, EchoStar</td>
<td>TiVo</td>
<td>500</td>
<td>Settlement</td>
</tr>
<tr>
<td>10</td>
<td>2011</td>
<td>Google</td>
<td>Motorola</td>
<td>12,500</td>
<td>Purchase</td>
</tr>
</tbody>
</table>

II. A Review of Recent Case Law

Until recently, the computation of damages in patent infringement litigation was straightforward. The template was *Georgia-Pacific Corp. v. United States Plywood Corp.*,\(^\text{13}\) which required a review of fifteen factors in order to arrive at a royalty rate “adequate to compensate for the infringement.”\(^\text{14}\) 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 “hypothetical negotiations” shortly before infringement began.\(^\text{15}\) 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


\(^{12}\) Id.


\(^{14}\) Id. at 1117, 1120 (quoting 35 U.S.C. § 284 (2006)).

\(^{15}\) Id. at 1120–21.
agreement. Typically, the negotiators were assumed to have information as to future sales and profitability of products that embody the patent-in-suit.

Only three of the Georgia-Pacific factors (1, 2, and 12) reference an actual royalty rate. The other twelve 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” rates) to use as a starting point.

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 twelve factors.

This analysis was tempered by Grain Processing Corp. v. American Maize-Products Co. and Rite-Hite Corp. v. Kelley Co. 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 that of 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

16 Id.
18 See Georgia-Pacific, 318 F. Supp. at 1120.
19 See id.
20 Id.
21 Id. (emphasis added).
22 Id.
23 185 F.3d 1341 (Fed. Cir. 1999).
24 56 F.3d 1538 (Fed. Cir. 1995).
opposed to other factors) must be responsible for customer demand.” This is commonly referred to as the “entire market value rule.” The entire market value rule raises an apportionment problem—determining 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.com, Inc. v. Lansa, Inc.” and Lucent Technologies Inc. v. Gateway, Inc.” 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 and, 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 Percent Rule.” According to this rule, a licensor might expect to receive a royalty equal to 25% of the anticipated profits from products or services embodying the patented technology as the starting point in a negotiation. This changed with Uniloc USA Inc. v. Microsoft Corp., where the Federal Circuit found that the 25 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 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.

26 See Rite-Hite, 56 F.3d at 1549; Georgia-Pacific, 318 F. Supp. at 1120.
27 Rite-Hite, 56 F.3d at 1549.
28 594 F.3d 860 (Fed. Cir. 2010).
29 580 F.3d 1301 (Fed. Cir. 2009).
30 See ResQNet, 594 F.3d at 870–72; Lucent, 580 F.3d at 1325, 1327–29, 1332.
31 See ResQNet, 594 F.3d at 871, 873; Lucent, 580 F.3d at 1325, 1327–29.
33 Id.
34 632 F.3d 1292 (Fed. Cir. 2011).
35 Id. at 1315.
36 Id. at 1317.
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.

III. 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 Article proposes that bargaining theory, specifically the theory of bilateral monopoly and the Nash Bargaining Solution (“NBS”), serve that purpose. Instead of trying to determine a baseline royalty rate and making 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. A common example described in economics texts involves the market for union labor, where labor unions on one side of the table negotiate with employer firms on the other side with respect to labor contract terms. 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. 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.

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 being worse off. This is referred to as the licensor disagreement profit. For the licensee, the walk-away price is equal to the profits it would expect to make if the parties were unable to reach an agreement. This is referred to as the licensee disagreement profit.

---

profit. 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 NBS\(^{41}\) provides a generally accepted framework for identifying and
evaluating factors that influence negotiation outcomes between parties. 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.\(^{42}\) 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.\(^{43}\) 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 19\(^{th}\) century Italian economist,
Vilfredo Pareto.\(^{44}\)

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.\(^{45}\)

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

\[
\text{max}(\pi_1 - d_1)(\pi_2 - d_2)
\]

Where:

\(\pi_1\) is the licensing profit for the patent holder/licensor

\(\pi_3\) is the profit for the infringer/licensee from licensing

\(d_1\) is the disagreement profit for the patent holder/licensor

\(^{41}\) See generally John F. Nash, The Bargaining Problem, 18 ECONOMETRICA 155 (1950).

\(^{42}\) Id. at 155.

\(^{43}\) See Stigler, supra note 39, at 266.

\(^{44}\) William Choi & Roy Weinstein, An Analytical Solution to Reasonable Royalty Rate Cal-
culations, 41 IDEA 49, 53 (2001); see Vilfredo Pareto, LIBRARY OF ECONOMICS AND LIBERTY,

\(^{45}\) Choi, supra note 44, at 53; see also Nash, supra note 41, at 158.
d₁ is the disagreement profit for the patent infringer/licensee. The equilibrium payoffs are:

\[ \pi_1^* - d_1 = \pi_2^* - d_2 \]
\[ \pi_1^* + \pi_2^* = \Pi \]

Where:
\( \Pi_1^* \) and \( \Pi_2^* \) are the equilibrium payoffs for the licensor and licensee, respectively, and \( \Pi \) is the total incremental profit created from licensing.
Solving yields the NBS:

\[ \pi_1^* = d_1 + \frac{1}{2} (\Pi - d_1 - d_2) \]
\[ \pi_2^* = d_2 + \frac{1}{2} (\Pi - d_1 - d_2) \]
\[ \pi_1^* + \pi_2^* = \Pi^{*\*} \]

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 NBS demonstrates that if neither the licensor nor the licensee is 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 fifty-fifty. 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.

---

46 Choi, supra note 44, at 54.
47 Id. at 54–55.
power of the party. Enhanced relative bargaining power based on alternatives results in an increased claim on the incremental profits created by licensing such that a fifty-fifty split of the benefits is not inevitable.\footnote{See, e.g., id. at 55; John C. Jarosz & Michael J. Chapman, Application of Game Theory to Intellectual Property Royalty Negotiations, in Licensing Best Practices, Strategic, Territorial and Technology Issues 241, 249, 251–52, 254, 256–57 (Robert Goldscheider & Alan H. Gordon eds., 2006).}

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 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 fifty-fifty 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 \textit{Georgia-Pacific} factors would then be considered to adjust the implied royalty rate (up or down) so as to appropriately tailor the outcome of the hypothetical negotiation. In this context, “relevant” refers to \textit{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 \textit{ResQNet} and \textit{Lucent}. Use of the NBS also addresses \textit{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. “∏” in the discussion above). This leaves \textit{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 NBS up or down.

IV. 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.\(^49\) The 25 Percent Rule “suggests that the licensee pay a royalty rate equivalent to 25 per cent of its expected profits for the product that incorporates the IP at issue.”\(^50\) 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%) to account for development, operational and commercialization risks, and other contributed intellectual property and know-how. For many years, the courts accepted experts’ use of this rule in determining reasonable royalties in infringement litigation.\(^51\)

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.\(^52\) 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 fifty-fifty split of the incremental benefit of the patent as a starting point in any negotiation.\(^53\) 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.

\(^{49}\) See supra Part II (discussing the 25 Percent Rule before and after the decision in Uniloc).
\(^{51}\) See, e.g., i4i Ltd. P’ship v. Microsoft Corp., 598 F.3d 831, 853–54 (Fed. Cir. 2010), aff’d, 131 S. Ct. 2238 (2011).
\(^{52}\) See Goldscheider, supra note 50, at 131.
\(^{53}\) \(\Pi^L - d = \Pi^L - d\), states that at equilibrium the incremental benefit for the licensor is equal to the incremental benefit of the licensee. If incremental benefits for the two parties are equal, it must be the case that total incremental benefit is split fifty-fifty. See supra Part III.
Additionally, apart from any adjustments associated with Georgia-Pacific Factors 3, 4, 5 and 7, the expert can adjust the fifty-fifty 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 fifty-fifty. If the plaintiff/licensor is a producing entity that competes with the defendant/licensee, then, with other things equal, its claim on the profit split is greater than 50%. On the other hand, if commercially viable non-infringing substitutes are available to the defendant/licensee, its claim on the profit split increases.

V. 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. 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 negotiators arrive at a more informed and sensible price for the intellectual property to be shared.”

The proposal to evenly split the benefits using bargaining theory also has gained acceptance by the courts. In *Amakua Development LLC v. Warner*, a fifty-fifty split of the benefits “based on bargaining theory consistent with

---

54 See supra Part III.


56 The following equations show that the equilibrium payoffs for the licensor and licensee \((\Pi_1^* \text{ and } \Pi_2^*)\) respectively depend upon the values of \(d_1 \text{ and } d_2\). \[ \Pi_1^* = d_1 + \frac{1}{2} (\Pi - d_1 - d_2), \]
\[ \Pi_2^* = d_2 + \frac{1}{2} (\Pi - d_1 - d_2). \] See supra Part III.

57 The following equations show that if \(d_1\) increases from 0 and \(d_2\) remains 0, then \(\Pi_1^*\) will increase and \(\Pi_2^*\) will decrease. This moves the profit split away from 50/50 in favor of the licensor. \[ \Pi_1^* = d_1 + \frac{1}{2} (\Pi - d_1 - d_2), \]
\[ \Pi_2^* = d_2 + \frac{1}{2} (\Pi - d_1 - d_2). \] See supra Part III.

58 The following equations show that if \(d_2\) increases from 0 and \(d_1\) remains 0, then \(\Pi_2^*\) will increase and \(\Pi_1^*\) will decrease. This moves the profit split away from 50/50 in favor of the licensee. \[ \Pi_1^* = d_1 + \frac{1}{2} (\Pi - d_1 - d_2), \]
\[ \Pi_2^* = d_2 + \frac{1}{2} (\Pi - d_1 - d_2). \] See supra Part III.


60 Jarosz & Chapman, supra note 48, at 247.

a ‘Nash Equilibrium’ outcome” was accepted by the U.S. District Court for the Northern District of Illinois.\(^62\)

In *Sanofi-Aventis Deutschland GmbH v. Glenmark Pharmaceuticals Inc., USA,*\(^63\) 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.\(^64\) 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.\(^65\)

In *Oracle America, Inc. v. Google Inc.,*\(^66\) the U.S. District Court for the Northern District of California stated that “the Nash bargaining solution involves complex mathematical formulas and equations that would surely be incomprehensible to the average juror.”\(^67\) 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 it would be 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 “help the trier of fact to understand the evidence or to determine a fact in issue.”\(^68\) 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 are reliably applied to the facts of the case.\(^69\) 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. For example, antitrust litigation often requires experts to determine the cross elasticity of demand between a product and its substitutes.\(^70\) Additionally, in patent litigation, courts have asked experts to perform regression

\(^{62}\) *Id.* at *19–20.


\(^{64}\) *Id.* at *13.

\(^{65}\) *Id.*

\(^{66}\) 798 F. Supp. 2d 1111 (N.D. Cal. 2011).

\(^{67}\) *Id.* at 1120.

\(^{68}\) *Fed. R. Evid.* 702.

\(^{69}\) *Id.*

\(^{70}\) *See, e.g., Brown Shoe Co. v. United States,* 370 U.S. 294, 296, 325 (1962).
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.

**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 NBS allows one to address all three of these issues, and seems to satisfy current Federal Circuit requirements with respect to reasonable royalty analyses.

---