

MANDATING FINAL-OFFER ARBITRATION OF FRAND ROYALTIES FOR STANDARD-ESSENTIAL PATENTS

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ABSTRACT

Mark Lemley and Carl Shapiro propose that standard-setting organizations (SSOs) mandate that their members henceforth submit to binding, final-offer arbitration (commonly called “baseball arbitration”) to set fair, reasonable, and nondiscriminatory (FRAND) royalties in licensing disputes concerning standard-essential patents (SEPs). SSOs should reject this proposal. It does not rest on sufficient facts or data, nor does it apply intellectually rigorous principles and methods of law and economics in a reliable manner. This is not to say that the voluntary use of arbitration to resolve FRAND licensing disputes is inherently problematic. However, the incremental efficiency that Lemley and Shapiro claim that their proposal would achieve over litigation or conventional commercial arbitration is illusory. For one, it is much harder to value a portfolio of SEPs over the span of five years than to value an individual baseball player for a single season. The Lemley-Shapiro version of mandatory baseball arbitration would not shed light on the question of what constitutes a FRAND offer. To the contrary, Lemley-Shapiro arbitration by design collapses questions of validity, infringement, and essentiality of the patent to the standard into a single damage calculation in which the arbitrator’s sole responsibility is to choose one of two disparate estimates of reasonable royalties. Yet, a FRAND offer contains not only a price, but also terms and conditions that (because they are nuanced and possibly tailored to the unique needs of an individual licensee) do not lend themselves to being easily standardized, let alone summarized in a single number, as the description of Lemley-Shapiro arbitration might incorrectly lead some to assume. Lemley-Shapiro arbitration would not say whether a royalty offer was fair, reasonable, and nondiscriminatory. Lemley and Shapiro claim that their arbitration proposal offers “best practices” for SSOs. That label is unsupported and misleading. The package that Lemley and Shapiro call “best practices” is in fact not a narrow proposal for binding baseball arbitration but rather a roadmap to redefine patent rights in a manner that would transfer wealth from inventors to infringers. Embedded within Lemley-Shapiro arbitration are normative changes in patent law and policy that Lemley and Shapiro have previously advocated but that SSOs and courts have not adopted. An SSO that adopted Lemley-Shapiro arbitration could expect its members to commercialize their next generation of inventions outside that particular SSO, if not outside an open standard altogether.

JEL: D21; D23; K11; K12; O31; O34

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Mandatory Final-Offer Arbitration of FRAND Royalties

I. INTRODUCTION

Final-offer arbitration, commonly called “baseball arbitration” because of its use in Major League Baseball disputes over player salaries, requires an arbitrator to pick exclusively one of the two offers made by the opposing parties to a negotiation.¹ Mark Lemley and Carl Shapiro have proposed binding baseball arbitration as a mandatory procedure to determine royalties in disputes over the licensing of standard-essential patents (SEPs) on fair, reasonable, and nondiscriminatory (FRAND) terms and conditions. Specifically, Lemley and Shapiro urge standard-setting organizations (SSOs) to adopt rules—purportedly constituting “best practices”—that would mandate binding baseball arbitration for resolving FRAND disputes.² Presumably, an SSO would need to adopt these “best practices” by voluntarily amending its bylaws.

FRAND disputes are important because manufacturers of standard-compliant products may need to procure licenses to patented technologies that are incorporated into the standard. To facilitate this process, prospective licensors (and frequently prospective licensees) participate in an SSO, which develops “agreements containing technical specifications or other criteria,” promotes “efficient resource allocation and production by facilitating interoperability among complementary products,” and, in general, participates in the advancement of the standard and associated technology within an industry.³

An SSO typically requires one of its members to disclose or declare any patent that the member believes is potentially essential to a proposed standard. A patent that claims an invention that is necessary to practice a technical standard is a standard-essential patent. The declarant agrees to offer to license its SEPs to third parties on FRAND terms. Scholars in law and economics actively debate the meaning of “fair, reasonable, and nondiscriminatory” licensing terms.⁴

Lemley and Shapiro propose that, when an SEP holder and an implementer cannot agree “over what is FRAND,”⁵ the parties shall enter into binding baseball arbitration.⁶ Each party must present its final offer as its first offer, leaving the arbitrator the limited discretion to award one of the two parties’ offers as the final binding FRAND royalty. In conventional arbitration, the arbitrator receives the parties’ final offers and then determines the award based on the arbitrator’s own judgment and independent evaluation

1. See, e.g., J. Gregory Sidak, *Court-Appointed Neutral Economic Experts*, 9 J. COMPETITION L. & ECON. 359, 389 (2013).

2. Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1138 (2013) [hereinafter Lemley & Shapiro, *A Simple Approach*].

3. United States Department of Justice and United States Patent & Trademark Office Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments 2–3 (Jan. 8, 2013) [hereinafter Remedies for SEPs].

4. See, e.g., Damien Geradin, *The European Commission Policy Towards the Licensing of Standard-Essential Patents: Where Do We Stand?*, 9 J. COMPETITION L. & ECON. 1125, 1127 (2013). For discussion of the different suggested definitions of a FRAND royalty, see J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. COMPETITION L. & ECON. 931, 996 (2013); Philippe Chappatte, *FRAND Commitments—The Case for Antitrust Intervention*, 5 EUR. COMPETITION J. 319 (2009); David J. Salant, *Formulas for Fair, Reasonable and Non-Discriminatory Royalty Determination*, 7 INT’L J. IT STANDARDS & STANDARDIZATION RES. 66 (2009); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); John M. Golden, *“Patent Trolls” and Patent Remedies*, 85 TEX. L. REV. 2111, 2161 (2007); Anne Layne-Farrar, A. Jorge Padilla & Richard Schmalensee, *Pricing Patents for Licensing in Standard Setting Organizations: Making Sense of FRAND Commitments*, 74 ANTITRUST L.J. 671, 693 (2007); Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1 (2005).

5. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1144.

6. *Id.* at 1138.

of the parties' arguments and offers of proof.⁷ In determining the FRAND royalty, the arbitrator ultimately may set a royalty that differs from both parties' proposals. In contrast, under baseball arbitration, the arbitrator is limited to choosing between the respective royalties proposed by the SEP holder and the implementer.

Lemley and Shapiro champion mandatory baseball arbitration as an alternative to traditional district court litigation of SEP-licensing disputes. Such arbitration, they argue, may induce the parties to produce offers and counteroffers closer to the patent's "true" value, may reduce transaction and error costs of dispute resolution, and may provide greater incentives for the parties to settle.⁸ I disagree. Arbitration is not inherently problematic as a means to resolve FRAND licensing disputes. Indeed, in certain circumstances, parties to a licensing negotiation may find that arbitration offers distinct advantages over traditional litigation. However, Lemley-Shapiro arbitration is ill-suited to resolve disputes over FRAND royalties for SEPs. The proposal would address neither the objectives of setting open standards nor what makes FRAND commitments distinctive, and it would prevent the parties from agreeing on the meaning of FRAND prices, terms, and conditions.

I analyze the Lemley-Shapiro proposal, as well as the critique of it by Pierre Larouche, Jorge Padilla, and Richard Taffet.⁹ Baseball arbitration may work to resolve a dispute over a player's salary in Major League Baseball, but it is ill suited to resolve a dispute over FRAND terms for standard-essential patents for complex consumer products such as smartphones. Moreover, the errors of Lemley-Shapiro arbitration would not be randomly distributed. Larouche, Padilla, and Taffet show analytically what should be intuitively obvious and compelling—that baseball arbitration as envisioned by Lemley and Shapiro would consistently undercompensate SEP holders, a result that would destabilize the standardization process.¹⁰

In addition, Lemley and Shapiro prescribe rigid "best practice" rules for SSOs to adopt in lieu of relying on the more flexible and reasoned standards that courts would develop incrementally, case by case. The Lemley-Shapiro prescriptions proceed from the false premise that one can identify—and then should pledge obedience to—"best practices" to address all foreseeable contingencies. Assuming (unrealistically) that complete-contingency "best practices" are possible to identify for a technologically dynamic industry in which many firms cooperate to create an open standard, who first determines that a given practice is "best?" Lemley and Shapiro answer that question by declaring their own prior prescriptions to be "best practices," regardless of whether anyone has actually adopted those practices and regardless of whether they are biased toward the infringer. Analysis of those "Lemley-Shapiro best practices" reveals that they are in fact riddled with errors of legal and economic reasoning. FRAND disputes cannot be encapsulated in one arbitrary number, as Lemley and Shapiro claim. In addition, the Lemley-Shapiro proposal conflates the SEP holder's duty to make a FRAND offer and the duty to enter into a license. Lemley-Shapiro arbitration also ignores the question of whether an SEP is truly essential, which is determinative for whether the FRAND obligations apply. Lemley and Shapiro claim that their arbitration procedure is free from

7. See, e.g., Orley Ashenfelter & Janet Currie, *Negotiator Behavior and the Occurrence of Disputes*, 80 AM. ECON. REV. 414, 416 (1990); Orley Ashenfelter, *Arbitration and the Negotiation Process*, 77 AM. ECON. REV. 342, 343 (1987).

8. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1144 n.25 (citing Sidak, *Court-Appointed Neutral Economic Experts*, *supra* note 1, at 389).

9. Pierre Larouche, A. Jorge Padilla & Richard S. Taffet, *Settling FRAND Disputes: Is Mandatory Arbitration a Reasonable and Nondiscriminatory Alternative?*, 10 J. COMPETITION L. & ECON. (forthcoming 2014).

10. *Id.* at 5.

bias, yet they provide no evidence supporting this claim. Moreover, the hypothetical negotiation framework used in Lemley-Shapiro arbitration is one-sidedly biased against the SEP holder.

An additional factor that would reduce compensation to SEP holders is the requirement in Lemley-Shapiro arbitration that the arbitrator's chosen royalty be based on an *ex ante* probability of validity of the SEP holder's entire portfolio.¹¹ Lemley and Shapiro further argue that a court's subsequent confirmation that the patent in suit is actually valid should not change the FRAND royalty determination, which had been predicated on the Lemley-Shapiro assumption that the patent in suit was only possibly valid.¹² The Lemley-Shapiro notion of probabilistic patent validity is problematic. Lemley and Shapiro fail to explain how an arbitrator could rigorously assess the probabilistic value of the licensed patents in choosing which of two proposed rates is FRAND—a factual determination that typically requires an entire court case. Evaluating the probabilistic validity of an entire patent portfolio would require the patent-by-patent review of hundreds or thousands of patents, which renders Lemley-Shapiro arbitration infeasible in the real world.¹³

A given arbitral procedure can affect the incentives and bargaining positions of the parties to the dispute. Key factors affecting the parties' bargaining strategies include the degree of information revealed during the arbitration and the binding nature of the arbitration. The restrictions of Lemley-Shapiro arbitration may bias royalty awards in favor of net implementers and thereby reduce expected returns to SEP holders. Any unintentional cognitive bias among arbitrators that would favor smaller royalty payments would systematically undercompensate SEP holders. This bias would harm innovation and investment in new SEPs. Over time, Lemley-Shapiro arbitration would cause SEP holders to reduce or withhold participation in SSOs and would reduce incentives for innovation.

What is the implication of Lemley-Shapiro arbitration for the public's understanding of the meaning of FRAND? Lemley-Shapiro arbitration would not inform the current debate over what constitutes fair, reasonable, and nondiscriminatory terms for SEPs. Because the arbitrator would be constrained to pick one of the parties' two opposing offers and could not determine an intermediate FRAND rate of her own, the final award could not result from the arbitrator's informed assessment of what constitutes a FRAND royalty. The arbitrator would be constrained to choose one of the parties' two offers, even if neither offer was in the FRAND range. The additional Lemley-Shapiro requirement that arbitration decisions be disclosed to willing licensees in future negotiations¹⁴ would not provide useful benchmarks for future negotiations. To the contrary, doing so would undermine future negotiations, reduce the incentives of SEP holders to participate in SSOs, and promote buyer collusion among implementers.¹⁵

11. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1162–63.

12. *Id.*

13. This one of several infeasible aspects of Lemley-Shapiro arbitration is reminiscent of Nobel laureate Oliver Williamson's observation about the prohibitively high transactions costs of writing complete-contingency contracts. *See, e.g.*, OLIVER E. WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING* 79 (Free Press 1985) (discussing "the impossibility (or costliness) of enumerating all possible contingencies and/or stipulating appropriate adaptations to [the transactions] in advance").

14. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1145.

15. There are other problems with Lemley-Shapiro arbitration that exceed the scope of this article. For example, Lemley and Shapiro do not explain the implications of their proposal for the nondiscrimination requirement in the FRAND royalty obligation. Another example is that Lemley and Shapiro claim that mandating baseball arbitration for SEP holders does not infringe an SEP holder's First Amendment right to petition government (that is, to seek remedies for patent infringement in the U.S. courts) because the SSO mandating Lemley-Shapiro arbitration would not be a state actor. *See id.* at 1142. This Pollyannaish assessment is

The Lemley-Shapiro proposal claims to resolve FRAND royalty disputes more efficiently than court litigation. However, the proposal contains errors of legal and economic reasoning that tend to reduce compensation to SEP holders. Lemley-Shapiro arbitration would not provide guidance on what constitutes a FRAND royalty, and in the long run it would reduce incentives for innovation and participation in the setting of open standards.

II. WOULD LEMLEY-SHAPIRO ARBITRATION BE PLAUSIBLE AND EFFICACIOUS?

Even a superficial examination of the Lemley-Shapiro proposal for mandating baseball arbitration as the dispute-resolution mechanism for SEP-licensing disputes reveals that the salient economic differences between salary disputes in Major League Baseball and SEP-licensing disputes render Lemley-Shapiro arbitration inappropriate for resolving these patent disputes. Although Lemley-Shapiro arbitration has received the attention of bloggers in the patent community,¹⁶ the only scholarly scrutiny of the proposal as of June 2014 has come from Larouche, Padilla, and Taffet.

A. Is Lemley-Shapiro Arbitration Suitable for Resolving FRAND Royalty Disputes?

Lemley and Shapiro make several faulty claims about the advantages of their proposal over the status quo. According to Lemley and Shapiro, because both parties risk “losing the case”¹⁷—the SEP holder by asking for too much, and the implementer by offering too little—both parties have an incentive to submit a reasonable offer in binding baseball arbitration.¹⁸ But the Lemley-Shapiro proposal strives to settle in a few pages the complex disputes over FRAND licensing and neglects that an implementer offering a substantially lower royalty base and a higher royalty rate can confuse the arbitrator. FRAND disputes include the determination of FRAND terms; they are not limited to the meaning of the FRAND royalty rate. I expand on the problematic oversimplifications of the Lemley-Shapiro proposal in Part III.A.

Lemley and Shapiro claim that their proposal would limit opportunities to challenge the validity or infringement of the patents at issue.¹⁹ In addition, because the royalty chosen by the arbitrator rests on an assessment of the entire portfolio, Lemley and Shapiro argue that the invalidity of any one of the licensed patents would not compromise the royalty determination.²⁰ Moreover, when patents within the portfolio are more likely

disingenuous. It implies that Lemley and Shapiro are unaware of the efforts of U.S. antitrust officials to influence not merely public opinion, but also the nonpublic deliberations of SSOs, including international treaty organizations.

16. See, e.g., David W. Long, *Lemley, Shapiro Propose “Baseball-Style” Arbitration as a Solution to FRAND Disputes*, ESSENTIAL PATENTS BLOG (Apr. 8, 2013), <http://essentialpatentblog.com/2013/04/lemley-shapiro-propose-baseball-style-arbitration-as-solution-to-frand-disputes/>; Florian Müller, *Google’s Plan B for Motorola’s Standard-Essential Patents: B as in “Baseball-Arbitration,”* FOSS PATENTS (May 9, 2013), <http://www.fosspatents.com/2013/05/googles-plan-b-for-motorolas-standard.html>; Tim West, *Anyone for Baseball? The Rise of “Baseball Arbitration” in FRAND Patent Disputes*, ASHURST (Nov. 2013), http://www.ashurst.com/publication-item.aspx?id_Content=9808.

17. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1144.

18. *Id.* (citing Sidak, *Court-Appointed Neutral Economic Experts*, *supra* note 1, at 389 (“Baseball arbitration has the effect of generating more credible estimates by altering the incentives of experts for either side to generate extreme values for their clients.”)).

19. *Id.* at 1146, 1162–63.

20. *Id.* at 1151–52.

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to be considered invalid, then, according to Lemley and Shapiro, the relative royalties proposed by parties would be correspondingly lower. Of course, alleged infringers are free to challenge the validity or infringement of the patents in the courts or the Patent Office, and Lemley and Shapiro concede that their proposal “won’t make declaratory judgments of invalidity impossible.”²¹ (In other words, the implementer will get two bites at the apple.) I analyze the economic and legal flaws of the Lemley-Shapiro proposal’s probabilistic assessment of validity in more detail in Part V.C. Finally, Lemley and Shapiro contend that arbitration is “more predictable than litigation,” and that consequently arbitration would more efficiently resolve FRAND disputes.²²

1. Why Is Lemley-Shapiro Arbitration Necessary When Parties to SEP-Licensing Disputes Already May Resort to Arbitration?

Of course, the parties to an SEP license agreement are already entitled to pursue arbitration. For example, in 2012 Motorola suggested arbitration as a means to settle its SEP-licensing disagreements with Apple.²³ Either party may propose that the dispute be subjected to binding arbitration, if the party finds it useful in its particular case.²⁴ However, arbitration should not be mandatory.²⁵ In the Federal Trade Commission’s investigation of Google’s acquisition of Motorola Mobility, Google and the FTC agreed to settle the case through a consent decree that envisions, for FRAND disputes concerning the acquired SEPs, the willingness of parties “to resolve the Contested [license’s] Terms through Binding Arbitration.”²⁶ Similarly, in Europe the European Commission and Samsung settled the European antitrust investigation against Samsung through a commitment decision (akin to a consent decree). Under this decision, Samsung and the European Commission agreed that “any dispute over what are fair, reasonable and non-discriminatory (so-called ‘FRAND’) terms for the SEPs in question will be determined by a court, or if both parties agree, by an arbitrator.”²⁷ Why this mandatory arbitration would be necessary is unclear, as parties to FRAND disputes (in the United States) have successfully sought redress through litigation in federal district court²⁸ and administrative adjudication before the International Trade Commission (ITC).²⁹

Jorge Contreras and David Newman observe that voluntary arbitration and mandatory arbitration differ significantly. Parties to voluntary arbitration “have wide latitude to craft arbitration procedures that best suit their circumstances in an arbitration

21. *Id.* at 1162.

22. *Id.* at 1152.

23. *Apple Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178-bbc, 2012 WL 7989412, at *3 (W.D. Wis. Nov. 8, 2012).

24. *See* Ashenfelter, *Arbitration and the Negotiation Process*, *supra* note 7, at 342.

25. *See* Ashenfelter & Currie, *Negotiator Behavior and the Occurrence of Disputes*, *supra* note 7, at 417 (noting that “it is very unlikely that parties would ever voluntarily agree to submit their dispute to a deterministic system since this is tantamount to agreeing on a settlement [P]arties may go to arbitration solely because they have differing beliefs about the expected outcome of arbitration.”).

26. Decision and Order in the Matter of Motorola Mobility LLC and Google Inc., File No. 121-0120, Dkt. No. C-4410 (F.T.C. 2013).

27. Press Release, European Commission, Antitrust: Commission Accepts Legally Binding Commitments by Samsung Electronics on Standard Essential Patent Injunctions (Apr. 29, 2014), *available at* http://europa.eu/rapid/press-release_IP-14-490_en.htm.

28. *See, e.g.*, *Ericsson Inc. v. D-Link Sys., Inc.*, No. 6:10-cv-473, 2013 WL 4046225 (E.D. Tex. Aug. 6, 2013).

29. *See, e.g.*, Complaint of InterDigital Commc’ns, Inc., InterDigital Tech. Corp., IPR Licensing, Inc., & InterDigital Holdings, Inc. Under Section 337 of the Tariff Act of 1930, as Amended, Certain Wireless Devices With 3G and/or 4G Capabilities & Components Thereof, No. 337-TA-800 (I.T.C. Jan. 2, 2013).

agreement,”³⁰ and, if they fail to agree, they are not limited to a particular arbitration procedure. In contrast, parties subject to mandatory arbitration lack such options. They must arbitrate even if they disagree on the arbitral procedures. Arbitration should be an option instead of an obligation.

2. *Is a FRAND Royalty Really Analogous to a Baseball Player’s Salary?*

Some may find a superficial appeal in the Lemley-Shapiro proposal. However, it does not even begin to untangle the complexity of FRAND royalties. For at least four reasons, Major League Baseball players do not resemble standard-essential patents, such that mandating baseball arbitration for disputes over the licensing of SEPs is tantamount to forcing a square peg into a round hole.

First, a vast supply of publicly available data exists to evaluate the performance (and hence the commercial value) of an individual baseball player. Owners and general managers have access to disaggregated statistics that enable one to quantify each player’s marginal contribution to his team and the league.³¹ Baseball teams have the luxury of watching a player’s performance before negotiating a contract. Each player has a batting average and a fielding average. Each pitcher has an earned-run average. And each team has a win-loss record. These statistics have been compiled for decades, and economists have long published articles in scholarly journals that empirically test hypotheses using such data.³² In contrast, there is no comparable valuation information publicly available for individual standard-essential patents.

Second, because of the wealth of information publicly available on the performance and the commercial value of a given professional baseball player, it is not likely that a player and the owner of the player’s baseball team will approach a binding baseball arbitration with salary proposals that differ by orders of magnitude—a situation that routinely occurs in the opposing expert damage testimony of patent holders and alleged infringers. Consequently, in a baseball player’s salary dispute the arbitrator’s binary choice of one party’s proposal over the other will not have such stark economic consequences for the losing party—or implications for technological innovation for that matter. The error costs and the potential for cognitive bias on the part of the arbitrator is less in a baseball salary dispute than in an arbitration to set a FRAND royalty. In *Apple v. Motorola*, for example, the damage estimates of the opposing economic experts diverged by two orders of magnitude (with the larger estimate exceeding one billion dollars)³³ and had the potential to influence incentives for innovation in mobile communications. I discuss in Part IV.B this potential for cognitive bias due to larger error costs.

Third, Major League Baseball players could manifest a degree of substitutability that SEPs do not. From the team owner’s perspective, there could be, for example, alternative outfielders with excellent batting averages, alternative left-handed pitchers, alternative shortstops with base-running speed. For the player, there could be alternative teams on which he could play and thus commercialize his athletic skill. Consequently, the

30. Jorge L. Contreras & David L. Newman, *Developing a Framework for Arbitrating Standards-Essential Patent (SEP) Disputes*, 2014 J. DISP. RESOL. 11 (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2335732.

31. See, e.g., MICHAEL LEWIS, *MONEYBALL: THE ART OF WINNING AN UNFAIR GAME* (W.W. Norton & Co. 2004).

32. See, e.g., Kenneth Lehn, *Property Rights, Risk-Sharing, and Player Disability in Major League Baseball*, 25 J.L. & ECON. 343 (1982); Gerald W. Scully, *Pay and Performance in Major League Baseball*, 64 AM. ECON. REV. 915 (1974).

33. *Apple, Inc. v. Motorola, Inc.*, No. 1:11-cv-08540, 2012 WL 1959560, at *4 (N.D. Ill. May 22, 2012), *aff’d in part, rev’d in part*, Nos. 2012-1548, 2012-1549, 2014 WL 16435 (Fed. Cir. Apr. 25, 2014).

negotiation and the subsequent binding baseball arbitration between the player and the team owner might occur with knowledge of the existence of substitutes for both parties. The arbitration also benefits from relatively contemporaneous observations of actual salaries negotiated or arbitrated by other combinations of players and teams. The baseball club must offer the player a salary that is not less than seventy percent of the player's compensation from two years earlier, and that is not less than eighty percent of the total compensation of the player from the prior year. The opposing proposals in arbitration over the salary for a Major League Baseball player are therefore subject to external checks for plausibility and robustness in ways that are lacking in typical disputes over FRAND royalties for SEPs.

Fourth, a baseball player typically has a one-year contract. Even in contracts that cover multiple seasons or contracts that contain a renewal clause for another year, the salary set in arbitration will apply for only one year.³⁴ In contrast, a license for SEPs typically has a longer duration (such as five years), and a party will therefore be bound to the good or bad consequences of its negotiation for a longer period. Like the large differences in the opposing offers in FRAND disputes, the extended time frame of the royalty increases the error costs, and thus the potential for cognitive bias.

In short, it is unrealistic for at least four reasons to expect mandatory baseball arbitration, in the terms proposed by Lemley and Shapiro, to be appropriate for resolving disputes over FRAND royalties even though it may be effective in resolving Major League Baseball salary disputes.

B. The Larouche-Padilla-Taffet Critique of Lemley-Shapiro Arbitration

Larouche, Padilla, and Taffet criticize Lemley-Shapiro arbitration and emphasize that mandating baseball arbitration for FRAND disputes would weaken the standardization process. They argue that Lemley-Shapiro arbitration would fail to ensure that the interests of both the implementer and the SEP holder are considered and balanced. To the contrary, they argue, Lemley-Shapiro arbitration would undercompensate SEP holders, and SEP holders would potentially obtain less than they would expect to obtain through bilateral negotiations.³⁵ This is a problematic failure of Lemley-Shapiro arbitration, and I continue to address this issue and some of its consequences throughout this article. Larouche, Padilla, and Taffet also observe that mandatory baseball arbitration, “by effectively lowering the overall cost of disagreement, [would] increase the incidence of disagreement relative to the status quo.”³⁶ This result would create a “socially costly”³⁷ chilling of voluntary, bilateral negotiations.

Larouche, Padilla, and Taffet note that the “numerous high-stakes disputes”³⁸ over FRAND terms that Lemley and Shapiro invoke ignore the “thousands of license negotiations involving FRAND-committed SEPs [that] have occurred successfully.”³⁹ According to Larouche, Padilla, and Taffet, although Lemley-Shapiro arbitration might resolve the FRAND dispute on the royalty rate, “implementers remain free to bring

34. See, e.g., Ben Einbinder, *What FINRA Can Learn from Major League Baseball*, 12 PEPP. DISP. RESOL. L.J. 333, 342 n.89 (2012); Jeff Monhait, *Baseball Arbitration: An ADR Success*, 4 HARV. J. SPORTS & ENT. L. 105, 133 (2013).

35. See Larouche, Padilla & Taffet, *supra* note 9, at 22–27.

36. *Id.* at 19.

37. *Id.* at 21.

38. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1135.

39. Larouche, Padilla & Taffet, *supra* note 9, at 3.

additional challenges regarding the *validity* of the patents.”⁴⁰ In other words, Lemley-Shapiro arbitration requires the arbitral award to consider the likelihood of the patent’s validity. Because the arbitrator must decide the dispute with substantially incomplete knowledge, Lemley-Shapiro arbitration would bundle the question of validity with the determination of the royalty. I analyze several effects of this bundled approach in Part III.A.5.

Larouche, Padilla, and Taffet note that Lemley and Shapiro assume that patent holdup, allegedly caused by the imprecise meaning of FRAND,⁴¹ jeopardizes the standardization process.⁴² Larouche, Padilla, and Taffet dispute this assumption on multiple grounds.⁴³

First, they say that “there is no evidence that the adoption or implementation of any standard has been defeated or delayed as a result of claimed-SEPs reading on the standard or because of FRAND disputes.”⁴⁴ Second, they observe that, in the most recent lawsuits concerning the infringement of SEPs, the implementers failed to provide evidence of patent holdup,⁴⁵ which calls into question the “existence of a hold up problem.”⁴⁶ In *Microsoft v. Motorola*, for example, Microsoft’s expert witness, Kevin Murphy of the University of Chicago, invoked the theory of holdup but on cross-examination could not identify a single real-world instance of holdup.⁴⁷ Third, Larouche, Padilla, and Taffet highlight the lack of any supporting evidence that the remedies currently available to resolve disputes over FRAND terms (including remedies available through litigation⁴⁸) harm innovation or competition.⁴⁹ Fourth, Larouche, Padilla, and Taffet argue that the meaning of FRAND, and particularly the definition of “reasonableness,” are not imprecise and vague. They illustrate that the current interpretation of “reasonable” has been successfully employed in many fields of law, including contract law and intellectual property law.⁵⁰ Because the reasonableness standard is flexible enough to be adapted to varied circumstances, they believe that it represents the most workable standard for evaluating FRAND terms.

Larouche, Padilla, and Taffet conclude that Lemley-Shapiro arbitration is rooted in assumptions instead of facts and, if adopted, would harm the standardization process.⁵¹

40. *Id.* at 22 (emphasis added).

41. *Id.* at 6.

42. *Id.* at 3.

43. *Id.* at 6.

44. *Id.* at 10.

45. *Id.* at 12.

46. *Id.*

47. *Id.* (citing Testimony of Kevin Murphy (Hearing Transcript at 180, *Microsoft Corp. v. Motorola, Inc.*, No. 10-cv-01823 (W.D. Wash. Nov. 13, 2012), ECF No. 629)). *See also* *Ericsson Inc. v. D-Link Systems, Inc.*, No. 6:10-cv-00473, 2013 WL 4046225 (E.D. Tex. Aug. 6, 2013).

48. Larouche, Padilla & Taffet, *supra* note 9, at 32.

49. *Id.* at 14.

50. *Id.* at 15–16.

51. *Id.* at 6.

III. DO SELF-PROCLAIMED “BEST PRACTICES” THAT ARE BUNDLED WITH THE LEMLEY-SHAPIRO PROPOSAL FOR BASEBALL ARBITRATION WITHSTAND SCRUTINY?

Lemley and Shapiro claim to have derived “a simple, practical set of rules regarding patents that SSOs can adopt”⁵² to minimize the transaction costs associated with FRAND disputes. However, Lemley-Shapiro arbitration is a tie-in sale: along with mandatory baseball arbitration, the customer also must take the self-proclaimed “best practices”⁵³ that Lemley and Shapiro say are integral to arbitrating FRAND royalty disputes. Lemley and Shapiro cannot, however, confer upon practices the status of “best” by mere declaration. In fact, the “best practices” they suggest involve severe legal and economic errors.

A. Errors of Legal and Economic Reasoning, Contradictions, and Ambiguities

Lemley-Shapiro arbitration relies on multiple erroneous propositions, flawed assumptions, and ambiguities.

1. The Lemley-Shapiro Proposal’s Oversimplification of FRAND Disputes

Lemley and Shapiro maintain that “FRAND disputes are well suited to mandatory baseball arbitration, because the only thing at issue is which of two numbers in fact represents the more reasonable royalty.”⁵⁴ This assertion is wrong and simplistic. The meaning of a FRAND royalty is only one of several potential licensing terms that are in dispute and that Lemley and Shapiro pretend to set using mandatory baseball arbitration. Four points deserve attention.

First, Lemley and Shapiro fail to recognize that the use of mandatory baseball arbitration would be legitimate only if both the offer and the counteroffer submitted to the arbitral tribunal were certifiably FRAND. Second, because there is no assurance that both the offer and the counteroffer submitted to the arbitrator will be within the FRAND range, the dispositive question that Lemley and Shapiro pose—which offer is “the more reasonable royalty”?⁵⁴—may be meaningless. Third, once the SEP holder has made a FRAND offer, it has discharged its duty pursuant to its FRAND commitment to the SSO (and, derivatively, its duty to implementers as third-party beneficiaries of that commitment). Consequently, from that moment forward the SEP holder has no duty arising *from its FRAND commitment* to make another offer. From that moment forward, the successful conclusion of a FRAND license agreement depends on the infringer, who—if he is a willing licensee—will accept the FRAND offer. Why would an arbitrator have any need to set a FRAND price when the SEP holder has already made an offer within the FRAND range, which a genuinely willing licensee should therefore accept? In Part III.A.2 below, I address the problematic effects of Lemley and Shapiro’s flawed interpretation of the FRAND commitment on implementers’ actions and the determination of FRAND royalties.

Fourth, Lemley and Shapiro assume that licenses between two negotiating parties can be encapsulated into one arbitrary number. This assumption neglects the fact that licensing terms are multifaceted and often include forms of consideration beyond the royalty itself. The scope and term of the license, the nature of the royalty payment, and

52. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1135.

53. *Id.* at 1138.

54. *Id.* at 1144.

pass-through rights are important components that shape the agreement. In a FRAND negotiation, these matters would be part of the SEP holder's offer and the licensee's offer. To reduce the entire dispute to a single number is not only arbitrary, but also not indicative of actual FRAND terms.

2. *Conflating the SEP Holder's Duty to Make a FRAND Offer and the (Nonexistent) Duty of an SEP Holder to Enter into a License*

By obscuring the distinction between the SEP holder's duty to make a FRAND offer and a wider (but nonexistent) obligation to enter into a license, Lemley and Shapiro would saddle the SEP holder with an obligation that does not exist in the FRAND contract—and, indeed, would fundamentally change the terms of that contract. Three points deserve attention.

First, the imprecise use by Lemley and Shapiro of the verb “to license” demonstrates their misunderstanding of the nature of the SEP holder's contractual obligation. The commitment to “make a FRAND offer” is distinct from a “commitment to license,” a phrase which Lemley and Shapiro use at least five times.⁵⁵ Lemley and Shapiro conflate the SEP holder's obligation to make a FRAND offer and a (nonexistent) duty to reach an agreement:

A commitment to license on reasonable terms is not a commitment to be whipsawed by a potential licensee. An implementer who agrees to participate only if it gets a result it likes is no different than a patentee who agrees to license on reasonable terms only if it gets to decide what is reasonable A patentee who makes a FRAND commitment is obligated to agree to reasonable licensing terms, but does not have to license to someone who will not make a similar commitment to accept reasonable terms set by the arbitrator.⁵⁶

This conceptualization is unsound. Contractually, an SEP holder has a duty to make a single FRAND offer to a would-be licensee. On this question, I concur with the conclusion of Judge Bo Vesterdorf.⁵⁷ A FRAND commitment does not constitute “an executory license without a price term,” as Lemley and Shapiro contend.⁵⁸ Such a qualification would force the SEP holder to continue submitting lower and lower FRAND offers until the implementer accepted one. To the contrary, a FRAND commitment does not impose on the SEP holder a duty to offer the implementer a royalty that is near the lower bound of the FRAND range or, even worse, below the floor of the FRAND range. Transforming the SEP holder's duty to make a FRAND offer into a duty to enter into a license would, in the words of former Lord Justice Robin Jacob, create an incentive for implementers to “string things out for as long as possible, and [pay] as little as possible in the end, a sensible commercial tactic if you can get away with it.”⁵⁹ The legal meaning of the FRAND commitment cannot defy common sense: If the implementer does not accept the first FRAND offer, then the SEP holder nonetheless has fully complied with the FRAND commitment by making that first offer within the FRAND range. Consequently, there cannot be any valid justification to compel the SEP holder to keep offering lower

55. *Id.* at 1149, 1153, 1156, 1159, 1160.

56. *Id.* at 1153.

57. See Bo Vesterdorf, *IP Right and Competition Law Enforcement Questions*, 4 J. EUR. COMPETITION L. & PRAC. 109, 109–10 (2013).

58. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1159.

59. Robin Jacob, *Competition Authorities Support Grasshoppers: Competition Law as a Threat to Innovation*, 9 COMPETITION POL'Y INT'L 15, 24 (2013).

terms beyond the scope of the contractual obligation to third-party beneficiaries by which the SEP holder agreed to be bound.

Second, the confusion that Lemley and Shapiro create by imposing a larger (but nonexistent) duty on the SEP holder to enter into a contract to license its SEPs illustrates the bias in Lemley-Shapiro arbitration toward implementers. Lemley and Shapiro misstate the scope of the SEP holder's FRAND obligation and then use that error to construct the untenable argument that the parties' failure to reach an agreement should trigger a binding baseball-arbitration proceeding. To support this legal reasoning, Lemley and Shapiro assume the existence of a "promise" that the SSO member would make with respect to a future standard "that, if it cannot come to terms with another party implementing the standard, the question of the proper FRAND royalty rate [would] be subject to binding [arbitration]."⁶⁰ Elsewhere, Lemley and Shapiro say more bluntly that, "if an implementer thinks that an offer is not FRAND, the implementer can just say 'no.'"⁶¹ This possibility is an option for the implementer under the current regime, but not a particularly plausible option. However, in the Lemley-Shapiro proposal, the implementer can refuse a FRAND offer and force the dispute into arbitration, without his refusal being deemed a refusal to an offer that was legitimately FRAND. Moreover, without at least a preliminary adjudication of whether the SEP holder's initial offer was truly within the FRAND range—which Lemley and Shapiro deem unnecessary—it is impossible to verify as a matter of contract law whether the SEP holder has discharged its FRAND commitment. If the SEP holder has indeed discharged this commitment, then the SEP holder should otherwise retain its entire freedom to contract and to litigate in court in case of a dispute. By limiting the SEP holder's right to go to court and its freedom to contract, Lemley-Shapiro arbitration could be used against the SEP holder as a means of diminishing the SEP holder's contractual rights in a way that would reduce the value of its SEPs.⁶² Under Lemley-Shapiro arbitration, the SEP holder may be compelled to accept a lower FRAND royalty rate offered by the implementer instead of disputing the suitability of that offer in court. Lemley-Shapiro arbitration would simply ignore the legal significance of whether the SEP holder has made an offer that legitimately qualifies as FRAND and thus has established that the SEP holder has not breached its FRAND commitment.

Third, contrary to what Lemley and Shapiro assert, it is *not* the "very point of [a FRAND] commitment . . . to comfort implementers that they will not be held up by parties refusing to license patents essential to the standard."⁶³ Lemley and Shapiro unrealistically portray the FRAND commitment as a one-sided bargain. If an SEP holder were made to bear the contractual duty to persuade implementers to accept its FRAND terms, this obligation—far more burdensome than the duty simply to make a FRAND offer—would lead the SEP holder to cease participating in SSOs.

60. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1141.

61. *Id.* at 1161.

62. *Id.* at 1142 ("Under [Lemley-Shapiro arbitration], if a standard-essential patent owner and an implementer of the standard cannot agree on license terms, the patent owner is obligated to enter into binding arbitration to determine the FRAND royalty rate for its entire portfolio of standard-essential patents, so long as the implementer makes a reciprocal FRAND commitment for patents reading on the standard in question.").

63. *Id.* at 1158.

3. *Why Does Lemley-Shapiro Arbitration Ignore the Question of Essentiality in FRAND Disputes?*

Lemley-Shapiro arbitration is an ambiguous arbitral framework. The idea of determining a reasonable rate by instructing an arbitrator to make a binary choice between two FRAND offers is seductively uncomplicated, but it cannot account for all the elements of a FRAND commitment.⁶⁴ Lemley and Shapiro contend nonetheless that the arbitration should focus solely on deciding which of the offered rates—the implementer’s or the SEP holder’s—is the appropriate royalty:

The arbitrator does not need to decide whether any given patent is valid and infringed. Nor does she need to decide whether a particular patent is essential except in unusual circumstances. Both of those things may be contested, and the evidence on each question will likely influence the reasonableness of the competing royalty proposals. But unlike a court that might have to rule on any number of subsidiary factual issues, the only thing the arbitrator needs to do is pick the better of two proposed royalty rates.⁶⁵

By authorizing the arbitrator only to “pick the better of two proposed royalty rates,” Lemley and Shapiro assume that the resolution of FRAND disputes depends solely on the price of the license. As I explained in Part III.A.1, this view is a gross oversimplification of FRAND disputes. In addition to overlooking the additional licensing terms beyond the royalty itself and whether the SEP holder’s initial offer was FRAND, this proposition ignores the premise underlying the FRAND requirement. Commanding an arbitrator not to decide what Lemley and Shapiro dismiss as “subsidiary factual issues,” such as the essentiality of the patent-in-suit, contradicts the “subsidiary” prerequisite that only the essentiality of the SEP triggers the FRAND commitment in the first place—and hence the possible need for arbitration over FRAND rates. The Lemley-Shapiro arbitrator would act like a U.S. district judge who rules on the merits of a case without pausing to confirm that federal jurisdiction exists. The Lemley-Shapiro binary choice appears a gross oversimplification that is not designed to do substantive justice.

Lemley and Shapiro do recognize that the narrow mandate they give their arbitrator could produce bad results. In a footnote, they retreat from the simplicity of their proposal by qualifying that “it would be best if the arbitrator specified whether the patent in question is ‘essential’ to minimize future litigation.”⁶⁶ Otherwise, the arbitrator could make a FRAND royalty determination based on a non-essential patent and consequently subject the licensee to a (higher) FRAND royalty for a patent not subject to the SEP holder’s FRAND commitment. There is no reason to believe that Lemley-Shapiro arbitration would resolve FRAND disputes better than a court empowered to make findings of fact or law on anterior questions necessary to setting the FRAND royalty rate.

64. Lemley-Shapiro “best practices” do not discuss in detail how Lemley-Shapiro arbitration would satisfy the nondiscrimination requirement of the FRAND commitment. Lemley and Shapiro do not explain the consequences of an arbitral award that announces a royalty that is lower than previous licenses. Nor do they account for the possibility that, in case of a dispute, such an award would generate more arbitration proceedings or the need to litigate the terms of the FRAND license.

65. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1145.

66. *Id.* at 1145 n.27.

4. Why Believe That Lemley-Shapiro Arbitration Is Free from Bias?

Lemley and Shapiro claim that, “so long as the arbitration procedure itself is unbiased, bargaining in the shadow of binding arbitration will tend to lead to reasonable rates.”⁶⁷ This big assumption completely neglects the historical role of judges in evaluating what is reasonable. Lemley and Shapiro imply that their arbitration proposal is unbiased, yet they do not compare their proposal with other possible solutions. Lemley and Shapiro, having flagged the issue, never actually establish that their arbitration model is free from bias. Consequently, their conclusions about bias are unproven. Their “best practices” would counsel the SSO to select a “reputable arbitration association with established, unbiased rules for the conduct of the proceeding.”⁶⁸ There is less to this aspiration than meets the eye, for it amounts to saying that Lemley-Shapiro arbitration will be free from bias as long as “the patentee [does not get] to choose the arbitration service, [because otherwise] it will choose one known to be biased in its favor.”⁶⁹ Lemley-Shapiro arbitration reserves its concern for biased royalty awards that could favor the patent holder, but it conspicuously manifests no symmetrical concern for arbitral bias that could favor the implementer.

Denying the parties any choice of the arbitral forum would hardly suffice to ensure that the arbitrator or arbitrators, once chosen, would reach a fair and unbiased decision. To date, the meaning of “fair” within the FRAND commitment has focused on the economic substance of an offer’s prices, terms, and conditions. It has been an unspoken premise that FRAND proceedings would be procedurally fair, and surely procedural fairness is part of the FRAND commitment. That premise might be true only if parties have the ability to bring a court case. Lemley and Shapiro do mention, as a kind of safeguard for Lemley-Shapiro arbitration, that courts “have proven willing to intervene to reject arbitration agreements that are procedurally unfair.”⁷⁰ Citing the Supreme Court’s 2008 decision in *Hall Street Associations LLC v. Mattel, Inc.*, however, Lemley and Shapiro observe on the same page that arbitration awards can be appealed only on “limited grounds”⁷¹—in contrast to court decisions, which are typically appealable.

Which is it? Are the courts a procedural safeguard to Lemley-Shapiro arbitration, or are they not? In other words, Lemley and Shapiro imply that courts will not correct an unfair arbitral outcome as long as the arbitrator followed the specified arbitral rules. Thus, they in effect concede that binary arbitration could violate the fairness commitment of FRAND—which contradicts their central premise that Lemley-Shapiro arbitration is a better way to resolve FRAND disputes. In fact, I show in Part IV that Lemley-Shapiro arbitration would be systematically biased against SEP holders and consistently render unfair results.

67. *Id.* at 1143.

68. *Id.* at 1141.

69. *Id.* at 1146 n.30.

70. *Id.*

71. *Id.* (citing *Hall St. Assocs. LLC v. Mattel, Inc.*, 552 U.S. 576 (2008)). For a more recent statement of the Supreme Court’s deference to arbitral rulings, see *BG Group plc v. Republic of Argentina*, 134 S. Ct. 1198, 1206–07 (2014) (“Where ordinary contracts are at issue, it is up to the parties to determine whether a particular matter is primarily for arbitrators or for courts to decide On the one hand, courts presume that the parties intend courts, not arbitrators, to decide what we have called disputes about ‘arbitrability.’ . . . On the other hand, courts presume that the parties intend arbitrators, not courts, to decide disputes about the meaning and application of particular procedural preconditions for the use of arbitration.”). Lemley and Shapiro presumably consider their self-declared “best practices” and other policy prescriptions incident to Lemley-Shapiro arbitration to constitute “particular procedural preconditions for the use of arbitration,” which the Supreme Court makes clear a court would not review.

5. *Is the Hypothetical-Negotiation Framework in Lemley-Shapiro Arbitration Accurate and Workable?*

Lemley-Shapiro arbitration relies on incomplete analysis. Two conspicuous problems exist. First, what might be termed “*ex ante* commercialization competition” is thoroughly absent from the Lemley-Shapiro analysis. Second, Lemley and Shapiro base the calculation of a reasonable royalty rate on the assumption that the parties would have had complete information at the time of their hypothetical negotiation.

With respect to the first problem, Lemley and Shapiro argue that, for the calculation of a reasonable royalty, the hypothetical negotiation should be placed “at the time the SSO is setting the standard.”⁷² To ensure an accurate *ex post* measure of the reasonable royalty, the tribunal must evaluate all pertinent elements that may have influenced the negotiation between the parties. As I previously explained in *The Meaning of FRAND, Part I: Royalties*, an *ex ante* hypothetical negotiation (if it is to be used at all in a FRAND royalty dispute) should take place at an earlier moment—when the patent holder, upon considering the alternative options for monetizing its invention, decided to contribute its patent to the standard.⁷³ The SEP holder could have chosen to exploit its technology in a different way. For example, the SEP holder could have chosen to gain competitive advantage in the market through exclusive use of its technology—the so-called “walled garden.” Lemley and Shapiro do not address *ex ante* commercialization competition. By calculating the reasonable royalty at the time the standard has been set, Lemley and Shapiro incorrectly assume that committing its patented invention to this particular SSO is the patent holder’s *only* option for monetizing that invention. This is a grave error of economic reasoning. Without explanation, Lemley and Shapiro make the strong (but silent) assumption that the outside options available to the parties to the hypothetical negotiation are highly asymmetrical in a way that always favors the implementer. That economic assumption lacks any foundation in theory or fact.

Second, Lemley and Shapiro also include an unworkable number of conditions under which the hypothetical negotiation would have transpired. They contend:

The hypothetical negotiation is not intended to reflect what an actual *ex ante* negotiation would have looked like [T]he point of the hypothetical negotiation rule in patent damages is to determine what hypothetical reasonable parties might have done, *had they had all the facts*, including knowledge of non-infringing alternatives.⁷⁴

The assumption that the parties would have known all the potential noninfringing alternatives to the standard is unrealistic. (Notably, Lemley and Shapiro are not even consistent because this perfect knowledge selectively excludes knowledge about validity,⁷⁵ which I examine in Part III.A.6 below.)

The Lemley-Shapiro rendition of the hypothetical negotiation also ignores the acquisition cost of noninfringing substitutes—it does so by setting the upper bound of the hypothetical negotiation at the incremental value of the patent in suit over the next best noninfringing alternative.⁷⁶ As I explained in *The Meaning of FRAND, Part I: Royalties*, this reasoning for the determination of the royalty is a fallacy.⁷⁷ Using only the

72. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1147.

73. Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 4, at 975–76.

74. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1148 n.37 (emphasis added).

75. *Id.* at 1151.

76. *Id.* at 1148.

77. Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 4, at 983–84.

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incremental value of the patent in suit to set the royalty is far from being reasonable because it assumes without justification that there is no opportunity cost of acquiring the lawful right to use the next best noninfringing substitute.

Failing to address these two issues, Lemley-Shapiro arbitration produces a FRAND royalty to which the SEP holder never would have agreed in an *ex ante* hypothetical negotiation.

6. Why Should the Lemley-Shapiro Arbitrator Assume That a Share of the SEP Holder's Portfolio Is Invalid?

Lemley and Shapiro incorporate into their patent portfolio valuation methodology the requirement that their arbitrator assume that a share of the SEPs in the SEP holder's portfolio is invalid.⁷⁸ This assumption contradicts U.S. patent law. It also ignores the market's ability to assess risk, does not encourage licensing efficient outcomes, and lacks methodological soundness. The price of any good already accounts for risk associated with uncertainty over the good's value. There is no reason to assume that the market values patents differently from other goods. Discounting the value of an SEP holder's portfolio by the probability of its being found partially invalid would assign principally to the SEP holder the risk that one of its SEPs will be found invalid. For the reasons explained below, the more efficient risk allocation would place that risk on the implementer. Further, the Lemley-Shapiro "ex ante probabilistic assessment of the entire portfolio"⁷⁹ is a flawed valuation methodology and prevents the parties best equipped to determine a FRAND royalty from doing so.

a. The Legal Assumptions Regarding the Determination of Reasonable Royalties for Patents

The Lemley-Shapiro arbitrator would be instructed to base the FRAND royalty on the probabilistic validity of the SEP holder's portfolio of standard-essential patents.⁸⁰ This instruction misstates the law in the United States as of 2014. Section 282(a) of the Patent Act provides: "A patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity."⁸¹ Furthermore, U.S. courts determine a reasonable royalty on the assumption that the patent in suit is valid and infringed.⁸²

This unorthodox feature of Lemley-Shapiro arbitration confirms that it is more than a modest proposal to employ a special variety of arbitration to resolve FRAND disputes. It is in fact an attempt to alter various substantive principles of patent law by hardwiring those altered principles into the specified arbitral procedures that would tilt, if not prejudice, cases in the implementer's favor.

b. The Ubiquity of Risk in Asset Value

Lemley-Shapiro arbitration requires the arbitrator to engage in an "ex ante probabilistic assessment"—that is, to make a subjective judgment with respect to how many patents in

78. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1152.

79. *Id.* at 1162.

80. *Id.* at 1162–63.

81. 35 U.S.C. § 282(a).

82. *See* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009).

the SEP holder's portfolio are potentially invalid.⁸³ It may be unreasonable to expect an arbitrator to determine the validity of each patent in a portfolio that may contain thousands of patents. Though some patents might indeed be found invalid, free markets routinely assess asset-performance risk and assign value to risk-laden assets. Every asset contains some risk, and the market imputes that risk into the asset's price. The market (in this case, the SEP holder and the implementer), not the arbitrator, should be allowed to do the same for patent portfolios.

In any transaction, the buyer faces some risk that the good being purchased will be less valuable than the buyer expected or will depreciate at a rate faster than the buyer expected.⁸⁴ The buyer therefore adjusts his valuation of the good accordingly, which is reflected in the market price. Thus, the market value of any good already incorporates the all known risk in the asset value.

The SEP holder and the implementer negotiating a patent portfolio license would already consider the possibility that a portion of the patent portfolio may be invalid when submitting their offers and counteroffers for a FRAND royalty. If the patent portfolio in question is found to contain invalid patents, the SEP holder and the implementer would discount their offers for a FRAND royalty in response. Lemley-Shapiro arbitration's *ex ante* probabilistic assessment assumes that markets are myopic: it would require the arbitrator to deduct some probabilistic value of invalidity from the value of the portfolio of SEPs *in addition to* the already-discounted rates that the SEP holder and the implementer have proposed. This double counting is a bias that would drive the arbitrated FRAND royalty rate downward. By adding a non-market mechanism (the Lemley-Shapiro arbitrator) to reduce price for a risk that the market has already assessed, Lemley-Shapiro arbitration would consistently undercompensate the SEP holder.

c. Is the Lemley-Shapiro Arbitrator Equipped to Assign a Probabilistic Value to Patents?

Lemley and Shapiro say that the “*ex ante* assessment necessarily assumes that some patents in the portfolio may be invalid or not infringed.”⁸⁵ It is puzzling that the Lemley-Shapiro arbitrator would be instructed to undertake a complex assessment of the probabilistic validity and value of the licensed patents when choosing which submitted royalty is FRAND, given that typically an entire court case is necessary to determine the validity of a single patent. Evaluating the probabilistic validity of a portfolio of SEPs would require a patent-by-patent review of hundreds or thousands of patents, which would be prohibitively costly and time-consuming. It is also puzzling that, having limited their arbitrator's role to deciding what amounts to a coin-flip, Lemley and Shapiro think that the parties to a FRAND licensing dispute would seriously believe that this same arbitrator could determine the probabilistic validity of the patents in their respective portfolios.

If the Lemley-Shapiro arbitrator erroneously assumes that too many SEPs are invalid or not infringed, then the arbitrator's resulting *ex ante* probabilistic valuation of the SEP holder's portfolio grants the implementer a free option. Suppose that in a later patent-infringement case, the court finds the specific patent to be valid and infringed. Nothing in Lemley-Shapiro arbitration would give the SEP holder the right to receive an upward

83. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1162–63.

84. See, e.g., Charles O. Hardy, *Risk and Risk-Bearing*, in *THE ECONOMICS OF CONTRACT LAW* 26, 26 (Anthony T. Kronman & Richard A. Posner eds., Little, Brown & Co. 1979).

85. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1162–63.

adjustment of the FRAND royalty (either prospectively or retroactively) to correct the erroneously low estimate that the Lemley-Shapiro arbitrator made of the probabilistic value of the SEP holder's portfolio.

d. The Flawed Nature of Portfolio Valuation by Ex Ante Probabilistic Assessment

Lemley and Shapiro claim that their requirement that their arbitrator assume that some portion of the SEP holder's portfolio is probabilistically invalid would allow for "finality" with respect to the FRAND royalty of patent portfolios.⁸⁶ Lemley and Shapiro assume that, even if a disputed patent in the SEP holder's portfolio is found to be valid in a subsequent judgment, because the portfolio was valued under the assumption that a portion of it is invalid, the FRAND royalty need not be revised upward.

However, Lemley and Shapiro offer very little guidance for how to execute their *ex ante* probabilistic assessment of a patent portfolio. They mention—almost in passing, without any hint of irony—that "FRAND arbitration will often involve extensive discovery."⁸⁷ Determining what percentage of a patent portfolio (that may consist of thousands of patents) is actually valid is a complication that Lemley and Shapiro should not brush aside. A patent-by-patent examination of such a portfolio is not feasible. Therefore, the *ex ante* probabilistic assessment of the validity of a portfolio must rely on assumptions about how the value of the individual patents in a portfolio is distributed. In their article proposing mandatory arbitration, Lemley and Shapiro do not provide any empirical data with respect to how the values of individual patents in a portfolio of SEPs are typically distributed. In an article published in 2005, Lemley and Shapiro observed generally that the "distribution of value of patents appears to be highly skewed, with the top 1 percent of patents more than a thousand times as valuable as the median patent."⁸⁸ This information allows one to infer that the distribution of patent values is heavily left-skewed. Even though this inference provides a generalization about the distribution of patent values, using that generalization to value a single portfolio is problematic.

Lemley and Shapiro may object that their arbitrator could and should account for the quality of the portfolio in dispute, relative to other portfolios in general, during the *ex ante* probabilistic assessment, but such a task would entail a costly, time-consuming examination of each patent in the portfolio, as well as examination of similar portfolios. In addition to being prohibitively costly, that task would no longer be what Lemley and Shapiro define the *ex ante* probabilistic assessment to be—that is, the Lemley-Shapiro arbitrator would no longer be *assuming* that some patents in a portfolio are invalid or not infringed, but rather would be painstakingly examining whether they are. The *ex ante* probabilistic assessment could have costs that exceed the costs associated with existing methods of determining a FRAND royalty. It bears emphasis that Lemley and Shapiro do not claim anywhere that their proposal would reduce the cost of determining FRAND royalties.

Lemley and Shapiro seek to simplify a dauntingly complicated task—valuation of a portfolio consisting of thousands of SEPs. However, assigning probabilities so as forcibly to quantify this irreducible uncertainty, as Lemley and Shapiro attempt, produces a methodology that neither accurately values patent portfolios nor promotes efficient exchange. It is not "a simple approach."

86. *Id.*

87. *Id.* at 1152.

88. Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75, 80 (2005).

7. *Would Lemley-Shapiro Arbitration Assume That the FRAND Royalty Would Reflect Legal Rules in Effect at the Time of the Hypothetical Negotiation?*

When determining a FRAND royalty, one must account for the legal rules that provide the available remedies in cases of patent infringement. The available remedies affect the value of patents.⁸⁹ Strong rules increase the value of patents and are consequently likely to result in a higher royalty. Conversely, legal rules that only weakly protect patents decrease the value of patents and will generally result in a low royalty. Concerns may arise if, as in the context of SEPs, legal rules change materially over time and therefore affect patent value.

The relevant question is whether, in determining a reasonable royalty, the court should use the legal rules that existed at the time of the litigation and apply them retroactively, or whether it should instead use the legal rules that existed at the time of the hypothetical negotiation. The latter option—that is, the reliance on the legal rules that existed at the time of the hypothetical negotiation—is more intellectually defensible. How could a patent owner foresee the development of the legal rules and account for them during a hypothetical negotiation? It would be more logical to assume that both the SEP holder and the licensee would negotiate the FRAND royalties in light of the legal rules that existed at the time of the hypothetical negotiation.

Surprisingly, the question does not seem to have been addressed by courts or scholarly articles, despite the important effect it might have on the determination of a FRAND royalty. It is a question that Lemley and Shapiro neglect to address in their arbitration proposal.

8. *Summation*

Lemley-Shapiro arbitration has at least seven serious conceptual flaws. First, the Lemley-Shapiro proposal oversimplifies FRAND disputes, ignoring the additional terms in dispute for a FRAND license and the question of whether the initial offer made by the SEP holder was FRAND. Second, Lemley-Shapiro arbitration conflates the SEP holder's duty to make a FRAND offer and its (nonexistent) duty to enter into a license. The FRAND commitment does not turn the SEP holder into a guarantor of contract formation with respect to the prospective licensee. Third, the scope of Lemley-Shapiro arbitration is ambiguous. Fourth, Lemley and Shapiro recognize that the arbitral panel may be biased, yet their arbitration model fails to establish a procedure to eradicate potential bias. Fifth, Lemley-Shapiro arbitration rests on an *ex ante* hypothetical negotiation that simultaneously assumes perfect information about noninfringing substitutes and perfect ignorance about both the validity of standard-essential patents and the outside options from which the patent holder could have chosen to monetize its invention. Sixth, the Lemley-Shapiro proposal suggests a probabilistic assessment of the validity of patents within a portfolio, which contradicts U.S. patent law and is infeasible. Seventh, Lemley and Shapiro do not address whether their proposed arbitration would reflect the legal rules in effect at the time of the hypothetical negotiation.

89. Robert Cooter, Stephen Marks & Robert Mnookin, *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, 11 J. LEGAL STUD. 225, 228–29 (1982).

B. Are Lemley-Shapiro “Best Practices” Better than Court Decisions?

SSOs create a public good by setting standards. Still, they are, in Lemley’s words, “industry groups” with private economic interests.⁹⁰ An SSO is no court or regulator. By requiring an SSO to adopt “best practices,” Lemley and Shapiro seem to imply that the SSO will voluntarily adopt such rules as mandatory practices for its members—according to whatever voting procedures control changes to the SSO’s governance—and then will apply those rules to their members (meaning, of course, SEP holders). By commending this path, Lemley and Shapiro presume that SSOs are more competent than courts to formulate legal principles to resolve legal disputes over FRAND licenses.

Does the weight of evidence justify such a presumption? An inherent conflict of interest exists between the SSO as the supervisor on the one hand and the discrete and insular subset of SSO members that constitute the supervised subjects on the other hand. Courts at least are impartial fora whose independence better enables them to prevent opportunism motivated by a conflict of interest.

In the absence of Lemley-Shapiro arbitration, arbitration over FRAND licenses today is facultative. An SSO already can recommend arbitration to its members. An individual patent holder may state at the time of standard adoption whether and under what terms it will submit a FRAND licensing dispute to arbitration. In contrast, under Lemley-Shapiro arbitration the SSO’s suggestion that members submit to binding arbitration becomes imperative and peremptory. Mandating arbitration, rather than leaving it voluntary, has significant disadvantages, as I have explained in Part II.A.

Lemley and Shapiro claim to provide “a simple, practical set of rules regarding patents that SSOs can adopt”⁹¹ to arbitrate FRAND disputes. In reality, Lemley-Shapiro arbitration is an unsubstantiated platform from which Lemley and Shapiro opine that “best practices” announced by an SSO derive their virtue precisely from the fact that they will moot certain legal questions. However, those legal questions concern the essence of the FRAND commitment. Lemley and Shapiro do not explain why an SSO’s vague incantation of “best practices” would provide better guidance than the impartial standards that courts develop through the accretive process of litigation, especially in the United States, where there is even a specialized appellate court for patent cases.

IV. WOULD LEMLEY-SHAPIRO ARBITRATION ADVANCE OR RETARD INNOVATION AND THE SETTING OF OPEN STANDARDS?

Lemley-Shapiro arbitration is an apologia of infringement. It would lower royalty revenue for SEP holders and reduce their investment in—and therefore the value of—open standards.

A. How Does Arbitral Procedure Affect Bargaining Offers?

Henry Farber and Harry Katz have explained that “any analysis of the impact of dispute settlement procedures must recognize that the mere presence of the procedure directly

90. Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1892 (2002); see also Kai-Uwe Kühn, Fiona Scott Morton & Howard Shelanski, *Standard Setting Organizations Can Help Solve the Standard Essential Patents Licensing Problem*, 3 COMPETITION POL’Y INT’L: CPI ANTITRUST CHRON. (SPECIAL ISSUE) (2013), available at <https://www.competitionpolicyinternational.com/assets/Free/ScottMortonetalMar-13Special.pdf>.

91. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1135.

affects . . . arbitrated outcomes.”⁹² Lemley and Shapiro argue that parties to binding baseball arbitration of FRAND disputes are likely to make “reasonable proposals” because “the party that asks for too much (or offers too little) risks losing the case altogether.”⁹³ However, Lemley and Shapiro fail to account for a fundamental principle of bargaining: parties in any bargaining situation, including baseball arbitration, have “incentives . . . to maximize the expectation of [their] private gain from the process [of bargaining].”⁹⁴ Moreover, “the parties can manipulate the arbitration outcome in [final-offer arbitration] by manipulating their final offers.”⁹⁵ Therefore, the parties have the incentive to propose values that are not their most accurate estimates of a true FRAND royalty if doing so will maximize their expected gain in the dispute.

Consider a handset manufacturer that is an implementer of patents essential to the LTE wireless communications standard. Suppose the implementer expects that the arbitrator believes that \$2 per licensed handset is an accurate FRAND royalty. However, the implementer would benefit privately by securing a lower royalty—say, of \$1 per handset. The supposition underlying Lemley-Shapiro arbitration is that the implementer has the incentive to propose a royalty close to \$2 because that price is closer to the implementer’s expectations of what the arbitrator believes is a FRAND royalty and what is therefore more likely to be selected. However, as Farber has explained, “each party faces a fundamental trade-off in setting its final offer: in submitting a more ‘reasonable’ final offer, a party is gaining some probability that its offers will be selected while giving up some utility if its offer is selected.”⁹⁶ Thus, the implementer will not necessarily have the incentive to propose a royalty close to \$2 per handset, because doing so would reduce its private gain from “winning” the arbitration—that is, from successfully persuading the arbitrator to select the implementer’s proposal. Thus, depending on the implementer’s expectations of what the SEP holder will propose and what the arbitrator will choose, the implementer still might have the incentive to propose an award significantly below \$2 per handset. If the SEP holder behaves the same way, then the SEP holder also will propose a royalty that differs significantly from \$2 per handset. The arbitrator is left to choose between two proposals that deviate from what the arbitrator believes is a true FRAND value. In this case, the final award will diverge from the FRAND royalty that would emerge either in a more informed negotiation, in traditional arbitration, or in litigation.

The magnitude of the difference between the parties’ proposals and a true FRAND royalty depends in part on the information revealed through the arbitration about the parties’ beliefs concerning the FRAND value. John Kennan and Robert Wilson have explained that “[b]argaining with private information is indeed an important context where truthful revelation might promote efficiency.”⁹⁷ Robert Mnookin, the Harvard Law School scholar on conflict resolution, has observed that some limitations of arbitration arise from the lack of information “in the hands of the other party” and the “binding nature and comparative finality of an arbitrator’s award,” which bars appellate review of

92. Henry S. Farber & Harry C. Katz, *Interest Arbitration, Outcomes, and the Incentive to Bargain*, 33 *INDUS. & LAB. REL. REV.* 55, 56 (1979).

93. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1144. Lemley and Shapiro cite my article, *Court-Appointed Neutral Economic Experts*, *supra* note 1, at 389, to corroborate this argument. However, nowhere in that article do I argue that baseball arbitration is well suited to resolve FRAND royalty disputes.

94. John Kennan & Robert Wilson, *Bargaining with Private Information*, 31 *J. ECON. LIT.* 45, 53 (1993).

95. Henry S. Farber, *An Analysis of Final-Offer Arbitration*, 24 *J. CONFLICT RESOLUTION* 683, 684 (1980).

96. *Id.* at 685.

97. Kennan & Wilson, *supra* note 94, at 49.

the award.⁹⁸ For at least three reasons, each party in baseball arbitration lacks complete information about the value that the other party will propose.

First, discovery in arbitration is typically far more limited compared with discovery in American-style litigation. Discovery enables both parties and the judge to access, in a graduated manner, probative information on the true range of FRAND values for the SEPs at issue. With greater information relevant to determining a FRAND royalty, the parties will be more aware of each other's bargaining strategy, and they will adjust their proposed royalties accordingly.⁹⁹ In contrast, baseball arbitration permits no graduated disclosure of information that might cause the parties to revise their bid and ask.

Second, in conventional commercial arbitration "the procedural rules may be set by the parties,"¹⁰⁰ such that the parties can agree on a procedure in which each party has an expanded opportunity to observe the other party's views on the appropriate award amount. In this fashion, the parties can agree to increase mutual bargaining. For example, the parties could propose awards in one round and then revise their proposed awards in a second round, after which the arbitrator chooses one party's final proposal.¹⁰¹ Additional rounds of negotiation in such an arbitration procedure would enable the parties to adjust their proposals to converge on a true FRAND value in the given dispute. Suppose that in the first round the SEP holder proposes a royalty of \$3.50 per handset, and the licensee proposes \$0.05 per handset. The parties will observe that their proposed royalties differ by two orders of magnitude. Both parties then have the opportunity to adjust their proposals based on the other party's revealed beliefs about the magnitude of the FRAND royalty. If each party believes that the arbitrator will consider its proposal to be extreme, then both parties have an incentive to adjust their proposed royalties closer to a true FRAND royalty. In contrast, Lemley-Shapiro arbitration and other forms of baseball arbitration deny the parties the opportunity to observe information about the other party's beliefs regarding the magnitude of the true FRAND royalty. The parties lack the ability and incentive to adjust their proposals closer to each other's proposal. Baseball arbitration therefore has the potential to distort the parties' incentives when proposing a FRAND royalty. Of course, it is possible that a party might unilaterally or bilaterally volunteer information to the other party, outside the formal arbitral process and before the parties submit their sealed offers to the arbitrator. But if this kind of strategic disclosure of information is what would happen in practice under Lemley-Shapiro arbitration, then the bargaining process would not really be binding baseball arbitration—and its efficiency properties would differ from those that Lemley and Shapiro claim.

A third significant aspect of the rules of baseball arbitration is that one party's proposal will be binding, because the arbitrator's decision is binding.¹⁰² The binding effect of the arbitrator's decision precludes "the safeguard of ordinary judicial review,"¹⁰³ as I explained in Part III.A.4. In addition to precluding a check of fairness of the arbitration award, the absence of judicial review surely will affect the parties' bargaining

98. Robert H. Mnookin, *Alternative Dispute Resolution*, in 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 56, 57 (Peter Newman ed., Stockton Press 1998).

99. Kennan & Wilson, *supra* note 94, at 50 ("Discovery procedures provide opportunities for intrusive recovery of relevant information and attorneys can provide expert advice on both parties' costs and prospects at trial.")

100. Mnookin, *supra* note 98, at 57.

101. There is an obvious resemblance here to the information-disseminating effect of a multi-round open-outcry auction. There, of course, the information is disseminated to rival bidders, typically in an ascending auction, rather than between a single buyer and a single seller within a defined bargaining range. See Paul R. Milgrom & Robert J. Weber, *A Theory of Auctions and Competitive Bidding*, 50 ECONOMETRICA 1089 (1982).

102. See, e.g., Farber, *supra* note 95, at 683–84.

103. Mnookin, *supra* note 98, at 57.

strategies. They would have a greater incentive to propose values that are closer to their preferred royalties than to a true FRAND royalty, because they would know that there would not be an opportunity to challenge—and correct—the arbitrator’s selected award, nor would there be further opportunity (until the license renewal) to reevaluate a FRAND royalty for the licensed SEPs.

In sum, the chosen arbitral procedure will affect the parties’ bargaining positions and strategies. The availability of information and the binding nature of arbitration will affect the parties’ incentives to deviate from or adhere to “reasonable” royalty proposals.

B. Is the Lemley-Shapiro Arbitrator Susceptible to Cognitive Bias?

Impartiality is a cornerstone of due process. Judges and arbitrators must be free from bias. The judicial system provides rules to disqualify a judge who is biased with respect to one of the parties.¹⁰⁴ However, bias might not be overt or intentional, but rather implicit in the adjudicator’s mental process.¹⁰⁵ I do not propose that arbitrators in general are inherently biased toward either party to an SEP-licensing dispute. Nevertheless, I do suggest that the restrictions of Lemley-Shapiro arbitration on the arbitrator may precipitate a biased award. If the procedural design of a specific mechanism for dispute resolution biases an arbitrator toward a specific outcome, then mandating the use of that mechanism would deny due process to the victims of that systemic bias. The Lemley-Shapiro arbitrator, despite her principled intentions, would likely have a cognitive bias to pick the lower royalty rate, to the benefit of the net implementer and to the detriment of the net SEP licensor. Thus, taking into account cognitive bias, Lemley-Shapiro arbitration would lack procedural fairness.

It is a common perception in conventional commercial arbitration that arbitrators have an incentive to render a compromise award (or, at least, not to favor a particular class of party). In the assessment of Judge Richard Posner, there is “a tendency for arbitrators to ‘split the difference’ in their awards, that is, to try to give each side a partial victory (and therefore partial defeat).”¹⁰⁶ Two factors drive this result.

First, parties in arbitration jointly select their arbitrator and pay her fees. In contrast, the parties neither choose nor pay the judge in litigation. Income and reputation are two factors that influence an arbitrator’s utility function (which is simply the economist’s shorthand for the complex of objectives that guide the arbitrator’s rational actions).¹⁰⁷ The presence of those factors wittingly or unwittingly could motivate the arbitrator to increase the likelihood of being selected as an arbitrator again in future matters. To paraphrase and extend Judge Posner’s analysis of judges, an arbitrator’s reputation for favoring one side or the other in a class of cases “will be unacceptable to one of the parties in any such dispute, and so the demand for [the arbitrator’s] services will

104. The Judicial Code requires any justice, judge, or magistrate judge to “disqualify himself in any proceeding in which his impartiality might reasonably be questioned.” 28 U.S.C. § 455(a); *see also* *Liteky v. United States*, 510 U.S. 540, 558 (1994) (Kennedy, Blackmun, Stevens & Souter, JJ., concurring) (“One of the very objects of law is the impartiality of its judges in fact and appearance.”); Martin H. Malin & Monica Biernat, *Do Cognitive Biases Affect Adjudication? A Study of Labor Arbitrators*, 11 U. PA. J. BUS. L. 175, 175 (2008) (citing *Aetna Life Ins. Co. v. Lavoie*, 475 U.S. 813, 821–25 (1986); *Ward v. Vill. of Monroeville*, 409 U.S. 57 (1972)).

105. *See, e.g.*, Malin & Biernat, *supra* note 104, at 175–76.

106. Richard A. Posner, *Judicial Behavior and Performance: An Economic Approach*, 32 FLA. ST. U. L. REV. 1259, 1261 (2005) [hereinafter Posner, *Judicial Behavior and Performance*]; *see also* Daphna Kapeliuk, *The Repeat Appointment Factor: Exploring Decision Patterns of Elite Investment Arbitrators*, 96 CORNELL L. REV. 47, 49 nn.4–5 (2010) (citing nine scholarly articles arguing that arbitrators have an incentive to render compromise judgments).

107. *Cf.* RICHARD A. POSNER, *HOW JUDGES THINK* 35–36 (Harvard Univ. Press 2008); Richard A. Posner, *What Do Judges and Justices Maximize? (The Same Thing Everyone Else Does)*, 3 SUP. CT. ECON. REV. 1 (1993).

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wither.”¹⁰⁸ Therefore, one would expect arbitrators to have an incentive to render compromise awards.

Second, evidence exists that individuals are biased to avoid extreme results. Cass Sunstein has observed in his research on behavioral law and economics that “[e]xtremeness aversion gives rise to compromise effects. As between given alternatives, most people seek a compromise.”¹⁰⁹ Similarly, an arbitrator would be inclined to avoid extreme positions and instead render a compromise award.

However, baseball arbitration by definition compels an extreme outcome. The arbitrator may not “split the baby”¹¹⁰ and therefore cannot moderate the payout. Under this restriction, an arbitrator would blink—he or she would be biased to choose, on balance, the lower royalty rate. Some evidence indicates that arbitrators—particularly in high-stakes cases—are disinclined to grant large sums of money. Studies on awards in high-stakes investment arbitrations have found that arbitrators in these disputes do *not* tend to render compromise awards¹¹¹ and actually tend to favor lower amounts.¹¹² Most awards in investment arbitration dismissed all investors’ claims, and over 80 percent of all decisions rendered an award of less than 40 percent of the amount claimed.¹¹³

Judge Posner observes that an arbitrator is expected to have “a lower error rate than juries,”¹¹⁴ and others reason that an arbitrator has incentives to exercise “greater care.”¹¹⁵ Under Lemley-Shapiro arbitration, however, an error will be inevitable if neither party submits a genuine FRAND royalty for the arbitrator’s consideration. The Lemley-Shapiro arbitrator will necessarily err when choosing a proposed royalty exceeding the true FRAND range (thereby overcompensating the SEP holder) or when choosing a proposed royalty below the true FRAND range (thereby undercompensating the SEP holder). The Lemley-Shapiro arbitrator will seek to minimize the difference between the selected royalty and a true FRAND royalty—that is, the difference between the selected royalty and the boundary of the FRAND range (either upper or lower, as the case may be).

From a *static* perspective, the arbitrator may perceive that the greater evil to avoid is overcompensating—not undercompensating—the SEP holder, since the royalties that the implementer pays on its downstream products may affect consumer prices and may be observable in the near term. In contrast, the diminished investment in open standards that would, in a *dynamic* sense, result from undercompensating the SEP holder is a social cost that will not be measurable until the current dispute being resolved by the Lemley-Shapiro arbitrator is long forgotten.¹¹⁶ I explain these effects in Part IV.C below. Because of the subject matter’s complexity, knowledge of patent law’s effect on economic incentives for investment in innovation would be indispensable for the Lemley-Shapiro

108. Posner, *Judicial Behavior and Performance*, *supra* note 106, at 1261.

109. Cass R. Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115, 135 (1999) (emphasis omitted).

110. See, e.g., Contreras & Newman, *supra* note 30, at 18.

111. See Stephanie E. Keer & Richard W. Naimark, *Arbitrators Do Not “Split the Baby”*: Empirical Evidence from International Business Arbitrations, 18 J. INT’L ARB. 573 (2001).

112. Kapeliuk, *supra* note 106, at 81.

113. *Id.* Empirical research indicates that judges grant lower damages than do juries. See Christopher R. Drahozal, *A Behavioral Analysis of Private Judging*, 67 LAW & CONTEMP. PROBS. 105, 122–23 (2004) (citing Eric Helland & Alexander Tabarrok, *Runaway Judges? Selection Effects and the Jury*, 16 J.L. & ECON. ORG. 306, 330 (2000); Joni Hersch & W. Kip Viscusi, *Punitive Damages: How Judges and Juries Perform* 36 (Harvard-John M. Olin Discussion Paper No. 362, 2002)).

114. Posner, *Judicial Behavior and Performance*, *supra* note 106, at 1261.

115. Drahozal, *supra* note 113, at 126.

116. For an analogous discussion of the tension between static efficiency and dynamic efficiency in competition law, see J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. & ECON. 581 (2009).

arbitrator to factor the risk of dynamic inefficiency into her arbitral award. The arbitrator, facing a dichotomous choice in the overly simplistic Lemley-Shapiro proposal, would likely not appreciate how to evaluate arguments about dynamic efficiency, which might seem to lack concreteness and immediacy. It is therefore reasonable to expect that the Lemley-Shapiro arbitrator would be less concerned about committing an error that reduces dynamic efficiency than committing an error that reduces static efficiency.

C. How Would Lemley-Shapiro Arbitration's Bias Against SEP Holders Reduce Their Incentive to Invest in Open Standards?

Lemley-Shapiro arbitration favors net implementers and would reduce the expected return to SEP holders. As that expected return falls, the optimal level of investment in SEPs will also fall. This reduction in investment will manifest itself in three respects, each of which will reduce the value of open standards in the future.

First, a reduction in the expected return to SEP holders will reduce expenditures in research and development (R&D) that could generate future SEPs. The return to holding an SEP is a function of the total expected return to R&D expenditure. As the total expected return to any particular investment falls, the profit-maximizing level of expenditure on that investment will also fall. Thus, because Lemley-Shapiro arbitration biases royalty rates downward, expenditures on R&D will fall if Lemley-Shapiro arbitration is the mandatory dispute-resolution mechanism. Reduced expenditure in R&D will produce fewer and less valuable patented innovations and thus reduce the value of future standards.

Second, a reduction in the expected return to SEP holders will make inventors less willing to monetize their inventions by contributing their technologies to an open standard. Consequently, an SEP holder may withhold more valuable technologies from the standard in the hope of receiving a higher reward by licensing its patents without subjecting itself to a FRAND commitment. Reducing the return to holding SEPs will discourage a firm from participating in setting open standards altogether. The withholding of the most valuable patents from the SSO would induce adverse selection: the new standard would incorporate only low-value patented technologies, such that the standard's total value would be low relative to earlier standards.¹¹⁷ If the most valuable patents are not included in the standard, commercial acceptance of the standard will suffer, as the technology of the standard may not be sufficiently differentiated with respect to alternative technologies.

Third, lower returns to SEP holders will discourage expenditures on attempting to have one's own patents incorporated into the standard. Higher expenditures during the selection process, including expenditures by patent holders lobbying for inclusion in the standard, generate socially useful information and help SSO members accurately identify and select the most valuable technologies for the standard. The more information that the lobbying process reveals, all else being equal, the more accurately will the SSO's working groups identify the most valuable technologies to incorporate into the standard. As a result, a reduction in expenditures related to a firm's efforts to have its own patents incorporated into the standard would reduce the quality of technologies chosen for incorporation into the standard, which in turn and would thereby reduce the value that the standard generates.

117. See, e.g., George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970).

V. WHY WOULD LEMLEY-SHAPIRO ARBITRATION NOT ILLUMINATE THE CALCULATION OF FRAND ROYALTIES?

Lemley-Shapiro arbitration would not provide SEP holders and implementers guidance on what constitutes FRAND royalties. The Lemley-Shapiro arbitrator is not required to publish a reasoned analysis of his decision, and therefore she would provide no guidance for future decisions. Moreover, the Lemley-Shapiro proposal to publish arbitration awards—contrary to the real-world industry norm—could cause parties to use unreliable non-FRAND benchmarks to set FRAND royalties. More striking is the Lemley-Shapiro proposal for compulsory publication of awards and communication among SSO members concerning their bilateral negotiations with a given SEP holder, which would promote buyer collusion in violation of antitrust law.

A. Why Would Lemley-Shapiro Arbitration Awards Be Unable to Inform the Proper Magnitude of FRAND Royalties?

The Lemley-Shapiro arbitrator is forbidden to set the royalty as a result of an independent and intellectually rigorous assessment of what, on the facts and data of the specific case, constitutes a FRAND royalty. Rather, the arbitrator is constrained to choose between the royalty that the SEP holder submits and the lower royalty that the implementer submits. It may happen that neither of the proposed royalties is FRAND, such that the arbitrator must choose the lesser of two evils. As I explained in Part III.A.1, an accurate FRAND royalty could significantly deviate from the less erroneous of two bad estimates that the parties supply. This deviation creates the possibility that in a subsequent dispute one of the parties would use the awarded royalty as a benchmark for what supposedly constitutes a FRAND royalty.

Lemley and Shapiro say that “courts are very familiar” with “the concept of reasonable royalties from U.S. patent law[,] . . . which they calculate in most patent damages cases.”¹¹⁸ The Lemley-Shapiro arbitrator, however, would not have the benefit of this familiarity drawn from the experience with patent-royalty cases. Nor would the arbitrator necessarily be bound by U.S. patent law precedent. Although a judge or a jury can make an independent determination based on all available evidence, the Lemley-Shapiro arbitrator would have little discretion to engage in fact finding and thereupon apply rigorous economic principles and methods to the facts and data of the case to calculate a FRAND royalty.

Lemley and Shapiro address only vaguely whether their arbitrator would need, and would be authorized by the parties, to make an initial determination of whether a party’s offer qualified as a FRAND offer. If Lemley-Shapiro arbitration envisions no such process of verification, then the Lemley-Shapiro arbitrator would have no assurance that the awarded royalty was in fact a FRAND royalty, and the arbitration would be stripped of its legitimacy. Further, there would be no determination of whether the patent holder actually fulfilled its contractual obligation under its FRAND commitment—namely, to make an offer to license its SEPs on FRAND terms. I have addressed the legal and economic issues with this oversight in Part III.A. On the other hand, if Lemley and Shapiro concede that their arbitrator must first certify an offer to be FRAND before issuing a binding arbitral award, then the arbitrator’s role becomes considerably more complicated than Lemley and Shapiro represent. In fact, the Lemley-Shapiro arbitrator’s

118. *Id.* at 1146.

task would then increasingly resemble that of a district court judge. And so the claimed efficiencies of Lemley-Shapiro arbitration over district court litigation would evaporate.

Litigation presents another benefit over arbitration in FRAND disputes. The concept of what constitutes a FRAND royalty is advanced by the publication of a detailed court opinion explaining how the judge calculated the FRAND royalty. The same is true of the court's jury instructions on damages, and its post-trial order on the defendant's motion for remittitur, when (as is usually the case) the plaintiff has demanded a jury trial. Court-determined royalties provide the benefit of a reasoned analysis—an intellectually rigorous description of the methodology used to determine what is a FRAND royalty (or, more generally, what are FRAND licensing terms). As in common law adjudication generally, these opinions are a public good. They create a roadmap for judges ruling in similar cases in the future and act as precedent on what constitute FRAND licensing terms. In contrast, Lemley-Shapiro arbitration would not provide future guidance (to arbitrators, judges, or juries) on what constitute FRAND terms, given that the arbitrator's decision is between two choices—each of which may or may not be consistent with FRAND—and that the decision need not rest on the application of intellectually rigorous economic principles and methods to the specific facts and data of the dispute.

Lemley and Shapiro avoid answering the important question of whether their arbitrator would be required to provide the parties a “principled decision supported by a reasoned opinion.”¹¹⁹ The alternative would be, as in any commercial arbitration, to leave the arbitrator “free simply to announce the award without any explanation.”¹²⁰ These two competing arbitral scenarios obviously do not produce the same amount of useful information. Furthermore, if the Lemley-Shapiro arbitrator need not explain the arbitrator's principled decision in a reasoned opinion, then the parties in effect excuse the arbitrator from the most direct form of quality control. The Lemley-Shapiro arbitrator's value-added becomes obscure. As Contreras and Newman observe, “a baseball-style arbitration leaves the door open for an arbitrator to ‘flip a coin,’ rather than following any particular methodology.”¹²¹

Although Lemley and Shapiro propose that the awards from Lemley-Shapiro arbitration be disclosed to third parties as a means to support the nondiscrimination requirement of the FRAND commitment,¹²² the publication of the awards would be of limited use in future negotiations because the awards (and each of the parties' offers) might not contain genuine FRAND terms. Consequently, disclosing these awards may hinder rather than assist future parties in securing prices, terms, and conditions that are genuinely FRAND.

At the same time, the compulsory publication of royalty awards assumes away a concern that significantly affects the plausibility of Lemley-Shapiro arbitration. One reason that parties to a commercial contract choose arbitration over litigation is to keep their disputes from the public eye. The desire for confidentiality drives much of the demand for commercial arbitration. Lemley and Shapiro do not explain how much their elimination of confidentiality in FRAND arbitrations would suppress the demand for such arbitration. If the demand for FRAND arbitration is highly elastic with respect to the degree of confidentiality, then Lemley-Shapiro arbitration could be unappealing to SEP holders and implementers alike. Several SSOs that do have arbitration provisions have *not* mandated baseball arbitration for FRAND-royalty disputes, nor have they mandated

119. Mnookin, *Alternative Dispute Resolution*, *supra* note 98, at 57.

120. *Id.*

121. *Cf.* Contreras & Newman, *supra* note 30, at 20.

122. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1146.

that arbitration (in whatever form) forgo the customary confidentiality surrounding its outcome.¹²³

The compulsory publication of awards under Lemley-Shapiro arbitration raises another concern that Lemley and Shapiro neglect to address—oligopsonistic collusion.¹²⁴ This concern is present in the smartphone litigation wars. The FRAND commitment obligates the SEP holder to make a FRAND-compliant offer to any interested party. The offer must be FRAND, which is to say that it must be within an identifiable price range. The FRAND obligation does not commit the SEP holder to make a FRAND-compliant offer of a price at any specific point within that permissible range. However, the public disclosure of arbitrated FRAND prices would have the effect of sharing contemporaneous price information among implementers that are horizontal competitors in the downstream market (such as the market for smartphones). Sharing this contemporaneous price information would depress the prices that implementers bilaterally offered the SEP holder. The process would simulate the outcome of a buyers' cartel. Nothing in the FRAND obligation authorizes implementers to extract rents from SEP holders by consolidating their market power as buyers.¹²⁵ Indeed, nothing in an SSO's bylaws could purport to confer this power on implementers, for it would obviously violate section 1 of the Sherman Act¹²⁶ and analogous statutes in other countries. Yet, Lemley-Shapiro arbitration would give implementers a means to simulate the results of collusive bidding for SEPs.

B. Why Would Lemley-Shapiro Arbitration Fail to Inform One-Way Royalties?

Lemley and Shapiro note that, “in a FRAND royalty arbitration, there is no need to determine the reasonable royalty on a patent-by-patent basis . . . [T]he FRAND concept involves a reasonable rate for a party's entire portfolio of standard-essential patents[,] match[ing] more closely . . . real-world licensing practices.”¹²⁷ In fact, the SEP holder and the implementer often agree to cross license one another's entire portfolios. Consequently, the parties may propose royalties structured in terms of a net balancing payment between their two portfolios, rather than proposing reciprocal one-way royalties.

In Lemley-Shapiro arbitration, the parties' proposals would likely reflect this practice and amount to the net balancing royalty calculated in a cross-licensing agreement. The royalty awarded would not indicate the underlying one-way FRAND royalty of each party's portfolio of SEPs but rather would reflect the offset of the relative portfolio strength of the parties. This practice would conflict with court decisions in which judges have labored to determine the one-way FRAND royalty representing the value of the SEP holder's own portfolio of standard-essential patents.¹²⁸ As I explained in *The Meaning of FRAND, Part I: Royalties*, “[e]stablishing a net balancing payment without first establishing the FRAND one-way royalties for each party's SEPs would enable the parties to avoid charging other parties consistent royalties, which would reduce the

123. See Contreras & Newman, *supra* note 30, at 15–17.

124. See J. Gregory Sidak, *Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations*, 5 J. COMPETITION L. & ECON. 123 (2009).

125. See Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 4, at 985; Sidak, *Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations*, *supra* note 124, at 168.

126. 15 U.S.C. § 1.

127. Lemley & Shapiro, *A Simple Approach*, *supra* note 2, at 1151.

128. See, e.g., *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *20 (W.D. Wash. Apr. 25, 2013) (Robart, J.); Jury Verdict Form, *Realtek Semiconductor Corp. v. LSI Corp.*, No. C-12-3451-RMW (N.D. Cal. Feb. 26, 2014).

transparency of pricing and thus confound the nondiscrimination requirement of the FRAND commitment.”¹²⁹

VI. CONCLUSION

Mark Lemley and Carl Shapiro propose that standard-setting organizations mandate that their members henceforth submit to binding, final-offer arbitration (commonly called “baseball arbitration”) to set fair, reasonable, and nondiscriminatory royalties in licensing disputes concerning standard-essential patents. SSOs should reject this proposal. It does not rest on sufficient facts or data, nor does it apply intellectually rigorous principles and methods of law and economics in a reliable manner. This is not to say that the voluntary use of arbitration to resolve FRAND licensing disputes is inherently problematic. However, the incremental efficiency that Lemley and Shapiro claim that their proposal would achieve over litigation or conventional commercial arbitration is illusory. For one, it is much harder to value a portfolio of SEPs over the span of five years than to value an individual baseball player for a single season.

The Lemley-Shapiro version of mandatory baseball arbitration would not shed light on the question of what constitutes a FRAND offer. To the contrary, Lemley-Shapiro arbitration by design collapses questions of validity, infringement, and essentiality of the patent to the standard into a single damage calculation in which the arbitrator’s sole responsibility is to choose one of two disparate estimates of reasonable royalties. Yet, a FRAND offer contains not only a price, but also terms and conditions that (because they are nuanced and possibly tailored to the unique needs of an individual licensee) do not lend themselves to being easily standardized, let alone summarized in a single number, as the description of Lemley-Shapiro arbitration might incorrectly lead some to assume. Lemley-Shapiro arbitration would not say whether a royalty offer was fair, reasonable, and nondiscriminatory. Lemley and Shapiro claim that their arbitration proposal offers “best practices” for SSOs. That label is unsupported and misleading. The package that Lemley and Shapiro call “best practices” is in fact not a narrow proposal for binding baseball arbitration but rather a roadmap to redefine patent rights in a manner that would transfer wealth from inventors to infringers. Embedded within Lemley-Shapiro arbitration are normative changes in patent law and policy that Lemley and Shapiro have previously advocated but that SSOs and courts have not adopted. An SSO that adopted Lemley-Shapiro arbitration could expect its members to commercialize their next generation of inventions outside that particular SSO, if not outside an open standard altogether.

129. See Sidak, *The Meaning of FRAND, Part I: Royalties*, *supra* note 4, at 1003 n.186.