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**FRAND Commitments in Theory and Practice:
A Response to Lemley and Shapiro’s “A Simple
Approach”**

Edward F. Sherry, David J. Teece, and Peter Grindley¹

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¹ We wish to thank Edward Egan for helpful comments on earlier drafts.

In a recent working paper, Professors Mark Lemley and Carl Shapiro (hereafter “L&S”) propose “A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents.”²

Basically, they propose that standards-setting organizations (“SSOs”) adopt rules requiring compulsory binding “final offer” arbitration (“FOA”) of disputes over the terms for licenses to standards-essential patents consistent with the patent holders’ commitments to make licenses available for such patents on “fair, reasonable and non-discriminatory” (“FRAND”) terms.

L&S propose that, if an SSO does not “offer detailed guidance on what constitutes a reasonable royalty for a portfolio of standard-essential patents” (which they say that SSOs would do “in an ideal world,” but which they acknowledge SSOs “rarely do”), the FOA process “should” be conducted in accordance with certain “principles” that they “believe should have widespread support.”³ To our knowledge, no SSO has adopted *any* “principles” they propose (and L&S do not cite to any SSO that has done so), and those principles are more controversial than L&S acknowledge.

The issue of SSO IP policies—the clarity (or lack thereof) that such policies generally have; the guidance (or lack thereof) that they provide; the principles that should be used to evaluate licensing offers, counteroffers, or terms; and how the policies may be amended to make them work better—has long been a topic of debate among economists, legal scholars, students of the standard-setting process, and competition authorities. At present, at least two major SSOs—the ITU-T⁴ and ETSI⁵—are considering proposals to amend their IP policies. Competition authorities have suggested that SSO rules need to be changed.⁶ However, to our knowledge no SSO has ever adopted, or is currently considering, anything along the lines of the L&S proposal. The fact that no SSO is considering FOA cases doubts on the reasonableness of the L&S proposal. SSOs operate by consensus, and their members are diverse and have divergent interests. SSOs acknowledge the need to balance the interests of implementers (firms making and selling standards-compliant products), consumers, and patent holders. To achieve consensus, any change in SSO policy—and in particular as radical a change as L&S’s proposal for compulsory binding FOA—must have the backing of a large majority of an SSO’s members, and we have seen no evidence of such widespread support for the L&S proposal.

² Mark A. Lemley and Carl Shapiro, “A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents,” 28 Berkeley Tech Law Journal (2013) (hereafter “L&S”). Available at <http://scholarship.law.berkeley.edu/btlj/vol28/iss2/2/>. After we completed this paper, we became aware of criticisms of the L&S proposal raised by Florian Muller in his “Foss Patents” blog. See “Google’s Plan B for Motorola’s standard-essential patents: B as in ‘baseball arbitration’” (May 9, 2013). Available at <http://www.fosspatents.com/2013/05/googles-plan-b-for-motorolas-standard.html>. We have reviewed his criticisms and disagree with many of them, in particular his contentions that the L&S proposal “promotes SEP extortion” and “favors SEP abusers.”

³ L&S, p. 1146.

⁴ William New, “ITU Undertakes Work On Standard Essential Patents,” *Intellectual Property Watch* (October 12, 2012). Available at <http://www.ip-watch.org/2012/10/12/itu-undertakes-work-on-standard-essential-patents/>

⁵ See National Academies of Science, “Analysis of the IPR policy of ETSI,” supplement to *A study of IPR policies and practices of a Representative group of Standards Developing Organizations worldwide* (2012). Available at http://home.tm.tue.nl/rbekkers/nas/Bekkers_Updegrove_NAS2012---S03---ETSI.pdf.

⁶ See, e.g., the comments of Renata Hesse, Deputy Assistant Attorney General, Antitrust Division, U.S. Department of Justice, in “Six ‘Small’ Proposals for SSOs Before Lunch: Remarks as Prepared for the ITU-T Patent Roundtable” (October 10, 2012). Available at <http://www.justice.gov/atr/public/speeches/287855.pdf>.

1. Overview of the Lemley-Shapiro “Simple Approach”

The following is a brief summary of L&S’s proposed “simple approach.”

They propose that SSOs should, on a going-forward basis, adopt explicit rules requiring SSO members (including patent holders and member implementers, though not non-member implementers who do not themselves hold essential patents⁷) to commit to engage in bilateral arbitration of “purely monetary”⁸ FRAND royalty terms “to license the SSO participant’s entire portfolio of standard-essential patents,”⁹ if the patent holder and an implementer (“the parties”) are unable to agree on license terms.

They propose that the arbitration be carried out in accordance with the rules and under the auspices of “a reputable arbitration association with established, unbiased rules for the conduct of the proceeding.”¹⁰

They refer to the arbitration as “binding” on the parties, though exactly what they mean by that is unclear (see Section 7 below).

They propose “baseball-style arbitration”¹¹ (also known as “final offer arbitration” or “FOA”), in which each party makes a proposal for a royalty and the arbitrator (or arbitration panel¹²) selects one of the two proposals (and has no authority to select any other outcome; as contrasted with “conventional arbitration” or “CA,” in which the arbitrator is free to select any outcome it deems appropriate). L&S tacitly assume that the arbitrator will choose the proposal that the arbitrator believes is “closest” to what the arbitrator believes is “the correct” outcome.

They argue, “FRAND disputes are well suited to baseball-style arbitration, because the only thing at issue is which of two numbers in fact represents the more reasonable royalty.”¹³ They argue that the scope of the arbitration (and the scope of the proposed FRAND license) need not pay attention to other licensing terms, such as the royalty base to be used,¹⁴ the scope of any

⁷ L&S, pp. 1149-1150.

⁸ L&S, p. 1141.

⁹ L&S, p. 1141.

¹⁰ L&S, p. 1141.

¹¹ L&S, p. 1141.

¹² Many arbitration entities have rules by which arbitrations are conducted by a panel of arbitrators rather than by a single arbitrator. The DVB arbitration proposal, for example, specifies arbitration by a three-arbitrator panel of the ICC. For ease of reference, we will use the singular term “arbitrator” to refer both to single arbitrators and to multiple-member arbitration panels.

¹³ L&S, p. 1141.

¹⁴ L&S acknowledge that the parties may disagree whether the license would call for running royalties or lump-sum payments (Fn. 26). They do not address the possibility that running royalties can take a number of forms, including percentage-based royalties (which they discuss) and cents-per-unit running royalties (which they do not), whether fixed or varying based on factors such as volume or subject to caps and minimums. In the case of percentage-based running royalties, it is also necessary to specify the royalty *base* to which the percentage *rate* is applied, as L&S acknowledge (Fn. 26). [That is not necessary with fixed-cents-per-unit running royalties, as the royalty base in that case is the number of units sold.]

The choice of the royalty base to be used is often disputed in litigation over FRAND issues. For example, in the Motorola–Microsoft litigation, Motorola proposed percentage-based running royalties based on the net selling price of Microsoft’s licensed products (primarily various Xbox products). Microsoft argued that a percentage-based running royalty structure was inherently not FRAND, as it made the royalties to be paid for any given licensed

cross-license, the scope of any defensive suspension provision, or other non-royalty-related license terms and conditions. They contend that “unlike a court that might have to rule on any number of subsidiary fact reasons, the only thing the arbitrator needs to do is pick the better of two proposed royalty rates.”¹⁵

They propose that the outcomes of arbitrations (and all previous licensing terms) should be disclosed (possibly subject to confidentiality provisions).¹⁶

They propose that the patent holder’s arbitration requirement be limited to “willing licensees,” which they define as implementers who agree to be bound by the arbitration and who “mak[e] a reciprocal FRAND commitment for [their own] patents reading on the standard in question.”¹⁷

They propose that the criteria that, in cases where the SSO does not provide further guidance as to what it means by the term FRAND (which they concede SSOs generally do not do¹⁸), the

product depend on factors (such as the amount of memory included in the Xbox) that Microsoft contended were not implicated by the patented Motorola technology at issue.

The choice of royalty base has also been raised in connection with FRAND reform proposals. In November 2011, Apple proposed to ETSI that, in the cellular communications context, FRAND “should” be interpreted as requiring that the royalty base be a “Common Royalty Base,” which Apple defined as the industry average selling price of a “basic” cellphone capable of voice and data communications. (See email from Bruce A. Watrous, vice president and chief IP counsel, Intellectual Property and Licensing, Apple Inc., to Luis Jorge Romero Saro, ETSI director-general (November 11, 2011). Available at: [scribd.com/doc/80899178/11-11-11-apple-letter-to-etsi-on-frand](https://www.scribd.com/doc/80899178/11-11-11-apple-letter-to-etsi-on-frand)). This proposal (which has not been accepted by ETSI and is contested by other ETSI participants) is significant because standard industry practice is to charge royalties based on the wholesale selling price of the Licensed Products themselves (not on some “Common Royalty Base”), and because Apple’s own iPhones sell for a significant multiple of Apple’s proposed “Common Royalty Base.”

Another sometimes-disputed issue is where along the “value chain” FRAND royalties should be collected. For example, for cellular communications technology, royalties can be collected at the chipset level from chipset manufacturers, at the handset level from handset manufacturers, or at the system level from cellular service providers (carriers). Chipset manufacturers are “upstream” from handset providers and carriers, while handset providers are “downstream” from chipset manufacturers but “upstream” from carriers. With a fixed-cents-per-unit royalty, the choice of where along the value chain to collect royalties does not matter; but with percentage-based running royalties, the choice among these alternatives can be significant because of the disparity between selling prices at different levels in the value chain. Given that chipsets sell for significantly less than handsets, a percentage-based royalty calculated on the selling price of the chipset has the potential for yielding significantly lower total royalties than a percentage-based royalty calculated on the selling price of the handset. [From an economic perspective, the rate and the base should be commensurate with one another; it makes no economic sense to set the rate separately from the base.] This is especially significant given the “patent exhaustion” doctrine, under which (loosely speaking) granting an unrestricted license to a firm at one level in the value chain precludes the patent holder from seeking further royalties from anyone “downstream” from its licensee. To our knowledge, no SSO has addressed this issue in its IPR policies, other than by saying that patent holders must make licenses available on FRAND terms to all interested parties. This can include firms at widely different levels along the value chain, making the issue of “non-discrimination” difficult. The general view is that “non-discrimination” requires patent holders to treat “similarly situated” prospective licensees similarly. That said, from both a legal (patent exhaustion) and an economic perspective, a chipset manufacturer is not “similarly situated” to a handset manufacturer or a cellular service provider.

These examples indicate that, contrary to L&S’s discussion, it is not simply a matter of selecting “the better of the two royalty rates.”

¹⁵ L&S, p. 1145.

¹⁶ L&S, p. 1145. License terms are generally treated as confidential business information and not disclosed, and arbitration awards are often confidential.

¹⁷ L&S, p. 1142.

criteria that arbitrators should use to evaluate proposals are the terms that would have been agreed on an ex ante basis (prior to the standard being chosen)¹⁹ for what might be termed “untested” patents—patents for which the issues of validity, infringement, and/or essentiality are unresolved (and often disputed).²⁰

They propose that the arbitration should be conducted under the assumption that the patent holder cannot get injunctive relief (or an economic equivalent, such as an ITC exclusion order) should the parties be unable to reach agreement: “SSOs should explicitly state in their IP policies that a patent holder making a FRAND commitment has given up its right to seek an injunction against any willing licensee for infringement of any of its standard-essential patents,”²¹ though “the standard-essential patent owner may seek an injunction against an unwilling licensee.”²²

They propose that “SSO best practices should acknowledge the problem of royalty stacking, empower the arbitrator to account for royalty stacking, and provide the arbitrator with the best possible information to do so.”²³

2. “Best Practices”

Lemley and Shapiro propose their “simple approach” as an example of what they call “best practices” by SSOs. That terminology ignores the fact that not a single SSO that we are aware of has adopted anything like the compulsory binding arbitration that they propose.²⁴ L&S do not

¹⁸ L&S note, “In an ideal world, SSOs would offer detailed guidance on what constitutes a reasonable royalty for a portfolio of standard-essential patents, whether or not they adopt all of the principles we favor. But they rarely do so. In the absence of particularized guidance from an SSO, we offer a set of principles regarding the ‘reasonable royalty’ concept that we believe should have widespread support” (p. 1146). We note in this regard that, to our knowledge, not a single SSO has explicitly adopted an IP policy that specifies *any* of the “principles” that L&S propose, and L&S do not cite to any SSO that has done so.

¹⁹ L&S, p. 1144.

²⁰ L&S assert, “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” (p. 1145).

With respect to the L&S claim that such issues arise only in “unusual circumstances,” they say (Fn. 27): “We can imagine a situation in which the parties to an arbitration dispute whether a particular patent is within the definition of an ‘essential’ patent, and therefore whether the award will include a license to that patent. In that circumstance, it would be best if the arbitrator specified whether the patent in question is ‘essential’ to minimize future litigation over whether or not certain patents have been licensed under the arbitration award.” We believe that this situation is likely to occur whenever the parties dispute validity or infringement, as it seems obvious to us that an invalid patent cannot be “essential” even though patents are presumed to be valid unless (and until) shown otherwise. Because disputes over validity are endemic in patent litigation, we anticipate that, if the arbitrators are being asked to determine essentiality, the arbitrators will *a fortiori* have to determine validity (and likely infringement as well, at least for fully standards-compliant products). Saying that such situations are “unusual” thus seems to us to be factually incorrect.

²¹ L&S, p. 1142. L&S do not cite to any SSO that has adopted such a policy, and we are not aware of any SSO that has such a policy. Again, labeling as a “best practice” something that not a single SSO has done strikes us as a misuse of the term.

²² L&S, p. 1144.

²³ L&S, p. 1150.

²⁴ L&S note that two entities—VITA (the VME Bus International Trade Association) and DVB (the Digital Video Broadcasting Project)—“already require arbitration of disputes” (L&S, FN 24). However, a review of the VITA arbitration rules indicates that those rules look nothing like the L&S proposal. VITA requires holders of essential

point to any SSO that has adopted anything like their proposed “simple approach,” and we find it puzzling to refer to something as “best practices” when not a single entity engages in the (claimed) “best practice.” In our view, a more realistic terminology would be to refer to their proposal as an “untested policy proposal.”

3. Injunctive Relief

The issue whether a patent holder can seek (not necessarily receive) injunctive relief against unlicensed implementers affects the “disagreement payoffs” if the parties are unable to come to

patents to disclose in advance their “not to exceed” licensing terms and conditions that they will charge to prospective licensees should their technology be adopted as part of the standard, but does not specify how other disputes are to be determined. There is nothing in the VITA IPR policy that corresponds to L&S’s proposed “baseball-style arbitration.” Nor does the VITA IPR policy specify that FRAND should be assessed *ex ante* (see Section 4 below) or that FRAND commitments amount to a waiver of the right to seek injunctive relief (see Section 3 below).

DVB is a “Project,” not an SSO *per se*. It relies on SSOs (such as ETSI) to adopt standards implementing its proposals. DVB acknowledges that SSOs have their own IP policies that do not always coincide with those proposed by DVB. Sec. 14.7 of DVB’s “Memorandum of Understanding” (“MoU”) requires members (but not all beneficiaries of FRAND commitments, which can be non-members as well as members) to agree to binding arbitration of “all disputes regarding solely the terms and conditions of the [FRAND] licenses” by a panel of three arbitrators operating under the auspices of the International Chamber of Commerce (“ICC”), to take place in Frankfurt, Germany, conducted in English and subject to German substantive law. Sec. 14.9 of the DVB MoU encourages the formation of patent pools relating to DVB standardization proposals. Because German patent law has certain features (notably the Orange Book requirements relating to the availability of injunctive relief) not present in other jurisdictions, this choice of law provision is significant. The DVB MoU does not provide the level of detail laid out in the L&S working paper. The ICC arbitration process does not specify L&S’s proposed “baseball-style arbitration,” but instead is a form of conventional arbitration; nor does the DVB MoU adopt the L&S proposals that (1) FRAND should be assessed *ex ante* (see Section 4) or (2) FRAND commitments amount to a waiver of the right to seek injunctive relief (see Section 3). The DVB Policy is available at http://www.dvb.org/membership/ipr_policy/. For a detailed description of the DVB policy, see Carter Elzroth, “IPR Policy of the DVB Project: Commentary on Article 14 MoU DVB” (December 31, 2007) and “IPR Policy of the DVB Project: Negative Disclosure, FRAND Arbitration Unless Pool Rules OK Part 1” 6 *J. of IT Standards & Standardization Research* 2, 21–47 (July–December 2008), both available at http://www.dvb.org/membership/ipr_policy/.

We are not aware of evidence that the DVB arbitration provision has ever been used to resolve disputes over FRAND licensing, and L&S do not cite to any.

We are aware of at least one other organization not identified by L&S—the Blu-ray Disc Association (“BDA”)—that has an arbitration policy. Clause 16(5) of the BDA’s bylaws provides: “Any dispute between a Member and another Member over whether the Member is offering a license under its Essential Patent(s) on fair, reasonable and non-discriminatory terms and conditions within the context of the provision of 16(4) shall be decided by a single neutral arbitrator appointed under the International Rules of the American Arbitration Association (the ‘Arbitrator’) and will be conducted under the rules of that Association in New York City. ... In evaluating the reasonableness of the disputed terms and conditions, the Arbitrator shall take into account, among other things, terms and conditions (including but not limited to applicable license fees) of joint license programs and individual license programs within the area of licensing essential patents for optical disc systems, where: (i) such terms and conditions; and(ii) such optical disc systems are generally accepted by the optical disc systems industry.” Available at [http://blu-raydisc.com/Assets/Downloadablefile/BDA-Bylaws-\(v1.6\)-16278.pdf](http://blu-raydisc.com/Assets/Downloadablefile/BDA-Bylaws-(v1.6)-16278.pdf). We are aware that the BDA arbitration process has been invoked in at least one case, in a suit between DVD chip manufacturer Zoran Corp. against technology licensor DTS. See Melissa Lipman, “Judge Won’t Drop Antitrust Claims from Blu-ray Suit,” *Law360* (January 22, 2009). Available at <http://www.law360.com/articles/84072/judge-won-t-drop-antitrust-claims-from-blu-ray-suit>. We note that the BDA arbitration provision does not apply to all disputes over FRAND terms, does not specify the FOA process that L&S propose, and does not endorse L&S’s “principles.”

an agreement, and thus affects the economic gains from trade from coming to an agreement.²⁵ L&S do not acknowledge that the issue of whether patent holders that have made FRAND commitments should be precluded from seeking injunctive relief is a controversial proposal,²⁶ and one that (to our knowledge) no SSO has yet adopted. Certainly, L&S have not cited any SSO that has affirmatively adopted their proposed “best practice” in this regard.

4. The “Ex Ante Royalty Rate” Issue

In their “simple approach,” L&S do not acknowledge that the issue of whether FRAND royalties should be evaluated on an ex ante basis is a controversial topic²⁷ and would be a policy that (to our knowledge) no SSO has yet adopted (despite the fact that the issue has been debated for many years). Certainly, L&S have not cited any SSO that has adopted their proposed “best practice” in this regard.

We note that the term *ex ante*, as used by L&S, is a bit of a misnomer here. A true *ex ante* analysis would start before *either* party had made sunk investments, whether in developing technology to be incorporated into the standard or in making and selling standards-compliant products. Instead, their “ex ante” analysis starts *after* the technology has been originally developed, but before the SSO chooses which technology to incorporate into the standard. As such, the innovator’s investments in developing the technology are sunk costs as of L&S’s proposed ex ante hypothetical negotiation, whereas the implementer’s investments in developing standards-compliant products have not yet been incurred and are not yet “sunk.”

In our view, a better term for what L&S call an ex ante negotiation is an “interim” negotiation, after *one* party (the innovator) has made sunk investments (in developing the technology to the point where it can be evaluated for inclusion into a proposed standard), but before the SSO has chosen which standard to adopt, and before *other* parties (the prospective implementers) have made their investments. In our view, a truly ex ante analysis would not build such an asymmetry into the structure of the analysis.²⁸

²⁵ As L&S note, “A key principle of bargaining theory is that the outcome of bilateral negotiations is governed by the threat points of the two parties, along with their bargaining skills...” (p. 1143). The availability (or non-availability) of injunctive relief is a key factor affecting the “threat points” available to the parties. If injunctive relief is not available, the alternatives to a negotiated agreement are more favorable to the implementer (and less favorable to the patent holder) than if such relief is available.

²⁶ While some have taken that position (*see, e.g.*, J. Miller, “Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm,” 40 *Indiana Law Review* 351 (2007)), others disagree (*see, e.g.*, R. Brooks and D. Geradin, “Taking Contracts Seriously: The Meaning of the Voluntary Commitment to License Essential Patents on ‘Fair and Reasonable’ Terms” (March 12, 2010). Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1569498).

²⁷ While some have taken that position (*see, e.g.*, C. Shapiro and H. Varian, *Information Rules*, 241 (1999)), others disagree (*see, e.g.*, Brooks and Geradin (2010)).

²⁸ As L&S note, a truly ex ante analysis would be extremely difficult to conduct, as “[t]he hypothetical negotiation needs to take place under conditions where the alternative specifications [technologies] have been identified, so that the parties are well informed about the best potential non-infringing alternatives to the proposed standard” (p. 1148). Given the uncertain nature of R&D, it would be difficult if not impossible to “identify” the technological alternatives available to the SSO if the analysis were done prior to the R&D being conducted in the first place, as a true ex ante approach (as contrasted with L&S’s “interim” approach) would require.

5. Pending Patents and Ex Ante Valuation

At the time that the standard is being considered, the innovator may not have issued patents. Instead, all that it may have are pending patent applications.²⁹ No one knows while the application is pending whether patents will issue from the application, or what the scope of any ultimately issued claims may be, as the claims in the patent application can be (and frequently are) amended during the patent prosecution process. L&S acknowledge this when they say that “it is often impractical for a patentee to make that judgment [as to whether a particular patent is “essential”] as the standard is being set, since many patents will not yet have issued and their claims may change over time.”³⁰ While the patent application is pending, the patent holder does not have the ability to exclude others from using the technology covered by the application; it will not gain that ability unless and until the patent issues. Yet L&S propose that the “value” of the patent portfolio (technically, generally a portfolio consisting of a mixture of issued patents and pending patent applications) should be assessed ex ante (in their sense), at or about the time that the standard is being considered, and before the SSO has chosen which technologies to incorporate in the standard. Because of the uncertainty about whether patents will ultimately issue and what the scope of any ultimately issued patents might cover, the link between the ex ante value of a pending patent application and the value of an ultimately issued patent is tenuous at best. This is one reason why, in many if not most industries,³¹ we do not tend to see negotiated licenses for particular pending patent applications. When licenses cover such applications, they tend to do so because the license is a portfolio license covering all issued patents and pending patent applications in some broad technological area.

6. The “Incremental Value” Proposition

L&S argue, “The incremental value of the patented technology over and above the next-best alternative serves as an upper bound to the reasonable royalties.”³² L&S do not acknowledge that the issue of whether FRAND royalties should be evaluated using such an “incremental value test” (IVT) is a controversial topic and a proposal that (to our knowledge) no SSO has yet adopted. Certainly, L&S have not cited any SSO that has adopted their proposed “best practice” in this regard. The IVT is not transparently self-obvious,³³ and we have written a companion article explaining the limitations of this “incremental value test” approach to determining reasonable royalties.³⁴

7. The “Binding Arbitration” Issue

²⁹ More generally, it may have a mixture of issued patents and pending patent applications.

³⁰ L&S, Fn. 60.

³¹ One possible exception is biotechnology, where research tools are sometimes licensed before a patent issues.

³² L&S, p. 1148.

³³ The term “incremental” logically raises the question: “incremental” relative to what? To the next-best public domain technology? To the next-best non-infringing alternative technology (patented or unpatented)? The two are often very different. The arguments in favor of limiting the return to an innovation to its incremental value relative to public-domain technology are one thing; the arguments in favor of limiting the return to an innovation to its incremental value relative to an alternative patented technology raise very different issues.

³⁴ “On the ‘Incremental Value’ Test and Standards Valuation: A Critique of the FTC’s Approach to Patent Valuation” (March 15, 2013), available from the authors.

L&S suggest that their proposed arbitration be “binding,” but they do not specify what they mean. They propose that the arbitrator set a “cash-only” royalty rate for a license to the patent holder’s “portfolio” of “essential” patents, though they acknowledge that many licenses are cross-licenses, for which the customary practice is to set a one-way “balancing payment” reflecting not the total value of the licensed technology, but the *difference* in value between the cross-licensed portfolios.

L&S seem to be of the opinion that, should the parties agree to such a “portfolio” license, the implementer would be obligated to pay, and the patent holder would be obligated to accept, the FRAND terms set by the arbitrator. They fail to consider the possibility that the implementer might not agree to accept such a license, or that the parties might disagree as to what products are covered by the license. After all, they explicitly propose that the arbitrator does *not* have to determine issues of validity or infringement³⁵ (or essentiality, except in what they say are likely to be “unusual” cases)³⁶, so one would expect that any arbitral award cannot be “binding” with respect to such unarbitrated issues.

We are not aware of any commitments made to any SSO by implementers to *take* a license, to *pay* the royalties sought, and L&S do not cite to any. In our experience, it is common in patent litigation for the defendant to deny that the patents-in-suit are valid, and that any of the defendant’s products infringe the patents (even if they were to be found valid).³⁷ Even if the patents are found valid and “essential” to some standard, the defendant can argue that its products do not infringe.³⁸ Consequently, the defendant may argue that it is not required to take a license (whether because the patents in question are claimed to be invalid, not essential, or not infringed). If so, then the arbitration award may not be “binding” on the implementer in any meaningful sense,³⁹ and the patent holder may have to resort to litigation in order to establish validity and essentiality and/or infringement.

³⁵ L&S, p. 1145.

³⁶ L&S, p. 1145 and Fn. 27.

³⁷ L&S note, “If both parties stipulate that a given patent is essential, infringement of the patent may not be disputed” (Fn. 56). The example given in the next footnote indicates that this need not always be the case. But we would agree that, if the parties “stipulate” to something, disputes over that issue are not likely to occur. Whether such “stipulations” are likely to occur in practice, or to play a significant role in licensing disputes, is questionable.

³⁸ For example, in an ongoing United Kingdom case between ICom and Nokia, the trial judge found that, as amended, ICom’s patent-in-suit (the “268 patent”) was valid and was “essential” to what he “accept[ed]” was a “mandatory” feature of the UMTS standard. But he also found that, though two of Nokia’s UMTS-compatible cellphones (designated A1 and A2) infringed the ‘268 patent, certain other of Nokia’s cellphones (designated B–G) did not infringe the ‘268 patent, though Nokia had sold them to cellular carriers in the UK as being “compatible with” the UMTS standard. (*Nokia OYJ (Nokia Corporation) v. ICom GMBH and Co. KG*, Case No. HC10 C01233. In the High Court of Justice, Chancery Division, Patents Court, Approved Judgment, Mr. Justice Floyd, Para. 212 (June 16, 2011)).

³⁹ L&S acknowledge, “Implementers, by contrast [to patent holders], have made no such [FRAND] commitment” (p. 1153). Yet they argue, “If the implementer participates in the [arbitration] process, it will be bound by the result. It can’t later decide it dislikes the result and refuse to pay.” (p. 1153) We do not find this reasoning persuasive, for the reasons discussed in the text. Basically, the implementer can reject the proposed license, not on the grounds that “it doesn’t like the result,” but on the grounds that the arbitrator has not made any rulings on key disputed issues (such as validity, infringement, and/or essentiality) that have to be litigated before the implementer is obligated to pay any royalties at all. Basically, our point is that the implementer cannot be “bound” on an issue that the arbitrator did not address.

Given the country-by-country nature of patent rights, such litigation may have to take place on a country-by-country basis. Since courts can award patent infringement damages only for proven-valid and infringed patents and only for products “made, used, or sold” in the country in which suit is (successfully) brought, damages awards can undercompensate the patent holder relative to what it could obtain under a license.

L&S explicitly acknowledge that the terms of patent infringement damages awards can differ from their proposed FRAND royalties, in that FRAND royalties are to be calculated for “untested” patents for which issues of validity, infringement, and/or essentiality have not yet been resolved (and which they concede may well be disputed), whereas patent infringement damages are only awarded for proven-valid-and-infringed patents.⁴⁰ Consequently, even if the arbitrator were to set a “binding” rate for the patent holder’s *portfolio* of untested patents, that would not resolve the issue of the appropriate “reasonable royalty” damages rates for the particular proven-valid-and-infringed patents that would be at issue in any particular patent suit.

Moreover, because royalty rates for “portfolio” licenses tend to be calculated on the basis of the licensee’s worldwide sales of “Licensed Products” (a defined term), whereas patent infringement damages are based only on country-specific sales of products “made, used, or sold” in the country where suit is (successfully) brought—and only on sales of the particular accused products that have been found to infringe one or more valid claims of one or more of the patents-in-suit—there is a “mismatch” between the *royalty* base on which FRAND royalties would be paid under a FRAND license and the patent infringement *damages* base on which infringement damages will be awarded.

Put another way, even if the arbitral award *is* “binding” on the implementer *if* the parties agree to a license, and even though the *patent holder* is obliged (by its FRAND commitment) to make such licenses available *if* the implementer chooses to take such a license, nothing in either the current SSO rules or in L&S’s proposal as written “bind” the implementer to *take* such a license, to agree to *pay* such royalties (and on which products). Even if the arbitration award were “binding” (in some sense) with respect to *accepted* licenses, under the L&S proposal the implementer can insist that the arbitrator has not ruled on issues of validity, infringement, and/or essentiality, and that the patent holder needs to bring patent-specific litigation on a country-by-country basis against particular accused products and prove that it is entitled to damages on a country-by-country basis.

As such, we doubt whether L&S’s “simple approach” is likely to result in any *overall* transaction cost savings. Adding a layer of (supposedly) “binding” arbitration that does not actually “bind” the implementer to take a license, to pay the arbitrator-set rates, is likely merely to add another layer of costs and complexity (associated with the arbitration process) on top of the costs and complexity associated with what may ultimately have to be litigated. Of course, the SSO could

⁴⁰ As L&S note, “Unlike the ‘reasonable royalty’ concept used to calculate damages in patent infringement cases, the hypothetical negotiation for FRAND purposes does *not* assume that any particular patent, much less the entire standard-essential patent portfolio, is valid and infringed... The reasonable royalty for a portfolio is a function of the probability that the patents in that portfolio are actually valid and infringed. Reasonable royalties will logically be lower for patents more likely to be found invalid or not infringed.” (p. 1151) (footnotes omitted; emphasis in original).

specify binding arbitration with respect to *all* disputed issues (including validity, infringement, and essentiality), but that is *not* what L&S propose.

By way of illustration, suppose that the arbitrator, following L&S's "baseball-style arbitration" approach, awards a royalty rate of 5% on the licensee's worldwide sales of Licensed Products. Suppose that the patent holder only has patents in countries with sales and/or manufacturing covering 60% of the implementer's worldwide sales, that the implementer believes that there is only a 50% chance that the patents would (if litigated) be found valid and infringed, and that (if the patents are found valid and infringed) the most likely outcome of the litigation would be that the courts would award "reasonable royalty" damages of 10% of the infringing sales. Then the implementer would estimate its exposure at 60% of 50% of 10%, or 3%, of its worldwide sales. Since that is less than the arbitral award of 5%, a rational implementer would have a strong economic incentive to elect to "take its chances in court" rather than accept the (ostensibly) "binding" arbitration award. The incentives would be even stronger if the patent holder elected to sue only on a subset of its portfolio of "essential" patents, only in selected countries, or only on certain accused products sold by the implementer rather than on the full set of the implementer's standards-compliant products.

8. Baseball-Style (Final Offer) Arbitration

L&S propose that the arbitration be "baseball-style" or "final offer" arbitration. They give a brief and cursory discussion⁴¹ of why they believe FOA is preferable to the alternatives (including conventional arbitration (CA), in which the arbitrator is free to select any outcome that it believes is appropriate and is not limited to choosing from among the two parties' proposals; and various alternatives that have been discussed in the literature, such as "amended" FOA or "issue-by-issue" FOA, as contrasted with the "package" FOA that L&S apparently contemplate). They do not cite to any of the (by now extensive) literature on how well FOA works in practice,⁴² in

⁴¹ L&S say, "Using baseball-style arbitration logically drives the parties towards making reasonable proposals, because the party that asks for too much (or offers too little) risks losing the case altogether" (p. 1144). That is only part of the story, as explained in the text *infra*. Moreover, since arbitration is likely to follow (unsuccessful) efforts to negotiate an agreement, there is no reason to believe that the fact that the *arbitration* uses an FOA approach will induce the parties to make more reasonable proposals *during* the *pre-arbitration negotiations*. Indeed, the parties' FOA proposals to the arbitrator may well be farther apart than the last pre-arbitration positions they offered during the (failed) negotiations. Laboratory experiments suggest that the FOA process leads to a reduced chance of negotiated settlements relative to the conventional arbitration ("CA") process, and that the FOA outcomes have an increased chance of lying outside the range of negotiated agreements. *See* articles cited at M. Kuhn, "To Settle or Not To Settle: A Review of the Literature on Arbitration in the Laboratory," at 4–5 (August 14, 2009). Available at http://econ.ucsd.edu/~mkuhn/pdfs/arb_hist.pdf

⁴² FOA is used in Major League Baseball ("MLB") to arbitrate salary disputes; it is also used in other labor-relations contexts, most commonly in public-safety (police and fire) contexts for which strikes are unacceptable. Apparently, even in the MLB context, there are constraints on the offers that at least one side (the team) can make: according to Florian Muller's "Foss Patents" blog, BaseballProspectus.com says, "No club may submit a salary figure that is less than 80% of the player's previous year's salary (or 70% of his salary two years previous)... The maximum-cut rule does not apply for free agents in arbitration." *See* Muller (2013). There is no analogue of this "maximum-cut" provision in the L&S FOA FRAND proposal.

Carl Stevens originally proposed FOA in 1966 to deal with the concern that arbitrators in CA contexts are seen as having a tendency to "split the difference" between the parties' proposals, giving the parties an incentive to make extreme proposals rather than moderating their proposals. The hope was that, by adopting FOA rather than CA, parties would have an incentive to moderate their proposals in an effort to increase the likelihood that the

theory, or in laboratory experiments. Most arbitration agencies use CA, not FOA. The fact that they have to compete to attract customers for their arbitration services suggests that they and/or their potential customers believe that CA is preferable to FOA. The literature casts doubt on the reasons that L&S give for choosing FOA rather than other alternatives.

Even under FOA, each party faces a “tradeoff” between wanting to make an offer that is more likely (than the other party’s) to be seen by the arbitrator as “closer” to the rate that the arbitrator would choose, and thus to increase the probability that its proposal is selected, and the desire to affect the terms in its favor *if* its proposal is selected.

That is, the parties face two (directionally) countervailing incentives: making a more extreme offer is in the party’s favor *if* it is adopted, but doing so reduces the chances of its being adopted. The desire to increase the odds of “winning” the arbitration (by making an offer thought to be closest to the party’s perception of the arbitrator’s likely assessment of the “right” award) is (directionally) offset by the desire to get more *if* you win.

More significantly, FOA is typically used in practice in contexts where there is no “non-discrimination” (“ND”) requirement. For example, there is no requirement that Major League Baseball’s (MLB) FOA arbitration treat different “similarly situated” players in similar ways. L&S fail to discuss problems with compatibility between the FOA process as applied to multiple bilateral arbitrations and the ND aspect of FRAND.

To take a simple example: suppose there are arbitrations between A and B and between A and C. Suppose that A makes the same offer (of 1%) in both arbitrations, and that B and C make the same offer (of 5%). Suppose that in the A–B arbitration, the arbitrator believes that the “right” outcome is 2.9%; then he will select the “closest” offer to his estimate of the “right” outcome, which is A’s 1% offer. Suppose that in the A–C arbitration, the arbitrator believes that “the right” outcome is 3.1%; then he selects the “closest” offer, which is C’s 5% offer. Despite the fact that the two arbitrators’ beliefs as to “the right” outcome differ by only 0.2% (3.1% versus 2.9%), the outcomes of the two arbitrations differ by 4% (1% in the A–B arbitration versus 5% in the A–C arbitration). This example illustrates that the two royalty rates under L&S’s proposed FOA approach can differ significantly, which casts doubt on whether the results of the L&S FOA proposal comply with the ND aspect of FRAND in the multiple bilateral arbitrations context.

Or consider four different arbitrations, in all of which the arbitrators believe that the “right” outcome is 3%. In one of the arbitrations (D–E), suppose that the FOA offers are 1% and 5.1%, so that the arbitrator selects 1%. In the second arbitration (F–G), suppose that the two FOA offers are 1% and 4.9%, so that the arbitrator selects 4.9%. In the third arbitration (H–I), suppose that the two FOA offers are 2.5% and 3.6%, so that the arbitrator selects 2.5%. And suppose that in the fourth arbitration (J–K), the two FOA offers are 2.5% and 3.4%, so the arbitrator selects 3.4%. The outcomes of the four arbitrations differ significantly (1% versus 4.9% versus 2.5% versus 3.4%) despite the fact that the arbitrators believe that the same “right” outcome (of 3%) should apply in all four cases. Again, one can question whether this satisfies the ND aspect of

arbitrators would adopt their proposal rather than the other party’s proposal. That is, the hope was that the use of FOA rather than CA would cause the parties’ proposals to “converge.” L&S’s discussion of FOA echoes this explanation.

FRAND. Allowing conventional arbitration rather than L&S's proposed FOA approach would tend to eliminate these sorts of disparities.

9. "Royalty Stacking" Issues

The term "royalty stacking" is commonly used to refer to the possibility that implementers may have to take licenses from, and pay royalties to, multiple patent holders who have patents that read on their products. The concern is that, especially if the royalties charged are set in separate uncoordinated bilateral negotiations, the cumulative "royalty stack" payable to all patent holders may be sufficiently high that it is uneconomic for implementers to make and sell the licensed products. The issue of the potential royalties that an implementer may have to pay to other patent holders whose patents (ostensibly) read on the products in question is a difficult one, as many such disputes are unresolved, and the likely outcome of any such disputes is debatable.⁴³ Firms may have patents of their own to cross-license with patent holders who assert their patents, and one common practice is for the parties to either (1) explicitly cross-license their patents (often for relatively small "balancing payments" that reflect not the full value of the cross-licensed technology, but instead the difference in the value of the two cross-licensed portfolios;⁴⁴ or (2) coexist in a "mutually assured-destruction" or "Mexican standoff" type of informal "truce," in which each party effectively (but tacitly) agrees not to raise the patent issue if the other party does not. Even in the context of explicit cross-licenses, the actual cash royalty payments typically reflect only the "tip of the iceberg" of the value of the patented technology at issue.

In either case, the cash outlay that the implementer has to pay is reduced relative to the royalties that the implementer would have to pay if every relevant patent (essential or otherwise) was explicitly licensed and every license was done on a "purely monetary" basis. In particular, a firm can use its patent portfolio to "barter" for cross-licenses (or "Mexican standoff" situations) to *multiple* portfolios held by others, in a way that is not true of cash royalty payments, since cash paid to one licensor is not available to be paid to another licensor.⁴⁵ The net effect is to reduce,

⁴³ L&S note, "[I]t may be difficult in practice for the arbitrator to learn about and account for patents other than standard-essential patents associated with the standard at issue" (Fn. 47). We would go further and suggest that the arbitrator may not be well informed about other standards-essential patents relating to the standard at issue that are owned by others. L&S argue, "The arbitrator may find it more workable to maintain a focus on the ex ante incremental value of the standard-essential patents at issue" (Fn. 47). That may well be true, but doing so would ignore the royalty stacking issue.

⁴⁴ See Peter Grindley and David Teece, "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics," 39 *California Management Review* 2, 1–34 (1997).

⁴⁵ To illustrate this point, imagine that there are 100 implementers, each with a patent portfolio for which it would otherwise be able to command (say) a 2% royalty. The cumulative cash royalty that would have to be paid *if* all licenses were done on a cash-only basis would be 200% of revenues, which would appear to not be economically feasible. But each implementer could "barter" its portfolio to other implementers for a cross license to the other's patents; given that each portfolio is of equivalent value, all of the cross-licenses would likely be royalty-free (in both directions), and the net cash outlay that each implementer would have to pay would be zero. [This is overly simplistic. The net "balancing payment" in a cross-license would likely reflect not only the royalty *rate* for each party's portfolio, but also each party's sales *base* to which that rate applies. If some implementers have higher sales than others, the "balancing payment" specified in the cross-license might reflect that discrepancy.] In effect, the "royalty stacking" problem largely goes away for firms that have a valuable patent portfolio that they can "barter" for cross-licenses. Of course, that will not help those implementers that do *not* have a patent portfolio of their own to "barter" for cross-licenses. But contrary to L&S's suggestion that a "FRAND offer" must be on a "purely monetary" basis, (p. 1141), we note that (a) FRAND commitments only require the patent holder to make licenses available on

often significantly, the cumulative royalties that the implementer must pay to others, and thus to reduce the prospect that “royalty stacking” will be a significant practical issue.

Because of the wide variety of potentially relevant patents that might be asserted against particular multi-attribute complex products such as cellphones, and because of the likelihood of cross-licenses and “Mexican standoff” situations, determining the likely level of “royalty stacking” is an exceedingly difficult task. The parties will likely have very different assessments of the extent to which royalty stacking is a real issue that needs to be addressed, or whether it is merely a theoretical possibility that can largely be ignored in setting FRAND rates. This in turn makes the L&S proposal that, in determining FRAND rates, the arbitrators need to take account of potential royalty stacking issues another area that is likely to engender significant disagreement between the parties and complicate the task facing the arbitrator.

Again, in our view, L&S’s “simple approach” understates the difficulties associated with coming up with realistic and defensible estimates of FRAND rates.

10. Multiple Bilateral Arbitrations versus a Single Multilateral Arbitration

L&S propose separate bilateral arbitrations between a patent holder and different implementers, but they do not address the rationale for their proposal. In particular, they do not consider an alternative: namely, that if one wants to mandate compulsory arbitration, disputes over FRAND could be resolved in a single once-and-for-all binding arbitration between a patent holder and all unlicensed potential implementers of the standard, rather than (as L&S propose) by what might be a series of seriatim bilateral arbitrations between the patent holder and individual unlicensed implementers.

After all, unlike many other examples of arbitration, where there are unlikely to be common issues across different arbitrations, in the FRAND licensing context many issues (including the probability that the patent is valid and infringed by standards-compliant products, and the technological alternatives available) will likely be common across multiple arbitrations; and there clearly would be both cost savings and gains from consistency in rulings from consolidating those issues into a single multilateral arbitration proceeding rather than having multiple bilateral arbitrations before different arbitrators.

To suggest that this alternative is not plausible because the current SSO rules do not provide for binding multilateral arbitration rings hollow. The current SSO rules do not provide for binding bilateral arbitrations either. L&S propose to change that situation. They have not addressed the possibility that a single binding multilateral arbitration could resolve issues in a more-consistent and less-costly fashion than seriatim bilateral arbitrations in which a given patent holder would be compelled to arbitrate on a separate bilateral basis against multiple implementers.

“reasonable terms and conditions”; (b) the common real-world practice of entering into portfolio-based cross-licenses is “reasonable” in the “commercially reasonable” sense; (c) we know of nothing in any SSO’s rules, and nothing in any FRAND commitment, that requires licensing be on a “purely monetary” basis to the exclusion of “barter”-based cross-licensing; and (d) such a rule would be inconsistent with the fact (which L&S acknowledge at pp. 1150-1152) that many SSOs allow FRAND commitments to be made subject to a “reciprocity” requirement that the licensee agree to make its own essential patents available.

In particular, given the ND aspect of FRAND, one can argue that a single multilateral arbitration is more likely to achieve “non-discrimination” than a series of bilateral FOA arbitrations, as the numerical examples above demonstrate.

It might be argued that multilateral arbitrations would be more unwieldy than bilateral arbitrations. In particular, while “baseball-style” FOA arbitration works where the arbitrator is compelled to select from two alternatives, when multiple implementers each propose their own alternative, it might be difficult to get multiple implementers to agree on a single joint proposal (though that does not strike us as dispositive, as having multiple proposals from multiple implementers would give the arbitrator a greater degree of flexibility in choosing an outcome, and there is no reason why a multilateral arbitration needs to be conducted on a two-offer FOA basis). While that might well be true, against that consideration one would have to weigh the fact that not only would a single arbitration likely prove less costly than a series of bilateral arbitrations, but also that the outcome of a single arbitration would be internally consistent in a way that the outcomes of multiple bilateral arbitrations inherently could not.

In particular, patent holders might be legitimately concerned that having multiple *seriatim* bilateral arbitrations could result in a “ratcheting downward” result, as the patent holder might well be bound (whether by the ND aspect of FRAND or the willingness of arbitrators to be influenced by earlier arbitration results) to accept the lowest rate previously accepted or awarded. Later implementers would not similarly be bound by earlier arbitration awards and could continue to argue for lower rates than previously awarded. This is akin to the legal doctrine that a patent holder is bound (by *res judicata*) by the least favorable earlier result, whereas later litigants are not bound (by collateral estoppel) from re-litigating previously litigated issues.

We acknowledge that such a “multilateral” arbitration might be hard to implement (especially given that different implementers might want to make different FOA proposals; and some mechanism might have to be put in place to compel them to agree on a single joint FOA proposal *if* that were somehow thought to be necessary). But the alternative is that the patent holder is subject to multiple (possibly successive/*seriatim*) “baseball-style” arbitrations, one with each implementer, with the possibility that the patent holder’s options become constrained (by earlier findings) in ways that the implementer’s options are not (as in L&S’s apparent framework, no implementer is bound by earlier findings, though those may be informative and may affect outcome of subsequent arbitrations).

11. Portfolio Licensing

L&S propose “portfolio” licensing of all of patent holders’ “essential” patents.⁴⁶ They correctly note that this largely comports with the way that licenses are generally negotiated in the industry; in reality, firms do not negotiate patent-by-patent, country-by-country, product-by-product, or (generally) standard-by-standard licenses, but instead license on a portfolio basis *ex post*.⁴⁷ But if an SSO is deciding *ex ante* whether to incorporate particular patented technology into a standard, and were to do so based on the rates that the patent holder agreed to charge implementers if and

⁴⁶ L&S, pp. 1138, 1142.

⁴⁷ L&S note, “Establishing a FRAND rate for [a party’s] entire standard-essential patent portfolio is simpler than - and matches more closely to - real-world licensing practices in the information technology sector, where implementers commonly negotiate portfolio licenses that give them freedom to operate” (p. 1151).

when its patented technology were incorporated into the standard, then it is unlikely that the SSO (or its members) would do so on a “portfolio” basis based on the technologies that happen to be selected *during* the standard-setting process to be incorporated into the standard.⁴⁸ That is, there is an inherent schizophrenia between L&S’s assessment of what happens in actual real-world *ex post* licensing and the conceptual framework of their analysis, which is based on the proposition that the analysis should proceed on the premise that there would have been *ex ante* negotiations over particular technologies *before* those technologies were selected for incorporation into the standard (so as to give the SSO the opportunity to choose an alternative technology if the patent holder demanded too much for the use of its technology), negotiations which by their nature could *not* be done on a portfolio basis.

12. Multiple Issues to Be Resolved

L&S assert that “the only thing at issue [under their proposal] is which of two numbers [the two FOA proposals] in fact represents the more reasonable royalty.”⁴⁹ We strongly disagree. A simple review of a number of real-world licenses reveals that licenses address many other issues than simply the royalty rate. Issues that may need to be resolved include the royalty structure (running royalties versus lump-sum versus a combination); the time period over which royalties must be paid (e.g., for portfolio licenses,⁵⁰ whether the obligation to pay royalties extends until the expiration of the last-to-expire patent in the portfolio, or whether rates fall over time as some of the patents in the portfolio expire); the potential effect of judicial decisions or patent office actions on royalty rates (e.g., if some of the patents in the portfolio are declared invalid or revoked or amended by a reexamination process⁵¹); whether there is a single rate across all

⁴⁸ For example, suppose that an SSO is contemplating adopting a standard with two features F and G, for each of which there are competing alternatives F1, F2, etc., and G1, G2, etc. A particular patent holder that has patents on multiple features might submit “bids” associated with each feature, and the SSO would choose which alternative to adopt (incorporate into the standard) based on the bids submitted. Contrary to L&S’s assertion that “the hypothetical *ex ante* negotiation is not one in which all the buyers act collectively to reduce prices,” but instead “is one in which patentees negotiate with individual licensees just as they would in any other circumstance, subject to the constraint that they have pre-committed not to discriminate” (p. 1149), the logic of L&S’s approach is that the SSO would make a *collective* decision regarding which technologies to incorporate into the standard based on the way that the SSO members would vote on the proposed standard, which in turn would be based on the results of the (individuated) bilateral *ex ante* negotiations. Only after the fact would one know which alternatives belonging to a particular patent holder were selected by the SSO for incorporation into the standard, and thus what a “portfolio” license would entail.

⁴⁹ L&S, p. 1144.

⁵⁰ This issue is less likely to arise for single patents, which have a known expiration date, and it is logical for a FRAND license for a single patent to last until the expiration of the patent. For a portfolio of patents, the expiration dates of individual patents in the portfolio will generally be different.

⁵¹ L&S say that “under our approach, the arbitrator’s award is based on an *ex ante* probabilistic assessment of the entire portfolio. That *ex ante* assessment necessarily assumes that some patents in the portfolio may be invalid or not infringed. So there is no reason that a subsequent finding of invalidity should change the reasonable royalty determination. Some SSOs may want to make this point explicitly in their IPR rules by stating that FRAND rates established through arbitration remain in force regardless of the outcome (either way) of subsequent validity challenges to a subset of the patents in the portfolio” (p. 1162-1163). We acknowledge this point (subject to the caveat in Footnote 55 *infra*), though it does not address the fact that patents have a finite life and thus the number of active patents in a portfolio will decline over time as older patents expire, *whether or not* they are successfully challenged. But the fact remains that some real-world licenses do not comport with their suggestion. And to our knowledge, no SSO has explicitly adopted the L&S proposal that “FRAND rates ... remain in force regardless of the

products or different rates for different product categories (and, if so, what categories there are); whether royalty rates are constant or volume-varying; the possibility of caps (annual or aggregate) on royalties or minimum royalties; and (for percentage-based running royalties) the royalty base to be used.

Moreover, as L&S acknowledge, issues that may also have to be dealt with include cross-licensing obligations, reciprocity, the scope of any cross-license, and the scope of any defensive suspension provision. Other issues can arise, including whether a license to some firm “exhausts” the patent holder’s rights vis-à-vis those “downstream” from the licensee,⁵² choice of law provisions, dispute resolution mechanisms, payment deadlines, mechanisms for auditing royalty payments, and interest on late-paid or underpaid royalties. Because different parties can have different preferences over these dimensions of the license, FOA proposals can vary along all of these dimensions (and not just, as L&S acknowledge, between lump-sum royalties and percentage-based running royalties⁵³), making it more difficult for the arbitrator to select the “more reasonable” proposal.

The task is even more difficult when the ND aspect of FRAND is considered. Is it “discriminatory” when one licensee pays a lump-sum payment and another pays running royalties? Or when one pays a single rate across all of its products and another pays different rates for different product categories? How does one decide these sorts of issues? Simply put, the process is not as “simple” as L&S try to make it seem.⁵⁴

13. “Neutrality Principle”

L&S describe what they term a “neutrality principle” which they describe as “establishing a FRAND rate for a portfolio of standard-essential patents equal to the sum of the reasonable royalty rates for all of the individual standard-essential patents in that portfolio.”⁵⁵ Such a

outcome (either way) of subsequent validity challenges ...” and/or patent expiration at the end of the patent term. Certainly, L&S have not cited to any SSO that has adopted such a policy.

⁵² Under *Quanta Computer v. LG Electronics*, 533 U.S. 617 (2008), granting an “unrestricted” license exhausts the patent holder’s rights vis-à-vis those “downstream” from the licensee. But it appears to be an open question whether (and, if so, how) the parties can craft “restricted” (or “limited”) licenses that do not result in exhaustion.

⁵³ L&S, Fn. 26.

⁵⁴ L&S acknowledge that “issues of royalty base, double payment, and upstream/downstream rights [i.e., patent exhaustion] have come up in ordinary patent cases ... Those issues, thorny as they are ... are not unique to the FRAND context” (Fn. 34). We agree, but that does not mean that the arbitrator can focus only on issues “unique to the FRAND context” when determining FRAND licensing terms. L&S’s proposal that “we focus here on issues specific to the FRAND regime, not the more general challenge of determining reasonable royalty rates” (p. 1147) makes no sense. The task that they have undertaken is to establish a mechanism to determine the terms of a FRAND license, not just the royalty rate, and many issues not “unique to the FRAND context” have to be resolved when determining such licensing terms.

An argument can be made that in assessing “reasonable royalty” damages, the courts face a much easier task than that faced in setting the terms of a FRAND license, as the infringement has already occurred, no royalties have been paid, and the court is restricted to awarding cash damages plus prejudgment interest (it cannot, for example, compel the infringer to grant a cross-license).

⁵⁵ L&S, Fn. 52. The “neutrality principle” is questionable enough when applied to a portfolio of issued patents. When applied to a mixture of issued patents and pending patent applications, its merits are even more questionable. To see this, imagine that, on an ex ante basis, a firm had two pending patent applications; that it had a 50% chance of receiving each patent; that these chances were statistically independent of one another; that the parties agreed that, if and when each patent issued, it would command a 10% royalty rate; and that the rates would be additive.

proposal might better be termed an “additivity principle,” which is of much more general application than the particular “splitting the portfolio into subsets” example that L&S discuss.⁵⁶

To our knowledge, no SSO has adopted this “principle,” and it is inconsistent with sound economic analysis of the way that licensing works in a world of “probabilistic patents.”⁵⁷ The idea here is that, absent a patent license, the implementer cannot use the patented technology if the patent is valid and infringed. All it takes is a single proven-valid-and-infringed essential patent to block the implementer from making or selling standards-compliant products. That is, the value of patented technology comes largely from its ability to block unlicensed users from making or selling infringing products. Having more patents makes it more likely that at least one patent will be found valid and infringed, but the additional value is highly non-linear in the number of patents, is not additive with the number of patents⁵⁸ and does not match the L&S “neutrality principle.”

Value can be additive, sub-additive, or super-additive. In the extreme case of N essential complementary patents, the value of a license to any subset of patents is zero unless one has a license to all of the necessary patents, as even a single unlicensed patent can block the implementer from making the product.

Then the expected ex ante value of a FRAND license would be 10% (the 50% chance that the first patent would issue times a 10% royalty if it issued, or 5%, and similarly for the second patent). But if ex post neither of the patents had actually issued, the applicant would have no ability to exclude others from using the technology contained in the applications, and an implementer would not voluntarily pay anything for a license.

⁵⁶ L&S note, “Under this ‘neutrality principle,’ patent holders have no incentive to split up their portfolios, or combine them, to increase the overall FRAND royalty rate” (Fn. 52). They also discuss the “neutrality principle” at Fn. 82, in the same context.

⁵⁷ Lemley and Shapiro have previously noted the “probabilistic” nature of patent rights—the proposition that a patent has only some probability (not a certainty) of being found valid and infringed if challenged, despite the legal presumption of validity. See Lemley and Shapiro, “Probabilistic Patents,” 19 *J. Econ. Persp.* 2, 75–98 (2005).

⁵⁸ Suppose that any given patent has a 70% chance of being found valid and infringed. Then for the first patent, there is a 70% chance that the patent will be found to “block” implementation of the standard. Of the 30% of cases where the first patent is found invalid or not infringed, and assuming for ease of exposition that the probabilities associated with multiple patents are uncorrelated, there is a 21% chance (70% of 30%) that the second patent will block implementation of the standard, so that the probability that at least one of the two patents is found valid and infringed is 91% (70% + 21%). Of the 9% of cases where neither the first nor the second patent is found valid and infringed, there is a 6.3% chance (70% of 9%) that the third patent will be found valid and infringed, and thus a 97.3% chance (70% + 21% + 6.3%) that at least one of the three patents will block implementation. As more patents are added, the cumulative probability that at least one patent will be found valid and infringed converges to 100%, but it does so in a non-linear (and non-additive) way. Put another way, it takes only one successful “bullet” to prevent others from implementing the standard; the value of having additional “bullets,” while positive, declines asymptotically to zero. (Allowing the probabilities to be correlated changes the details of the calculation but not the underlying principle.) The blocking value increases with the number of patents, but not linearly, and not in a way that corresponds to L&S’s “neutrality principle.”

Imposing the “neutrality principle” might (as L&S note at Fns. 52 and 82) help reduce the incentives that a patent holder might otherwise have to split its patent portfolio into sub-portfolios so as to extract higher total royalties, but to our knowledge no SSO has adopted L&S’s “neutrality principle” as part of its IP policy, and it certainly does not follow from the other features of the L&S “simple proposal.” Indeed, similar proposals to determine royalties for particular patents (or particular portfolios) based on a “capped numerical proportionality” principle (which is similarly “additive”) have been rejected by a number of SSOs (notably ETSI’s rejection in the mid-1980s of the so-called “Minimal Change, Optimal Impact” proposal put forward by Nokia, Ericsson, and Motorola, a rejection that may have been in response to objections to the proposal raised by DG Comp, the European competition authorities).

L&S acknowledge that “the neutrality principle does not generally follow from the hypothetical, ex ante negotiation construct ...”⁵⁹ Nor does it follow from—indeed, it is antithetical to—the teachings of economics about the way that license negotiations would play out in practice in a world of “probabilistic patents.”

14. Auctions

L&S argue, “The commitment to license to all comers makes the auction approach proposed by some inappropriate.”⁶⁰ They say, “An auction presupposes licenses to a subset of bidders, instead of all of them, as FRAND requires.”⁶¹

We believe that this argument is overstated. To our knowledge, the original proposal for an “auction” in connection with standards setting was made by Swanson and Baumol,⁶² who proposed that the SSO itself make its decisions about which technology to incorporate into the standard by asking firms that were proposing to have their technology adopted into the standard submit “bids” on an ex ante basis of the royalties that they would charge if and when their technologies were adopted into the standard, and then choosing from among the “bids” by evaluating the “net” benefits (net of royalties) associated with each of the alternatives under consideration. In the Swanson–Baumol framework, what was being auctioned off was not licenses per se but the SSO’s decision of which technology to incorporate into the standard. The patent holder whose technology was selected had made an ex ante commitment (a “winning bid”) to make an unlimited number of licenses available to all implementers, at rates set by the SSO’s auction process (e.g., a bid would be of the form “I commit to charging no more than 1% to all applicants if/when my technology is adopted as part of the standard”).

They were not (as L&S suggest⁶³) proposing an auction of a number of licenses to a subset of bidders. The Swanson–Baumol “bids” were for the rates to be charged to an unlimited number of implementers of the standard by the patent holder whose technology was selected, not “bids” by potential implementers in an auction conducted on behalf of the patent holder for a limited number of licenses.

15. Unilateral Adoption

At one point, L&S suggest that, even if an SSO does not adopt their proposal, individual patent holders could commit themselves to binding arbitration to resolve disputes with potential

⁵⁹ L&S, Fn. 52.

⁶⁰ L&S, p. 1149.

⁶¹ L&S, Fn. 43.

⁶² Daniel G. Swanson and William J. Baumol, “Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power,” 73 *Antitrust Law Journal* 1, 51–56 (2005). L&S do not cite the Swanson–Baumol article in this context (though they do elsewhere, at Fn. 33), but do cite a Geradin, Layne-Farrar, and Padilla article from 2007 that responds (in part) to Swanson–Baumol.

⁶³ In this regard, Swanson–Baumol’s paper differs from the proposal made by David Newman, cited by L&S, who *does* propose an ex post auction of (a limited number of) licenses. See D. Newman, “Going Once... Going Twice... Licensed Under the Most Reasonable and Non-Discriminatory Bidding Terms!” 11 *NW. J. Tech. & Intell. Prop.* 139 (2013), cited in L&S, Fn. 43. L&S’s response is more suited to the Newman proposal than to the original Swanson–Baumol proposal or the Geradin/Layne-Farrar/Padilla article that L&S cite, whose discussion was a response to Swanson–Baumol. L&S do not differentiate between these two very different types of “auction.”

licensees.⁶⁴ We agree that patent holders *could* bind themselves in such a fashion, but whether they would *want* to do so is questionable. The concern here is an adverse-selection problem; patent holders who committed themselves to accepting binding arbitration would rationally be concerned that the only implementers who would accept such a proposal would be the ones who self-selected to participate, and who are not likely to be representative of all potential implementers. This is especially likely if implementers could accept the offer of arbitration only after licensing negotiations failed. It is one thing for an SSO to adopt a policy compelling members to submit to binding arbitration; it is quite another thing if implementers can self-select whether to participate.

16. Antitrust Issues and Conclusion

L&S argue that an SSO that fails to adopt their proposal may be liable under the antitrust laws for that failure. They say,

Antitrust has an important role to play where SSOs do not set clear rules or set rules that can readily be gamed. ... The SSO itself or its members may even face Sherman Act Section 1 antitrust exposure if the SSO rules are so vague as to facilitate patent holdup or a buyer's cartel. Even if the standard overall is pro-competitive (that is, it generates consumer benefits), under a 'least restrictive alternative' approach an SSO and its members may not be immune from antitrust scrutiny if the rules are significantly flawed in such a way that creates market power for some of the members.⁶⁵

We do not believe that this is a persuasive argument in favor of their "simple approach." SSOs have operated for many years with rules that others have long criticized as "vague" and "failing to provide guidance." Some have obtained Business Review Letters from the Antitrust Division vetting their IP policies. None has rules similar to L&S's "simple approach." Despite concerns expressed by some commentators and the antitrust agencies, the current system works reasonably well at developing welfare-enhancing compatibility and interoperability standards and balancing the interests of innovator patent holders and implementers. We find it hard to believe that an SSO that chose *not* to mandate compulsory arbitration of licensing disputes, but instead allowed them to be resolved (if and as needed) by the relevant courts, would thereby be seen as violating the antitrust laws.

Many SSOs have IP policies that explicitly provide that disputes over royalty terms are left to the parties or national courts, and that the SSO does not get involved in such disputes. None of those policies looks anything like the L&S proposal.

We should not be misunderstood. If some SSO voluntarily chose to adopt some or all of L&S's suggestions, after full deliberation of the costs and benefits associated with such a change that would be one thing. But no SSO has yet chosen to do so. That suggests to us that, despite the arguments put forward by L&S and other critics of the current system, the most directly interested parties—SSOs and their members—do not see an urgent need for the kinds of significant changes that L&S propose.

⁶⁴ L&S, p. 1138.

⁶⁵ L&S, p. 1164-1165.

Given the sheer number of standards adopted, number of standards-essential patents identified, large number of interested parties, large dollar magnitude of commerce in standards-compliant products, high profit margins associated with many such products, and long history of proposals for reform, the fact that there have been only a relatively small number of disputes suggests to us that the system “ain’t broke” and that it doesn’t need to be “fixed” in the way that L&S propose.