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# How High is Too High?: Reflections on the Sources and Meaning of Claim Construction Reversal Rates at the Federal Circuit

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# HOW HIGH IS TOO HIGH?: REFLECTIONS ON THE SOURCES AND MEANING OF CLAIM CONSTRUCTION REVERSAL RATES AT THE FEDERAL CIRCUIT

*Richard S. Gruner\**

*Some commentators believe that the Federal Circuit's reversal rates for claim construction cases indicate that the court's standards for claim construction are too vague and give too little guidance to lower courts on how to conduct claim construction. This Article argues that these interpretations of claim construction reversal rates are incorrect and that these rates are high because the cases that reach the Federal Circuit are outliers with particularly uncertain claims that are unusually likely to be interpreted differently by different courts. By contrast, the cases that do not reach the Federal Circuit involve claims that are clearer and that litigants tend to evaluate similarly in estimating similar case values and settling 88% of filed patent cases.*

*This Article reviews empirical research on Federal Circuit claim construction rates and lower court reversals. Then it discusses the probable impacts of case filtering on Federal Circuit appeals and reversals. The Article then explains why analysis of the Federal Circuit's claim construction standards should focus on case settlement rates rather than reversal rates.*

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## I. INTRODUCTION

Recent analysts have concluded that the claim construction reversal rates of the Court of Appeals for the Federal Circuit are too high.<sup>1</sup> Reported reversal rates of about 33% of cases based on disputed lower courts' claim constructions<sup>2</sup> suggest to some commentators that the Federal Circuit's standards for claim construction are too vague, leading to uncertainty about proper approaches to claim construction on the part of lower courts (and others such as patent attorneys who must predict lower court results to give patent scope and infringement advice to clients). The result, these analysts argue, is harmful for patent holders, potential infringers, and patent litigation processes.<sup>3</sup> Patent holders suffer due

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1. See, e.g., Jeffrey A. Lefstin, *Claim Construction, Appeal, and the Predictability of Interpretive Regimes*, 61 U. MIAMI L. REV. 1033, 1037 (2007) (noting that "the notion that the reversal rate [in claim construction cases] is 'too high' has become firmly ingrained in the minds of commentators, practitioners, and judges alike, and is typically the first premise invoked in support of arguments to overhaul the current system of adjudicating patent infringement disputes" (footnote omitted)); Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 27 (2001) (describing claim construction reversal rates as "high" and "problematic"); David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223, 225 (2008) (describing Federal Circuit claim construction reversals in patent cases as occurring at an "alarming rate").

While commentators have frequently expressed concern about the size of claim construction reversal rates, some have pointed out (as is argued later in this Article) that these rates may be no higher than reversal rates in other areas of the law. See Lefstin, *supra*, at 1038-39; Schwartz, *supra*, at 258-59 n.161.

2. See Moore, *supra* note 1, at 11 (noting that in cases resolved from 1995 to 1999, "[d]istrict court judges decided at least one claim construction issue wrong in 33% of all the appealed patent cases."); Kimberly A. Moore, *Markman Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 239 (2005) (finding that in 37.5% of cases leading to Federal Circuit reviews between April 23, 1996—the date of the Supreme Court's *Markman* decision—and the end of 2003, district courts wrongly construed at least a single claim term); Schwartz, *supra* note 1, at 248 (finding that Federal Circuit reversals of lower court claim constructions from 1996 to 2007 indicate that the Federal Circuit felt that 32.5% of the patent claims at issue were "wrongly" construed by the lower courts; 38.2% of cases had at least one term differently construed by the district and Federal Circuit courts).

3. The potential adverse implications of high claim construction reversal rates were summarized by then Professor, now Federal Circuit Judge, Kimberly A. Moore as follows:

The high reversal rate on claim construction is problematic. It creates uncertainty in patent cases and in patent claim scope analysis until the Federal Circuit review is complete. This hinders ex ante attempts to ascertain permissible behavior and ex post attempts to litigate infringement. Claim construction is critical to both infringement and validity determinations. Greater unpredictability exists for litigants and competitors if claim construction is not certain or definite until it is appealed to the Federal Circuit. In addition to the obvious effects on the cases that are reversed, which could include lengthy and expensive retrials, the high percentage of reversals increases

to uncertainty about the enforceable scope of patents and associated reductions in patent value. Potential infringers suffer from unnecessary avoidance of some noninfringing activities. Judicial processes suffer because of wasted court and litigant actions as claim constructions are adopted and relied upon in trials and then unexpectedly reversed in later appeals leading to the need for duplicative litigation.

This Article argues that these are mistaken interpretations of measured reversal rates in Federal Circuit claim construction appeals. Cases reviewed and frequently reversed by the Federal Circuit are argued here to be outliers, selectively filtered by the case settlement processes that dominate patent litigation to ensure that only the most uncertain claim construction cases reach the Federal Circuit. As they review cases with high claim construction uncertainty, it is hardly surprising that district courts and Federal Circuit judges see the intensely factual and highly technical issues surrounding the meaning and construction of patent claims differently.

A Federal Circuit appeal and review follows a series of opportunities and failures of the parties to settle the applicable patent litigation despite ever-increasing discovery and learning of the parties about the nature and the value of the case as it has proceeded. This suggests that a case reaches the Federal Circuit because the parties still differ on some key factual or legal aspects of the case. From their respective viewpoints based on different factual or legal characterizations, the parties have generally assigned significantly different case values to the litigation and are accordingly unable to reach similar settlement terms. Under these conditions of uncertainty and materially different findings deemed plausible by the respective parties, coupled with the ability of litigants to take clear (or at least similarly perceived) cases out of the adjudicatory system through settlements, the surprising question is not why the Federal Circuit claim construction reversal rates are so high, but rather why these rates are not even higher.

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litigation overall. Because of the increased uncertainty attending *de novo* review of claim construction, parties are less capable of predicting their chances of winning and therefore less likely to settle.

Moore, *supra* note 1, at 27–28.

Furthermore, given the ability and tendency of litigants to shift their case selection practices and choose to press cases to the Federal Circuit based on whatever range of cases are perceived to be uncertain under then-prevailing standards of patent law or judicial preferences, cases appealed to the Federal Circuit may always have types of large uncertainties that will ensure high reversal rates. This will be true regardless of the care taken by lower courts in resolving claim constructions and the possibility that district court claim constructions will improve with growing experience in claims construction analyses. At whatever skill or accuracy level district courts conduct their analyses, some of their analyses will leave behind material uncertainties. This component of cases will tend to be the ones appealed to the Federal Circuit, with the result that reversal rates will stay high even as patent standards, district court skills, and the clarity of lower court claim constructions improve. In short, so long as litigants cherry-pick only those uncertain cases involving difficult or peculiarly indeterminate claim construction analyses to the Federal Circuit reversal rates will be substantial through no fault or responsibility of the district courts.

Litigants tend to ensure that simple cases are filtered out through settlement processes. As a result, the cases brought forward for appeals involve a large fraction of cases that have material factual and legal issues still outstanding after trials and that provide substantial support for different findings from those reached by the district courts in the same cases. This means that the cases presented to the Federal Circuit are frequently at tipping points and the stage is set in many such cases for different results in the Federal Circuit. The fact that such different results are achieved in many claim construction cases—particularly under the *de novo* review standard applied to claim constructions by the Federal Circuit—is hardly surprising.

Conversely, the fact that the claim construction guidance of the Federal Circuit supports case settlements in about 88% of filed patent cases<sup>4</sup> suggests that there is presently sufficient certainty in the operative claim construction system. The uncertainty and high reversal rates seen in Federal Circuit results are not fairly

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4. See UNIV. OF HOUSTON LAW CTR., DISTRICT COURT DISPOSITION MODES FOR PATENT CASES—FY 2008, [http://www.patstats.org/2008fy\\_Patent\\_Case\\_Disposition\\_Modes.doc](http://www.patstats.org/2008fy_Patent_Case_Disposition_Modes.doc) (2009) (looking at all patent cases in 2008).

characteristic of the overall case resolution results achieved by patent standards governing legal analyses and case outcomes. Rather than being impeded by unmanageable uncertainty in case analyses, most patent litigants considering settlements seem to find their own ways to reach joint—and presumably roughly similar—analyses of case features, to make similar estimates of case value based on their respective interpretations of case features, and to agree on settlement terms accordingly. Settlements will tend to result where the litigants' estimates of case values (based on predicted liability results) differ by no more than the projected litigation costs likely to be incurred if litigation continues, such that the litigants are better off ignoring their differences, agreeing on settlement terms reflecting a case value somewhere between their respective estimates, and avoiding the litigation costs that would otherwise follow.

The generally parallel case views of parties to settlements will typically include parallel views about important case details such as the material features of claim constructions. This is particularly true of claim constructions because of their central role in determining case value. Claim constructions and resulting claim scope evaluations have a threshold analytic importance in determining the range of exclusivity associated with a patent and, hence, the range of patent infringement and associated damages liability and injunctive relief at issue in particular cases. Given this fundamental role of claim constructions in determining patent infringement liability, it is hard to imagine how opposing litigants relying on significantly different claim constructions could nonetheless see similar liability potential in particular cases and come to similar estimates of case values and acceptable settlement terms. It seems far more likely that settlement agreements reflect some substantial similarity in the claim construction predictions of the opposing litigants should their cases be fully litigated, leading to further parallel conclusions of the parties about likely liability outcomes, case values, and jointly acceptable settlement terms.

Absent such parallel understandings of their cases leading to similar (although not precisely identical) estimates of case value, patent litigants would be unlikely to agree to terminate cases through settlements. Hence, the cases where settlements are found are likely those where roughly similar projections of court outcomes (or at least the spectrum of probable outcomes) are held by the parties to

particular settlements. Federal Circuit standards for claim construction—coupled with private fact finding as patent enforcement disputes develop—provide the common analytic frameworks and shared factual underpinnings in particular patent cases that tend to cause many disputants to adopt similar predictions about the claim constructions that courts are likely to apply if the cases are fully litigated. This, in turn, encourages the disputants to embrace similar views of projected patent enforcement liability leading to settlement offers and agreements.

The adequacy of present claim construction standards to support these sorts of settlement processes should be the measure of success of Federal Circuit standards, with actual Federal Circuit reviews of those cases not settled seen as a secondary feature involving a “failed process” backup to the settlement processes that dominate patent litigation. Under this view, Federal Circuit standards are succeeding because patent litigants are finding their own ways to press and resolve filed patent cases (and to resolve further prelitigation disputes that do not even raise sufficient uncertainty to justify the filing of a patent case).

This Article begins with a quick review of empirical research on Federal Circuit claim construction results and lower court reversals. This includes a brief summary of prior commentators’ interpretations of these results, with an emphasis on why these analysts have seen existing reversal rates as problematic.

Next, the Article describes the selection processes that ensure appealed cases presenting claim construction issues tend to include large numbers of cases in which claim constructions are both material and indeterminate—that is, cases in which there are several plausible claim interpretations, each with substantial support in the case record, but each leading to a very different case result. This is the type of case that selection processes feed to the Federal Circuit, leading to reversal rates that say little about claims construction standards and a lot about litigation filtering and appellate caseload atypicality.

Following this discussion of the probable impacts of case filtering on Federal Circuit appeals and claim construction reversals, the Article considers the size of Federal Circuit claim construction reversal rates predicted by case selection theory, with attention to whether these rates are abnormally high, about normal, or even

surprisingly low given the institutional character of the Federal Circuit court and the highly filtered nature of the cases that it considers. This analysis extends to Federal Circuit appeals models of litigation processes and litigation success rates that analyze trials as instances of failed settlement processes. This analysis treats a Federal Circuit appeal as a consequence of a failure to settle a patent case following a trial result. The analysis in this section evaluates whether the claim construction reversal rates observed in the Federal Circuit are consistent with the rates predicted by this model.

Finally, the Article assesses the reasons why evaluations of the merit and success of the Federal Circuit's claim construction standards should focus on case settlement rates, not reversal rates. This type of evaluation of claim construction processes has the advantage of measuring how the Federal Circuit's claim construction guidance is impacting the great bulk of patent case resolutions. This stands in contrast to evaluations emphasizing reversal rates, which focus on only a small number of appealed patent cases—a group of cases that, due to selection effects, are highly likely to be atypical of patent litigation generally.

## II. CLAIM CONSTRUCTION PROCESSES AND MEASURED REVERSAL RATES

### *A. The Claim Construction Task*

Claim construction involves the analysis of patent claim language<sup>5</sup> to give meaning to ambiguous terms.<sup>6</sup> The objective is to determine the scope of patent protection described by the claims. Claims language is required to be interpreted with the perspective and understanding of terms that would be held by a person of average skill in the technological art (a PHOSITA) in the field of the invention described in the claims. Despite this context-specific, field-situated version of meaning that must be used to determine claims scope, the task of interpreting patent claims is seen by the Supreme Court as involving an unusual form of fact finding. Patent claim interpretation is viewed as a variety of legal document interpretation,

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5. Patent claims are numbered sentences listed at the end of a patent that describe the invention for which protection is "claimed" under the patent and that define the scope of the patentee's right to exclude others. 35 U.S.C. § 112 (2006).

6. *See, e.g., Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

a close cousin to document interpretation that is undertaken with some regularity by federal courts in other legal contexts such as real property deed interpretation. Largely because of their experience in interpreting legal documents in other contexts, federal courts are seen by the Supreme Court as being institutionally more competent than juries to interpret patent claim terms. Consequently, in the absence of congressional direction to the contrary, the Supreme Court has held that federal courts rather than juries are solely responsible for determining the meaning of patent claims terms in litigation.<sup>7</sup>

Federal district courts undertake claim construction as a step in patent litigation to produce an interpretation and description of patent boundaries that can be used by fact finders in determining whether the conduct of an asserted patent infringer involves the invention described and limited by a particular patent. Claim construction is also necessary as patent attorneys analyze patents and give opinion letters as to whether contemplated or actual conduct of clients is likely to infringe particular patents.

In conducting claim construction analyses, federal district courts must look first to sources of meaning in the patent documents at issue. In *Phillips v. AWH Corp.*<sup>8</sup> the Federal Circuit provided guidance to district courts on the sources that should be considered in claim construction.<sup>9</sup> The court indicated that the meaning of claim language should be determined primarily from intrinsic evidence, including the claim language at issue, other claims in the patent, the additional content of the specification portion of the patent, and the accumulated correspondence between the patent applicant and the U.S. Patent and Trademark Office recorded in the “prosecution history” file for the patent.<sup>10</sup> The court also indicated that extrinsic evidence—that is, evidence “external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises”<sup>11</sup>—should be considered in giving meaning to terms in claim construction, but that extrinsic evidence is “less

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7. *Id.* at 391.

8. 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

9. *Id.* at 1316.

10. *Id.* at 1316–17.

11. *Id.* at 1317 (quoting *Markman v. Westview Instruments*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc)).

significant than the intrinsic record in determining the legally operative meaning of claim language.”<sup>12</sup>

### *B. Judicial Challenges in Claim Construction*

This Article does not attempt to summarize the extensive literature on the difficulties of patent claim construction. This literature has emphasized several reasons why nontechnically trained district courts face unusual challenges in attempting to give meaning to highly technical terms in patents describing inventions at the leading edge of advancing fields of science and engineering where even the most sophisticated specialists in these fields may have difficulties in keeping up. Two of the most important sources of problems are the lack of technical backgrounds of most federal district courts and the lack of sufficiently numerous patent cases for district courts to gain substantial experience with claim construction.

Professor Arti K. Rai described the knowledge gap that makes patent claim construction considerably more challenging than other types of documentary interpretation undertaken by district courts as follows:

[P]atent scope is determined by construing the claims listed in the patent text. Many texts with which judges must deal, particularly statutory texts, are directed at the ordinary speaker of English. All judges are presumably ordinary speakers of English and thus are qualified to interpret these texts according to their ordinary meaning. By contrast, under long-established patent case law, patent claims are *not* directed at the ordinary speaker of English; rather, they are directed at the [person of average skill in the technological art (PHOSITA)]. Claim construction therefore requires a determination of what the language of the patent claims would have meant to the PHOSITA at the time the invention was made. Because the typical judge is not likely to be a person of ordinary skill in the relevant scientific or technological art, she is not likely to be endowed with the appropriate technical knowledge. As a consequence, even after examining a claim term in light of

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12. *Id.* at 1317 (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)); *see also* *Astrazeneca AB v. Mutual Pharm. Co.*, 384 F.3d 1333, 1337 (Fed. Cir. 2004).



the accompanying specification (or, more generally, in light of any of the applicable canons of claim construction) she might still find the term difficult to understand. Indeed, to the extent that the judge assumes that she knows the meaning of a particular term, it may be that she is making incorrect assumptions about how one skilled in the art would interpret the language.<sup>13</sup>

Trial court judges of general background and jurisdiction also have limited opportunities to build up experience and specialized skills in conducting patent claim reviews. The barriers to gaining experience in this area were summarized in 2001 by then Professor, now Federal Circuit Judge Kimberly A. Moore:

[G]enerally [district court judges] do not adjudicate enough patent cases to develop expertise with the law and certainly not with the technology which changes from case to case. There are 646 active district court judges and more than 200 senior district court judges. Approximately 2200 patent cases are filed each year. These figures indicate that district court judges are not seeing very many patent cases each year. In fact, substantive involvement by district court judges in patent cases is far less than these numbers suggest because the majority of patent cases are resolved via settlement or prior to any significant court involvement. Only 5% of the patent cases filed each year go to trial (about 100 of the 2200 patent cases). While district court judges may have more exposure to patent cases than jurors, their exposure to the technology and legal doctrines that arise in patent cases is very limited. In light of these numbers, it seems unlikely that district court judges will have sufficient exposure to patent cases or sufficient incentive in light of the *de novo* review to improve at construing patent claim terms.<sup>14</sup>

More recently, using data on more recent patent cases, Moore noted that “[m]y data show that the district courts resolve 2800 patent cases each year, but only 3% of these reach trial.”<sup>15</sup> Hence, the

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13. Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035, 1046–47 (2003) (footnotes omitted).

14. Moore, *supra* note 1, at 30–31 (footnotes omitted).

15. Kimberly A. Moore, *Populism and Patents*, 82 N.Y.U. L. REV. 69, 84 (2007).

great bulk of experience with claim constructions related to resolving patent disputes is acquired by patent litigation counsel in the course of litigation preparation and settlement discussions, rather than by district courts who rarely hear patent cases.

Thus, district court judges who, according to the Supreme Court's *Markman* ruling,<sup>16</sup> have the primary institutional responsibility for resolving claim construction issues and for reducing claim construction uncertainty in trial proceedings, generally do not have the technical backgrounds that might help them in these difficult tasks. Nor do they have many opportunities to acquire sufficient claim construction experience to materially improve their claim construction skills. And, as is explained more fully below, the claim construction issues these judges resolve are frequently heavy in uncertainties, the simpler claim construction issues having often been resolved through case settlements.<sup>17</sup> It is not surprising that a substantial fraction of trial court findings regarding claim constructions diverge from the reasoning of ordinary specialists in the relevant technologies and are therefore subject to successful challenges on appeal.<sup>18</sup>

In light of the institutional weaknesses of district courts in this context, it is perhaps fortunate that trial court judges do not perform the claim construction analyses that determine most patent case outcomes. As noted by Moore, most filed patent cases do not proceed as far as trial but instead are settled.<sup>19</sup> These settlements are products of claim construction and patent infringement analyses by private litigants. Their settlements suggest that the litigants have reached sufficiently similar results in their claim constructions and infringement analyses to support overlapping evaluations of case value, or at least evaluations that are close enough to overlap to produce agreements on settlement terms.<sup>20</sup> In these private analyses,

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16. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 391 (1996). The Supreme Court held in *Markman* that judges, not juries, are responsible for construing patent claims. *Id.*

17. *Infra* Part IV.

18. *See infra* Part IV.C.

19. Moore, *supra* note 1, at 30.

20. Parties whose estimates of case value are similar, but not overlapping, will still tend to settle cases if the differences in their estimates are no greater than the sum of their projected litigation costs for the remainder of the litigation. Parties will tend to settle in these cases as a means to avoid litigation costs that are unlikely to achieve a net benefit to the parties. *See* George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 4 (1984).

the relevant lawyers may not suffer from the types of disabilities noted by Rai and Moore because the lawyers may well have the needed technical backgrounds to conduct claim constructions and extensive experience in completing claim construction analyses. Hence, there are reasons to expect that claim constructions in the settlement processes that dominate the resolution of patent cases are far less uncertain than the small fraction of analyses (perhaps as small as 3% of filed patent cases according to Moore) that are undertaken by district courts and that influence appellate reversal rates.

### C. Appellate Reversal Rates

Past studies of Federal Circuit claim construction reversal rates have varied in at least three dimensions: (1) time covered; (2) rulings considered; and (3) types of claim construction reversals measured.<sup>21</sup> A series of studies have examined Federal Circuit rulings since the Supreme Court's *Markman* decision clarifying the central role of trial courts in claim construction. However, the studies have considered cases decided during different windows of time as described below. Some analysts have considered only cases resulting in Federal Circuit opinions addressing lower court claim constructions while other analysts have considered these opinions plus summary affirmances pursuant to Rule 36.<sup>22</sup> Various analysts have computed and reported at least three different types of reversal rates related to claim constructions (often reporting rates for two or more of these types of actions): (1) rates at which the Federal Circuit overturned at least one lower court claim construction (that is, the fraction of cases with at least one revised construction); (2) claim-level rates for reversals by the Federal Circuit (that is, the fraction of claims reviewed receiving revised constructions); and (3) rates at which case outcomes were reversed due to changes in claim constructions by the Federal Circuit.<sup>23</sup> The last of these measures is probably the most meaningful because it assesses the degree to which Federal Circuit differences with lower court claim

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21. Professor Moore has recognized these differences in approach and the difficulties they raise in comparing the results of the different studies of claim construction reversals by the Federal Circuit. See Moore, *supra* note 2, at 234–38.

22. *Id.* at 234–36; e.g., Schwartz, *supra* note 1, at 238.

23. E.g., Moore, *supra* note 2, at 238; Schwartz, *supra* note 1, at 240.

constructions actually produced different outcomes for patent litigants.

Case reversal rates due to Federal Circuit claim construction revisions have been measured at 27% to 40% in studies encompassing regular Federal Circuit opinions and summary affirmances under Rule 36<sup>24</sup> and at even higher reversal rates of 41% to 53.5% in studies that ignored these summary affirmances.<sup>25</sup> This subsection briefly describes these studies and their findings.

### 1. Gretchen Ann Bender

Analyzing 160 Federal Circuit evaluations of lower court claim constructions between the date of the Supreme Court's *Markman* decision<sup>26</sup> and 2000, Gretchen Ann Bender found that "on appeal, the Federal Circuit change[d] the claim construction in approximately 40% of the cases."<sup>27</sup> Bender's analysis focused on numbers of cases in which the Federal Circuit changed at least one lower court claim construction.<sup>28</sup> Her assessment took into account both published and unpublished Federal Circuit opinions, but excluded summary affirmances under Rule 36.<sup>29</sup> She did not report a figure for Federal Circuit case reversals based on revised claim constructions.<sup>30</sup>

### 2. Christian A. Chu

Based on a review of opinions filed by the Federal Circuit between January 1, 1998 and April 30, 2000 (excluding Rule 36 affirmances), Christian A. Chu found 179 patent cases that involved express reviews of claim constructions.<sup>31</sup> In these cases, the Federal

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24. See, e.g., Gretchen Ann Bender, *Uncertainty and Unpredictability in Patent Litigation: The Time Is Ripe for a Consistent Claim Construction Methodology*, 8 J. INTELL. PROP. L. 175, 206–07 (2001); Moore, *supra* note 1, at 2; Moore, *supra* note 2, at 233; Schwartz, *supra* note 1, at 234.

25. E.g., Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1098–1100 (2001); Michael Saunders, *A Survey of Post-Phillips Claim Construction Cases*, 22 BERKELEY TECH. L.J. 215, 233 (2007); Andrew T. Zidel, *Patent Claim Construction in the Trial Courts: A Study Showing the Need for Clear Guidance from the Federal Circuit*, 33 SETON HALL L. REV. 711, 744–47 (2003).

26. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

27. Bender, *supra* note 24, at 207.

28. See *id.* at 202–08.

29. See *id.* at 207 & nn.216–17.

30. See *id.* at 175–222.

31. Chu, *supra* note 25, at 1092, 1104.

Circuit modified claim interpretations in 78 cases, or 44% of the total.<sup>32</sup> However, some of these modifications did not change case results. Chu found that only 53 out of the 78 cases were reversed on the basis of the Federal Circuit's reviews of claim constructions.<sup>33</sup> Thus, Chu concluded that "the Federal Circuit reversed 29.6% of cases involving an express review of claim construction."<sup>34</sup>

### 3. Kimberly A. Moore (2001)

Based on an analysis of 323 claim construction cases appealed to the Federal Circuit from April 23, 1996 (the day the Supreme Court issued the *Markman* decision) through December 31, 2000 (including summary affirmances under Rule 36), Moore found that the Federal Circuit disagreed with at least one claim construction by the relevant district courts in 33% of all claim construction appeals to the Federal Circuit.<sup>35</sup> Most but not all of these disagreements over claim construction resulted in case reversals.<sup>36</sup> Focusing on those claim construction disagreements that produced changes in case outcomes, Moore found that the Federal Circuit appeals considered in her 2001 study "show an overall case reversal/vacate rate of 27% in the database directly attributable to errors in district court claim construction."<sup>37</sup>

### 4. Kimberly A. Moore (2005)

A few years later, Moore reassessed the Federal Circuit's reversal rate for claim construction appeals based on a larger set of decided appeals. In this study, Moore once again considered all forms of Federal Circuit resolutions of claim construction appeals, emphasizing in particular the importance of including Rule 36 affirmances.<sup>38</sup> Her 2005 study considered Federal Circuit claim construction appeals from 1996 (after *Markman* was decided) through 2003:

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32. *Id.* at 1104.

33. *Id.*

34. *Id.*

35. Moore, *supra* note 1, at 8–9, 11.

36. *Id.* at 13.

37. *Id.* at 14.

38. Moore, *supra* note 2, at 234–37.

After a *de novo* appeal, the Federal Circuit held that 34.5% of the terms were wrongly construed by the district court. In the [cases considered in Moore's study], the Federal Circuit held at least one term was wrongly construed in 37.5% of the cases. In the cases in which one or more term was wrongly construed, the erroneous claim construction required the Federal Circuit to reverse or vacate the district court's judgment in 29.7% of the cases.<sup>39</sup>

Interestingly, Moore found that patent holders and asserted infringers suffered from about the same reversal rates in pressing appeals to the Federal Circuit.<sup>40</sup> District court claim constructions that favored patent holders were reversed 32.3% of the time, while claim constructions that favored asserted infringers were reversed 33.2% of the time.<sup>41</sup>

Moore presented a compelling argument that the full impact of Federal Circuit rulings on lower court claim constructions should be measured from all forms of dispositions including summary affirmances under Rule 36. Because Rule 36 summary affirmances express the views of the Federal Circuit on the legitimacy of lower court claim constructions, Moore correctly concluded that analyses that omit these summary affirmances will almost certainly produce reversal rates that are "inaccurate" and "artificially high."<sup>42</sup>

Moore gave the following estimate of the size of errors in reversal rates omitting Rule 36 affirmances:

To understand the magnitude of the error in [omitting consideration of Rule 36 summary affirmances], consider this study. Of the 1100 claim construction terms appealed in this study, 15.5% (170) were resolved by Rule 36 summary affirmance, 34.7% (328) were resolved via non-precedential opinion of the court, and 49.8% (548) were resolved via precedential opinion of the court. The resultant reversal rate of 34.5% considered all of these cases. If the Rule 36 summary affirmances are left out, the reversal rate becomes 40.8%.<sup>43</sup>

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39. *Id.* at 239.

40. *Id.* at 241.

41. *Id.* at 241 tbl.1.

42. *Id.* at 234–36.

43. *Id.* at 236.

5. Judge Randall R. Rader's Opinion in  
*Cybor Corp. v. FAS Technologies, Inc.*

One particularly influential (but frustratingly undocumented and unexplained) study of claim construction reversals was relied upon by Federal Circuit Judge Randall R. Rader in his separate opinion in *Cybor Corp. v. FAS Technologies, Inc.*<sup>44</sup> Dissenting from the Federal Circuit's en banc ruling in that case that trial court claim constructions should be reviewed de novo without deference, Rader cited a study of claim construction reversals from an unnamed source as evidence of the dangers of high rates of Federal Circuit revisions of lower court claim constructions:

[O]ne study shows that the plenary standard of review has produced reversal, in whole or in part, of almost 40% of all claim constructions since *Markman I*. A reversal rate in this range reverses more than the work of numerous trial courts; it also reverses the benefits of *Markman I*. In fact, this reversal rate, hovering near 50%, is the worst possible. Even a rate that was much higher would provide greater certainty.<sup>45</sup>

Rader provided a little more information on this study in a footnote:

[The 40% reversal rate] figure is based on a survey of every patent decision rendered by the Court of Appeals for the Federal Circuit between 5 April 1995 (the date *Markman I* was decided) and 24 November 1997. A total of 246 patent cases, originating in the Board of Patent Appeals and Interferences (BPAI), the district courts, and the Court of Federal Claims, were evaluated. Of the 246 cases, 141 cases expressly reviewed claim construction issues. Among these 141 decisions, this court reversed, in whole or in part, 54 or 38.3% of all claim constructions. With respect to the district court and Court of Federal Claims cases, the rate of reversal of claim constructions is 47 out of 126 or 37.3%.<sup>46</sup>

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44. 138 F.3d 1448, 1473-76 (1998) (en banc) (Rader, J., dissenting).

45. *Id.* at 1476 (footnote omitted). The reference to *Markman I* in this quote relates to the Federal Circuit's en banc decision clarifying the claim construction responsibilities of federal district courts in *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995).

46. *Cybor*, 138 F.3d at 1476 n.4.

The study cited by Rader produced a reversal rate figure comparable to other studies that omitted summary affirmances under Rule 36.<sup>47</sup> The failure of Judge Rader to note whether these summary affirmances were included in the reversal rate he cited may undercut the validity of some of his conclusions, as noted by Moore.<sup>48</sup> She found in her research that 15.5% of claim construction appeals to the Federal Circuit were resolved by summary affirmances under Rule 36.<sup>49</sup> As Moore pointed out, omitting as many as 15% of the relevant Federal Circuit dispositions of claim construction cases—particularly where all of the omitted dispositions were affirmances and would contribute uniformly to lowering the claim construction reversal rate—was likely to produce a significantly higher reversal rate than an analysis that included the summary affirmances.<sup>50</sup> Hence, without greater clarity as to whether Rule 36 affirmances were included, it is hard to know what to make of the 38.3% claim construction reversal rate figure cited by Judge Rader.<sup>51</sup>

#### 6. Michael Saunders

Michael Saunders based his study of claim construction reversals on Federal Circuit rulings from July 13, 2005, immediately after the *Phillips* decision (in which the court clarified its views on the sources to be considered in claim construction<sup>52</sup>), through September 13, 2006.<sup>53</sup> The study excluded Rule 36 affirmances, meaning that it was likely to produce higher reversal rates than studies like Moore's that included Rule 36 affirmances. Comparing his results to those in Chu's study (which also excluded Rule 36 affirmances), Saunders summarized his results as follows: "Compared to the results of Chu's study, the overall reversal rate in claim construction cases, excluding summary affirmances, is 53.5%, slightly up from 47.3% for Chu's study. Similarly, the percent of

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47. These further studies and their results are described below in Parts II.C.6 and II.C.8, *infra*.

48. See Moore, *supra* note 2, at 237–38.

49. *Id.* at 236–37.

50. *Id.*

51. See *id.* at 237–38.

52. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

53. Saunders, *supra* note 25, at 221–24, 235.



cases where at least one construction changed is 39.5%, only slightly down from 44% from Chu's study."<sup>54</sup>

#### 7. David L. Schwartz

Based on a study of all Federal Circuit dispositions (including Rule 36 affirmances) between the date of the *Markman* decision and June 30, 2007 in cases where the parties disputed a district court's construction of a claim term, David L. Schwartz found that the Federal Circuit's reversals indicated that the court believed that "32.5% of the terms were 'wrongly' construed by the lower court. Also, 38.2% of cases had at least one term wrongly construed. Moreover, 29.7% of the cases had to be reversed, vacated, and/or remanded because of an erroneous claim construction."<sup>55</sup>

#### 8. Andrew T. Zidel

Andrew T. Zidel studied claim construction cases decided by the Federal Circuit in 2001 (excluding Rule 36 affirmances) and found a case reversal rate (in whole or in part) of 41.5%.<sup>56</sup> He also studied the reasons cited by the Federal Circuit for its reversals of lower court claim constructions.<sup>57</sup> The most frequent reasons included (1) the improper importation of limitations from a patent specification into claims; (2) the failure to adopt the perspective of a party with ordinary skill in the relevant technology area when construing claims; (3) the misuse of dictionaries to give meaning to terms in construing claims; and (4) errors in working with means-plus-function style claims.<sup>58</sup>

#### 9. Summary of the Findings

Moore's and Schwartz's analyses of Federal Circuit claim construction results seem to be the best of the above studies because their studies included Rule 36 summary affirmances. These analyses found claim construction reversal rates that were remarkably similar over time. Moore, in her 2005 study focusing on Federal Circuit dispositions from 1996 through 2003, found a case reversal/vacate

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54. *Id.* at 236.

55. Schwartz, *supra* note 1, at 248–49 (footnote omitted).

56. Zidel, *supra* note 25, at 744–46.

57. *Id.* at 748–52.

58. *Id.*

rate due to claim construction analyses of 29.7%,<sup>59</sup> up slightly from the 27% found in her earlier study focusing on 1996 to 2000.<sup>60</sup> Schwartz, looking at cases from 1996 to 2007, found a reversal/vacate rate of 29.7%—a rate identical to Moore’s measurement.<sup>61</sup> While Schwartz’s study seems to have subsumed the cases considered in Moore’s studies, the consistency of Moore’s results for 1996 to 2003 with those Schwartz reached based on the longer period of 1996 to 2007 suggests that the rate for 2003 to 2007 must have been roughly equal to that for 1996 to 2003.<sup>62</sup> The consistency of this rate over time, despite the differences of case types, judges, and standards of review, is remarkable.

*D. Implications of Federal Circuit  
Reversal Rates for Claim Constructions*

A number of analysts who have studied Federal Circuit reversal rates for claim constructions have concluded that these rates are excessive and indicative of major flaws in claim construction standards and processes. The remarks of Moore are typical in her highly negative interpretations of the implications of these measured reversal rates:

[Findings suggest that] district court judges improperly construe patent claim terms in 33% of the cases appealed to the Federal Circuit. This is problematic for two reasons. First, it raises concerns about the efficiency of an adjudication system where no appellate review of these decisions is permitted until all issues are resolved by the trial court applying its claim construction. . . .

Second, the 33% error rate for claim construction creates doubt about the abilities of district court judges to adjudicate complex technical patent cases.<sup>63</sup>

While Moore’s comments are insightful and accurate with respect to potential trial inefficiencies, her comments should not be

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59. Moore, *supra* note 2, at 239.

60. Moore, *supra* note 1, at 14.

61. Schwartz, *supra* note 1, at 249.

62. This conclusion follows as a mathematical certainty because, if the rate was 29.7% for the period of 1996 to 2007 and also 29.7% for the lesser period of 1996 to 2003, it must have also been about 29.7% for the other lesser period of 2003 to 2007.

63. Moore, *supra* note 1, at 2–3 (citations omitted).

extended beyond the narrow range of patent cases litigated to completed results in district courts. Were it possible for district courts to regularly give definitive claim constructions that would hold up in most cases on appeal, trial procedures would no doubt be streamlined and cases would be tried with less duplicative effort and expense. However, there are two reasons why we should exercise caution in seeking to improve district court efforts in this area, at least based on the evidence of Federal Circuit reversal rates.

First, it is not clear that the problems experienced by district courts in claim constructions at trial—that is, apparent claim construction “errors” or differences from Federal Circuit views as indicated by reversals—are shared in the case settlement analyses by trial counsel and clients who resolve most patent cases. As will be argued later, settled cases are often less complex and uncertain regarding outstanding, material facts than those cases resolved through trials and appeals. Furthermore, counsel and clients conducting claim constructions as part of settlement discussions will often have the technical backgrounds and claim construction experience that district courts lack. Hence, the Federal Circuit’s present guidance on claim construction may be unworthy of significant reforms if this guidance is sufficient to aid parties in resolving most patent disputes through case settlements.

Second, focusing only on cases that do go to trial, changes in Federal Circuit guidance or standards of review regarding district court claim constructions may not alter appellate reversal rates substantially because these rates are not at bottom the result of errors by district courts, but are rather the result of uncertainty-preferring appellate case selection practices ensuring high reversal rates of lower court claim constructions on appeal. As claim constructions are conducted under new standards, a set of cases will remain with some lingering uncertainties. As a result, litigants operating under new standards will just tend to appeal the cases with remaining uncertainties, leading to a still-high reversal rate on appeal. Hence, extensive revisions in district court guidance or practices to “fix” Federal Circuit reversal rates may be a lost cause because these rates are not consequences of mistakes or errors by district courts, but rather are direct products of uncertainties and plausible alternative findings in the small fraction of litigated patent cases that result in Federal Circuit appeals. The reasons why cases appealed to the

Federal Circuit diverge in characteristics from patent disputes generally are discussed in the next part of this Article.

### III. SELECTION PROCESSES SHAPING FEDERAL CIRCUIT CLAIM CONSTRUCTION APPEALS—WHY FEDERAL CIRCUIT APPEALS ARE UNCERTAIN OUTLIERS IN THE FIELD OF CLAIM CONSTRUCTION

The significance of Federal Circuit claim construction reversal rates and the negative implications about claim construction standards that can be drawn from those rates are undercut by the fact that these rates are based on Federal Circuit appeals that are likely to be highly uncharacteristic of patent disputes and infringement analyses generally. Federal Circuit appeals of lower court claim constructions are shaped by selection processes that ensure these appeals are outliers and not characteristic of claim construction issues confronted by litigants and legal advisors generally.<sup>64</sup>

Reversal rates for these abnormal cases provide poor measures of the quality of either district court claim construction analyses or associated Federal Circuit standards.<sup>65</sup> Rather, these appeals—and

64. The impact of selection effects in making appealed patent cases outliers and unrepresentative of the full set of legal disputes in the patent field is not limited to patent litigation. A number of researchers have recognized that litigation processes tend to select distinctive types of cases for trials and appeals, causing those selected cases to be atypical of all disputes raising similar legal issues. *See, e.g.*, Theodore Eisenberg, *Litigation Models and Trial Outcomes in Civil Rights and Prisoner Cases*, 77 GEO. L.J. 1567, 1568 (1989) (describing an “expectations theory” that explains why tried cases might not reflect the characteristics of the pool of all disputes). In summarizing this point in particularly colorful terms, Karl Llewellyn once noted that litigated cases bear the same relationship to the underlying pool of disputes “as does homicidal mania or sleeping sickness, to our normal life.” K. N. LLEWELLYN, *THE BRAMBLE BUSH: ON OUR LAW AND ITS STUDY* 58 (2d ed. 1951).

65. Analysts have strongly cautioned researchers against drawing broad conclusions about the merit of legal standards from studies of appellate decisions alone due to the severe selection effects governing those decisions. For example, George Priest and Benjamin Klein, looking at the small numbers of cases of all types that reach appeals observed that:

It is well known . . . that only a very small fraction of disputes comes to trial and an even smaller fraction is appealed. In a study of insurance company claims files, H. Laurence Ross reports that, of his sample, only 4.2 percent of claims ultimately reached trial and 0.2 percent of claims were appealed. . . . It is very difficult to infer specific characteristics from observations of 0.2 percent or less of a population, especially where there is no evidence that the observations (the disputes selected for appeal) were selected randomly.

Priest & Klein, *supra* note 20, at 2. The fraction of filed patent cases resulting in completed trials is similar to the small figures cited by Priest and Klein. *See* Moore, *supra* note 1, at 30 (citations omitted) (only 5% of patent cases reach trials). Somewhat more patent cases with completed trials are appealed than in Priest and Klein’s study, but still a very small fraction of all cases. *See* Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 380, 397 (2000) (51% of fully tried patent cases are appealed, meaning

the high levels of reversals that result—reflect the effectiveness of litigants (or potential litigants) in settling those cases with relatively clear claim constructions, leaving only those cases with uncertain claim constructions for Federal Circuit appeals. Given this filtering of Federal Circuit appeals, the cases reviewed by the Federal Circuit involve a heavy dose of uncertain cases with plausible support for alternate holdings. It is not surprising that alternate rulings—that is, reversals under a *de novo* standard of review—occur frequently at the Federal Circuit level.

Some studies have found that as few as 3% of patent cases filed in federal courts go to trial<sup>66</sup> and even fewer are ultimately appealed.<sup>67</sup> The few cases with claim construction issues that are appealed seem likely to be mostly cases with known claim construction uncertainties that have lingered through the appellate stage. These uncertainties have caused the litigants to refrain from case settlements despite the fact finding and increased understanding of claim construction issues that the litigants have gained in prior stages of their patent litigation. Federal Circuit appeals of claim construction cases result in reversals at a substantial rate because the appealed cases have been differentially selected to be highly uncertain and highly likely to produce reversals.<sup>68</sup> Appellate reversal rates simply reflect the uncertainty of claim construction issues in cases that are selected for appeal because of their perceived claim construction uncertainty in the eyes of the litigants.

As the results in a very small number of appealed patent cases that overrepresent cases with high uncertainty, reversal rates in cases appealed to the Federal Circuit offer poor measures of the overall clarity of the Federal Circuit's claim construction standards and guidance. The merit of the Federal Circuit's standards and guidance for claim construction analyses should be evaluated based on the predictability of patent claim analyses in the patent system generally.

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that no more than 2.5% ( $5\% \times 0.51$ ) of filed patent cases are fully tried and appealed to the Federal Circuit). Hence, Priest and Klein's recommendation of caution in reaching significant conclusions about legal standards from appellate case results seems equally applicable to the small slice of patent cases that proceed to Federal Circuit appeals.

66. See Moore, *supra* note 15, at 84; see also Moore, *supra* note 1, at 30 (estimating that approximately 5% of filed patent cases result in completed trials based on earlier data).

67. One study found that only 51% of patent cases with completed trials were appealed. Moore, *supra* note 65, at 397.

68. See Schwartz, *supra* note 1, at 226.

For reasons that are discussed below, the sufficiency of these standards in shaping and informing case settlement discussions may be far more important in the patent field than the influence of claim construction standards on patent appeals and reversal rates.

The first section of this part describes how selection processes filtering cases chosen for appeals tend to produce settlements of relatively certain cases and appeals of relatively uncertain ones. The second section of this part describes the extent to which Federal Circuit appeals of patent cases reflect only a small fraction of contested patent cases, with the great bulk of such cases being resolved through settlements rather than completed trials and appeals. The third section describes why the narrow slice of claim construction cases resulting in appeals is not likely to be representative of claim construction controversies generally, but rather is likely to be systematically skewed towards uncertain cases that the parties involved saw very differently at the time of the appeals.

*A. Modeling Trials and Appeals as Failures to Settle:  
Why Appealed Cases Are Heavy with Uncertainties*

1. Case Selection Effects Influence Trial Outcomes

George L. Priest and Benjamin Klein described how selection effects influence the characteristics of tried cases in their seminal article *The Selection of Disputes for Litigation*.<sup>69</sup> Priest and Klein treated litigated cases as those resulting from failures to settle.<sup>70</sup> By considering why parties would settle cases, they sought to describe the features of cases that would tend not to settle and that would therefore be likely to go to trial and contribute to trial outcomes and success rates. This conceptualization of tried cases and success rates at trial as products of case selection processes has been very influential and has formed the basis for law and economics studies of litigation processes in many fields.<sup>71</sup>

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69. Priest & Klein, *supra* note 20.

70. *Id.* at 6.

71. According to one set of observers, "Few results in the law and economics of litigation have sparked as much interest as [Priest and Klein's] hypothesis." Daniel Kessler, Thomas Meites & Geoffrey Miller, *Explaining Deviations from the Fifty-Percent Rule: A Multimodal Approach to the Selection of Cases for Litigation*, 25 J. LEGAL STUD. 233, 233 (1996); see also Jeff Yates & Elizabeth Coggins, *The Intersection of Judicial Attitudes and Litigant Selection Theories*:

Priest and Klein's selection theory asserts that trial outcomes are largely determined not by judges and juries, but rather by the strategic behavior of litigants in selecting cases to file and to pursue through completed trials.<sup>72</sup> Forward-thinking litigants project the probable results of their cases, discount the amounts that they are likely to gain or lose, and then seek settlements if their joint estimates of case value are similar.<sup>73</sup> Under Priest and Klein's view, these sorts of decisions determine the bulk of case outcomes.

The decisions of judges and juries—while obviously not irrelevant to trial outcomes—operate only within the bounds of the types of cases that are brought to them. Judges only have opportunities to decide cases and to articulate new legal standards as reactive individuals.<sup>74</sup> “[C]ases that reach a judicial decision are the cases that the parties have chosen not to settle and thus represent a subset of disputes chosen by the parties, not by the judges.”<sup>75</sup>

Priest and Klein concluded that cases with few uncertainties—in which both sides similarly evaluate the cases and come up with similar estimates of case value by taking their likelihood of success and claim size into account—would tend to settle because the parties would be able to come to agreement on settlement terms.<sup>76</sup> This would leave cases with significant uncertainties and a high potential for differing value assessments by the different parties as the primary type of unsettled cases that would proceed to trial. Priest and Klein felt that settlement processes of this sort fundamentally shape (by selective elimination of other sorts of cases) the features of cases presented for trials, frequently causing these cases to diverge substantially from the average mix of legal controversies.<sup>77</sup>

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*Explaining U.S. Supreme Court Decision-Making*, 29 WASH. U. J.L. & POL'Y 263, 276 (2009) (noting that Priest and Klein's "Selection Hypothesis theory has enjoyed wide application in the law and economics field").

72. Priest & Klein, *supra* note 20, at 4–5.

73. See Yates & Coggins, *supra* note 71, at 263, 266.

74. See *id.* at 265 (“[C]ourts are essentially reactive institutions. That is, courts do not formally initiate policy-making. Instead, they rely on litigants to bring issues before them for legal resolution.”).

75. Frank B. Cross, *Decisionmaking in the U.S. Circuit Courts of Appeals*, 91 CAL. L. REV. 1457, 1491 (2003).

76. Priest & Klein, *supra* note 20, at 16–17.

77. *Id.*

## 2. Impacts of Selection Effects on Appellate Outcomes

While Priest and Klein were primarily concerned with trial results and the selection of cases that are tried, they recognized that their model of case selection applies equally to the selection of tried cases for appeal.<sup>78</sup> In comments that bear directly on the Federal Circuit's reversal rates under scrutiny in this Article, Priest and Klein provide the following cautions regarding the analysis of appellate case results:

If the stakes to the litigants are equal, a trial court decision will be appealed, just as a dispute will be litigated, only where parties differ in their expectations of the outcome on appeal. Thus, for cases in which the stakes are equal to the parties, the reversal rate on appeal will tend toward 50 percent regardless of the identity of the trial judge, the extent of his legal abilities, ambitiousness or economic interests. Indeed, the rate of reversal on appeal will not be affected, in general, by the similarity of views of the trial judge and the appellate court on legal issues.<sup>79</sup>

On appeal, where the views and even the biases of particular appellate judges may be studied and taken into account by counsel, selection processes may ensure that cases presented for appeal are ones that are likely to raise contentions among judges at the appellate level. This type of analytic uncertainty will result because cases that multiple judges on an appellate court are likely to see similarly will be settled in accordance with these shared judicial views and will tend not to rise to a completed appeal. This impact of selection effects in filtering out cases with predictable results at the appellate level and presenting for completed appeals mostly contentious cases likely to engage different views of multiple judges was described by Jeff Yates and Elizabeth Coggins in the context of Supreme Court litigation as follows:

With regard to Supreme Court outcomes, even though the Justices choose the cases that they hear from a large pool of

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78. *Id.* at 29; see also Kessler, Meites & Miller, *supra* note 71, at 235 (noting that the 50% rule developed by Priest and Klein predicts appellate reversal rates similarly to trial court success rates); Yates & Coggins, *supra* note 71, at 268–69 (observing that analyses of both trial and appellate court results would be enhanced by consideration of case selection effects predicted by Priest and Klein's model).

79. Priest & Klein, *supra* note 20, at 51–52.



petitions, litigants must ultimately choose to appeal their cases for the Court to have the opportunity to select them. Under a Selection Theory approach, this phenomenon plays an important role in the decision-making process of the High Court because it frames the nature and quality of the cases heard by the Court. This point serves as the basic premise of the Litigant Selection Model—the litigants have likely considered the attitudes and ideological inclinations of the Justices in their decision to appeal (or not appeal) their cases to the Court. Given that litigants and their attorneys are undoubtedly aware of the well-known ideological proclivities of the Justices, they likely sort out or settle cases that have relatively clear or predictable outcomes and, hence, the Court does not hear them. In this regard, the cases that are appealed to the Court are those that are not readily classified as winners or losers by the litigants and their attorneys. Thus, the direct influence of judicial ideology on the outcomes of these remaining “uncertain” cases is likely inconsequential since litigants have predetermined that such potential ideological biases are not at play. In the words of Priest and Klein, “the parties will act themselves to neutralize judicial bias.”<sup>80</sup>

Litigants can take a variety of trends or norms in courts into account in a similar fashion, leaving only those cases for appeal that are still uncertain given those trends or norms. Furthermore, sophisticated litigants can take the latest theories of judicial decision making into account—including predictions of strategic behaviors or ideology-influenced decisions by the relevant judges—in projecting probable appellate results and taking the implications of these theories into account in reaching settlements. Hence, appellate case selection processes should take predictable influences of judicial ideology or bias into account on the front end—that is, in privately constructed case valuations and settlement agreements—leaving mostly cases with significant uncertainties under ideology or bias influences to be heard on appeal and causing the influence of these factors on appellate outcomes to largely be nullified.<sup>81</sup> The influence

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80. Yates & Coggins, *supra* note 71, at 266 (quoting Priest & Klein, *supra* note 20, at 37).

81. *See id.* at 263. Of course, this effect will only hold true to the extent that the ideologies emphasized by or motivating particular judges are apparent before particular cases are presented

of these factors on appellate outcomes will be small because the cases selected for appeal will either be ones where the ideologies or biases of the judges involved are in conflict (meaning that these factors do not suggest a result) or ones where the ideologies or biases of the judges are unknown (meaning that these factors again do not suggest a result).

*B. Priest and Klein's Model of Litigated and  
Appealed Cases as Settlement Failures*

Priest and Klein described a generalized model for analyzing settlement decisions leading to the selection of cases for litigation and appeal.<sup>82</sup> They specified that their model was built on the following major assumptions:

1. Litigants or appellants premise their decisions about whether to settle or continue a case to trial or appeal solely based on economic considerations, "including the expected costs to the parties of favorable or adverse decisions, the information that parties possess about the likelihood of success at trial, and the direct costs of litigation and settlement."
2. Litigants are presumed to form and act on rational estimates of the likely trial or appellate decision in their case, whether it is based on applicable legal precedents or judicial or jury biases.
3. Litigants will tend to settle cases where there is an overlap of the ranges of settlement terms that the plaintiffs and defendants see as attractive from their respective perspectives (or a near overlap, with the gap between the ranges no bigger than the litigation costs projected for the remainder of the litigation).
4. Conversely, cases that are not settled and that proceed to trials and later appeals are those for which the litigants have

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for appeal. The same is true for evolving views on legal issues. Where the values, ideologies, or substantive legal views of a particular judge are evolving in unexpected ways or changing suddenly, it may be hard for litigants to take these into account in selecting cases for appeal. Hence, these circumstances may produce appeals where newly influential values, ideologies, or substantive views of particular judges have unexpected impacts on appellate decisions. *See id.* at 285.

82. Priest & Klein, *supra* note 20, at 4.

distinctly different conceptions or information sets such that they have highly disparate case value estimations that do not overlap and that preclude them from reaching settlement agreements.<sup>83</sup>

Based on this framework, Priest and Klein posited that plaintiffs and defendants would be willing to settle cases (at least those turning primarily on monetary relief) with payments falling within the following range:

The plaintiff's minimum settlement demand ( $A$ , or asking price) and the defendant's maximum settlement offer ( $B$ , or bidding price) may be represented as follows:

$$A = P_p(J) - C_p + S_p \quad (5a)$$

and

$$B = P_d(J) + C_d - S_d \quad (5b)$$

where  $J$  is the expected judgment should a plaintiff (liability) verdict be rendered;  $C_p$  and  $C_d$  are litigation costs to the plaintiff and defendant, respectively, assumed arbitrarily to be set at "optimal" levels; and  $S_p$  and  $S_d$  are the respective settlement costs. Note that we describe the stakes of the dispute to the parties solely in terms of the expected judgment,  $J$ .<sup>84</sup>

In these equations,  $P(J)$  refers to the probability-discounted value of achieving a judgment of value ( $J$ ).<sup>85</sup> Priest and Klein saw continued litigation rather than settlement as likely where the following conditions are met:

83. *Id.* at 4-6.

84. *Id.* at 12 (footnote omitted).

85. Thus, if a party estimates that there is a 30% chance of achieving a judgment  $J$  of \$1,000,000, then  $P(J)$  would equal \$1,000,000 multiplied by .30 or \$300,000.  $P_p(J)$  refers to the probability discounted case result in dollar terms as estimated by the plaintiff, while  $P_d(J)$  reflects the same estimate from the viewpoint of the defendant.

A sufficient condition for litigation is that the plaintiff's minimum demand ( $A$ ) exceed the defendant's maximum bid ( $B$ ). This condition may be rewritten from equations (5a) and (5b) as

$$P_p - P_d > \frac{C - S}{J} \quad (6)$$

where  $C = C_d + C_p$  and  $S = S_a + S_p$ .<sup>86</sup>

In short, Priest and Klein concluded that cases pursued to trial (and therefore appearing in litigation success rates) would tend to be ones for which the relationship described in equation (6) was true.<sup>87</sup> The same analysis, when applied to appealed cases, indicates that cases pursued to appeals will be ones for which the relationship in equation (6) holds true, taking into account probabilities of success, judgment amounts, projected appellate litigation costs, and projected settlement costs as these stand at the point of decisions to pursue appeals.

Later analysts recognized that Priest and Klein's model was derived from the divergent expectations of litigants about case values:

The 50 percent rule is actually a limiting implication of a selection effect that arises out of a simple divergent expectations model of the decision to litigate. In that model, each party estimates the quality of the plaintiff's claim with error, and the plaintiff settles when the defendant's offer is at least as large as the plaintiff's estimate of the value of her claim. Priest and Klein observe that cases selected for litigation are likely to be the difficult and uncertain ones—that is, the cases in which the true quality of the claim is close to the quality level needed for the plaintiff to win if the claim were to be tried—because the clear-cut cases will be more likely to settle before trial (or may never evolve into filed cases at all). The difficult and uncertain cases, in turn, are likely to be those that, on average, result in about

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86. Priest & Klein, *supra* note 20, at 13.

87. *Id.*

half the victories going to one party and about half to the other.<sup>88</sup>

Or, as Yates and Coggins summarize the process, “the cases that are close or uncertain, or in which the parties have widely divergent expectations as to potential outcomes, are not settled and end up going to trial and appeal.”<sup>89</sup>

### *C. Implications of the Model for Litigated Case Characteristics*

Priest and Klein use this model to reach three important conclusions about litigated cases (and, by extension of their model one level further in litigation, about appealed cases):

First, litigated cases are not randomly selected subsets of all legal disputes, nor are they fairly representative of all legal disputes. Rather, because of systematic settlement processes that filter out cases with relatively certain outcomes, litigated cases are frequently ones with a high likelihood of significant uncertainties affecting case outcomes. Cases fail to settle and proceed to trial, in Priest and Klein’s estimation, because the material uncertainties still present in the cases are seen differently by the parties, precluding those parties from reaching a settlement. This means that tried cases tend to have more uncertainties about material issues of law and fact than are present in most legal disputes. Likewise, appealed cases involve a nonrandom subset of tried cases, most often involving tried cases that still have material uncertainties after the clarifying steps of trial testimony and district court rulings.<sup>90</sup>

Second, because tried and appealed cases have significant uncertainties justifying the costs of continued litigation, they are frequently not representative of average or typical legal disputes generally. Hence, conclusions reached about trial success rates and appellate reversal rates should not be extended to conclusions about the impacts of particular legal standards on legal disputes generally.<sup>91</sup>

Third, trial and appellate success rates may have little to do with differences in legal standards and may be relatively unchanging despite alterations in standards. This is because the cases that are

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88. Kessler, Meites & Miller, *supra* note 71, at 234 (footnote omitted).

89. Yates & Coggins, *supra* note 71, at 267.

90. Priest & Klein, *supra* note 20, at 1–5.

91. *Id.* at 1–2.

subjected to trials and appeals are selected in light of the applicable standards and tend to be cases in which the parties have relatively equal chances of success given the prevailing standards at that time. Priest and Klein concluded that this “will create a strong bias toward a rate of success for plaintiffs at trial or appellants at appeal of 50 percent regardless of the substantive standard of law.”<sup>92</sup> Cases which have a higher likelihood of success for one party, taking into account all factors that the parties can perceive as having an impact on the probabilities of success, will tend to be settled and not appear in the group of litigated cases.<sup>93</sup>

Where some of the assumptions underlying their model do not hold, Priest and Klein predicted that selection processes will tend to bias trial and appellate success rates away from 50% success rates. They offered several specific predictions about the directions that success rates will tend to move under conditions varying from their basic assumptions. For example, they predicted that where opposing parties in cases do not have the same amounts at stake, prevailing success levels will tend to move away from the 50% level, with the party having the most at stake tending to prevail more often than the party’s opponent. This will occur because the party with more at stake will tend to settle doubtful cases and only allow cases to proceed to trials and appeals that the party with more at stake is especially likely to win.<sup>94</sup>

#### *D. Predicting Success Rates for Claim Construction Cases*

Priest and Klein offered no particular analysis of success rates in patent cases, much less the subset of these cases involving claim construction issues. However, several commentators have recognized that the case selection model developed by Priest and Klein might explain high appellate reversal rates for patent cases generally<sup>95</sup> and

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92. *Id.* at 5.

93. *See id.* at 17–20.

94. *Id.* at 28–29; *see id.* at 40–43 (applying this settlement theory to products liability, malpractice, and worker injury cases).

95. *See* Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 243 & n.47 (2006); Alan C. Marco, *The Selection Effects (and Lack Thereof) in Patent Litigation: Evidence from Trials*, 4 TOPICS IN ECON. ANALYSIS & POL’Y 1, 3 (2004). *See generally* Kessler, Meites & Miller, *supra* note 71, at 234 (“[A]n extensive literature has documented that plaintiffs generally win far fewer than 50 percent of cases at the trial court or appellate level.”).

for claim construction appeals in particular.<sup>96</sup> Other analysts have questioned whether the selection model offers a useful analytic framework for assessing claim construction appeals, noting that litigation success rates and appellate reversal rates for patent cases have not been measured at or near 50% levels.<sup>97</sup>

Of course, Priest and Klein did not predict 50% rates for all cases, but only those in which case litigants approach and perform case value assessments and settlement analyses in roughly equal manners. This means, for instance, that the 50% rate is only predicted to hold where the litigants perceive that they have similar amounts at stake at trial or in an appeal, as well as roughly equal abilities to predict case outcomes and equal risk preferences about those outcomes.<sup>98</sup> Where this is not the case, Priest and Klein predicted that success rates may diverge substantially from 50%.<sup>99</sup>

Priest and Klein described several litigant and case features that they felt might raise or lower trial or appellate success rates, causing those rates to move away from 50%.<sup>100</sup> Other commentators have added additional factors that they believe will tend to shift trial or appeal success rates away from 50%, assuming that Priest and Klein's model holds true.<sup>101</sup> The common feature of all of these factors is that each provides a reason why a litigant would tend to settle more or less cases than would be true in the absence of the factor. A factor that increases the likelihood that a litigant will settle some weaker cases will tend to produce a higher success rate for that litigant because only a relatively strong and easily winnable mix of cases (from the perspective of that litigant) will be left to go to trial or appeal and influence success rates. Conversely, a factor—such as the risk-preferring nature of the litigant—that causes the party to refuse to settle some relatively weak cases will tend to reduce that

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96. See Moore, *supra* note 2, at 240; Moore, *supra* note 15, at 83–90.

97. See Schwartz, *supra* note 1, at 243 n.123. *But see* Marco, *supra* note 95, at 42 (finding, based on a study of patent cases litigated from 1970 to 1997, that “the win rate for patents that go to trial is biased towards 50%”). Federal Judicial Center records for patent trials from 1979 to 1995 also reflect a plaintiff win rate of 45% to 55%. *Id.* at 6.

98. See generally Kessler, Meites & Miller, *supra* note 71, at 233.

99. Priest & Klein, *supra* note 20, at 28–29, 40–43.

100. *Id.* at 28–29.

101. Kessler, Meites & Miller, *supra* note 71, at 241–48; Yates & Coggins, *supra* note 71, at 285. Some of the factors likely to pull success rates in patent appeals away from 50% rates are discussed *infra*.

party's success rate because a broader range of weak cases will still go to trial relative to the mix that would proceed absent that factor.

1. Some Case-Specific Factors Potentially Shifting Reversal Rates

- a. *Patent holder stakes in future litigation*

A sense on the part of patent holders that more is at stake in claim construction cases than just the damages liability faced by asserted infringers may cause appellate success rates to diverge from 50% in favor of more wins by patent holders.<sup>102</sup> Moore recognized that this asymmetry of interests may influence appellate case selections and reversal rates, noting that in many cases patent holders may perceive that they have more at stake in litigation that contests the validity and scope of patents than do the defendants in those cases.<sup>103</sup> Patent holders may feel that the complete future value of the enforcement of their patents is at stake in litigation testing the validity and scope of the patents, while defendants may only feel that the amounts claimed as damages in particular cases (or the immediate losses to the defendants resulting from restrictive injunctions in those particular cases) are at stake. This disparity in the parties' perspectives would tend to cause patent holders to be more concerned than defendants about weak cases and to prefer to settle these cases rather than going to trial. The resulting case selection effects would shift trial results (and later appellate reversal rates) toward higher success rates for patent holders (that is, success rates of over 50% at trial and on appeal).

Another type of concern about future enforcement (or the threat of it) may influence patent litigation by patent holders hoping to license their patents. Early in a course of licensing, a patent holder may seek to sue an infringer who refuses to take an offered license, with the intent of establishing the patent holder's seriousness about patent enforcement and the need for the party resisting the license, and other similarly situated parties, to obtain licenses or risk patent litigation and liability. The stakes for a defendant in a patent enforcement suit brought for this purpose are equal to the value of the liability amounts under contention in that case, plus the further costs to the defendant of complying with any injunction that might

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102. Moore, *supra* note 2, at 241.

103. *Id.* at 240–41.



issue in the case. However, the amounts at stake for the plaintiff patent holder are not only the past damages and future licensing amounts that the patent holder may obtain from the defendant, but also additional enhanced licensing fees that the patent holder will be more likely to obtain from other licensees if the litigation is successful. Because of these implications of successful patent enforcement outside the immediate litigation between the plaintiff and defendant, patent litigation undertaken in this context for the purpose of promoting a broader licensing program will tend to cause plaintiff patent holders to perceive that they have more at stake than the defendants they are suing. All else being equal, this disparity in what the parties perceive is at issue should cause plaintiffs in these kinds of cases to have greater success rates than defendants.

*b. Defendants' concerns about future harm*

However, there may be countervailing forces at work that offset these disparities in stakes perceived by patent holders and asserted infringers. In some cases, defendants in patent infringement litigation may perceive that they have more at stake than plaintiff patent holders.

To some degree, this may be the case in settings where patent suits are likely to result in injunctions stopping some aspect of the defendants' activities.<sup>104</sup> The economic effects of injunctions in patent litigation tend to be asymmetrical, with more harmful effects falling on defendants than gains received by plaintiffs.<sup>105</sup> This is particularly true where a patent holder is a nonpracticing entity and is seeking an injunction from a producer or seller of a patented item.<sup>106</sup> If the injunction issues, the gain to the patent holder may be a strengthened bargaining position in patent licensing efforts and, perhaps, increased licensing revenues, but the losses to the defendant will be the sum of licensing costs and operational disruption costs resulting from the injunction.<sup>107</sup> Since the operational disruptions from injunctions unexpectedly stopping a manufacturing or marketing effort can be substantial, defendants' concerns about these potential operational disruptions and associated costs may be great

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104. See Moore, *supra* note 15, at 85–86.

105. *Id.*

106. *Id.*

107. See *id.* at 85 n.47.

and significantly outweigh plaintiffs' concerns about possible enhancements to licensing revenues. Consequently, a defendant threatened by a disruptive injunction may perceive a much larger stake in patent litigation than a plaintiff patent holder with only increased licensing revenues at issue.

Even where the plaintiff in a patent suit is a direct competitor of the defendant and will capture some of the commercial benefits lost by the defendant when the latter complies with an injunction, it will rarely be the case that the plaintiff will gain from an injunction all that the defendant will lose. For example, assume that the plaintiff patent holder and the defendant in an infringement case both market a similar product. If the defendant is suddenly stopped from continuing to offer its product because it will infringe the plaintiff's patent, the defendant's customers may simply shift over to buying the plaintiff's product. However, the costs to the defendant will be more than just the lost profits the defendant suffers due to its lost sales. The inability to sell the contested product may leave the defendant with assets and employee skill sets that were specific to the production and sales of that product and which are largely useless if the product cannot be sold. The lost value of these task-specific assets and resources is an additional cost to the defendant that does not correspond to a similar gain to the plaintiff. Hence, taking these types of factors into account, the defendant will perceive that it has a greater stake in a patent enforcement suit in this type of context than the plaintiff patent holder.

Another setting in which defendants may perceive that they have more at stake in patent enforcement litigation than plaintiff patent holders involves situations where injunctions in patent cases will disrupt production and marketing plans for both patented and nonpatented items.<sup>108</sup> A defendant might have an ongoing marketing plan that would be thrown off track if a key product or service were not available due to a finding of patent infringement and the issuance of an associated injunction barring sales. The losses here would include the costs of the entire failed marketing program rather than just losses from reduced sales of the infringing item. Additionally, a defendant might feel that a judgment or lost appeal that branded the defendant as a patent infringer might have reputational impacts that

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108. *Id.*

would cause the defendant to incur losses in sales and other adverse business consequences far beyond the lost sales of the patented item. A defendant might also have additional sources of revenue (such as “cargued sales” of nonpatented goods that tend to be sold with infringing items) that would be lost if a patent holder obtained an injunction against the sale of the infringing items. These additional sources of revenue would give the defendant and plaintiff disparate stakes in patent litigation potentially leading to this type of injunction. The revenues from the additional sources would be at risk for the defendants, but would probably not be within the recoverable damages influencing the plaintiff’s evaluation of the same case.

In these types of circumstances, the perceived harm to a defendant of a loss in a patent infringement case might be considerably greater than the potential gain perceived by the plaintiff in the same case. The selection effects in cases with this type of imbalance in the perceived interests at stake will mean that defendants will tend to settle cases that are weak and will only go to trial and subsequently appeal cases that are relatively strong leading to higher success rates. This will tend to shift defendants’ success rates at trial and on appeal to rates higher than the 50% success rates that would otherwise prevail.

## 2. Countervailing Impacts on Reversal Rates

A wide variety of other factors may cause patent litigants to make different selection decisions about cases to take to trial and on to subsequent appeals and thereby shift success rates in favor of one party. Some of the factors that have been suggested to move patent case success rates away from 50% rates include asymmetries in litigation resources, stakes, and information; differences in litigation risk preferences; concern over adjudicator bias favoring one party over another; analytical biases in favor of one party predicted by behavioral science; and repeat-player effects.<sup>109</sup> Additional factors that commentators have identified as potentially affecting trial and appellate success rates generally (although not specifically in patent cases) include mismeasurements of the likely scope and implications of potential plaintiff victories, legal standards favoring one side, settlement implementation costs that are high relative to litigation

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109. *Id.* at 82–83.

costs, high awards encouraging extensive litigation efforts to gain small increases in the likelihood of victory, and agency effects causing the interests of counsel regarding the continuation of litigation to diverge from the interests of their clients.<sup>110</sup> Other influences that may cause one party to value the stakes in a case differently than the other party include (1) information gathering or analysis capability asymmetries between the parties;<sup>111</sup> (2) fundamental uncertainties of the law (e.g., a case of first impression in which neither party has a good basis for estimating an outcome);<sup>112</sup> (3) differences in skills in projecting probable case results and consequences so as to produce disparate estimates of case value;<sup>113</sup> and (4) nonmerit based goals in litigation (e.g., the possible interest of a litigant in continuing a case to trial or an appeal to gain attention for a cause rather than to achieve an economically favorable result in that particular case).<sup>114</sup>

The influence of these various factors on case selections in litigation with claim construction issues is hard, if not impossible, to measure. It seems likely that several of these factors may apply to many cases, often in countervailing ways that may cause their effects on success rates to largely cancel out. Given that appellants' reversal rates reflect the overall pattern of litigation success in claim construction cases, only case factors that tend to change reversal rates in a specific direction and that apply systematically in a substantial number of cases are likely to move reversal rates significantly away from the 50% baseline figure predicted by the basic Priest and Klein model. Factors that apply in a small number of cases will not influence reversals in enough cases to have an impact on overall reversal rates. Other factors that affect a substantial number of cases and that would be expected to have a substantial impact in pulling reversal rates one way may be counteracted and cancelled out by equally important and prevalent factors pulling the rates the other way. Reversal rates will only be shifted substantially away from the 50% baseline if one or more factors are broadly

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110. Kessler, Meites & Miller, *supra* note 71, at 243–48.

111. Yates & Coggins, *supra* note 71, at 285.

112. *Id.*

113. *See id.*

114. *Id.*

present and systematically shift appellate rates in one direction in favor of either patent holders or defendants.

Given the wide diversities of settings, technologies, and parties involved in patent infringement litigation, it seems unlikely that the parties' case value assessments are being skewed in a net way up or down by the sorts of case-specific factors just described. It seems more likely that these factors are randomly distributed among cases, with the result that their influence on case selections and success rates will cancel out when aggregated to measures of overall trial or appeal success rates over many cases in a substantial period. While the types of case-specific factors discussed to this point may be useful in explaining the choices of particular litigants to go forward with cases or to settle them, in the aggregate of litigation and appeal processes generally, the above case-specific factors seem likely to be present in random combinations and to produce equally random influences on case selections. The resulting effects may, when combined add up to no net increase or decrease in trial or appellate success rates. In short, absent some further evidence that particular factors of the sort discussed here dominate a wide variety of patent cases, these case-specific factors probably provide little or no basis to estimate changes in trial or appeal success rates away from the 50% rate predicted by Priest and Klein.

### 3. Endowment Effects Producing Higher Estimates of Case Value

There is, however, one factor present across diverse patent cases that may account for a shift in patent case success rates within the Priest and Klein model: litigants dislike giving up what they already have. This factor—referred to generally as an “endowment effect” in behavioral economics literature<sup>115</sup>—causes parties to value one dollar to be given up greater than one dollar to be gained.<sup>116</sup> In the context

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115. See generally Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. OF ECON. BEHAV. & ORG. 39, 43–47 (1980) (discussing the economic concept of opportunity cost and the behavioral hypothesis of the endowment effect). For a summary of some of the literature on endowment effects and analyses of the possible sources of these effects, see Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 WASH. U. L.Q. 59 (1993).

116. Another term for this phenomenon is “divestiture aversion,” a reference to the underlying aversion to losing an asset already possessed. See Jack L. Knetsch, Fang-Fang Tang & Richard H. Thaler, *The Endowment Effect and Repeated Market Trials: Is the Vickrey Auction Demand Revealing?*, 4 EXPERIMENTAL ECON. 257, 257 (2001) (“People commonly value losses much more than commensurate gains . . .”).

of patent litigation, this tendency to overvalue settled expectations about asset ownership or other rights should cause parties who have assets or long-standing expectations of continuing existing conduct to value these more than plaintiffs who stand to gain equivalent amounts or conduct advantages if they win in patent litigation.

*a. Endowment effect in patent trials*

In the context of patent litigation, defendants may feel that they have more to lose and more at stake than plaintiffs because the defendants will be forced to divest themselves of assets (or to give up expected conduct normally resulting in assets) if they lose in the litigation and are subject to damages awards or injunctive relief. While defendants may not actually have more dollars at stake than plaintiffs in patent cases where damages are at the heart of the cases, defendants will perceive that they have more at stake due to endowment effects and will act accordingly in settling cases. Based on behavioral preferences for keeping assets over obtaining them, defendants' decision making under the influence of endowment effects will be equivalent to the thinking of purely rational decision makers who really have more at stake in cases than plaintiff patent holders. This impact of endowment effects should tend to influence all patent litigation, meaning that defendants will tend to perceive that they have more at stake in patent litigation than plaintiffs and trial success rates will tend to shift to rates favoring defendants. Because trial success rates are frequently reported in terms of success by plaintiffs, this shift toward rates favoring defendants will mean that plaintiffs' success rates should be somewhat less than 50% in patent cases. Thus, consideration of endowment effects within the construct of Priest and Klein's case selection theory leads to a prediction of trial success rates favoring defendants—that is, trial success rates for plaintiffs in patent suits of well below 50%.

*b. Endowment effect in patent appeals*

Endowment effects may have a somewhat different impact on reversal rates in patent appeals. In the instance of cases appealed to the Court of Appeals for the Federal Circuit, the party with an endowed expectation—that is, the party who feels that she “possesses” an asset—will be the party who has prevailed at trial.

When an appeal is launched, it is by the party who is dissatisfied with the district court's result. The opposing party—that is, the party who prevailed on claim construction issues at trial—has a clear interest and expectation in the economic value of her trial result. Endowment effects will cause the party prevailing at trial to perceive that she has a greater stake in keeping the benefits of her win at trial than her opponent will have in taking back those benefits. This means that parties prevailing at trial will—due to the irrationality of endowment effects—systematically feel that they have more to lose in an appeal than their opponents will feel that they have to gain.

In the context of claim construction appeals, this means that a patent holder who prevailed in obtaining a broad claim construction at trial and who was able to establish infringement accordingly will have a strong interest and expectation in keeping the damage recovery that this result promised. He will perceive a greater interest in keeping this probable recovery promised by the district court result than the interest his opponent will perceive in taking the recovery away through a successful appeal. Hence, where a patent holder has prevailed on claim construction grounds at trial, endowment effects will tend to cause the patent holder to perceive his stake in an appeal as being greater than the stake perceived by his opponent. Consequently, selection theory predicts that where patent holders prevail on claim construction grounds at trial, resulting reversal rates on claim construction grounds will favor the patent holders and that the Federal Circuit will overturn pro-plaintiff claim constructions far less than 50% of the time.

The analysis of cases in which accused infringers prevail at trial is essentially the same. A defendant who has prevailed at trial by obtaining either a narrow claim construction—which precludes a showing of infringement—or a broad claim construction that causes the patent at issue to be invalid for lack of novelty or nonobviousness will have a strong interest and expectation of keeping the liability-avoiding benefits of this ruling. She will feel that her stake in keeping these benefits and in keeping the assets the patent holder would acquire if liability were found is more substantial than her opponent will feel is his stake in acquiring the defendant's assets through a successful appeal. Hence, in this type of case, endowment effects will cause a successful defendant to perceive the greater interest at stake in an appeal and cause the predicted reversal rate to

shift in favor of the defendants. This means that appellate reversal rates should favor defendants (that is, be well below 50% levels) in cases where the defendants prevailed at trial on claim construction issues and the patent holders in the cases are challenging these claim constructions on appeal.

Thus, the winner at trial—regardless of whether that party is the plaintiff or the defendant—will perceive that he has more at stake in continuing a case involving claim construction issues through an appeal than will his opponent, even if the dollar value of the case to the two parties is objectively equal and each side, from a rational viewpoint, has the same amount under contention in the appeal. Under this logic, endowment effects influencing the judgments of prevailing parties at trial will tend to cause these prevailing parties to see more at stake in appeals than losing parties at trial, meaning that reversal rates on appeal (which effectively measure when winners at trial lose on appeal) should tend to be somewhat less than 50%, taking into account Priest and Klein's model of appellate case selection.

At the same time, since they are equally subject to these endowment effects and corresponding shifts in case value perceptions away from purely rational assessments, both plaintiff and defendant victors at trial should be equally subject to endowment effects when deciding on how vigorously to litigate appeals. That is to say, both types of victors will have similarly inflated senses of case values and of what is at stake on appeal when they have won in trial courts below. This means that plaintiffs and defendants in patent cases will each tend to overvalue their cases on appeal when they are winners in the litigation below. This, in turn, suggests that the success rates for plaintiffs and defendants on appeal would be predicted under Priest and Klein's appellate case selection model to shift equally upward in favor of whoever was the victor in the trial below.

Following an assessment in the next section of the scope of case filtering processes influencing the characteristics of claim construction issues in appealed patent cases, the accuracy of the above predictions of appellate reversal rates for claim construction cases are evaluated in Part V of this Article.



#### IV. THE EXTENT OF PATENT CASE FILTERING AND THE NARROW SLICE OF PATENT CASES RESULTING IN FEDERAL CIRCUIT APPEALS

Past studies of patent litigation confirm that cases resulting in appellate decisions and contributing to district court reversal rates reflect a very small percentage of all patent enforcement disputes.<sup>117</sup> The universe of patent enforcement efforts and potential disputes includes all instances where a patent holder perceives potential infringement and seeks damages or a change of conduct from an asserted infringer by some means. This broad set of patent disputes is greatly filtered by decisions of the disputants about whether to file cases, whether to pursue such cases to trial, whether to continue trial proceedings to a trial result, and whether to seek to overturn the trial result through a further appeal.<sup>118</sup> These decisions shape the narrow stream of cases that reach the Federal Circuit and that form the basis for Federal Circuit reversal rates.

Actions that a patent holder may take against a perceived infringer extend from taking informal steps demanding cessation of infringement, to filing a patent enforcement action, to completing a trial of the matter, to pursuing a subsequent appeal.<sup>119</sup> Most cases of perceived patent infringement proceed very little down this path.<sup>120</sup> Decisions at early stages (at least prior to the completion of a patent trial) will typically resolve most infringement disputes.<sup>121</sup> These early-stage decisions shape the workload of the Federal Circuit in important ways by only allowing a narrow set of cases to proceed all the way to a Federal Circuit result.

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117. If 11.7% of patent cases are fully litigated to a trial result, and 67% to 73% of those cases are appealed, then the 34.5% reversal rate at the appellate level translates to at most a 3% reversal rate of all filed patent cases. See FED. JUDICIAL CTR., PATENT CLAIM CONSTRUCTION: A SURVEY OF FEDERAL DISTRICT COURT JUDGES 23 (2008), [http://www.fjc.gov/public/pdf.nsf/lookup/patclaim.pdf/\\$file/patclaim.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/patclaim.pdf/$file/patclaim.pdf); Moore, *supra* note 2, at 236; UNIV. OF HOUSTON LAW CTR., *supra* note 4 (showing that 88.3% of patent cases are settled); see also Priest & Klein, *supra* note 20, at 6–7.

118. See *supra* Part III.D.3.

119. See generally Priest & Klein, *supra* note 20, at 6–7.

120. See Kesan & Ball, *supra* note 95, at 258–59 (noting that 80% of patent cases settle under their definition, though recognizing that some studies have shown as high as 95% of patent cases settle).

121. *Id.*

*A. Pretrial Settlement of Patent Disputes*

At early stages, efforts to enforce a patent may be settled (and thereby eliminated from the enforcement process even before a case is filed) in response to pretrial patent enforcement steps leading to a patent license, an agreement not to undertake further infringing conduct, or other settlement terms.<sup>122</sup> Patent holders, upon discovering apparent patent infringement, commonly send a demand letter to the asserted infringer pointing out the suspected infringement and demanding that it cease.<sup>123</sup> In some cases, this will resolve the matter and no case will be filed. The resolution reached in this way may involve assurances of no further repetitions of the assertedly infringing conduct or, more commonly, a negotiated license and royalty payment settling claims for past infringement and permitting continuation of the assertedly infringing conduct subject to the payment of associated license fees.

The transmittal of a demand letter to an asserted infringer is a common preliminary enforcement step, both because it may resolve a case of patent infringement without the expense of patent litigation and because, by putting a potential infringer on clear notice of a particular patent and the grounds for believing that the party's actual or contemplated conduct is likely infringing, a demand letter can help to establish that subsequent infringement is willful and a proper basis for punitive damages.<sup>124</sup> The receipt of such a letter, coupled with the information that it conveys to the recipient about probable infringement in future conduct, will make it harder (but not necessarily impossible) for the recipient to assert successfully that she had a good-faith basis to believe that the conduct was non-infringing (and, therefore, that the conduct did not involve willful infringement) if she nonetheless goes forward with the conduct despite the demand letter.

The fraction of perceived patent disputes that are resolved without litigation is difficult to measure. At two opposite extremes—where either a patent holder or an asserted infringer does not care greatly about the assertedly infringing conduct—a perceived instance

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122. ALLAN J. STERNSTEIN, ET AL., CORPORATE COMPLIANCE SERIES: INTELLECTUAL PROPERTY § 3:98 (2009).

123. DON W. MARTENS & JOHN B. SGANGA, JR., PRE-LITIGATION PATENT ENFORCEMENT § 3:1 (2009).

124. See 60 AM. JUR. 2D *Patents* § 960 (2009).

of patent infringement may be resolved without much effort or concern among the respective parties. If a patent holder feels that he has little to gain from enforcement, he may simply ignore perceived infringement (or do little more than send a threatening demand letter with no further follow up). If an asserted infringer has rarely undertaken the infringing conduct raised as a concern by a patent holder and has little or no strategic reason in undertaking that conduct in the future, then the asserted infringer may just avoid future instances of that conduct and even agree to avoid the conduct in the future in order to reassure the patent holder that he need not take any further enforcement steps. In these circumstances, the parties involved may not spend much time on claim construction as there is so little at stake in patent enforcement that it is not worth the effort and expense of clarifying the relevant claims interpretation.

Where more is at stake, the parties to a patent enforcement dispute may still resolve a threatened case short of litigation.<sup>125</sup> This will tend to be the case where the patent holder and the asserted infringer see the relevant case and case value (as measured by either damages for the patent holder or the costs of altered conduct to the asserted infringer) in similar terms and can therefore agree upon a settlement value for the case. While identical valuations need not be reached, the value of the case perceived by each side must be close enough that neither feels that the cost of litigation (including the often considerable costs of discovery and other case preparation steps) is worth expending to bring the case value in a completed trial up from the proposed settlement amount (in the analysis of the patent holder) or down from the proposed settlement amount (in the analysis of the asserted infringer). Thus, settled cases reflect some shared and roughly similar visions of case value on both sides,

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125. Skilled counsel can often aid clients in predicting patent enforcement results at trial and in structuring case settlement terms accordingly. As noted by two analysts of civil litigation generally:

[I]n civil cases, lawyers and their clients carefully size up their cases and attendant circumstances (e.g., judge or jury ideology) and settle those where the parties' outcome expectations are clear and convergent and take to trial those that are not. Once in court, experienced litigators might tell you, the outcomes of these latter, indeterminate cases are often a toss up. Indeed, a trial lawyer's financial success may turn on the old axiom of knowing "when to hold them and when to fold them" in sorting out cases for settlement or adjudication.

Yates & Coggins, *supra* note 71, at 267.

including some roughly similar visions of claim scope to the extent that such scope affects case value.

This is not to say that every settled patent case indicates that the claims were clear in the patent at issue. A vague term may just not affect the outcome of a particular patent dispute. For example, a claim term that has a clear central meaning and some vagueness about its boundaries will not lead to a difference in interpretation among the parties to a patent dispute if both parties see the conduct of the asserted infringer as falling within the clear portion of the claim term. The ambiguity of claims language would still be there, but it would not be material to assessing the impact of the claims and would not impair the two parties from reaching similar estimates of patent case value that would support a settlement.

The number of cases of threatened patent enforcement litigation that are resolved in this matter without filed litigation is probably substantial. Logically, a broad range of patent disputes should fall into this threatened but unfiled case category. The American Intellectual Property Law Association has estimated that the average cost of preparing a patent case to the completion of the discovery phase (but not through the end of the related trial) is approximately \$5,000,000 for a high-damages case.<sup>126</sup>

This suggests why a large fraction of contemplated patent infringement disputes may settle before a patent lawsuit is even filed. If potential patent litigants believe that they will have a large damages case of average complexity and cost, patent holders and asserted infringers will be motivated to settle their case if they can come within \$5,000,000 in their respective case valuations and settlement figures. The reason is that both parties will see more merit in settlement than in proceeding to trial if the two parties have visions of case value that are within this \$5,000,000 range or window of opportunity.

The two parties will have essentially symmetrical case valuations that will tend to lead them to this result. Assume that the estimated \$5,000,000 case preparation costs are roughly equally split between the parties, meaning that each faces about \$2,500,000 in case development costs through the discovery phase. A rational

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126. AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 2007, at 25 (2007). *But cf.* Moore, *supra* note 15, at 94–95 (noting that the average cost for each litigant taking an average patent case to trial is \$2,000,000).

plaintiff in this type of high-damages patent litigation would be willing to settle the case at any point prior to case preparation for a figure that is anywhere within \$2,500,000 below the plaintiff's estimate of the probable recovery in the case, taking into account his likelihood of winning and scope of recoverable damages. Because the transaction costs of preparing the case (much less trying it) will eat up approximately \$2,500,000 of the recovered amount if case preparation is needed, the plaintiff will be better off settling for an amount that is less than the plaintiff's estimated case value figure, so long as the settlement amount is not more than \$2,500,000 below that estimate. The analysis for the rational defendant is identical, but in the opposite direction. That is, a rational defendant will find merit in any case settlement at an early case stage that spares the defendant case preparation costs and that is no more than \$2,500,000 higher than the defendant's best estimate of case value. Such a settlement will still be better for the defendant than sticking it out to trial and obtaining a result closer to the defendant's estimated case value while expending the \$2,500,000 cost of litigation to produce this result.

Under this type of analysis, the very high costs of preparing patent cases may tend to drive potential patent litigants to settlements in a high percentage of cases. The range between the estimates of case value of the potential plaintiffs and defendants in patent cases that will support settlements is particularly large because of the unusually large costs of preparing and trying patent cases.<sup>127</sup> In essence, the costs of preparing and litigating a patent case are a clear deterrent to proceeding to trial and a strong incentive for the parties to consider a broader range of economic settlements than might be the case if the trial option were less costly. While strategic behavior that causes one or more of the parties to turn away from an economically advantageous settlement may preclude the type of agreements on settlements described here, in most cases economic desirability will probably be persuasive and settlements will result if the parties view case values approximately the same way and reach approximately the same estimates.<sup>128</sup>

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127. See Priest & Klein, *supra* note 20, at 25.

128. See *id.* at 26–28.

The extreme costs of patent litigation will drive many potential litigants toward case settlements, making the sufficiency of patent claim construction standards and other patent law criteria to produce similar case evaluations by potential litigants an arguably more important criterion for measuring the sufficiency of such standards than appellate reversal rates. Reversal rates must be viewed as measuring only the Federal Circuit's views on a select set of cases that survive the strong pressures to settle before and during trials, a set of cases that the litigants, despite the considerable sums that they may have spent on case preparations and trials, still see differently and are unwilling to settle prior to completed appeals.

### *B. Filed Patent Cases*

Where more informal steps like demand letters and associated negotiations do not result in an acceptable settlement, a patent holder may proceed on to file a patent enforcement action. At this point, the course of patent enforcement steps and resolutions becomes much more measureable. We know that by far the majority of patent suits are resolved through settlements, not litigation.<sup>129</sup> For example, according to analyses by researchers at the University of Houston Law Center, the Federal Judicial Center Integrated Database indicates that 2,120 patent cases were resolved in 2008.<sup>130</sup> Of these dispositions, 88.3% or 1,872 cases were resolved without a court decision (that is, with either a settlement and dismissal (82.5%) or a consent judgment (5.8%)).<sup>131</sup> Only 248 patent cases nationwide were resolved through completed court cases<sup>132</sup> potentially leading to a Federal Circuit appeal (and, therefore, potentially affecting the Federal Circuit's reversal rates). Of the 248 cases actually resolved through completed litigation, most were resolved through summary judgments as shown in the following adjudication breakdown (all percentages reflect fractions of the total 2,120 patent cases resolved in 2008)<sup>133</sup>:

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129. Kesan & Ball, *supra* note 95, at 272.

130. See UNIV. OF HOUSTON LAW CTR., *supra* note 4.

131. *Id.*

132. *Id.*

133. *Id.*

ADJUDICATION BREAKDOWN		
Adjudicated Resolutions	No. of Cases	Percent of Cases
Summary Judgment	184	8.7%
Jury Verdict	59	2.8%
Bench Trial	1	0.05%
Judgment as a Matter of Law	4	0.19%
Total Adjudicated	248	11.7%

Only adjudicated cases have potential influences on Federal Circuit reversal rates. These are cases that the parties viewed very differently through the trial stage such that the substantial cost of a completed trial was seen as worthwhile. As discussed below, not all of these adjudicated cases are appealed, further reducing the portion of litigated cases that influences the Federal Circuit's reversal rates. Conversely, parties to patent suits reached sufficiently common analyses in 88.3% of cases to conclude settlement agreements (or to at least jointly accept a voluntary cessation of the litigation even if no formal agreement was reached).<sup>134</sup> This suggests that claims interpretations (and other aspects of the case analyses affecting case values) were similarly evaluated by the parties, leading to sufficiently parallel analyses to support settlement agreements.

The recent figures accumulated by University of Houston Law Center researchers showing a high percentage of settled patent cases are consistent with Moore's findings regarding earlier levels of settlements in patent cases resolved from 1995 to 1999.<sup>135</sup> Moore found that 76% of all patent cases resolved during this period were settled after the filing of the cases but before the conclusion of district court proceedings.<sup>136</sup> Moore identified the stages at which cases were settled as follows (percentages are based on the 6,007 patent cases settled between 1995 and 1999)<sup>137</sup>:

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134. *See id.*

135. *See id.*; Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889, 913 (2001).

136. Moore, *supra* note 135, at 913.

137. *Id.* at 913 tbl.6.

<u>STAGES AT WHICH PATENT CASES SETTLE</u>	
Process Stage	Percent of Settled Cases
Before Any Court Action	34%
Mid-Litigation	51%
After Pre-Trial Conference	14%
During or After Trial	1%

Moore's findings further support the notion that settlements in patent cases reflect the growing understanding of cases by the litigants over the course of case preparation, which increases the likelihood of settlement as the parties come to a joint view of case value and can reach a settlement agreement accordingly. Indeed, the above case progress breakdowns for settlements suggest that much of the learning of the parties about probable case results and associated successful negotiations of settlements occurs during the discovery and pretrial preparation for cases, with little further information prompting additional settlements arising at trial.

In yet another study using different sources of information on patent case resolutions, Jay P. Kesan and Gwendolyn G. Ball found very similar case settlement rates to those identified by Moore.<sup>138</sup> Kesan and Ball used data on case resolutions accumulated by the Administrative Office for the U.S. Courts,<sup>139</sup> supplemented by case docket reports for individual cases.<sup>140</sup> They focused on patent cases originating in three specific years—1995, 1997, and 2000—and tracked the resolution of those cases.<sup>141</sup> Their study focused on how many of these cases were resolved through settlements, as well as on estimates of the litigation expense needed to reach these case settlements.<sup>142</sup> Like Moore, Kesan and Ball found that only about 5% of filed patent cases result in completed trials.<sup>143</sup> They emphasized

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138. *See id.* at 913; Kesan & Ball, *supra* note 95, at 272 (finding that most patent cases settle).

139. Kesan & Ball, *supra* note 95, at 260.

140. *Id.* at 266.

141. *Id.*

142. *Id.* at 266, 280–81.

143. *Id.* at 311.



that a substantial number of additional patent cases are adjudicated on the merits through summary judgments.<sup>144</sup> These cases make up about 6% to 9% of resolved cases.<sup>145</sup> Thus, using Kesan and Ball's highest figures, only about 5% plus 9% (or 14%) of filed patent cases resulted in district court adjudications in the years covered by their study and were candidates for Federal Circuit appeals. Even assuming, in the most extreme view, that all adjudicated cases were appealed, this means that Federal Circuit reversal rates are still based on no more than 14% of all filed patent cases. This illustrates concretely what a small portion of patent cases are reflected in Federal Circuit analyses.

Even taking Kesan and Ball's most generous estimate of summary judgment rates—that is, 9% of filed cases—settlements or voluntary case withdrawals accounted for 86% of patent case resolutions.<sup>146</sup> Kesan and Ball recognized the importance of settlements in the resolution of patent cases and attempted to break down the duration to resolution of patent cases in their study to assess how quickly cases tended to be resolved.<sup>147</sup> While their interest in time to resolution was in using this time as a rough measure of case preparation expense,<sup>148</sup> the same duration to resolution figures can also be taken as measures of degrees of case information gathering and ongoing reassessment by the litigants. Cases that settle long after suit filing will, on average, tend to reflect more discovery and analyses by the litigants than cases that settle soon after suit filing.<sup>149</sup> As suit preparation processes go forward, the similarity of the analyses of the parties will tend to increase, if for no other reason than that the expectations of each party that there are unknown material facts out there as yet unfound (or that will be

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144. *Id.*

145. *Id.* Further portions of Kesan and Ball's study confirm that summary judgment results in patent cases are often obtained following the investment of trial preparation and initiation resources that are similar to those expended on fully completed trials. *Id.* at 298–300. In connection with claim construction issues, this suggests that summary judgment decisions and trial court results may be based on similar fact finding and information sets. This also suggests that settlements at these same stages will be similarly informed and tend to filter out similar types of cases seen in like terms by the opposing litigants.

146. This 86% figure equals the percentage of all resolutions (100%) less the percentages resolved by trials (5%) and by summary judgments (9% using Kesan and Ball's largest estimate).

147. *Id.* at 281–84.

148. *Id.* at 281.

149. *See id.*

found within the time and resources available before trial) becomes less and less and the associated analysis uncertainties (or at least intra-party differences) decrease. In short, whether they are actually increasingly confident that they know all the relevant facts or are simply realists operating under the assumption that they must work with the facts that they have because discovery is winding down and a trial date is looming, parties will tend to converge their factual bases for analysis and, hence, their case value assessments, with the progress of discovery and pretrial preparation of patent cases.

Kesan and Ball found remarkably similar settlement timing patterns over the years that they studied. The average times to resolution for cases filed in 1995, 1997, and 2000 were 418, 466, and 443 days respectively.<sup>150</sup> The median times to resolution—arguably better measures of typical case duration because they are less influenced by a few aberrant cases—were 298, 299, and 295 days for 1995, 1997, and 2000, respectively.<sup>151</sup> The timing breakdowns found for settlements of patent cases were as follows:<sup>152</sup>

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150. *Id.* at 281–82.

151. *Id.*

152. *See id.* at 282 tbl.11. The cumulative percentage figures for more than eight quarters (which represent the percentages for all case resolutions) differ from 100% due to rounding effects in the prior figures in this table.

<u>TIME TO RESOLUTION OF FILED PATENT CASES</u>						
Duration	1995		1997		2000	
	Percentage	Cumulative Percentage	Percentage	Cumulative Percentage	Percentage	Cumulative Percentage
1 Quarter	14	14	13	13	12	12
2 Quarters	18	32	20	33	20	32
3 Quarters	14	46	14	47	14	46
4 Quarters	11	57	12	59	12	58
5 Quarters	9	66	9	68	8	66
6 Quarters	7	73	6	74	7	73
7 Quarters	5	78	5	79	5	78
8 Quarters	3	81	4	83	4	82
More than 8 Quarters	17	98	19	102	17	99

The settlement timing characteristics reflected in this table indicate that a large fraction of cases are settled relatively soon after filing.<sup>153</sup> The majority of cases were found by their parties to have similarly consistent case value estimates formed within one year of case filing such that the parties were able to agree on settlement terms and to resolve the cases in this period.<sup>154</sup> Indeed, parties' joint learning about their cases and reevaluation of their positions seems to be quite active from the outset of filed cases, with substantial fractions of case settlements occurring from the first through fifth quarters after case filing.

From these case resolution figures—and several other measures of case expenditures that they develop and analyze—Kesan and Ball conclude that, contrary to accepted wisdom, many patent cases do not require the expenditure of tremendous resources for resolution because the great bulk of cases are resolved through settlements reached at relatively early stages of case preparation.<sup>155</sup> This conclusion focusing on resource allocations seems sound. However, the same data support the view that the litigants are frequently able to work within present patent standards—including claim construction standards—and reach conceptualizations and valuations of their case relatively early in case preparation.<sup>156</sup> By acting during early case stages, patent litigants are able to find overlaps in their estimations of case value and reach settlement terms accordingly. Thus, whether they are analyzed in terms of the common information sets and overlapping valuations of the parties that supported their settlements or in terms of the amount of resources that the litigants probably expended to reach the point of agreements, Kesan and Ball's findings provide substantial support for the view that present patent standards provide ample clarity for parties to patent disputes to reach similar case views with alacrity and to achieve relatively prompt case settlements.<sup>157</sup>

The predominance of settled cases over cases going to trial suggests that present claims interpretation standards may, contrary to

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153. *Id.*

154. *See id.*

155. *See id.* at 288–98.

156. *See id.* at 262.

157. *See id.* at 272.

the view of their critics,<sup>158</sup> be sufficiently clear to support practically clear and predictable claims interpretations in most cases. If this were not the case and parties to patent disputes (as aided by their attorneys) were unable to reach similar claims interpretations, it seems unlikely that the high percentage of observed case settlements in this field would be reached. Put simply, if the parties to a case had significantly different claims interpretations (or projected significantly different claims interpretations by the district court likely to hear the case), it is doubtful that the parties would produce similar case value estimates. Claims interpretations are so fundamental to establishing a basis for patent scope and patent enforcement value that it is hard to understand how the parties to a dispute would reach similar case value estimates and agree to case settlements unless the two parties reached parallel and similar conclusions about claims scope (at least in areas material to the litigation) as part of their analyses leading to their settlement agreements. Hence, the prevalence of agreed-to settlements in 86% of resolved patent cases is substantial evidence that most parties approaching patent claims interpretation and case valuations do have similar approaches to claims interpretation and associated estimates of patent infringement scope and case values.<sup>159</sup>

Conversely, the perceived need of the litigants to move forward with trials in a small but meaningful fraction of cases (11.7% of all filed patent cases in the University of Houston's study; 11% to 16% in Kesan and Ball's study)<sup>160</sup> indicates that there are some cases where there remain (even after discovery steps and associated analyses) substantial differences about some aspects of these patent disputes that preclude the parties from reaching agreements about case values and establishing settlements. However, the presence of some sources of uncertainty in these instances does not necessarily mean that the claims involved were the sources of uncertainty. In many instances, for example, questions about patent validity may have been seen differently by the parties, leading to a willingness to go forward with litigation to resolve this difference in perceived case characteristics. The claims in these cases may have been relatively

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158. See Chu, *supra* note 25, at 1078–79; Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1, 82 (2000).

159. See *supra* text accompanying note 142.

160. Kesan & Ball, *supra* note 95, at 271; UNIV. OF HOUSTON LAW CTR., *supra* note 4.

clear and similarly analyzed by the parties, but the litigants may have proceeded with the litigation due to other sources of uncertainty and settlement failure. Thus, the fraction of all cases in which uncertain patent claims preclude similar case valuations and settlements by disputants may actually be far less than the 11.7% of cases that lead to completed litigation rather than case settlements.

Further evidence of patent case resolutions during trials additionally supports the notion that, as claim construction uncertainty is reduced and the corresponding estimates of case value reached by the litigants become more similar, patent cases are more and more likely to settle.<sup>161</sup> One survey found that 29% of patent cases reaching trial settle after claim constructions are specified by a district court.<sup>162</sup> This suggests that the district court's claim construction result becomes a common point of reference from which both parties can project their respective estimates of case success and case value. The district court result pulls together many estimates that might previously have been disparate because they turned on different expectations about what claim construction would control in the case.

Cases that settle following a district court claim construction remove more cases with low claim construction uncertainty from the flow of cases to the Federal Circuit. These settled cases are ones with claim constructions with sufficiently low uncertainty that litigants feel the district court and the Federal Circuit claim constructions will be about the same such that an appeal will not be a worthwhile means to produce a different result. Given this further case filtering based on district court claim constructions and related settlements, only the cases in which claim constructions are the most uncertain are likely to proceed further to challenges to claim constructions in Federal Circuit appeals.

In his separate comments contained in this symposium issue, Professor Sichelman makes the point that "the high cost of litigation relative to the maximum amount at stake is the major driver of most settlements" and notes that seasoned litigator Joseph Re agrees with

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161. See 1999 ABA Section of Intellectual Property Law, *1999 Markman Survey*, 18 A.B.A. SEC. PUB. I.P.L. 12 (2000).

162. *Id.* at 15.

this point.<sup>163</sup> However, Sichelman incorrectly contends that I disagree with this view.<sup>164</sup> My contention, as noted in this Article and in agreement with many leading scholars who have studied case settlements, is that patent enforcement cases settle when the parties have estimates of probable case outcomes that differ by no more than the costs of further litigation such that it is no longer worth continuing the litigation.<sup>165</sup> Thus, naturally, as the costs of litigation relative to the amounts still at stake go up, the range of differences in outcome estimates within which the parties will see settlement rather than continued litigation as desirable will expand and the likelihood of settlements will go up. We are all in agreement on this point.<sup>166</sup> The high rates of patent case settlements result within this set of criteria for settlement.

However, Sichelman focuses too much on “the high costs of litigation” in his analysis and not on “the *maximum* amount at stake.”<sup>167</sup> High litigation costs are not the only force in play here.<sup>168</sup> Litigation costs for patent cases are large because the stakes are even larger.<sup>169</sup> The large amounts at stake in many patent cases suggest that the parties might often be very far apart in dollar amounts in their respective estimates of case value were they to adopt even modestly different approaches to key case issues like claim construction. High error rates in patent case estimates that tend to frustrate settlements are accompanied by high litigation costs that tend to promote settlements. These two effects will somewhat offset each other, meaning that high litigation costs for patent cases are unlikely to make these cases exceptions to the general tendency of cases to settle as the gaps between case value estimates shrink. While these estimates may never actually match in cases that are settled—and one or more sides may only grudgingly adopt their estimate, not out of actual “agreement” with the estimate but rather as a means to

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163. Ted Sichelman, *Myths of (Un)Certainty at the Federal Circuit*, 43 LOY. L.A. L. REV. 1161, 1165 (2010).

164. *Id.*

165. *See supra* Part IV.A.

166. Sichelman, *supra* note 163, at 1165 n.13.

167. *Id.* at 1165 (emphasis added).

168. *See id.*

169. Christopher A. Harkins, *Fending Off Paper Patents and Patent Trolls: A Novel “Cold Fusion” Defense Because Changing Times Demand It*, 17 ALB. L.J. SCI. & TECH. 407, 434 (2007).

predict whether further litigation is likely to achieve anything of net value in light of further litigation costs—alignment of case value estimates, in conjunction with the costs of litigation, seem likely to be determinants of case settlements at every stage of litigation.

Claim construction standards such as those set by the Federal Circuit are, along with other patent law standards, part of the framework within which litigants determine “the amounts at stake” in further litigation.<sup>170</sup> These are not the total amounts claimed as damages for infringement, but rather the amounts of increased or decreased liability (or probable liability) that further litigation will influence.<sup>171</sup> Even if litigation costs suggest that some disparity in estimates will still be good enough to produce a settlement, the parties still must bring their estimates within a close enough range to produce joint agreement on a settlement after taking projected litigation costs for remaining portions of the case into account. Claim construction standards have a key and largely successful role in guiding the case value estimates of disputing parties to sufficiently similar levels to produce settlements.<sup>172</sup> Even in cases that are settled for the “nuisance value” of avoiding litigation on some issues—that is, because the amounts to be gained from further contention of those issues are not worth the costs of the further contention—will often have an underlying core of probable liability as estimated from claim construction and other patent standards that justifies a substantial settlement.<sup>173</sup> Absent this core, plaintiffs would tend not to mount expensive patent cases and defendants would not settle for fear of being seen as soft touches. The large amounts claimed in many patent cases and the potential, in light of these large amounts claimed, for even small differences in claim constructions and liability probability assessments to produce substantial disparities in case value estimates by opposing parties in patent cases would tend to keep the parties apart in settlement discussions. The fact that the vast majority of patent cases settle despite these forces tending to

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170. See Kelly Casey Mullally, *Patent Hermeneutics: Form and Substance in Claim Construction*, 59 FLA. L. REV. 333, 337 (2007).

171. See Note, *Exposing the Extortion Gap: An Economic Analysis of the Rules of Collateral Estoppel*, 105 HARV. L. REV. 1940, 1947 (1992).

172. See Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 MICH. L. REV. 101, 102 (2005).

173. See *supra* Part III.D.1.



keep parties apart is a testament to the success of claim construction standards and other patent law standards in guiding case value estimates and producing roughly similar estimates among opposing litigants that lead to settlements.

In his discussions of my analysis on this point, Sichelman notes in his article that “the median damages award in patent cases in jury trials is about \$3 million and only \$500,000 in bench trials” and then seems to argue that this indicates the stakes in patent cases are lower than the amounts the parties are willing to spend on litigation.<sup>174</sup> This analysis may understate the dollar amounts that are claimed in patent cases because the amounts Sichelman cites reflect only those awards in cases that resulted in concluded trials and ignore amounts paid in settlements.<sup>175</sup> In addition, the real amounts at stake in patent cases (for both parties) may be far more than the damages at issue in those cases. Patent holders will often be worried about the future enforcement of their patents,<sup>176</sup> while defendants will often be worried about the potential for business interruption losses that are not reflected in damage recoveries at stake in present cases.<sup>177</sup> These will define the amounts seen at issue in particular cases, not just the potential damage recovery amounts under contest in those cases. Sichelman attempts to roughly estimate these further amounts at issue in patent cases as being approximately equal to the amounts seen in case recoveries,<sup>178</sup> but I see no reason why this relationship should hold and question whether this is a complete estimate of overall case value.<sup>179</sup>

The amounts at issue in cases (or the “maximum amount at stake,” as Sichelman labels them<sup>180</sup>) are not, as Sichelman seems to suggest, single, static numbers for particular cases,<sup>181</sup> but rather changing amounts that evolve as the legal issues in the cases are resolved and the parties gain greater knowledge about the material facts of the cases. The amounts in dispute at any particular time in a

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174. See Sichelman, *supra* note 163, at 1166.

175. See *id.* at 1164 n.17 (citing the amount of damages awarded in jury and bench trials).

176. See *supra* Part III.D.1.a.

177. See *supra* Part III.D.1.b.

178. Sichelman, *supra* note 163, at 1166.

179. *Contra id.*

180. *Id.* at 1165.

181. See *id.* at 1165 n.13.

case are the incremental gains to the plaintiff (taking into account all implications of the case) that further litigation may produce and the reduced losses to the defendant (again taking into account all implications of the case) that further litigation may avoid.

Taking these broader amounts into account, rational litigants will only continue forward with litigation rather than settling a case where they perceive that the amounts that they will gain by continuing forward will exceed the costs of continuing forward. I, and other analysts of settlement behavior, only contend that, at each stage of litigation, parties continue in a rational manner because they see the amounts subject to influence in further litigation steps (including the values of the broader implications of their cases beyond just the damage recoveries at issue) as being more substantial than the costs of the additional litigation steps.<sup>182</sup> If Sichelman is arguing that litigants do not tend to pursue this type of rational behavior (which is no more than good business behavior, as is likely to be followed by the corporate counsel and business executives who control most large patent cases), then he should be clear on this point.<sup>183</sup>

Admittedly, the estimates of case outcomes and economic implications of those outcomes for clients that are available for consideration in litigation decisions are all very rough, but they are the best that parties have to work with if they are to conduct litigation rationally in pursuit of their best economic interests. Sichelman seems to suggest that other forces will be at work to determine when cases settle.<sup>184</sup> Yet the examples he cites—adverse claim construction or summary judgment rulings as tending to ensure quick settlements—are cases in point where the rulings constrain the subsequent arguments that are likely to be successful for one or both sides, thereby narrowing the liability amounts that at least one party can expect to influence through later litigation. Such rulings will tend to bring the parties' analyses together and produce a settlement.<sup>185</sup> I agree with Sichelman and the experienced litigator he cites that

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182. See, e.g., Priest & Klein, *supra* note 20, at 12–13.

183. See Sichelman, *supra* note 163, at 1165 n.13.

184. See *id.* at 1168–70 (discussing the effects of claim construction, summary judgment, and forum shopping on parties' decisions to settle).

185. See *id.* at 1168–69.

clients will tend to settle in these circumstances.<sup>186</sup> Clients will tend to settle because it would be irrational for them to waste their money by continuing litigation where the probable costs of further litigation exceed the expected gains to be realized, taking into account their counsels' best estimates of probable results and all the probable future implications of the results for the clients.<sup>187</sup> Of course, clients may act irrationally in these circumstances for a number of reasons.<sup>188</sup> However, absent an account of systematic irrationality in this area, it seems fair to assume, as I have done in my analysis, that rationality generally prevails and that settlements mostly reflect decisions by the parties (based on their respective assessments of case outcomes to be influenced by further litigation) that additional litigation has no net projected benefits over the terms of the settlements under consideration such that the cases at hand should be terminated in both parties' perceived net interests.

Sichelman notes further the possible impacts of either forum selection or Federal Circuit panel differences in determining patent case outcomes.<sup>189</sup> What he fails to include in his analysis is that these differences are themselves probably the result of case selection effects.<sup>190</sup> At the district court level, once a forum is determined, the parties will only choose to litigate those cases in which the outcome is somewhat indeterminate. The cases with relatively certain outcomes will settle and therefore not appear in the range of case results attributed to completed trials in the jurisdiction in question. This is not to deny (as Sichelman emphasizes in his comments<sup>191</sup>) that judges in different districts (or for that matter, in different district courts when considered individually) may apply varying claim construction standards.<sup>192</sup> Rather, the tendency of the parties to pursue to a completed trial result only the most uncertain cases in

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186. *Id.* at 1165–67 & n.14; Joseph Re, Litig. Partner, Knobbe Martens Olson & Bear LLP, Address at the *Loyola of Los Angeles Law Review* Symposium: The Federal Circuit as an Institution (Oct. 30, 2009).

187. Priest & Klein, *supra* note 20, at 4, 12–13.

188. Russel Korobkin & Chris Guthrie, *Psychology, Economics, and Law: A New Look at the Role of the Lawyer*, 76 TEX. L. REV. 77, 79–81 (1997).

189. Sichelman, *supra* note 163, at 1169–70.

190. *See id.* at 1170.

191. *Id.* (discussing how conflicting claim construction precedents allow trial judges to decide cases in ways that suit them personally).

192. *Id.* at 1170 n.35.

light of the perceived and expected standards to be applied by the relevant district court—whatever those standards are—will tend to mask differences in claim construction standards from judge to judge, leading to high reversal rates (in those cases actually fully tried and appealed) from most district judges regardless of the differences in the standards they apply.

Similarly, once the particular panel that will hear a case at the Federal Circuit is determined, some cases will have probable outcomes that are clearer than they were before the panel was specified. This greater certainty in outcomes will tend to produce some additional case settlements before a decision is rendered, leaving only those cases that are highly uncertain, in light of the panel that hears them, to proceed further in the appellate process and enter into reversal rates.

Of course, differences in the predictability of the outcomes in these processes will vary from district court to district court and from appellate panel to appellate panel. Hence the case settlement patterns and case outcome results will likewise vary, not because the parties are applying different standards, but rather because they are seeing different types of cases once the impacts of selection effects are taken into account. Once again, the impacts of selection effects in determining case features and outcomes should not be ignored.

### C. *Appealed Patent Cases*

Research by Moore suggests that a substantial fraction of patent cases that are pursued to a trial result are dropped or settled at that point and are not pursued to a further Federal Circuit appeal.<sup>193</sup> In a study of all patent cases tried over the seventeen-year period from 1983 to 1999, Moore found that 1,209 patent cases were resolved by a fact finder (judge or jury)<sup>194</sup> and that 49% of these cases were not pursued to a completed appeal.<sup>195</sup> This “dropout rate” of cases terminated following a completed trial but without a completed

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193. See Moore, *supra* note 65, at 380, 397.

194. *Id.* at 380.

195. *Id.* at 397 (noting that 51% of the cases in her study resulted in completed appeals, meaning that 49% did not). Moore’s study does not account for appeals of patent cases resolved at the district court level through summary judgments rather than completed trials. When appeals from these summary judgments are taken into account, the fraction of all patent cases reaching trials that are pursued to further Federal Circuit appeals may be greater than the 51% found by Moore for cases that produce completed trials.

appeal is consistent with findings concerning other types of litigation.<sup>196</sup> Researchers have found that 43.1% of state court cases pursued to the point of completed trials do not result in completed appeals.<sup>197</sup> This posttrial settlement rate estimate was based on state court cases from forty-six large counties around the country and involved cases addressing a wide variety of state law disputes.<sup>198</sup>

The 49% of patent cases that Moore found were not appealed following completed trials probably involved trial outcomes that were either accepted as adequate and final by both sides or were superseded by settlement agreements which substituted for the trial results and removed the cases from the judicial system.<sup>199</sup> Only cases that had remaining material issues and for which the parties had lingering differences in projected case value would have tended to continue as part of the 51% of fully tried cases brought to the Federal Circuit.<sup>200</sup>

The workload of the Federal Circuit is composed of only those cases that produce an adjudicated result and that are further appealed.<sup>201</sup> Settlement processes before trial, during trial, and after trial may tend to filter out cases in which the parties see claim construction questions similarly and are able to come to an agreement upon case values as the bases for settlements. Speaking of similar filtering processes that affect the selection of cases for appeals to the U.S. Supreme Court, Jeff Yates and Elizabeth Coggins described the ways that the appealed cases might diverge from legal disputes generally as follows:

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196. See Theodore Eisenberg & Michael Heise, *Plaintiphobia in State Courts? An Empirical Study of State Court Trials on Appeal*, 38 J. LEGAL STUD. 121, 135–36 tbl.2 (2009).

197. *Id.* at 136.

198. *Id.* at 127.

199. The failure to pursue this 49% of fully tried cases to an additional completed appeal is somewhat surprising given that the additional costs of pursuing an appeal to the Federal Circuit once a case has been fully litigated are relatively small. The fact that these cases reached a final resolution with the trial court result (or a post-trial settlement that substituted for the trial result) may indicate one of two underlying settlement dynamics. First, the litigants in the 49% of cases terminated may have felt that the trial results indicated what the probable appellate result would be such that further appeals in these cases were not seen by either side as likely to change the expected results and, therefore, not worth their probable appeal costs even though those costs were modest. Second, it may be that the litigants were unsure of how appeals might modify their results at trial and, hence, could not project to what extent appeals would lead to potential gains that would justify even modest appeal costs.

200. See Priest & Klein, *supra* note 20, at 4; Yates & Coggins, *supra* note 71, at 266.

201. 28 U.S.C. § 1295(a) (2006).

Litigants' strategic sorting produces a pool of cases for possible Court review that are not randomly distributed. Rather, this process produces a selection of cases that are generally not amenable to settlement, likely because they do not provide conspicuous outcome cues, or because the litigants are otherwise constrained from resolving their disputes through negotiated agreement. Litigants are also apt to make some "errors" in their selection of which disputes to appeal to the Court. We use the term "errors" to denote decisions by litigants to appeal (or not to appeal) that do not comport with rational estimates of their ability to win the appeals on the merits.<sup>202</sup>

Cases that are pressed all the way to a Federal Circuit appeal are probably ones that, even after case discovery and a district court result, still involve some substantial uncertainty about claim constructions or other aspects of the cases so as to cause the parties to value the cases differently and to be unwilling to come to an agreement on settlement terms. In essence, cases will tend to be appealed specifically because their outcome is unclear (or at least because the outcome that is predicted by one of the parties is significantly different from the trial court result and any settlement terms proposed by the other side).<sup>203</sup> In short, patent cases are appealed rather than settled (after trial or earlier) because there are lingering factual or legal uncertainties as the cases enter the Federal Circuit stage. Absent remaining uncertainties in areas that will make a material difference in a case outcome, there would be little reason for a party to spend money initiating and pursuing an appeal only to achieve the same outcome that was reached at the trial level or available in a settlement offer.

In summary, litigants choose cases (prior to trial, during trial, and after trial) to press to the next stage of litigation that have major outstanding issues which, if resolved differently at the next level, will make a major difference in case outcomes. In terms of cases brought to the Federal Circuit, this means that appealed cases are frequently those that are ripe to be overturned. The fact that they frequently are overturned is a testament to the accuracy of case

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202. Yates & Coggins, *supra* note 71, at 284–85.

203. *See id.*

appeal selections by parties who decide to press cases to Federal Circuit appeals. Parties who obtain reversals at the Federal Circuit are simply getting what they came for. Parties who are harmed by these reversals would rather not be before the Federal Circuit, but have no choice (other than to accept what may appear to be an unreasonably low settlement offer in order to short circuit the completion of an appeal) once the other side presses an appeal.

#### *D. Impacts of Case Filtering on Federal Circuit Reversal Rates*

##### 1. Filtering Ensures Unrepresentativeness of Appealed Cases

Moore has recognized that appellate case selection practices of patent litigants may cause the features of appealed claim construction cases to diverge significantly from the characteristics of average patent disputes.<sup>204</sup> She summarized her views on the distinctions between appealed cases and patent suits as follows:

There are two predictions that could be made about the likely outcome of the bulk of unappealed claim construction decisions. The first prediction is that the affirmance rate would be higher if all claim construction issues were appealed because the parties only appeal issues when they believe the judge was wrong. If this were true, the construction issues that were not appealed were more likely correct decisions by the district court judges. This prediction implies that district court judges are, in fact, better at construing claim terms than the empirical evidence [of reversal rates] suggests.

The second prediction, based on economic theory, suggests that the cases that are appealed are most likely the close cases in which the parties are more likely to disagree on predicted outcome. The outlier cases where the judge got the claim construction clearly right or clearly wrong should likely settle to avoid transaction costs. Under this theory, the unappealed claim construction decisions are not likely to substantially impact affirmance rates.<sup>205</sup>

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204. See Moore, *supra* note 1, at 9–10.

205. *Id.* (footnotes omitted). Moore goes on to note:

The selection effect theory, however, appears flawed when applied to appellate outcome statistics. Consistently elevated affirmance rates in the appellate courts

According to Moore, these selection effects “suggest that appealed claim construction decisions may not be a random sample of all claim construction disputes.”<sup>206</sup>

## 2. Appealed Cases Are Highly Uncertain, Leading to High Reversal Rates

Those few cases which are appealed to the Federal Circuit—and which therefore determine Federal Circuit reversal rates—are likely to involve much greater uncertainties than the average patent enforcement controversy. This is the case because case settlement processes will tend to weed out those cases that are viewed similarly by the parties because the cases are based on relatively clear legal standards and factual issues. Only those cases that survive this filtering (probably due to material uncertainties that cause the opposing litigants to take very different views of case value) will proceed through a trial to an appeal and yield a Federal Circuit result. Federal Circuit reversal rates are the products of these highly uncertain appeals.

The tendency of case uncertainty to promote and prolong litigation is not peculiar to the patent field, but is rather a long recognized dynamic in litigation generally.<sup>207</sup> For example, Judge

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suggests that unless there is consistent deviation from the underlying assumptions of this economic model, the model is not successful in predicting the selection of cases which are appealed. This may be attributable to the fact that appeal transaction costs are relatively low compared to the trial costs, therefore we expect more “Hail Mary” appeals.

*Id.* at 10 (footnotes omitted).

Moore’s bases for questioning the impact of selection effects on appellate affirmances of lower court results seem not to apply to appellate data on claim construction appeals. The reversal rates for claim construction appeals are relatively high, unlike the cases with low appellate reversal rates cited by Moore. As discussed further in the main text, the appellate reversal rates for claim construction appeals appear to conform to the pattern expected under selection effects, unlike the cases with lower reversal rates that Moore considered.

Furthermore, even if some Hail Mary appeals are pursued with a relatively low likelihood of success, these will still tend to be ones with substantial uncertainties where both parties perceive that there is at least some chance of success. Cases that involve few uncertainties will still tend to drop out of the appealed stream of cases, meaning that the cases appealed and decided by the Federal Circuit will involve more uncertainties than average litigated cases. Moore’s other research indicates that only about 51% of patent cases that lead to trial results are appealed. Moore, *supra* note 65, at 380, 397 tbl.6. The remaining 49% that are settled are presumably the relatively certain cases that support similar visions of case value on the part of the litigants and corresponding agreements on settlement values and terms.

206. Moore, *supra* note 1, at 10.

207. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 588–89 (5th ed. 1998).



Richard A. Posner, in his classic work *Economic Analysis of Law*, projected that litigation results from a divergence of estimates of case value by opposing parties, leading to the filing and pursuit of a lawsuit.<sup>208</sup> Absent such a divergence, parties tend to settle filed cases, removing these cases from the flow of litigation.<sup>209</sup> So long as the divergence persists, litigants are motivated to keep their cases alive and to cling to disparate estimates of case value that preclude agreements on settlements.<sup>210</sup>

Even before the filing of a patent infringement lawsuit, informally pressed patent dispute resolution mechanisms (pursued through devices such as demand letters or other enforcement steps short of litigation) may resolve some patent liability claims with the lowest uncertainty. Relatively certain claims will tend to be resolved if, prior to the filing of a suit, both parties agree on the merit of a claim and the probable damages or injunctive relief the plaintiff patent holder is likely to obtain if the matter is pursued through litigation. In these circumstances, a similar vision of a case held by potential litigants may preclude any suit from being filed and produce the equivalent of a case settlement in the pretrial stage. The dispute involved—never filed as a lawsuit, much less pressed to an appeal—will have no influence on Federal Circuit appellate reversal rates.

Similar settlement dynamics will apply to filed patent cases before, during, and after trials. Where they conclude that there are few, if any, material outstanding issues regarding key legal or factual questions, parties who might pursue an appeal may choose instead to settle a case or accept a trial level result and avoid any further proceedings. Decisions like these will cause yet another component of relatively certain cases to drop out of the flow of cases to the Federal Circuit, leaving only a remainder of particularly uncertain cases to be decided by the Federal Circuit and to influence Federal Circuit appellate reversal rates.

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208. *See id.*

209. *See id.*

210. *See id.*

### 3. Judicial Experience and Better Claim Construction Guidance May Not Improve Reversal Rates Because Uncertain Cases Will Dominate Appeals

Because selection processes will respond to changes in substantive patent laws, appellate review standards, and judicial experience with claim construction and will continue to choose cases for appeal to the Federal Circuit that involve substantial uncertainties despite these sorts of changes in substantive laws, review standards, and judicial experience, appellate case uncertainty and reversal rates are likely to remain high regardless of these factors. That is not to say that the clarity of claim construction standards is unimportant. To the contrary, clarity in this regard is very important in two contexts: first, in aiding parties with existing patent disputes to come to joint, overlapping estimates of case values and to construct settlements; and, second, in preventing infringement by assisting parties to determine whether planned conduct will probably be infringing such that they should either obtain a license to use the patented technology involved or work or design around the patented technology so as not to infringe.

In these contexts, clearer standards would produce fewer patent disputes, fewer disputes that result in filed cases, fewer filed cases that proceed all the way to completed trials, and fewer Federal Circuit appeals from trial results. However, even with highly clear claim construction standards that have all of these beneficial impacts, Federal Circuit claim construction appeals would still tend to include those cases with significant remaining uncertainties about the proper claim constructions. Because of these lingering uncertainties, these cases would probably still produce high reversal rates at the Federal Circuit level.

Given that there will probably always be some claim construction disputes that litigants see differently after completed trials such that the related cases do not settle, there will continue to be some cases involving substantial claim construction issues appealed to the Federal Circuit. These will tend to be cases where several claim constructions are supported by the record and the different constructions, if adopted, will make material differences in the case outcomes. Given that cases will be selected for appeal because they have these material uncertainties, many of these appealed cases are likely to produce Federal Circuit reversals.

Reversals will be likely as the judges on the Federal Circuit perceive the material uncertainties inherent in these cases and adopt claim construction resolutions of the uncertainties that differ from the constructions selected by the district courts in these cases. The associated high rate of Federal Circuit reversals will prevail because the cases under consideration are differentially selected for the presence of disputed and material case issues, and the Federal Circuit judges are responding to these frequently present uncertainties. Nothing in this analysis depends on the governing law, the standard of review applied at the Federal Circuit, or the experience of the judges involved at the trial or appellate levels. Hence, selection theory predicts that reversal rates seen for claim construction analyses will be constant over time even as standards and resources available for claim construction change.

Even judges with substantial experience in conducting claim constructions may not be able to greatly reduce their rates of claim construction reversals on appeal.<sup>211</sup> Selection effects at both the trial and appellate levels will work against experience making any difference in reversal rates. At the trial level, if litigants regularly bring to trial only those disputes with perceived uncertainties in claim constructions while settling cases in which the parties can generally agree on claim constructions and infringement scope, then judges facing the uncertain claims contested in trials will be challenged with substantial uncertainties in every case, often in new and highly technical factual realms. The likelihood that even a judge who has conducted several claims constructions will deal with two construction issues with the same types of factual ambiguities in the same technological area is very small if not zero. Hence, selection effects bringing mostly uncertain cases to trial courts will tend to ensure that there are high risks of errors (or at least plausible alternative constructions) in every claim construction by trial courts. The difficulty of the cases presented—coupled with the fact that they will tend to be in different factual and technological areas—will ensure that any learning about claim construction that occurs in the technological area of one case is unlikely to carry over beneficially to improve claim construction in the different technological area of

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211. David L. Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699, 1702 (2009); Schwartz, *supra* note 1, at 255–56.

the next case handled by the same judge. In short, “practice” in claim construction with the especially uncertain and difficult cases brought to trial by patent litigants may not make “perfect” or improve the ability of a judge to deal with the next also difficult and uncertain case selected by the next set of litigants to be brought to trial and presented to the judge for a claim construction.

Selection effects at the appellate level may make the apparent reversal rates of trial judges roughly the same even among judges differing materially in how much they adhere to Federal Circuit standards for claim construction. For example, assume that Judges A and B each conduct claim constructions in ten cases, all of which lead to trial results and are candidates for appeal. Assume that Judge A diverges from Federal Circuit guidance on how to approach claim construction in three of his ten cases, while Judge B diverges in six of his ten cases. All ten of Judge B’s cases are appealed and produce a Federal Circuit reversal in the six cases where he diverged from Federal Circuit standards. Only five of Judge A’s cases are appealed (the three with erroneous claim construction analyses and two more) resulting in reversals of the three cases where he diverged from the Federal Circuit standards. The remainder of Judge A’s cases were not appealed because the litigants recognized that the other five results were in accordance with Federal Circuit standards and not materially different from the results that the Federal Circuit would reach if a costly appeal were mounted. Despite the differing degree to which the rulings of these two district courts adhered to Federal Circuit standards, the apparent reversal rate of the two judges in Federal Circuit appeals will be equal (that is, 60% of the appealed cases).

Clearly, the equality of the claim construction reversal rates for these two judges is not a good indicator of the success of these two courts in adhering to Federal Circuit standards. The equality of the rates only means that the cases from these two judges that were brought to the Federal Circuit involved equal percentages of errors resulting in equal reversal rates. What is ignored in this analysis is the impact of settlements in removing cases with correct results agreed upon by the parties from further judicial actions by appellate courts and measurements in appellate reversal rates. Put another way, cases that are not appealed would, if appealed, be highly likely to be affirmed, thereby dramatically altering and lowering measured

reversal rates. The fact that selection processes remove these cases from consideration in determining case reversal rates ensures that these rates will be especially high.<sup>212</sup>

## V. COMPARING REVERSAL RATES WITH PREDICTIONS OF SELECTION THEORY

### A. *Invariance of Reversal Rates over Time*

As previously discussed,<sup>213</sup> appellate case selection theory predicts that claim construction case reversal rates will remain high and relatively constant over time despite changes in applicable laws, standards of review, judicial experience, or judicial personnel. This is predicted to be the case because litigants will tend to take these factors into account and only appeal those cases where they perceive that they have a high likelihood to prevail. Because the decisions of litigants about which cases to appeal are based on changing criteria, the claim construction cases coming to the Federal Circuit always

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212. Schwartz has considered the possible impact of different appeal rates on the reversal rates seen for cases on appeal. Schwartz, *supra* note 1, at 282–84. He identified district courts with decisions in claim construction cases that “were reversed, vacated, and/or remanded (1) much less often than the average rate; (2) much more often than the average rate; and (3) at any other rate.” *Id.* at 283. He found that the appeal rate for courts with low reversal rates was 0.0556, the appeal rate for courts with high reversal rates was 0.0620, and the appeal rate for judges with about average reversal rates was 0.0563. *Id.* at 283. He concluded that this suggests “there is at least some empirical support for the proposition that litigants appeal cases at a greater frequency from judges that have been reversed more often,” but that “the amount of this selection bias appears relatively small, especially when compared with the overall level of appeals.” *Id.* at 284. He notes further that these conclusions are based on a very small set of data. *Id.*

Schwartz’s conclusions about the limited impact of selection effects on appeal rates for categories of courts are not inconsistent with the hypothetical analysis discussed in the main text. Different appeal rates for the judges within the high, low, and average reversal rate groups that Schwartz considers may have determined why these courts had similar reversal rates putting them in the same categories. The fact that the average appeal rates for the three categories of courts considered by Schwartz were about the same is not inconsistent with the notion—for the reasons expressed in the analysis in the main text—that different appeal rates for particular district courts may have produced roughly equal reversal rates (high, low, or average) for two or more district courts that actually differed in their adherence to Federal Circuit standards for claim construction.

For example, one court might have a high reversal rate because only a few of its cases have unresolved claim construction issues after trial and only these cases are appealed while another court might have a high reversal rate because all of its claim construction decisions retain high uncertainties after trial and all of these are appealed. Both of these courts would fall within the high reversal rate category considered by Schwartz, but they would reflect very different appeal rates per court. These differences per court would be obscured when the appeal rate for the category of courts with high reversal rates was considered at the group level. The group appeal rate would be a blend of these disparate appeal rates for particular courts, obscuring the differences at the court level that accounted for similarly high appellate reversal rates per court.

213. See *supra* Part III.D.

have substantial outstanding issues and material uncertainties regardless of their legal background or judicial pedigree. Hence, they are always subject to substantial and relatively unchanging reversal rates.

Moore's and Schwartz's findings regarding reversal rates in claim construction cases suggest that Federal Circuit reversal rates in claim construction cases have conformed to this constant level over time.<sup>214</sup> Moore, focusing on Federal Circuit decisions from 1996 through 2003, found a case reversal/vacate rate due to claim construction analyses of 29.7%;<sup>215</sup> Schwartz, focusing on cases decided by the Federal Circuit from 1996 through 2007, found a reversal/vacate rate of 29.7%, identical to Moore's measurement.<sup>216</sup> Since Schwartz's study addressed the cases considered in Moore's study plus a complement of cases decided from 2004 through 2007, the similarity of the reversal rates found in Moore's and Schwartz's studies implies (as a mathematical necessity) that the reversal rate for cases from 2004 to 2007 was also about 29.7%. These rates, moving neither a great deal up nor down over time, suggest that they are relatively insensitive to changes in law, judicial personnel or judicial experience with claim construction. Rather, these similar rates provide some confirmation of the predictions of case selection theory—that is, that case reversal rates will depend on the selection practices of litigants, which will take into account and effectively nullify the influence on reversal rates of changes in law and judicial personnel. In sum, the consistency of claim construction reversal rates across time is consistent with the view of selection theory that cases decided on appeal are a constructed set leading to consistent reversal rates despite many changes in case circumstances, surrounding law, and judicial personnel.

### *B. Shifts in Reversal Rates Favoring Plaintiffs or Defendants*

Selection theory also predicts that case reversal rates will approximate 50% if the parties in appealed cases assess the value of the cases in roughly equal terms (with roughly equal substantive valuations and means of assessing case values).<sup>217</sup> This prediction of

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214. See Moore, *supra* note 2, at 239; Schwartz, *supra* note 1, at 248–49.

215. Moore, *supra* note 2, at 239.

216. Schwartz, *supra* note 1, at 248–49.

217. Priest & Klein, *supra* note 20, at 19–21.

a 50% success rate (equivalent to a 50% reversal rate) is clearly not met for claim construction appeals, which seem to have had a reversal rate of well below 50% for some time.<sup>218</sup>

However, Priest and Klein's selection model provides an alternative prediction that reversal rates will shift from 50% in favor of the parties who have the most at stake in appeals or who perceive that they do.<sup>219</sup> In the instance of appealed patent cases with claim construction issues, a variety of factors may cause plaintiffs or defendants to perceive that they have more at stake than their opponents.<sup>220</sup>

For example, in some instances, the defendants will perceive greater interests in pressing appeals because they are especially concerned about the business disruptions flowing from district court rulings granting the plaintiffs broad injunctions. In other instances, the plaintiffs will perceive greater interests in appealing district court rulings invalidating patents because the plaintiffs will need to overturn these rulings on appeal to retain the ability to enforce their patents against additional defendants. In some cases, the plaintiffs will be more risk-preferring than the defendants (meaning that the attraction of small recoveries will loom larger than would be the case to a risk-neutral party, and the risk-preferring party will act like a party with a lot at stake in the appeal) and in other cases the more risk-preferring parties will be the defendants. In some cases, plaintiffs will have the greater experience with the technologies at issue in claim constructions (thereby giving them better abilities to make accurate estimates of claim uncertainty and case value implications), and in other cases the defendants will have this greater experience and information. In some cases, the plaintiffs will be more experienced in the relevant markets and be better able to project the commercial implications and case value impacts of patent case victories or losses, and in other cases the defendants will have these sorts of greater insights.

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218. See Moore, *supra* note 2, at 239 (finding a claim construction reversal rate of 29.7% for Federal Circuit cases decided from 1996 to 2003); Schwartz, *supra* note 1, at 248–49 (finding a reversal rate in claim construction appeals of 29.7% for Federal Circuit cases decided from 1996 to 2007).

219. Priest & Klein, *supra* note 20, at 24–26.

220. See *id.* at 24–29.

While these factors may skew the case value estimates and decision making of litigants in individual cases, in the aggregate of all the appealed cases considered in computing reversal rates, the sorts of factors mentioned above probably cancel out to have little or no net effect on claim construction reversal rates measured over a considerable number of appealed cases. This is because these characteristics are probably randomly distributed among the various patent cases in which claim construction issues are appealed and considered by the Federal Circuit.

Claim construction issues—and the possibility that an alternative claim construction will form a ground for reversal—cut across cases of all types in which the strategic importance of the cases for plaintiffs and defendants may vary greatly. There are no particular reasons to think that the case and litigant characteristics mentioned above will correlate with claim construction appeals or give plaintiffs or defendants a likely net advantage in success rates in these appeals due to selection effects. In some appealed cases, the amounts perceived to be at stake by plaintiffs will be greater, and in others the amounts perceived to be at stake by defendants will be greater. These types of cases will shift reversal rates in opposite directions, tending to produce no net change. Hence, even considering these particular case and litigant features, Priest and Klein's model would still project a 50% reversal rate for claim construction appeals to the Federal Circuit.

Actual Federal Circuit reversal rates measured by Moore do show equal claim construction reversal rates for plaintiffs and defendants in appeals that each of them initiate,<sup>221</sup> suggesting that case factors other than who succeeded at trial do not have much influence on the cases selected by litigants for appeals and the success that litigants achieve there. Moore found appellate reversal rates for cases in which patent holders prevailed on claim construction grounds at trial were almost identical (32.3%) to the reversal rates on appeal for cases in which defendants prevailed at trial (33.2%).<sup>222</sup>

The reasons why these rates found by Moore deviate from the 50% rates suggested by Priest and Klein's model are discussed in the

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221. Moore, *supra* note 2, at 241 tbl.1.

222. *Id.*



next section.<sup>223</sup> However, the similarity of these rates provides us with some information about possible patterns of case valuations by patent case plaintiffs and defendants as they decide whether to press cases for appeals. The equality of these rates found by Moore is consistent with the view that—controlling for who won at trial—plaintiffs and defendants succeed in Federal Circuit appeals at about the same rates.<sup>224</sup> This is consistent with the view that they tend to assess what they have at stake in a Federal Circuit appeal similarly. That is, taking into account their assessments in the aggregate over the multiple cases considered in measuring Federal Circuit reversal rates, plaintiffs and defendants who have won at trial in patent litigation perceive what they have at stake in appeals similarly, choose to proceed similarly with appeals rather than settling at post-trial stages, and achieve similar success before the Federal Circuit. This supports the view that, aggregated over the broad range of patent cases appealed, there are few if any net views on the part of plaintiffs who have won at trial that they have more at stake than defendants who have won at trial.

*C. Endowment Effects: Similarly Shifting  
Reversal Rates Towards Plaintiffs or Defendants*

Of course, the reversal rates of about 32% to 33% found by Moore<sup>225</sup> for both plaintiffs and defendants who have prevailed on claim construction issues at trial still deviate substantially from the 50% rate suggested by Priest and Klein's basic model (that is, their model of case selection that assumes parties view case values relatively equally).<sup>226</sup> It was predicted earlier in this Article that endowment effects causing whomever prevailed at trial—plaintiff or defendant—to become attached to this case result and see more at stake in keeping this result on appeal than his or her opponent would see in overturning the result would shift appellate success rates

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223. See *infra* Part V.C.

224. See Moore, *supra* note 2, at 241 (arguing that “the Federal Circuit is just as likely to reverse a claim construction appeal which was won by the infringer at the district court level as one won by the patentee”).

225. *Id.* at 241 tbl.1.

226. Priest & Klein, *supra* note 20, at 19–21.

concerning claim construction appeals in favor of the party who prevailed at trial.<sup>227</sup>

The reversal rates found by Moore exhibit just this characteristic.<sup>228</sup> Moore found 32.3% reversal rates for cases in which patent holders prevailed on claim construction grounds at trial, meaning that in 68.7% of the appealed cases where the patent holders prevailed in their claim construction contentions at trial, their positions were affirmed on appeal and no reversals were ordered.<sup>229</sup> Similarly, Moore found reversal rates of 33.2% on appeal for cases in which defendants prevailed at trial, meaning that in 66.8% of cases the defendant's contentions at trial were upheld on appeal.<sup>230</sup> In short, the appellate rates on appeal are shifted substantially in favor of the party who won on claim construction issues at trial, a result consistent with the winning party having a heightened aversion to giving up the litigation advantages of her favorable ruling at trial and thus assessing her stakes in keeping those advantages through a successful appeal (that is, an affirmance) as being especially high due to this endowment effect.

The common ground in these results is that the prevailing party at trial (whether plaintiff or defendant) generally feels, due to endowment effects, that he or she has more to lose in an appeal than his or her opponent.<sup>231</sup> Hence, this perception of greater stakes causes the party prevailing at trial to be willing to settle weaker cases and to continue only especially strong cases to a final result on appeal. This, in turn, increases this party's success on appeal and reduces her likelihood of reversal to below the 50% predicated for parties who perceive that they have equal stakes on appeal.

The perception of having more at stake in an appeal tends to cause the prevailing party at trial to refrain from taking chances on a full appeal in some weaker cases, and to settle those cases even though the party would continue on to a Federal Circuit appeal if he or she thought less was a stake. The result is that Federal Circuit reversal rates reflect a stronger set of appealed cases from the perspective of the party prevailing at trial and, as a consequence, a

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227. See *supra* Part III.D.3.

228. See Moore, *supra* note 2, at 241 tbl.1.

229. See *id.*

230. See *id.*

231. See *id.* at 240.

greater than 50% success rate for that prevailing party. This is the pattern we see for claim construction appeals in patent cases.

In summary, endowment effects causing plaintiffs or defendants who prevail at trial on claim construction grounds to see themselves as having greater interests at stake on appeal than their opponents probably account for why Federal Circuit reversal rates are about 30% for these prevailing parties rather than 50%.<sup>232</sup>

Moore's results indicate that Federal Circuit reversals favored neither plaintiffs nor defendants, but rather involve about 30% reversal rates for both.<sup>233</sup> The equality of these rates—despite the lack of similarity of legal positions of patent holders and accused defendants in patent litigation and appeals—suggests that the common source of the reversal rates lies not in the substance of the parties' respective legal positions nor in factual circumstances favoring one side or the other, but rather in shared endowment effects that both plaintiffs and defendants experience when they are prevailing parties at trial. Their interests in keeping the advantages (both economic and strategic) implied by favorable trial court results causes the parties prevailing at trial to build up expectations and perceived stakes in retaining the trial results that are greater than the dollars at stake might otherwise indicate. Because of these endowment effects causing prevailing parties to be biased somewhat away from purely rational assessments of what is at stake in appeals, parties prevailing on claim construction issues at trial will tend to feel that they have more at stake in keeping their prevailing positions in appeals than their opponents feel that they have in taking away the advantages of those prevailing positions.

Federal Circuit reversal rates are, under this analysis, largely dictated by appellate case selection effects, as modified by endowment effects causing prevailing parties at trial to systematically overvalue the desirability of keeping their favorable trial court results through success on appeal. These rates do not depend on the state of claim construction guidance from the Federal Circuit, the skills or experience in claim construction of district courts, or the standard of review used by the Federal Circuit to evaluate lower court claim constructions.

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232. *Id.* at 241.

233. *Id.* at 241 tbl.1.

Nor will a shift up or down in presently measured reversal rates tell us anything one way or the other about the betterment of the Federal Circuit's guidance to district courts regarding claim constructions, the skills of district courts in carrying out claim constructions, or the desirability of more deferential standards of claim construction review if adopted by the Federal Circuit. These factors do not, under a selection theory analysis, bear upon reversal rates. Hence, if a change in these rates were to be detected, its source would need to be found in appellate case selection processes, not in factors like those just mentioned that do not substantially influence claim construction reversal rates.

*D. Comparing Claim Construction  
Reversal Rates to Other Reversal Rates*

In his separate discussions in this symposium issue, Sichelman analyzes the reversal rates for different types of civil cases and finds that the appellate reversal rate for patent claim construction cases is higher than the rates for many other types of civil cases.<sup>234</sup> His data on other cases are, as he points out, from a different source than the data on patent claim construction reversal rates, so the comparability of the rates that he uses in his analysis is in some doubt.<sup>235</sup> Assuming that these rates reflect case outcomes that have been measured and coded in comparable ways, the fact that the reversal rates differ for several different types of cases does not establish that selection effects are not at work in determining these rates. The impact of selection effects, as I have previously discussed,<sup>236</sup> varies with factors such as stake asymmetry (that is, differences in the amounts or interests that the parties have at stake in a particular case); the uncertainty of the parties in estimating the quality of their cases and case outcomes; and the ability of one party to better estimate case outcomes than the other party.<sup>237</sup> Where these factors differ, the reversal rates predicted by the Priest-Klein theory will differ from 50% by varying amounts. The differences in reversal rates noted by Sichelman may reflect no more than differences due to these factors.

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234. Sichelman, *supra* note 163, at 1172–74.

235. *Id.* at 1173–74.

236. *See supra* Part III.A.

237. *See* Peter Siegelman & Joel Waldfogel, *Toward a Taxonomy of Disputes: New Evidence Through the Prism of the Priest/Klein Model*, 28 J. LEGAL STUD. 101, 108–16 (1999).

Whether or not this is the case is beyond the scope of this Article. However, differences between claim construction reversal rates and those of other civil cases do not necessarily indicate that the standards applicable to patent cases are less determinant than other civil law standards. These differences in reversal rates may reflect no more than differences in litigation circumstances and processes for various types of cases that cause cases with different likelihoods of reversal to be selected for litigation and pressed to the point of completed appeals, thereby influencing appellate reversal rates.

The same is true of the reversal rates that Sichelman cites for patent issues other than claim construction issues.<sup>238</sup> Once again, the reversal rates he cites for issues other than claim construction come from a different source than the claim construction reversal rates he uses in his analysis, leading to some concern over comparability.<sup>239</sup> However, assuming that these rates were determined in a roughly similar fashion, the differences he notes across patent law issues may be explainable in terms of the factors mentioned in the prior paragraph. In determining the impact of these factors, it will be important to focus on the reversal rates for plaintiffs and defendants separately. The circumstances of plaintiffs and defendants with respect to the above factors may be very different as these types of parties seek to retain or reverse results at trial. Accordingly, their decisions about which cases to appeal may influence appellate reversal rates in very different ways.<sup>240</sup> Sichelman seems to say that reversal rates at the Federal Circuit are problematic because the average of the issue-by-issue reversal rates for cases in which

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238. Sichelman, *supra* note 163, at 1174–76.

239. *Id.*

240. For example, as Sichelman notes in his analysis, a patent holder will have more at stake in an appeal concerning patent validity (since the future enforcement of the party's patent will be at issue in addition to the liability claimed in the case at hand) than will an accused infringer (who will only risk losing the presently contested liability amount). *Id.* at 1177. This stake asymmetry means that patent holders and accused infringers will often approach appeals of patent validity rulings against them with significantly different mindsets leading to different case selections for appeals and different appellate reversal rates. As Sichelman further notes, patent holders' greater stakes in invalidity rulings suggest that patent holders will tend to appeal more weak cases concerning validity issues than will accused infringers, leading to a lower reversal rate (due to the greater prevalence of weak cases) in appeals of patent validity issues by patent holders than in similar appeals by accused infringers, a pattern consistent with the data displayed in figures 1 and 2 in Sichelman's article. *Id.* For reasons such as this, a complete assessment of selection effect impacts on appellate reversal rates should focus separately on the reversal rates for patent holders and accused infringers as each appeals adverse rulings.

accused infringers won at trial (and patent holders initiated appeals) is greater than the average when appeals by all parties are included.<sup>241</sup> For the reasons just discussed, it may not be meaningful to consider average reversal rates across multiple patent law issues (where factors like stake asymmetry may differ greatly across different issues) or to worry about the magnitude of an overall average reversal rate computed without singling out the rates for appeals by patent holders and accused infringers as discussed above. The meaning of this disparity in average rates noted by Sichelman is unclear and may just be an artifact of his aggregation of rates emerging from disparate appellate case selection processes related to different issue types and different perspectives of patent holders and accused infringers. An attempt to make such evaluations of reversal rates without careful consideration of all of the factors mentioned in the prior paragraph is premature and beyond the scope of this Article.

Once patent case reversal rates are disaggregated to reflect different reversal rates for plaintiffs and defendants receiving adverse results at trial, the appellate reversal rates for plaintiffs or defendants are often higher for other patent issues than the reversal rates for claim construction issues. Indeed, as Sichelman shows in figures 2 and 3 of his article, the reversal rates for claim construction issues are at about the middle of the range of reversal rates for all patent law issues reflected in his data.<sup>242</sup> Whether this pattern of reversal rates can be fully explained in terms of the factors mentioned in the prior paragraph is beyond the scope of this Article. However, the claim construction reversal rates shown in Sichelman's figures 2 and 3 (where rates for plaintiffs and defendants are properly disaggregated to reflect their different interests and circumstances as they pursue appeals from adverse results at trial) are at about the middle of the range for patent issues generally.<sup>243</sup> This belies the notion that claim construction rates are especially out of control or problematic, at least relative to the reversal rates for other patent issues.

Sichelman puts forth a hypothetical framed in terms of "dice rolls" and "conspiracy theory" to analyze my arguments.<sup>244</sup> I, of

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241. *Id.* at 1178.

242. *Id.* at 1177.

243. *Id.*

244. *Id.* at 1183.

course, have not suggested that the Federal Circuit works through claim construction analyses that are the equivalent of “dice throws” or that there is some “conspiracy theory” accounting for the Federal Circuit’s claim construction processes. I assume that Sichelman does not think this either, despite his use of these colorful terms.<sup>245</sup> What I do think is that those very few claim construction cases that result in Federal Circuit analyses and decisions (and therefore account for reversal rates in this court) involve close cases on which reasonable minds (particularly those applying a *de novo* standard of review) can differ and often do. This characteristic of the cases accounts for differences between district courts and Federal Circuit analyses in the very few cases that do not settle before a Federal Circuit review, not some fanciful “dice roll” or “conspiracy theory.”<sup>246</sup> Fortunately, as my analysis recounts, this highly uncertain slice of cases resolved by the Federal Circuit is a small one, with the great bulk of cases being resolved through settlements. The remaining uncertainty of those few cases reaching the Federal Circuit may well be irresolvable, and the associated claim construction reversal rate in the Federal Circuit may be irreducible. In short, reasonable minds may continue to differ regarding claim constructions in the highly uncertain but few cases reaching the Federal Circuit.

Sichelman objects that I have not presented a complete data analysis supporting my view.<sup>247</sup> Such an analysis is far beyond the scope of the present Article, which is aimed at clarifying the potential impacts of selection effects on Federal Circuit cases and claim construction reversal rates. A careful analysis of the impact of selection effects on reversal rates for claim construction issues and other issues (leading to a potential comparison of which, if any, are “high” relative to others) would require consideration of such control variables as the stake asymmetry of the parties, the uncertainty of the parties in estimating the quality of their cases and case outcomes, and the ability of one party to better estimate case outcomes than the other party. This type of study will be a worthwhile endeavor in the future.

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245. *Id.*

246. *Id.*

247. *See id.* at 1183.

However, Sichelman's data hardly confirms his contrary contention that Federal Circuit claim construction reversal rates are exceptional.<sup>248</sup> His results are mixed—figure 1 in his article, which summarizes total reversal rates (combining rates for patent holders and accused infringers when they press appeals), seems to show a higher claim construction reversal rate than that for other patent law issues,<sup>249</sup> while figures 2 and 3 (which separately display the rates for appeals pressed by patent holders and accused infringers), do not show exceptionally high claim construction reversal rates.<sup>250</sup> This evidence is, at best, ambiguous and preliminary.

Additionally, as with studies of selection effects in this area, studies of Federal Circuit reversal rates across diverse patent law issues of the type presented in rough form by Sichelman would benefit from the consideration of key control variables reflecting factors other than Federal Circuit analyses that may account for the reversal rate differences that Sichelman notes.<sup>251</sup> Important control variables potentially accounting for the issue-by-issue reversal rate differences reported by Sichelman include factors like stake asymmetry of the parties potentially leading to more extensive and effective advocacy on one side for some issues than for others and differing abilities of the parties to evaluate the strengths and weaknesses of their cases and to present more effective arguments for some issues than for others. Absent consideration of these types of factors outside the decision-making processes of the Federal Circuit itself, it is probably not proper to attribute differences in reversal rates across patent law issues to weaknesses of the Federal Circuit's analyses of any particular category of issues such as claim construction issues. The most that can be said of the data analyses and data implications in this area is that they are incomplete and we should, for now, leave it at that.

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248. *Id.*

249. *See id.* at 1175 fig.1 (showing a 33% reversal rate for claim construction, with section 102(a) anticipation at 38% and indefiniteness at 38%).

250. *Id.* at 1177 fig.2&3.

251. *Id.* at 1175–77.



## VI. USING SETTLEMENT RATES (NOT REVERSAL RATES) AS MEASURES OF CLAIM CONSTRUCTION CLARITY

One implication of the research described in this Article is that settlement rates (that is, the percentage of all patent cases that are resolved through settlements rather than trials or appeals) are better indicators of legal standard clarity than are reversal rates or other measures of appellate court disagreements with district court results.

Moore has recognized that selection effects may be a source of skewing in the characteristics of cases appealed to the Federal Circuit—in particular, causing these cases to be skewed towards a high prevalence of cases with uncertainties in material facts as seen by the parties.<sup>252</sup> She treats the case selection process as an incidental feature of patent case dynamics and appeals, and attempts to control for these selection effects as she seeks to analyze the adverse implications of the Federal Circuit's claim construction reversal rates.<sup>253</sup> However, given that selection processes operating over the course of patent litigation actually eliminate most of the cases that are filed, these selection processes are not secondary effects skewing an underlying, more fundamental system of litigation and appeals. Rather, the selection processes are (by virtue of dominating the largest fraction of case dispositions) the primary processes, subject only to the need for litigation and appeal in those few cases where settlement discussions fail. Put another way, litigation and appeals keep settlement processes focused on patent law standards because parties considering settlement know that, by resisting settlement, either party can opt for the outcomes that litigation and appeal will afford. However, settlement discussions are the primary vehicle for case resolutions and the merit of claim construction standards in establishing clear and predictable claim scope should be measured using the impact of those standards on case settlements.

Using this perspective on desirable claim construction standards and how to measure their success indicates that we should focus more on measurements of settlement success and less on measurements of consistent judicial results across trial and appellate courts. Claim construction standards are successful under this measure if they communicate useful and shared standards to case

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252. See Moore, *supra* note 15, at 83–90.

253. See *id.* at 91–92 (discussing which parties bring suit in patent cases).

litigants who are considering case settlements. This will tend to be true where claim construction standards produce sufficient joint visions of claim scope and patent infringement value to support a settlement agreement. Conversely, the failure to reach a case settlement short of an appeal indicates that the litigants have been unable to reach a common vision of claim scope and infringement even with the aid of the fact-finding and judicial analyses involved in a trial. Under this logic, the prevalence of case settlements among filed patent cases provides some measure of the success of claim construction standards in establishing consistently applied frameworks within which litigants can project claim scope and associated ranges of infringement and reach associated settlement agreements. In sum, percentage rates of patent case settlements serve as rough measures of standard clarity.

Given this, our assessments of the Federal Circuit's claim construction standards should depend not on appellate reversal rates—which are heavily influenced and elevated by case selection practices emphasizing uncertain cases likely to lead to reversals—but rather case settlement rates. Where a high percentage of cases settle rather than proceeding to an appellate court resolution, this is substantial evidence that most litigants found the relevant claim construction standards sufficiently clear and useful to reach fairly similar visions of claim scope and infringement characteristics, leading to similar estimates of case value and acceptable settlement terms.

Using settlement rates (equal to the percentage of all litigated cases that are settled) as a measure of claim construction clarity suggests that claim construction standards emanating from the Federal Circuit are highly clear and becoming clearer. Patent case settlement rates in 2008 of approximately 88% of filed cases indicate that the great majority of all litigants see claim construction standards as relatively settled and clear.<sup>254</sup> These rates are higher than the settlement rates of 76% found for the years 1995 through 1999.<sup>255</sup> These figures indicate that case clarity is high among patent litigants (as revealed by the high case settlement percentages in both

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254. See UNIV. OF HOUSTON LAW CTR., *supra* note 4.

255. Moore, *supra* note 135, at 913.

of these time frames) and growing clearer (as suggested by the larger percentage figure for the more recent data).

Kesan and Ball's findings regarding patent case resolutions provide further evidence that patent law standards are growing increasingly clear and producing more settlements.<sup>256</sup> Their study addressed the resolution of patent cases initiated in 1995, 1997, and 2000.<sup>257</sup> The former year was chosen, in part, because most of the cases initiated in that year were resolved after the Supreme Court's *Markman* decision<sup>258</sup> describing the central role of district courts in claim construction and requiring judicial rulings on claim construction<sup>259</sup> in what have been commonly been referred to since as "*Markman* hearings."<sup>260</sup> Settlement rates measured for cases initiated in the three years covered by Kesan and Ball's study presumably reflect increasing experience of counsel in predicting the claim construction results they would achieve in trials incorporating *Markman* hearings and in constructing settlement terms and discussions accordingly. This increased experience would tend to decrease the uncertainties in claim construction analyses over time. In short, one would expect increasing settlement rates (that is, increasing percentages of cases settled before trial rather than continued to trial) over time.

This is exactly the pattern found by Kesan and Ball.<sup>261</sup> They measured the fractions of cases settled (or otherwise resolved by the parties before trial) for cases initiated in 1995, 1997, and 2000 as 84%, 87%, and 89% respectively.<sup>262</sup> While the differences in these percentages may seem modest, they correspond to statistically

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256. See Kesan & Ball, *supra* note 95.

257. *Id.* at 250.

258. *Id.* at 259–60.

259. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996).

260. See Moore, *supra* note 1, at 7.

261. See Kesan & Ball, *supra* note 95, at 272.

262. See *id.* at 271 (noting that 16% of cases filed in 1995, 13% of cases filed in 1997, and 11% of cases filed in 2000 terminated with a court decision—including a summary judgment or trial result—implying that the remainder of the cases were settled for each of these case groups). Kesan and Ball make the point that these resolutions outside of court involve some affirmative settlements and some resolutions (for example, dismissals for want of prosecution or voluntary dismissals) that reflect apparent choices of the parties, but that cannot be confirmed to be associated with joint agreement on settlement or case resolution terms. See *id.* at 272.

significant differences in case resolution patterns. The relevant numbers of resolved cases in these years are as follows<sup>263</sup>:

CASE RESOLUTION BREAKDOWNS BY YEAR			
Year	Resolved Without Adjudication	Cases with Court Result	Total
1995	1131	210	1341
1997	1496	225	1721
2000	1741	224	1965

The chi-squared figure for the changes in the breakdowns of these cases over the three years studied is 12.7 with two degrees of freedom, which indicates a probability of only 0.002 that this observed set of increasing fractions of cases resolved out-of-court over time occurred through random chance. Since this probability is less than the 0.01 level generally used for statistical significance, the chi-square test indicates a statistically significant difference in the fraction of patent cases resolved through settlements and other out-of-court resolutions over the three years examined in Kesan and Ball's study.

Using additional records on case resolutions that identified case settlements with more particularity, Kesan and Ball tabulated the fraction of patent cases filed in 1995, 1997, and 2000 that definitively resulted in case settlements or probable settlements.<sup>264</sup> Using this more stringent analysis, the percentages of patent cases that Kesan and Ball measured as involving settlements or probable settlements for 1995, 1997, and 2000 were 65%, 66%, and 68%

263. See *id.* at 273–74 tbls.4–6.

264. *Id.* This more detailed analysis of patent case settlements classified a case resolution as involving a settlement if a case was either coded as settled in the database on case resolutions maintained by the Administrative Office of the United States Courts or the case docket for the case indicated a case settlement with no prior adjudication of the case deciding liability on the merits. *Id.* at 269. For purposes of this analysis, Kesan and Ball treated settlements and probable settlements as involving identified settlements, consent judgments, stipulated dismissals, agreed dismissals, and voluntary dismissals following an answered complaint. *Id.* at 268–69. For simplicity, this Article refers to these case resolutions as settlements.

respectively.<sup>265</sup> Their figures for these settled cases in comparison with those resolved through adjudications and court results (including both summary judgments and trials) were as follows<sup>266</sup>:

PATENT CASE RESOLUTIONS BY YEAR			
Year Filed	Cases Resolved with Settlements	Cases with Court Result	Total
1995	889	210	1099
1997	1141	225	1366
2000	1340	224	1564

The chi-squared figure for these results is 10.8 with two degrees of freedom, indicating a probability of 0.004 that this observed breakdown of changes in cases resolved through settlements and court results occurred through random chance. Since this probability is less than 0.01, Kesan and Ball's results in their more stringent analysis also show a statistically significant difference in the fraction of cases resolved through settlements over the three years of patent cases they studied.

These results from Kesan and Ball's study, while not focused on claim construction standards and results per se, provide some evidence that patent standards in general are providing greater clarity and more certain analytical frameworks for patent disputants over time. Determining whether or not this is the case would, of course, require a study with greater controls for case complexity and case content over the years studied. However, assuming as appears reasonable, that the cases entering the patent litigation system through case filings in one year have a similar spectrum of case types and uncertainties to those entering in the next year, changes in settlement frequencies seem less likely to result from changes in the

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265. *Id.* at 273–74 tbls.4–6. The differences in percentages between these and the percentages for all out-of-court case resolutions involved cases that were resolved through a variety of what Kesan and Ball term “non-merit dispositions,” including such resolutions as dismissals without prejudice, dismissals for lack of jurisdiction, dismissals for want of case prosecution, default judgments, and voluntary dismissals in cases where the complaints were unanswered. *Id.*

266. *Id.*

uncertainties of the case facts and more likely to be responsive to changes in the legal standards and frameworks that produce varying degrees of material uncertainties in projected case outcomes when litigants (or more realistically, their attorneys) apply the law to the case facts and estimate likely case results. Assuming that the factual complexities and associated valuation uncertainties of all patent cases filed in a given year are relatively constant over time, the increased percentages of case settlements observed over time suggest that litigants are being more and more successful in determining clear estimates of probable case results (or at least estimates of case results that are consistently seen across the litigants) and in formulating mutually agreeable settlements accordingly.

This clarifying effect on settlements and other privately conducted analyses of patent infringement should be the proper measure of merit of patent standards, not only for its desirable impacts on patent litigation, but also for its relationship to clarifying and improving the predictive quality of forward-looking patent infringement analyses by counsel seeking to aid clients in avoiding patent infringement liability regarding future actions. Such a preventive focus of patent practice has great potential in avoiding inefficient and costly commitments of business resources to projects that are interrupted by patent enforcement injunctions or that are completed only under patent licenses with undesirable terms that are negotiated under the threat of such injunctions and with weak bargaining power on the part of the licensees.

Whether or not claim construction standards (as opposed to patent standards more generally) seem to be producing more certainty in patent analyses and more settlements in recent years will require a further study of settlement patterns in patent cases presenting claim construction issues. Indeed, it might be interesting to complete a comparative study of settlement patterns in cases presenting claim construction issues versus other types of contested patent issues to determine whether there has been a greater or lesser change in the apparent clarity of claim construction standards and associated settlement rates than in other contested areas. Such a study would be difficult, of course, because it would necessitate the characterization of cases as involving particular types of contested patent issues—claim construction, novelty, infringement, etc.—based on case filings and early stage case developments since the

cases of interest would be those that settle and do not produce further trial records or case results. Such studies might be possible from careful analyses of case complaints and answers if these were used to identify the types of issues or disparate positions of the parties at the outset of litigation. However, the tendency of parties to overstate their differences at early stages to preserve issues for later development may make this a poor source of early stage case characterizations.

Despite the difficulty of such studies, these sorts of analyses focusing on case settlements and other types of voluntarily reached dispositions of patent disputes (such as targeted infringers' entry into voluntary licenses before the filing of threatened patent infringement suits) seem necessary if we are to have meaningful evaluations of the practical clarity of the Federal Circuit's claim construction standards and other patent standards more generally. Federal Circuit appeals are simply a small fraction of patent cases that differ from the bulk of patent cases for the reasons described in this Article. The rates at which they are resolved just do not say much about how the patent system is working in the resolution of the great bulk of patent disputes. The bulk of disputes are resolved before case filing or pretrial after case filing.<sup>267</sup> There is some evidence that patent standards are producing better results in these areas, and no evidence in Federal Circuit reversal rates that would indicate the opposite (at least at a level that would justify major changes).<sup>268</sup> Rather, our failure to recognize that Federal Circuit claim construction reversal rates may measure no more than the continuing accuracy of litigation counsel in filtering and selecting high uncertainty cases for Federal Circuit appeals, risks distracting us with irrelevant findings and focusing a great deal of undue concern and attempted reforms on a claim construction system that is apparently working well through settlement processes.

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267. See Kesan & Ball, *supra* note 95, at 273–74 tbls.4–6 (demonstrating that there are significantly more settlements and probable settlements than non-merit dispositions and rulings and verdicts at the district court level).

268. See *id.* (providing some evidence that patent standards afford clarity to Federal Circuit case outcomes).

## VII. CONCLUSION

Excessive concern about Federal Circuit claim construction reversal rates is misplaced because such rates are largely unchangeable and not indicative of patent system problems beyond the few cases to which they apply. They are largely unchangeable because the case selection processes described in this Article will always shift the nature of cases brought to the Federal Circuit to ensure a high degree of uncertainty in claim construction issues and a high reversal rate accordingly. These rates are not of concern as they apply to a very small fraction of outlier cases. Recent studies have shown that only about 14% or less of all filed patent cases result in district court adjudications, meaning that Federal Circuit analyses have a direct influence on no more than 14% of filed patent cases.<sup>269</sup> These few cases leading to Federal Circuit results are abnormal outliers in the patent system—chosen for their continuing uncertainties of material issues despite the clarifying effects for the litigants of trial preparation and trial processes.<sup>270</sup> Given the small fraction of patent cases involved and the abnormal characteristics of those cases, reversal rates in cases raising claim construction issues are not fairly indicative of the impact of Federal Circuit guidance on the resolution of patent analyses and patent disputes generally.

Indeed, there are reasons to believe—due to the growing fraction of patent cases resolved through settlements—that present patent standards are producing consistent and shared views of patent scope and case value in the analyses of opposing litigants. This capability of producing clarity in private analyses—both case-resolving analyses leading to settlements and forward-looking analyses of counsel giving preventive advice about the scope of patents and potential patent infringement—should be the focus of our assessments of the adequacy of claim construction standards and other patent law standards. These impacts on settlement processes and preventive advice are highly important, but have little to do with Federal Circuit reversal rates.

Hence, the correct answer to the question posed by this Article about whether present claim construction reversal rates of the Federal Circuit are too high, is that these rates are substantial, but of

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269. See explanation provided *supra* note 146.

270. See *supra* Part IV.B.



little meaning regarding patent system quality and are probably distractions from more important concerns over the clarity of patent system standards in the eyes of litigation counsel and patent counsel, who are responsible for most practically important assessments of patent scope and meaning. When we perseverate over Federal Circuit reversal rates, we have already lost sight of the proper concern of patent enforcement clarity—the ability of private parties in litigation or otherwise—to assess the scope of infringing and noninfringing activities and to make litigation and conduct decisions accordingly. The impact of patent standards in clarifying the ways parties analyze potential patent infringement as inputs to these decisions is substantial, but has little to do with the resolution of a few high-uncertainty cases that survive litigation to be resolved by the Federal Circuit. The pronouncements of the Federal Circuit are important insofar as they provide guidance for patent analyses in future situations, but the outcomes of the very few unusual cases the Federal Circuit resolves and the reversal rates that these resolutions produce are of little moment. Excessive attention to these rates distracts us from greater attention to the impacts of Federal Circuit standards on extrajudicial case resolutions and from acquiring greater reassurance from some preliminary evidence regarding the resolution of cases in these private patent analyses that suggests current claim construction standards are doing just fine.