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Article

UNREPRESENTATIVE RANDOMIZATION: AN EMPIRICAL STUDY OF JUDGING PANELS OF USPTO APPEALS TO THE CAFC

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***80 Introduction**

When Congress created the United States Court of Appeals for the Federal Circuit (Federal Circuit), it saw fit to codify how the judging panel should be composed.[1] One goal was "to ensure that all of the judges sit on a representative cross section of the cases heard" by the court.[2] In furtherance of this goal, the Federal Circuit adopted Rule 47.2(b) seeking to maintain the "representative cross-section [of judges across] the fields of law within the jurisdiction of the court."[3]

The clerk's office of the Federal Circuit runs a computer program that randomly generates three-judge panels.[4] Then, the list of panels is merged with the list of cases before the Federal Circuit.[5] Theoretically, based on these procedures, every judge would sit on the same number of panels in a particular field of law in a given term. This is important because some studies suggest that specific judges in the Federal Circuit influence the outcome of particular patent cases.[6] Therefore, if the representative cross-section requirement is not sufficiently upheld, that is, if a select number of judges sit on panels that render more decisions in a particular area of law than the rest, then it could result in those judges having a significantly stronger influence over that area of law.

There is a need for an empirical study that looks at patent appeals from the United States Patent and Trademark Office (USPTO) to determine if there is a truly ***81** representative cross-section of judges involved in those decisions. Such a study would provide valuable information to patent prosecutors, those in appellate practice before the Federal Circuit, and those who analyze the current Rule 47 process employed by the Federal Circuit.

This article provides such a study. It examines all patent appeals from the USPTO's Board of Patent Appeals and Interferences (BPAI) over a five-year period, from 2005 through 2009. The study includes all prosecutions, coming both directly and indirectly[7] from the BPAI, and interference proceedings that are directly[8] and indirectly appealed. Patent prosecution appeals represent only a portion of patent cases heard by the Federal Circuit.[9] However, because the nature of patent prosecution is so different from infringement litigation, and because infringement can never occur without the underlying patent, it is important to view patent prosecution in its own light and as its own field of law.

Based on this study, this article concludes that there is a need for a revised system for assigning judges and cases to panels in order to achieve a truly representative cross-section of judges in the Federal Circuit participating in a particular field of law. Under the current system, there is great disparity in the number of direct patent appeals from the BPAI participated in by each judge.[10] This disparity shows a lack of a representative cross-section in the supposedly random system employed by the Federal Circuit.

This article comes to these conclusions in the following manner. First, Part I provides background on how the cases included in the study reached the Federal Circuit and were assigned to judges, along with a brief review of the backgrounds of some Federal Circuit judges. Part II describes the empirical study, including its parameters and limitations. Part III reports the findings of the study, highlighting trends and interesting statistics revealed by the data. Part IV suggests a new system that

could alleviate the problems revealed by the empirical study. The conclusion ***82** reiterates the most significant findings from the study and the finer points of the suggested revisions.

I. Background

A. Appeals from the USPTO

If, in the process of applying for a patent, the applicant is dissatisfied with a final rejection by the patent examiner, he or she may appeal that decision to the BPAI.[11] If the applicant is still not satisfied after the appeal to the BPAI, the applicant has two paths of review. The first is to appeal the decision directly to the Federal Circuit.[12] The other is to file a civil action in the United States District Court for the District of Columbia against the Director of the USPTO.[13] If the applicant appeals from this district court proceeding, the case will also likely find its way to the Federal Circuit because of the Federal Circuit's exclusive jurisdiction over patent cases.[14]

Occasionally in the process of prosecution, the applicant will enter into an interference proceeding.[15] Interference proceedings take place in the BPAI, whose decision amounts to a final judgment as far as the USPTO is concerned.[16] If the applicant is unhappy with the decision of the BPAI, he or she has two paths similar to that of the traditional applicant. The first is to file an appeal directly to the Federal Circuit. The other is to file a civil suit in any district court against the adverse party in the interference, assuming jurisdiction exists under civil procedure rules.[17] Any appeals from these civil actions will also make their way to the Federal Circuit due to its aforementioned exclusive appellate jurisdiction over patent cases.[18]

*83 B. Randomization of Judges to Appeals

In 1982, the ninety-seventh Congress passed the Federal Courts Improvement Act (the Act), which created the Federal Circuit.[19] One of the provisions of the Act amended 28 U.S.C. § 46(b) to add, inter alia, that "[t]he United States Court of Appeals for the Federal Circuit shall determine by rule a procedure for the rotation of judges from panel to panel to ensure that all of the judges sit on a representative cross section of the cases heard . . . ."[20] The Federal Circuit's rules reflect this amendment.[21]

The passage of the Act mandated a large number of requirements for the panels assigned to cases. For one, the Act ensures that a judging panel has as many active Federal Circuit judges as possible.[22] There was concern among Congress that judges on senior status were playing too heavy a role in the decisions of the various appellate courts, a concern that also applied to judges sitting by designation.[23] However, the reasons set out by Congress for the Act do not specifically indicate why they added the representative cross-section requirement.[24] Thus, it is hard to discern the reason Congress required the Federal Circuit maintain this representative cross-section among judges while not imposing this requirement on other circuit courts.

Regardless of the motive behind the requirement, the Federal Circuit includes the language in its rules. The system that the Federal Circuit uses, which if in accordance with the law would result in a representative cross-section, is one of randomization. The Federal Circuit's Internal Operating Procedures (IOP) mandate that a computer program randomly assign three-judge panels.[25] Then, a computer program merges its list of ready cases with the panels of judges, subject to the representative ***84** cross-section requirement.[26] Based on this method, as stated in the IOP, the randomization system utilized by the Federal Circuit should result in any particular field of law having a reasonably even spread of judges assigned to the panels of the cases in that field.[27]

It is possible that the representative cross-section requirement intended to operate so that each judge heard a representative spread of cases for each particular field of law, as opposed to each field of law being heard by a spread of judges. Because of the lack of information in the legislative history of the requirement, it is hard to determine the aim Congress had in mind when adopting this language. However, while this study primarily addresses the spread of judges among patent prosecution and interference appeal panels, the information revealed can also be applicable to each specific judge personally hearing a representative cross-section of cases for each field of law.

Some legal scholars have scrutinized the randomization system, and suggest that it creates a political imbalance because of the inherent leanings by judges, doctrinal or otherwise.[28] These scholars suggest that panels should be specifically chosen so that there is adequate representation of all political leanings.[29] Other scholars find that a randomized system for the

assignment of judges and adjudication of cases is more beneficial than any assignment system.[30]

This article, being an empirical study, does not make any suggestions as to the negatives or positives of the current system, but instead looks at how effective the current randomization system is in achieving a representative cross-section. However, it is important to note that both sides of the debate on the effectiveness of the current randomization system generally assume that it achieves randomization to the point that every judge on a court has heard the same exact number of cases in ***85** each field of law.[31] It is against this assumption that this article evaluates the effectiveness of the current system.

C. Judges of the Federal Circuit

The Federal Circuit, when there are no vacant positions, has twelve judges in active service.[32] Judge Schall, on October 5, 2009, and Judge Mayer, on June 30, 2010, both assumed senior status and their positions remain unfilled.[33] Additionally, Chief Judge Michel retired on May 31, 2010.[34] This has resulted in three vacancies on the Federal Circuit so that there are currently only nine active judges.[35] In addition to the active judges, there are presently six senior judges serving the Federal Circuit.[36] Apart from these fifteen judges, judges from other circuit and district courts sometimes sit by designation.[37]

1. Current Judges

Currently, there are eight circuit judges on the Federal Circuit and one chief judge.[38] The judges of the Federal Circuit are different from those of the other circuit courts and the district courts because of the special jurisdiction of the Federal ***86** Circuit. As such, scholars sometimes examine the backgrounds of judges that sit on the Federal Circuit.[39]

Prior to the appointment of noted scholar and professor Kimberly Moore to the bench, four of the judges serving on the Federal Circuit had technical backgrounds.[40] Judge Moore was appointed in 2006 and has an extensive technical background, making her the fifth judge with such a background on the court.[41] The other judges with technical backgrounds are Judges Newman and Lourie, who each hold a Ph.D. in Chemistry, and Judges Gajarsa and Linn.[42] In addition to these five judges with technical backgrounds, current Chief Judge Rader has significant experience in the field of patent law, being a former full-time patent professor and a co-author of one of the most widely used casebooks in the field.[43] On March 10, 2010, President Obama nominated Kathleen O'Malley to fill a vacant seat on the Federal Circuit.[44] O'Malley, similar to current Chief Judge Rader, does not have a technical background, but has extensive experience with patent cases in addition to being an adjunct professor of patent litigation.[45] Although this article focuses on the assignment of cases to judges without regard to the backgrounds of the judges, this information may prove interesting to Federal Circuit watchers and assorted scholars. While the ratio of judges having technical backgrounds to those without could result in some appeals having a panel full of judges without such a background, a majority of the law clerks to the judges have technical backgrounds.[46]

***87** #### 2. Senior Judges

Following their changes to senior status, Judge Schall and Judge Mayer became the fifth and sixth senior judges serving on the Federal Circuit.[47] After a judge retires, he or she may move to senior status indefinitely, provided he or she receives certification every year by the Chief Judge.[48] Retired judges on senior status, known as senior judges, can be assigned to active duty by the Chief Judge and perform any duties that they are willing and able to undertake.[49]

Senior judges have a reduced caseload in comparison to their active counterparts.[50] Another difference between active and senior judges is the number of law clerks that each judge can employ: an active judge can have up to four, whereas a senior judge can only employ one clerk.[51] Senior status is so similar to active status on the Federal Circuit that the court's rules allow for a panel to be composed of a majority of senior judges.[52]

3. Visiting Judges

The laws allow for circuit judges from other circuit courts to serve on the Federal Circuit from time to time.[53] The Federal Circuit welcomes these judges, known as visiting judges, as valuable benefits to the court.[54] Visiting judges have ***88** all of the same rights and duties as an active judge on the Federal Circuit during their visits.[55]

During the five-year period of the study, twelve visiting judges sat on panels that heard BPAI appeals.[56] A visiting judge sat on a panel in fourteen BPAI decisions, and in two of those decisions, a visiting judge delivered the opinion of the court.[57] It is

notable that both visiting judges who wrote opinions came from districts where patent litigation has become popular.[58]

II. Description of the Study

In order to fill the need for more information on how the Federal Circuit assigns panels to appeals from the BPAI, a study of these appeals was performed. The basic goal of this study was to capture all appeals that start in the BPAI and make their way, directly or indirectly, to the Federal Circuit. This data revealed interesting trends as well as shed light onto how effective the system of assigning cases upholds the representative cross-section requirement of 28 U.S.C. § 46(b).

A. Parameters of the Study

This study contains a defined population of decisions of the Federal Circuit issued over a five-year period, from January 1, 2005 through December 31, 2009.[59] ***89** Only decisions resulting from appeals either directly through the BPAI, or indirectly through patent prosecution civil action, as noted previously, are included.[60] This population includes all decisions regardless of the outcome or whether the Federal Circuit ever reached the merits of the case.

The study comprises all cases where the Federal Circuit delivered an opinion, including Rule 36 cases that allow the Federal Circuit to affirm without writing a discussion of the case, giving an explanation, or providing any text at all in the opinion.[61] The study also includes both precedential and nonprecedential opinions. A nonprecedential opinion is provided when more than a simple affirmance is necessary, but the holding does not significantly add to the body of law.[62]

In addition, the study does not give additional weight to decisions that encompass multiple cases in a single opinion.[63] For instance, opinions or affirmances containing multiple cases only count as one decision for the purposes of this study. Conversely, cases reheard with the same panel are counted each time. Because the Federal Circuit has discretion as to how decisions are rendered, the author felt it was appropriate to count appeals in a similar fashion.

B. Data Collected

For each decision in the population, the following data was collected from the Federal Circuit's opinion:

(1) case name, docket number, and date of decision;

(2) whether the Federal Circuit affirmed, reversed, or vacated the decision of the BPAI or lower court;

***90** (3) the issue(s) presented in the case, if the opinion listed the issues;[64]

(4) whether the opinion was precedential or nonprecedential;

(5) the judges who sat on the panel for the case; and

(6) the judge who authored the opinion of the court for non-Rule 36 cases, and the judges, if any, who authored additional opinions in the case.

C. Limitations

The notable limitation of this study pertains to its predictive power. Although an empirical study such as this one can describe and make assumptions on what happened over the five-year period, these are merely predictions.[65] There are sometimes extenuating circumstances that cannot be seen in the words of the opinions and through data in a study that may account for changes in the usual practices of the court. This includes circumstances such as recusal, where judges must disqualify themselves because of worries of impartiality.[66] Additionally, there may be instances where a judge is unavailable for a panel because of illness, emergency, or assignment to another court by designation, which also could lead to attenuation in the results. Therefore, this study does not attempt to make predictions on the reasons behind the results, but instead analyzes the results for trends and evaluates the randomization system. Any information the study may provide for prediction

outside the five-year period, particularly towards the future practices of the Federal Circuit, should be taken with caution. Thus, this study attempts to minimize any assumptions about the meaning, past or future, of the empirical data.

The study's main goal is to provide a clearer picture of judging panels that hear non-infringement patent cases. Any inferences made regarding the success or failure of the current randomization system in upholding the statutory requirements are based on the data available.

III. Results of the Study

Using the data set defined in Part II, this study tests the effectiveness of the current randomization system of the Federal Circuit in achieving the representative ***91** cross-section requirement set out in both the federal law and the court's rules.[67] The results are analyzed in four ways, with the latter three comprising focused subsets of the first. First, the overall statistics for all appeals coming from the BPAI are analyzed with respect to the judges on the panels. This analysis notes the judges on the panels for each decision, without regard to the nature of the decision, including Rule 36 affirmances, interferences, as well as the typical[68] appeals that reach the Federal Circuit from the BPAI. The overall study aims to capture all of the opinions from the Federal Circuit that originated as patent appeals from the USPTO.

The second analysis looks at the judging panels for the three different rulings the Federal Circuit may issue: affirming, reversing, or vacating the appealed holding. While this analysis does not speak directly to the effectiveness of the randomization system, it may provide valuable insight to both sides in the debate about judges playing extra-influential roles in Federal Circuit jurisprudence.[69]

The third analysis reviews the judging panels for appeals relating to issues most commonly seen by the Federal Circuit. The issues include anticipation inquiries,[70] obviousness inquiries,[71] patentable subject matter,[72] adequacy of the specification,[73] and interferences.[74] This focus may provide additional insight to the debate over the influential roles certain Federal Circuit judges may have if it reveals that the system leads to a handful of judges in particular changing the law on a specific topic.

The final analysis focuses on the precedential decisions issued by the Federal Circuit. Because precedential opinions have a large influence on the body of law, something lacking in their non-precedential counterparts, it is important to see if the randomization system is effective specifically as to precedential opinions. While it ***92** may be difficult or even impossible to determine prior to the assignment of judging panels if a case will become precedential or not, a look into the results of the current system may help identify any possible harms.

In addition to the aforementioned analyses, the article also examines various trends and points of interest revealed during the course of the study. These trends, not visible when viewing the overall results, may be of interest to scholars in the area.

A. Overall Study of Judging Panels

This look at the overall results of the judging panels for every decision in the study is instructive on the effectiveness of the randomization system in achieving the representative cross-section requirement. First, comparison between judges is made based on the percentage of panels that each judge served. Then, a comparison is made based on the statistics of authors of opinions.

1. Judging Panels

In the five-year period encompassed by the overall study, a total of 110 decisions were issued by the Federal Circuit on appeals from the USPTO.[75] Only one of these decisions featured a panel of more than three judges, as it was a rehearing en banc.[76] Judge Moore was only available for eighty-four cases due to confirmation on September 5, 2006.[77] Since Senior Judge Clevenger assumed senior status on February 1, 2006,[78] he was an active judge during the decisions of only 17 of the 110 cases. Senior Judge Schall assumed senior status on October 5, 2009, and thus, was a senior judge during only the last nine decisions of the study.[79] While Senior Judge Mayer and former Chief Judge Michel did recently retire,[80] both were active ***93** during the decisions of all cases included in the study. As a result of the number of decisions they were active for, Senior Judge Clevenger is represented as a senior judge in the study, and Senior Judge Schall, Senior Judge Mayer, and former Chief Judge Michel are represented as active judges.

Table 1. Judge Panel Statistics in Appeals from BPAI Decisions

Judge	Panels	Case %
Judge Prost	32	29.1%
Judge Mayer	31	28.2%
Judge Rader	29	26.4%
Judge Newman	28	25.5%
Judge Bryson	27	24.5%
Chief Judge Michel	26	23.6%
Judge Linn	26	23.6%
Judge Gajarsa	21	19.1%
Judge Lourie	20	18.2%
Judge Moore[81]	15	17.9%
Judge Schall	19	17.3%
Judge Dyk	19	17.3%
Visiting Judges	14	12.7%
Senior Judge Friedman	10	9.1%
Senior Judge Clevenger	8	7.3%
Senior Judge Archer	7	6.4%
Senior Judge Plager	6	5.5%

Table 1 depicts the number of panels that each judge sat on during the five-year period of this study. The data shows the difference in BPAI patent appeal load. Judges Mayer and Prost each heard more than thirty BPAI patent appeals during the period, while four of the other judges each sat on only twenty or fewer panels during the same time. This leads to an interesting difference in the percentages, as shown in the table. Judge Prost participated in 29.1% of the BPAI patent ***94** appeals that reached the Federal Circuit, while Judges Schall and Dyk each only participated in 17.3%.

Such a large difference in the number of BPAI patent appeals heard calls into question not only the success of the current randomization system, but also whether it is meeting the statutory requirements that it must uphold. A computer that randomly builds panels and then randomly assigns them to cases is assumed to achieve a somewhat even spread of cases among each judge on the Federal Circuit.[82] Because the number of cases heard by judges varies by up to 160%, it suggests that the current system may not achieve an even spread. The aforementioned representative cross-section requirement[83] may not be met based on what is shown in Table 1.

It is hardly representative of the Federal Circuit when the three busiest judges hear over thirty more cases than the three

judges with the lightest BPAI patent appeal caseload. Even if the requirement were read as requiring each judge to have a representative spread of cases from each field of law, Table 1 still casts suspicion on the current system's success in meeting that interpretation. The randomization system should theoretically assign a similar number of cases to every judge on the Federal Circuit.

The current randomization system appears to lead to a distribution of cases that does not meet the intended requirements of the representative cross-section rule. However, the author does not wish to jump to the conclusion that this has an influential effect on the Federal Circuit. The fourth analysis, looking at precedential opinions, will better show if the uneven spread of judges leads to a few judges having a stronger influence on the Federal Circuit than other judges, but the overall study cannot confidently raise inferences regarding anything other than potentially the success or failure of the current randomization system.

2. Opinion Authors

In the five-year period of the study, the Federal Circuit published fifty-eight majority opinions.[84] In addition to these, there were nine partial[85] or full dissents.[86]

***95 Table 2. Authored Opinion Statistics in Appeals from BPAI Decisions**

Judge	Majority Opinions	% of All Opinions	% of Panels	Dissents	Dissent %
Judge Newman	10	17.2%	52.6%	3	33.3%
Judge Prost	8	13.8%	42.1%	1	11.1%
Chief Judge Michel	6	10.3%	33.3%	0	0%
Judge Gajarsa	6	10.3%	42.9%	0	0%
Judge Lourie	6	10.3%	54.5%	0	0%
Judge Linn	5	8.6%	38.5%	0	0%
Judge Rader	4	6.9%	26.7%	3	33.3%
Judge Bryson	4	6.9%	40.0%	0	0%
Judge Dyk	3	5.2%	25.0%	0	0%
Judge Moore[87]	3	5.2%	30.0%	1	11.1%
Visiting Judges	2	3.4%	33.3%	0	0%
Judge Mayer	1	1.7%	7.1%	1	11.1%
Judge Schall	0	0%	0%	0	0%

Table 2 shows the statistics for the authored opinions during the five-year period encompassed by the study. The table appears to be consistent with Table 1, in that judges who hear more appeals tend to write more of the opinions. The fourth column, labeled "% of Panels," shows how many opinions that the respective judge authored based on the number of panels they served where an opinion was actually published. This data possibly shows that the judges with a technical background may tend to author more opinions than those that do not.[88] However, it is hard to reach such a conclusion without viewing the cases individually to see, in decisions ***96** where an opinion was warranted, what percentage of those opinions were assigned to a judge with a technical background if one was on the panel. For instance, some panels may have no judges with a technical background, while other panels may feature three such judges.

Furthermore, the statistics in Table 2 reveal something else worth noting. Of the nine dissents written in the five-year period, either a judge with a technical background or one with extensive knowledge of patents wrote seven of them.[89] Further, in six of those seven dissents, a judge with a technical background dissented from an opinion authored by a judge without a technical background.[90] In five of those instances, the majority opinion was authored by former Chief Judge Michel[91] who, as

the most senior member of the court, assigned the opinion authorship for every panel where he was in the majority.[92] This may also account for the large number of opinions by Judge Newman, who is second in seniority behind the former Chief Judge.

B. Study of Judge Statistics by Ruling

Of the 110 cases encompassed by the study, the Federal Circuit affirmed ninety-two, or 83.6%. Of the remaining cases, the Federal Circuit reversed ten and vacated the remaining eight. Because she joined the Federal Circuit after the start date of the study, Judge Moore was only available for the panel of seventy of the affirmed, eight of the reversed, and six of the vacated cases.

Table 3. Judging Panel Statistics by Ruling for Appeals from BPAI Decisions

	Affirmed		Reversed		Vacated	
Judge	Cases	Case %	Cases	Case %	Cases	Case %
Judge Prost	26	28.3%	5	50.0%	2	25.0%
Judge Mayer	27	29.3%	4	40.0%	1	12.5%
Judge Rader	23	25.0%	4	40.0%	2	25.0%
Judge Newman	20	21.7%	5	50.0%	3	37.5%
Judge Bryson	27	29.3%	1	10.0%	0	0%
Chief Judge Michel	22	23.9%	3	30.0%	1	12.5%
Judge Linn	23	25.0%	0	0%	3	37.5%
Judge Gajarsa	17	18.5%	0	0%	4	50.0%
Judge Lourie	18	19.6%	1	10.0%	1	12.5%
Judge Moore[93]	12	17.1%	0	0%	3	50.0%
Judge Schall	18	19.6%	0	0%	1	12.5%
Judge Dyk	15	16.3%	3	30.0%	1	12.5%
Visiting Judges	14	15.2%	0	0%	0	0%
Senior Judge Friedman	7	7.6%	3	30.0%	0	0%
Senior Judge Clevenger	8	8.7%	0	0%	0	0%
Senior Judge Archer	4	4.3%	1	10.0%	2	25.0%
Senior Judge Plager	6	6.5%	0	0%	0	0%

***97** Table 3 shows statistics for the panels on which each judge served. While the results cannot directly speak to the effectiveness of the randomization system or its meeting the statutory requirements, the data shows a few trends that may be of interest to Federal Circuit observers.

There were eight cases during the five-year study period where the Federal Circuit vacated the appealed ruling.[94] With three judges on each of the panels,[95] there were twenty-four occasions for a judge to serve. The study showed that judges with technical backgrounds or extensive patent knowledge or experience[96] filled sixteen of those twenty-four possible seats, or 66.7%. Based on this percentage, theoretically every time the Federal Circuit vacates a ruling, a majority of the ***98** panel has a technical background. This inference, based on the overall statistic, mostly holds true as looking into the eight cases, six had panels with two or more judges with such a background, and one such judge authored one of the remaining two opinions. It would appear, based on these results, that a panel containing a majority of judges with a technical background is much

more likely to vacate a ruling than one without a majority. However, based on the small number of rulings, such a conclusion cannot properly be drawn.

Furthermore, the results of the study concerning reversals also cast suspicion on any such inference made by the vacation statistics. Over the study period, there were ten reversals by the Federal Circuit.[97] For these ten reversals, judges with a technical background filled only one third of the seats. Furthermore, in only three of the ten cases did a majority of the judges on the bench have technical backgrounds.[98]

Additionally, regarding non-affirmances,[99] Judge Newman authored the opinion for all five of the reversals where she was a participant.[100] Four of the five opinions published as precedential.[101] Judge Newman also wrote two of the three opinions where panels she served on vacated the lower court's holding.[102] Both of these opinions published as precedential. In total, Judge Newman authored the ***99** opinion for seven of the eighteen non-affirmances, or 38.9%.[103] As mentioned previously, however, on many of the panels that Judge Newman participated, she was the presiding judge and had the authority to assign authoring responsibilities.[104]

The author does not wish to infer that any judge in particular may be more or less inclined than the rest to vacate or reverse the BPAI. However, if a judge is inclined to not affirm the USPTO and the current system results in that judge sitting on 20% more panels than his or her colleagues, it may result in that particular judge exerting more influence than their colleagues in this field of law.

C. Study of Judge Statistics by Issue

There are several common issues central to the cases brought up on appeal to the Federal Circuit from the BPAI. The current system of randomization used by the Federal Circuit aims at achieving a representative cross-section for a particular field of law. This requirement is more than likely referring to a broad field of law, such as patent prosecution generally, and likely not intended to reach specific issues such as proper enablement in a patent specification.[105] The author contends that patent prosecution itself is a broad field of law distinguished from patent litigation. Regardless of the scope of the requirement, looking at the results of the current system concerning judges that hear particular issues may shed light on the effectiveness of the system and provide valuable information to patent prosecutors concerning judges that shape certain areas of patent prosecution practice.[106]

Five issues in particular are central to most appeals to the Federal Circuit arising from the USPTO: patentable subject matter, anticipation, nonobviousness, adequacy of specification, and interference.[107] Statutes ground each of these issues, ***100** with guidance provided by the Federal Circuit and Supreme Court, as well as by the USPTO in the form of the Manual of Patent Examining Procedure.[108] Of the 110 cases encompassed by the study, seventy-five correspond to one of the five main issues, and in some instances, the same case raised more than one of these main issues. When a case raised multiple issues, it counted once for each individual issue.[109] The remaining cases were Rule 36 opinions where the court did not provide the information necessary to determine the issue raised.

Figure 1. Appeal Breakdown by Issue Presented

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Figure 1 depicts the proportions of each particular issue in relation to the other common issues raised on appeal. The percentages provided in the figure correspond to the percentages for that issue based on all seventy-five cases encompassed ***101** in the study. Appeals for nonobviousness occurred more often than any other issue, and the other four issues occurred with approximately the same frequency.

1. Patentable Subject Matter Under 35 U.S.C. § 101

During the period encompassed in the study, there were ten cases with opinions where patentable subject matter was an issue central to the case.[110] Among all of the individual issues, § 101, patentability, had the most even spread of judges on the panels. Every non-senior judge sat on at least two panels, with the majority of the judges participating in three cases. Only three of the twelve judges heard more than three cases, and those that did hear more than three cases were not authors of significantly more opinions than other judges. If the results of the study with regard to appeals under § 101 are representative

of the whole study, it would appear that the current system of randomization was highly effective. However, in light of the overall study, this particular subset of cases is not very representative.

One notable trend seen in cases arising under this section is that more cases where § 101 is an issue were appealed to the Federal Circuit recently than in the early years of the study. In the author's opinion, this trend could be due to both the Federal Circuit's decision in In re Bilski,[111] as well as the Supreme Court's granting of the petition for certiorari in the case.[112] Prior to that decision, there were only four cases involving § 101 in forty months,[113] barely one decision a year. Since the Federal Circuit's Bilski decision, there have been five appeals to the Federal Circuit in fourteen months,[114] nearly a 360% increase in appeals regarding the USPTO's § 101 determination. While there has been an increase in appeals in general during the fourteen-month period, this increase does not necessarily account ***102** for the significant increase in patentable subject matter appeals during that same period.

2. Anticipation Under 35 U.S.C. § 102

During the five-year period of the study, there were thirteen cases where anticipation was one of the issues central to the appeal.[115] Of these thirteen cases, six of them had Judge Newman on their panel,[116] while three of the other non-senior judges heard only one anticipation appeal.[117] With Judge Newman on 46.2% of the panels where anticipation was raised and several other judges hearing less than 10% of those same type of cases, this subset of cases is more representative of the results of the overall study.[118]

There are two interesting trends from the results of the study with regard to the anticipation subset. First, Judge Newman authored the opinion for five of the six anticipation cases where she was on the panel.[119] Those opinions represent 50% of the cases where there was an author given for the opinion of the court.[120] While authorship may not speak to any influence Judge Newman had on shaping the law with regard to anticipation, it shows that if Judge Newman had something to say about § 102, patent law practitioners should definitely listen.

The other interesting trend revealed when looking at this subset of the study concerns reversals and vacaturs. Of the thirteen § 102 cases from the five-year period where the court published opinions, three of them were reversed[121] and two of ***103** them were vacated.[122] For issues other than anticipation, affirmation rates were considerably higher.

3. Nonobviousness Under 35 U.S.C. § 103

During the study period, there were twenty-seven cases where the nonobviousness requirement of § 103 was an issue on appeal.[123] This number represents more than twice as many appeals as the other issues, which makes sense given that the nonobviousness requirement is one of the most important requirements in patent law.[124] Since there are more cases involving this issue than other issues, the variance among judge percentages more closely resembles the variances seen in the overall study. Both former Chief Judge Michel and Judge Prost were on the panel for ten, or 37%, of the twenty-seven cases.[125] Current Chief Judge Rader and Judge Dyk were both on seven of the panels.[126] These four judges heard more cases than the other eight non-senior judges combined. Two judges with technical backgrounds, Judges Moore and Gajarsa, were only on one[127] and two panels,[128] respectively.

Judge Prost's participation is notable regarding the statistics of this particular subset. Judge Prost, a decorated labor relations specialist,[129] authored the opinion for six of the ten nonobviousness appeals that she heard.[130] These opinions represent over 25% of the authored opinions for nonobviousness cases. Additionally, in a number of the decisions where Judge Prost authored the opinion, she sat on ***104** a panel with judges who had technical backgrounds.[131] While some may believe that judges with technical backgrounds are better suited to serve in patent cases, it appears that the judges on the Federal Circuit do not feel that one's background affects their ability to apply the law in patent prosecution cases.[132]

4. Adequacy of the Specification Under 35 U.S.C. § 112

During the period of the study, thirteen cases were brought up on appeal from the USPTO involving the requirements of § 112.[133] Three of the non-senior judges--Judges Mayer, Bryson, and former Chief Judge Michel--held fifteen seats on the panels for the cases, while the nine other non-senior judges only appeared sixteen times. This statistic provides additional support for the assertion that the current system does not result in an even spread of judges, as three of the twelve judges, only 25% of the possible number of concurrently active judges, sat on the panel for 50% of cases. Judge Lourie, one of the judges with a technical background, never sat on a panel for any of the § 112 appeals during the study.

5. Interferences Under 35 U.S.C. § 135

The last basis for appeal from the USPTO reviewed by this study is interferences. Interference appeals accounted for twelve of the appeals to the Federal Circuit during the period of the study.[134] This subset shows a reasonably even distribution of judge participation compared to most of the other issues. Every judge, with the exception of one senior judge, sat on at least one panel, with most judges sitting on two or three panels. Additionally, authorship for the nine published opinions for interference appeals was distributed among seven of the judges.

6. Conclusions Regarding Issue Statistics

Breaking down the statistics of the study by the main issues generally raised on appeal to the Federal Circuit shows a few interesting trends and casts doubt on the effectiveness of the current randomization system used to assign judges to paels. ***105** As mentioned previously, a select few judges participated in the majority of the panels for two of the issues--nonobviousness and adequacy of the specification. With respect to the particular field of law mandate of the Federal Circuit's rules, the data raises concerns regardless of the breadth read into the requirement. If the Federal Circuit considers all of patent prosecution to be a particular field of law, then there is no representative cross-section since the number of panels each judge is on varies significantly. If the requirement is read to apply to more specific issues, each their own field of law, the system is still ineffective.

For three of the five issues, there was a significant variance in the number of panels among the judges. For the remaining two issues, although the statistics were closer, there was still room for improvement to achieve an even spread. Regardless of the reading of the representative cross-section requirement, the study shows that the system does not properly achieve its goals. If the intention of the requirement is to make sure each of the issues has a representative cross-section of judges, the current system falls short. For example, Judge Dyk, who is on the lowest percentage of panels in the overall study, sits on more nonobviousness appeals than nine of his colleagues. Alternatively, if the intention of the requirement is to ensure that each judge hears a representative cross-section of issues, the system also fails to meet its goal. Judge Moore was on the panel for only one nonobviousness case and on ten panels for the other four issues. This statistic means that Judge Moore's caseload featured only 9% nonobviousness cases, when the overall study revealed that nonobviousness was an issue in 36% of cases with identified issues. Thus, with respect to this field of law, Judge Moore was not sitting on a representative cross-section of cases.

D. Study of Judge Statistics for Precedential Cases

Of the 110 cases encompassed in the study, the Federal Circuit published as precedential only thirty-nine, or 35.5% of the cases. Federal Circuit observers who are concerned with the influence of particular judges of the court would find this subset the most important, as precedential opinions influence the future direction of the law and the USPTO.[135] Of these thirty-nine cases, Judge Moore was only a member of the Federal Circuit for twenty-nine of them.

*106 Table 4. Judging Panel Statistics of Precedential Appeals from BPAI Decisions

Judge	Panels	Case %	Opinions	%
Judge Moore[136]	9	31.0%	2	6.9%
Judge Newman	12	30.8%	7	17.9%
Judge Michel	11	28.2%	4	10.3%
Judge Gajarsa	11	28.2%	5	12.8%
Judge Prost	11	28.2%	3	7.7%
Judge Rader	10	25.6%	4	10.3%
Judge Linn	10	25.6%	4	10.3%
Judge Dyk	9	23.1%	3	7.7%

Judge Mayer	9	23.1%	1	2.6%
Judge Bryson	7	17.9%	1	2.6%
Judge Schall	6	15.4%	0	0%
Judge Lourie	5	12.8%	3	7.7%
Visiting Judges	3	7.7%	1	2.6%
Senior Judge Friedman	4	10.3%	0	0%
Senior Judge Archer	4	10.3%	0	0%
Senior Judge Plager	1	2.6%	0	0%
Senior Judge Clevenger	0	0%	0	0%

Table 4 depicts the statistics for each individual judge based on how many panels they sat on where the authored opinion was precedential. While the number of panels only changes by one or two from judge to judge, the overall picture and the percentages are telling. Judge Moore, the newest member of the bench, has been on 31% of the panels for precedential cases since joining the Federal Circuit. Meanwhile, Judge Lourie has only participated in 12.8% of such cases.

The second set of data in Table 4 depicts how many precedential opinions a particular judge authored, along with what percentage of all precedential opinions it represents. The study revealed that Judge Newman authored 17.9% of all precedential opinions, which is more than any other judge currently sitting on the Federal Circuit.

***107** The author does not make any inference as to the meaning of the results of this subset of data. While it is possible that judges who sit on the panel for more precedential cases than others might eventually have a greater influence on the law, it is not possible to conclude that any particular judge has greater influence than another based on the results of this study, or that any system for assigning cases could lead to that. The purpose of this empirical study is merely to show trends and point out the ineffectiveness of the current system in meeting its statutory requirements. Many additional factors that go beyond the scope of this study could contribute to deciding who authors an opinion. Without taking into account these factors, it is incredibly difficult to draw any inference from this subset about the influence of any particular judge on the Federal Circuit.

It is not practical or necessarily possible for a court to look at its future cases and determine if they will yield precedential decisions. However, this does not mean that a more effective system of assigning judges to panels will not yield a more "representative" assignment of judges to precedential cases. Moreover, while it may be impractical to achieve a truly random assignment of judges to precedential cases, achieving such an assignment for all of the cases presented to the Federal Circuit for any particular field of law is possible. It is with the foregoing in mind that the author conducted this study.

E. Other Interesting Trends Revealed by the Study

In addition to the statistics provided in Part III, the study indicates several other points that may be of interest to patent prosecutors, litigators, scholars, and Federal Circuit observers. First, the study revealed that there has been a significant increase in the appearance of senior judges on the panels for appeals arising from the USPTO. The number of Federal Circuit decisions encompassed in this study increased from twenty in 2008 to thirty-eight in 2009, almost doubling.[137] Over this same period, the Federal Circuit saw a considerable increase in participation by its senior judges. Senior Judge Clevenger sat in on three cases in 2009 after not participating in any of these appeals since February of 2006. Senior Judge Plager also returned to the bench for five cases in 2009, following no appearances since June of 2005. Almost half of all of the panels where senior judges participated took place in 2009.

In addition to the increase in senior judges, there has also been an increase in visiting judge participation. From 2005 to 2008, there were four visiting judges on ***108** fifty-two total cases. For the last two years of the study, in fifty-eight cases, there were ten panels with visiting judges, two of which had the visiting judge author the opinion. As mentioned earlier,[138] this increase could be a move by the Federal Circuit to provide an information exchange with district courts in patent litigation hotbeds around the country by having their judges sit in on appeals at the Federal Circuit.

Lastly, the number of pro se appellants in the Federal Circuit has increased in recent years. During the period of the study, there were only eight instances where an applicant filed an appeal acting pro se. Of these eight appeals, five of them took place in 2009. Despite the increase in pro se appellants, however, during the five-year period of the study the Federal Circuit ruled in favor of the USPTO in every case with a pro se appellant.

IV. Rolling Appointment System

The current system of assigning judges to panels and assigning cases has proven ineffective to achieve its statutory goals. While there is an assumption by many that random assignment by a computer will lead to an even distribution of judges among cases, the Federal Circuit's current system has failed to achieve an even distribution, at least with respect to patent prosecution. Because the Federal Circuit created a rule in hope of achieving such a distribution,[139] the author suggests a possible rolling appointment system to achieve this goal.

The problem with the current system is that it uses a completely random system to assign judges and cases to panels.[140] The system does not take into account the fluctuations in quantity of cases during different times or the subject matter of a particular case. For example, there may be sixty cases heard in April, and then only thirty cases heard in May. Additionally, only five of the cases in April might be patent-related cases, whereas twenty of the thirty in May could be patent-related. A system that assigns cases randomly without any other variables can skew the assignments so that judges may not receive a representative cross-section of a particular field of law. This flaw is where the current system suffers.

A rolling appointment system will constantly update based on its progress. For example, in the first week of April there are twenty-four cases, six involving ***109** patents and eighteen involving other subject matter. Panel A consists of three judges and hears twelve cases, including all six patent cases. Panel B consists of three other judges and hears the remaining twelve cases, none involving patents. During the first week of May, there are eighteen new cases, where twelve are patent related. Under a rolling appointment system, assignment of panels would consider the statistics of the previous month. Both panels would be assigned to nine cases each so that every judge hears an even number of cases. However, panel B's nine cases would all be patent cases, with the other three patent cases heard by panel A. Therefore, after two months, both panels have heard twenty-one cases, including nine patent cases.

The benefits of a rolling system are that the system would achieve both the statutory requirement of a representative cross-section and the Federal Circuit's requirement that the cross-section is across each particular field of law. By adjusting the method of case assignment with every new assignment, the Federal Circuit can more easily maintain the spread of judges.

The problem with such a system is that it requires the Federal Circuit to look into every case prior to assigning it. Unlike the Supreme Court, which has discretion in selecting cases, the Federal Circuit must review every case appealed from certain administrative agencies or the district courts.[141] This lack of discretion means that every case would need examination prior to assignment to determine its particular field of law. The amount of time and resources this would require is dependent on how narrowly or broadly the court reads the particular field of law requirement. The broader the requirement, the easier it would be to assign a case to a particular field. If, for example, patents comprised one single field of law, it would be very easy to look at the appeal and see that a patent was involved and assign it to the patent field of law. Thus, it would not take a great deal of resources to assign cases with a rolling appointment system. Another potential problem with the system is that some cases may involve multiple fields of law, especially if the fields are determined narrowly. While this problem may present additional difficulty in assigning cases, the difficulty is relatively low, especially considering the overall benefits of the system.

A rolling appointment system, while a significant change to how the court would work if adopted, would be a benefit. It would uphold the statutory requirements for the assignment system. Additionally, if case assignments under the system guaranteed that each judge would sit on an equal number of panels, concerns ***110** about improper influence by particular judges would lessen. The system would also readily compensate for times when judges are away from the Federal Circuit and unable to hear cases, as the next rounds of assignments would reflect that they had served on fewer panels than their fellow judges. Overall, the benefits of such a system would outweigh the detriments and lead to the Federal Circuit properly achieving its requirement of a representative cross-section among the particular fields of law. It could also benefit other courts if tailored to meet those courts' specific needs.

Conclusion

This study provides much needed insight into the Federal Circuit's assignment of judging panels to patent prosecution appeals. The overall study and the highlighted subsets of results provide several interesting findings. Several of these findings are as follows:

(1) the number of panels any one active judge sat on ranged from as high as 29.1% to as low as 17.3%;

(2) for cases where the specification or nonobviousness was an issue central to the appeal, three or four judges sat on as many cases as the remaining non-senior judges combined; and

(3) in anticipation cases, the number of panels a judge sat on varied from 46.2% to 7.7%.

The results cast doubt on the effectiveness of the current system in achieving the required representative cross-section for a particular field of law. The study's results suggest that the system currently used by the Federal Circuit, where a computer randomly assigns judges, leads to some judges sitting on more panels than others and thus, an unbalanced system.

The study suggests that a new system is needed in order for the court to meet the representative cross-section requirement. A rolling appointment system might cure the problems of the current system and would require a minimal increase in resources. Such a system would achieve what the current system fails to: an even spread of judges assigned to cases to give a representative cross-section among cases for a particular field of law.

Footnotes

[a1] B.A. 2008, University of Nevada, Reno; J.D. expected May 2011, University of Kentucky College of Law; Registered Patent Agent, 2010.

[1] 28 U.S.C. §46(b) (2006).

[2] Id.

[3] Fed. Cir. R. 47.2(b).

[4] Fed. Cir. Internal Operating P. 3.

[5] Id.

[6] See Lee Petherbridge, Patent Law Uniformity?, 22 Harv. J.L. & Tech. 421, 440 (2009) (noting that the content of opinions is judge dependent).

[7] 35 U.S.C. §145 (2006).

[8] Id. at §146.

[9] In fiscal year 2009 (October 2008-September 2009), there were 398 patent infringement appeals to the Federal Circuit from U.S. District Courts. United States Court of Appeals for the Federal Circuit, The Court, Statistics, Caseload, Patent Infringement, http://www.cafc.uscourts.gov/images/stories/the-court/statistics/PatentFilingsHistorical2000-2009.pdf (last visited Aug. 8, 2010). However, appeals to the Federal Circuit come from a variety of sources. United States Court of Appeals for the Federal Circuit,

The Court, Statistics, Caseload, By Category, http://www.cafc.uscourts.gov/images/stories/the-court/statistics/ChartFilings09.pdf (last visited Aug. 27, 2010).

[10] See infra Part III.A.1.

[11] 35 U.S.C. §134(a) (2006).

[12] Id. at §141.

[13] Id. at §145.

[14] 28 U.S.C. §1295(a)(1) (2006).

[15] See 35 U.S.C. §135(a) (2006) (stating that an interference occurs "[w]henever an application is made for a patent which, in the opinion of the Director, would interfere with any pending application, or with any unexpired patent").

[16] Id.

[17] Id. at §146.

[18] 28 U.S.C. §1295(a)(1) (2006).

[19] Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982).

[20] Id. at §103(b)(3).

[21] Fed. Cir. R. 47.2(b).

[22] See S. Rep. No. 97-275, at 25-27 (1981), reprinted in 1982 U.S.C.C.A.N. 11, 36 (noting that the changes from the Act "would provide greater stability and predictability in the law being applied in any given area").

[23] Id. at 25-26, reprinted in 1982 U.S.C.C.A.N. 11, 36 (stating that less than a majority of active judges on a panel "may contribute to instability in circuit law").

[24] See generally id. (outlining the reasons for the Act and not specifying why the representative cross-section was added).

[25] Fed. Cir. Internal Operating P. 3.

[26] Id.

[27] Id.

[28] Emerson H. Tiller & Frank B. Cross, A Modest Proposal for Improving American Justice, 99 Colum. L. Rev. 215, 215-17 (1999).

[29] Id. at 232.

[30] See Adam M. Samaha, Randomization in Adjudication, 51 Wm. & Mary L. Rev. 1, 6-7 (2009) (defending the randomization system applied to both assignment of judges as well as the adjudication aspect of cases).

[31] See generally id. at 9, 23 (stating that a statistically random process "refers to a process that affords equal probability to all outcomes within a given set" and "[r]andom assignment across a sufficient number of cases should equalize unaccounted for variables"); Tiller & Cross, supra note 28, at 217-18 (noting that one of the primary reasons for the current assignment system is that "the procedure 'ensures an equitable distribution of the caseload' among members of the court").

[32] 28 U.S.C. §44(a) (2006).

[33] United States Court of Appeals for the Federal Circuit, The Court, Judges, http://www.cafc.uscourts.gov/index.php?option=com_content&view=article& id=132&Itemid=24 (last visited Aug. 8, 2010) [hereinafter Judicial Biographies].

[34] United States Court of Appeals for the Federal Circuit, Announcements, http://www.cafc.uscourts.gov/index.php?option=com_content&view=article&id=3:chief-judge-michel-will-retire-on-may-31-2010-& catid=18:2010&Itemid=50 (last visited Aug. 16, 2010) [hereinafter Chief Judge Michel Retirement Announcement].

[35] Judicial Biographies, supra note 33.

[36] Id.; see also infra Part I.C.2 (defining a senior judge and their responsibilities in relation to active judges).

[37] Designation is the common term for the practice described in 28 U.S.C. §291(b) (2006).

[38] Judicial Biographies, supra note 33.

[39] See Kimberly A. Moore, Are District Court Judges Equipped to Resolve Patent Cases?, 12 Fed. Cir. B.J. 1, 15 n.70 (2002) (quoting Matt Krantz, Computer & Technology Patent Suits Try Patience of High-Tech Companies, Investor's Bus. Daily, Dec. 9, 1996, at A6) ("'The U.S. Court of Appeals for the Federal Circuit in Washington, D.C., is known as the Supreme Court of Patents. It's manned by three judges with both legal and scientific training.'").

[40] Id. at 15.

[41] Judicial Biographies, supra note 33.

[42] Brenda Simon, The Underrepresentation of Women on the Court of Appeals for the Federal Circuit, 16 Wis. Women's L.J. 113, 117 (2001).

[43] Judicial Biographies, supra note 33.

[44] The White House, President Obama's Judicial Nominations, http://

www.whitehouse.gov/the-press-office/president-obama-nominates-raymond-lohier-jr-united-states-court-appeals-second-circ (last visited Mar. 29, 2010).

[45] Id.

[46] See Jonathan Ringel, Federal Circuit's Scientific Method: Coveted Judicial Clerkships Draw Pool of Candidates with Technical Backgrounds to Match the Court's Docket, Legal Times, Nov. 6, 2000, at 1 (noting that twenty-five of thirty-six law clerks from the Federal Circuit had a science or engineering background).

[47] Judicial Biographies, supra note 33. Unlike Judges Schall and Mayer, when Chief Judge Michel retired on May 31, 2010, he did not move to senior status, instead he retired completely from the federal judiciary. Chief Judge Michel Retirement Announcement, supra note 34.

[48] 28 U.S.C. §371 (2006). The requirements for the certification of a senior judge are contained in subsection (e).

[49] 28 U.S.C. §294 (2006).

[50] See infra Part III.A.1 (showing that the number of panels senior judges sit on is significantly lower than for active judges).

[51] United States Court of Appeals for the Federal Circuit, The Court, Court Jurisdiction, http://www.cafc.uscourts.gov/index.php?option=com_ content&view=article&id=144&Itemid=27 (last visited Aug. 8, 2010).

[52] Fed. Cir. R. 47.2(a).

[53] 28 U.S.C. §291(a) (2006).

[54] Fed. Cir. Internal Operating Proc. 6 ("Visiting judges provide a welcome aid in the work of the court. Their favorable impression is carried throughout the nation. Their contribution of varied viewpoints, experiences, ideas, and information from throughout the judicial system is invaluable."), available at http://www.cafc.uscourts.gov/images/stories/rules-of-practice/IOP.pdf.

[55] 28 U.S.C. §296 (2006).

[56] See infra Part III.A.1

[57] Judge Richard G. Stearns of the District Court for the District of Massachusetts delivered the opinion in In re Alonso, 545 F.3d 1015 (Fed. Cir. 2008). Judge T. John Ward of the District Court for the Eastern District of Texas delivered the opinion in In re Stauffer, 290 F. App'x 327 (Fed. Cir. 2008).

[58] See Kimberly A. Moore, Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?, 79 N.C. L. Rev. 889, 917 (2001) (noting that plaintiffs may have chosen Massachusetts as a forum due to its plaintiff winning rates, though the actual win rates for plaintiffs in Massachusetts do not support that reasoning); see also Yan Leychkis, Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation, 9 Yale J.L. & Tech. 193, 195-96 (2007) (looking into the significant increase in cases brought into the Eastern District of Texas due to plaintiff success).

[59] The study's results are on file with the author. The cases were obtained either directly through the database of the Federal Circuit,

available at http://www.cafc.uscourts.gov/dailylog.html; or by searching LexisNexis's Federal Circuit database over the five-year period for cases appealed from the Board of Patent Appeals and Interferences. Searches performed included searching for "Doll," "Dudas," or "Kappos" as a party to a suit in the Federal Circuit, searching for mention of the "Board of Patent Appeals and Interferences," searching for mention of the "United States Patent and Trademark Office," and searching for "In re" as a party to suits to encompass most actions that arise from the BPAI. Additionally, searches were performed to locate references to 28 U.S.C. §§145 and 146 in Federal Circuit cases.

60 35 U.S.C §§145, 146. Patent cases appealed to the Federal Circuit from district courts that were related to infringement or other matters, e.g., evidence law or procedure law, were not included in the study.

61 See Beth Zeitlin Shaw, Note, Please Ignore this Case: An Empirical Study of Nonprecedential Opinions in the Federal Circuit, 12 Geo. Mason L. Rev. 1013, 1015 (2004) (noting that Rule 36 allows the Federal Circuit to affirm without opinion when "the court determines an opinion would have no precedential value, and any of five other conditions exist").

62 Fed. Cir. R. 32.1(b).

63 It is up to the discretion of the Federal Circuit to combine multiple cases in a single appeal. See In re Barnett, 253 F. App'x 18 (Fed. Cir. 2007), for an example of the court merging three cases into a single decision. See also Goldberg v. Bass, 284 F. App'x 809 (Fed. Cir. 2008), and Goldberg v. Bass, 284 F. App'x 810 (Fed. Cir. 2008), for an example of the Federal Circuit issuing multiple decisions for a related case.

64 In Rule 36 affirmances, no issue is given, but if the opinion were a reexamination appeal it would be noted in the opinion and counted as a reexamination for purposes of the study.

65 See Christopher A. Cotropia, Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law, 82 Notre Dame L. Rev. 911, 929 (2007) (noting that studies inherently possess limitations which prohibit true accuracy when predicting the past or the future).

66 28 U.S.C. §455 (2006).

67 The federal law relating to randomization can be found in 28 U.S.C. §46(b) (2006), and the Federal Circuit's rule can be found in Fed. Cir. R. 47.2(b).

68 For a list of "typical" issues, see infra Part III.C.

69 Cf. Petherbridge, supra note 6, at 427-28 (noting that Federal Circuit judges may have more individual freedom in deciding cases).

70 35 U.S.C. §102 (2006).

71 Id. at §103.

72 Id. at §101.

73 Id. at §112.

74 Id. at §135.

[75] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[76] In re Bilski, 545 F.3d 943, 949 (Fed. Cir. 2008) (en banc), aff'd sub nom, Bilski v. Kappos, 130 S. Ct. 3218 (2010).

[77] United States Senate, U.S. Senate Roll Call Votes 109th Congress - 2nd Session, http://senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_ cfm.cfm?congress=109&session=2&vote=00231 (last visited Aug. 27, 2010). The percentages reported for Judge Moore reflects this total number of eighty-four cases.

[78] Judicial Biographies, supra note 33.

[79] Id.

[80] See United States Court of Appeals for the Federal Circuit, Announcements, http://www.cafc.uscourts.gov/index.php?option=com_ content&view=article&id=205:circuit-judge-haldane-robert-mayer-assumed-senior-status-on-june-30-2010-&catid=18:2010&Itemid=50 (last visited Aug. 8, 2010) (noting that Senior Judge Mayer did not move to senior status until June 30, 2010); Chief Judge Michel Retirement Announcement, supra note 35 (noting that Chief Judge Michel retired on May 31, 2010).

[81] Percentages for Judge Moore are based on a total possible caseload of eighty-four cases.

[82] Cf. Tiller & Cross, supra note 28, at 216-17 (noting that randomization should help ensure an equitable distribution).

[83] 28 U.S.C. §46(b) (2006).

[84] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[85] A partial dissent here is one where the judge dissents in part and concurs in part.

[86] Hyatt v. Doll, 576 F.3d 1246, 1279 (Fed. Cir. 2009) (Moore, J., dissenting), vacated, 366 F. App'x 170 (Fed. Cir. 2010); Chapman v. Casner, 315 F. App'x 294, 298 (Fed. Cir. 2009) (Rader, J., dissenting); In re Bilski, 545 F.3d 943, 976, 998, 1011 (Fed. Cir. 2008) (Newman, J., Mayer, J., and Rader, J., dissenting), aff'd sub nom, Bilski v. Kappos, 130 S. Ct. 3218 (2010); In re Basell Poliolefine Italia S.P.A., 547 F.3d 1371, 1379 (Fed. Cir. 2008) (Newman, J., dissenting); In re Buszard, 504 F.3d 1364, 1368 (Fed. Cir. 2007) (Prost, J., dissenting); In re Fisher, 421 F.3d 1365, 1379 (Fed. Cir. 2005) (Rader, J., dissenting); In re Sibia Neurosciences, 156 F. App'x 314, 316 (Fed. Cir. 2005) (Newman, J., dissenting).

[87] Percentages for Judge Moore are based on the eighty-four cases in which she was available to participate following her nomination and confirmation.

[88] See supra Part I.C.1 for information on which judges have technical backgrounds.

[89] Hyatt, 576 F.3d at 1279; Chapman, 315 F. App'x at 298; In re Bilski, 545 F.3d at 976, 1011; In re Fisher, 421 F.3d at 1379; In re Sibia Neurosciences, 156 F. App'x at 316.

[90] Hyatt, 576 F.3d at 1279; Chapman, 315 F. App'x at 298; In re Bilski, 545 F.3d at 976, 1011; In re Fisher, 421 F.3d at 1379.

[91] Hyatt, 576 F.3d at 1279; In re Bilski, 545 F.3d at 976, 998, 1011; In re Fisher, 421 F.3d at 1379.

[92] Fed. Cir. Internal Operating P. 8 ("The presiding judge assigns the authoring responsibility for each case at the end of each day's sitting or at the end of a session. If the panel is divided, the authoring role is assigned to a member of the majority. If the presiding judge dissents, assignment will be made by the senior active member of the majority.").

[93] Judge Moore's percentages reflect the seventy affirmed, eight reversed, and six vacated cases for which she was available to serve as a member of the panel.

[94] In re Lister, 583 F.3d 1307 (Fed. Cir. 2009); Takeda Pharm. Co. v. Doll, 561 F.3d 1372 (Fed. Cir. 2009); In re Reuning, 276 F. App'x 983 (Fed. Cir. 2008); In re Sullivan, 498 F.3d 1345 (Fed. Cir. 2007); Henkel Corp. v. Procter & Gamble Co., 485 F.3d 1370 (Fed. Cir. 2007); In re Hays, 210 F. App'x 995 (Fed. Cir. 2006); In re Kumar, 418 F.3d 1361 (Fed. Cir. 2005); Capon v. Eshhar, 418 F.3d 1349 (Fed. Cir. 2005).

[95] See 28 U.S.C. §46(b) (2006) ("In each circuit the court may authorize the hearing and determination of cases and controversies by separate panels, each consisting of three judges ....").

[96] Judges Newman, Lourie, Linn, Gajarsa, Moore, and Rader fit this definition. See supra Part I.C.1 (discussing the backgrounds of Federal Circuit judges).

[97] In re Skvorecz, 580 F.3d 1262 (Fed. Cir. 2009); In re McNeil-PPC, Inc., 574 F.3d 1393 (Fed. Cir. 2009); In re Reiffin Family Trust, 340 F. App'x 651 (Fed. Cir. 2009); In re Wheeler, 304 F. App'x 867 (Fed. Cir. 2008); In re Buszard, 504 F.3d 1364 (Fed. Cir. 2007); In re Comiskey, 499 F.3d 1365 (Fed. Cir. 2007), opinion withdrawn and superseded on rehearing en banc, 89 U.S.P.Q.2d 1641 (Fed. Cir. 2009), opinion revised and superseded, 554 F.3d 967 (Fed. Cir. 2009); Frazer v. Schlegel, 498 F.3d 1283 (Fed. Cir. 2007); Brand v. Miller, 487 F.3d 862 (Fed. Cir. 2007); In re Scroggie, 170 F. App'x 132 (Fed. Cir. 2006); Brown v. Barbacid, 436 F.3d 1376 (Fed. Cir. 2006).

[98] In re Wheeler, 304 F. App'x at 867 (Newman, J., and Lourie, J., on the panel); Frazer, 498 F.3d at 1283 (Newman, J., Rader, J., on the panel); Brown, 436 F.3d at 1376 (Newman, J., and Rader, J., on the panel).

[99] Non-affirmances here refer to cases where the lower holding was either vacated or reversed.

[100] In re Skvorecz, 580 F.3d at 1262; In re Wheeler, 304 F. App'x at 867; In re Buszard, 504 F.3d at 1364; Frazer, 498 F.3d at 1283; Brown, 436 F.3d at 1376.

[101] An opinion is precedential if it is determined to add significantly to the body of law. See Fed. Cir. R. 32.1(b) (noting that a non-precedential opinion is an opinion that the issuing panel has determined does not significantly add to the body of law). The precedential opinions here were: In re Skvorecz, 580 F.3d at 1262, In re Buszard, 504 F.3d at 1364, Frazer, 498 F.3d at 1283, and Brown, 436 F.3d at 1376.

[102] In re Kumar, 418 F.3d 1361 (Fed. Cir. 2005); Capon v. Eshhar, 418 F.3d 1349 (Fed. Cir. 2005).

[103] In re Skvorecz, 580 F.3d at 1262; In re Wheeler, 304 F. App'x at 867; In re Buszard, 504 F.3d at 1364; Frazer, 498 F.3d at 1283; Brown, 436 F.3d at 1376; In re Kumar, 418 F.3d at 1361; Capon, 418 F.3d at 1349. In one case where Judge Newman did not author the opinion that the panel on which she sat vacated a ruling, the opinion was authored by Judge Lourie, a colleague who also has a technical background. Judge Gajarsa, a former patent examiner, was the third judge on the panel. In re Sullivan, 498 F.3d 1345 (Fed. Cir. 2007).

[104] See Fed. Cir. Internal Operating P. 8 (discussing who assigns the writing of opinions).

[105] See Elizabeth I. Rogers, The Phoenix Precedents: The Unexpected Rebirth of Regional Circuit Jurisdiction over Patent Appeals and the Need for a Considered Congressional Response, 16 Harv. J.L. & Tech. 411, 468 (2003) (noting that the representative cross-section requirement "ensur[es] that all the judges sit on a representative sampling of all the cases heard").

[106] Detailed information of all of the study's cases are on file with the author and available upon request. See supra note 59 (detailing how the searches for cases were performed).

[107] 35 U.S.C. §101-03, 112, 135 (2006); Janice Mueller, Patent Law 39-40, 45-47 (3d ed. 2009).

[108] U.S. Patent and Trademark Office, Manual of Patent Examining Procedure (8th ed., rev. 2010); Mueller, supra note 107, at 35-40.

[109] The author counted cases in this fashion because each time an issue is brought up in a case it may be just as important as any other issue in the same case, and therefore should be weighed accordingly.

[110] In re Fallaux, 564 F.3d 1313 (Fed. Cir. 2009); Takeda Pharm. Co. v. Doll, 561 F.3d 1372 (Fed. Cir. 2009); In re Ferguson, 558 F.3d 1359 (Fed. Cir. 2009); In re Basell Poliolefine Italia S.P.A., 547 F.3d 1371 (Fed. Cir. 2008); In re Bilski, 545 F.3d 943 (Fed. Cir. 2008), aff'd sub nom, Bilski v. Kappos, 130 S. Ct. 3218 (2010); In re Speas, 273 F. App'x 945 (Fed. Cir. 2008); In re Comiskey, 499 F.3d 1365 (Fed. Cir. 2007); In re Nuijten, 500 F.3d 1346 (Fed. Cir. 2007); In re Fisher, 421 F.3d 1365 (Fed. Cir. 2005); In re Fujimara, 130 F. App'x 465 (Fed. Cir. 2005).

[111] In re Bilski, 545 F.3d 943, 949 (Fed. Cir. 2008) (en banc), aff'd sub nom. Bilski v. Kappos, 130 S. Ct. 3218 (2010).

[112] Bilski v. Doll, 129 S. Ct. 2735 (2009).

[113] In re Speas, 273 F. App'x 945 (Fed. Cir. 2008); In re Nuijten, 500 F.3d 1346 (Fed. Cir. 2007); In re Fisher, 421 F.3d 1365 (Fed. Cir. 2005); In re Fujimara, 130 F. App'x 465 (Fed. Cir. 2005).

[114] In re Fallaux 564 F.3d 1313 (Fed. Cir. 2009); Takeda Pharm. Co. v. Doll, 561 F.3d 1372 (Fed. Cir. 2009); In re Ferguson, 558 F.3d 1359 (Fed. Cir. 2009); In re Basell Poliolefine Italia S.P.A., 547 F.3d 1371 (Fed. Cir. 2008); In re Comiskey, 499 F.3d 1365 (Fed. Cir. 2007).

[115] Detailed information of all of the study's cases are on file with the author and available upon request. See supra note 59 (detailing how the searches for cases were performed).

[116] In re Skvorecz, 580 F.3d 1262 (Fed. Cir. 2009); In re Guess, 347 F. App'x 558 (Fed. Cir. 2009); In re Wheeler, 304 F. App'x 867 (Fed. Cir. 2008); In re Buszard, 504 F.3d 1364 (Fed. Cir. 2007); In re Margolin, 244 F. App'x 329 (Fed. Cir. 2007); In re Johnston, 435 F.3d 1381 (Fed. Cir. 2006).

[117] In re Lister, 583 F.3d 1307 (Fed. Cir. 2009) (Linn, J., on panel and Prost, J., authoring); In re Margolin, 244 F. App'x 329 (Fed. Cir. 2007) (Schall, J., on panel and Newman, J., authoring); In re Hays, 210 F. App'x 995 (Fed. Cir. 2006) (Rader, J., on panel and Moore, J., authoring).

[118] See supra Table 1.

[119] In re Skvorecz, 580 F.3d 1262 (Fed. Cir. 2009); In re Wheeler, 304 F. App'x 867 (Fed. Cir. 2008); In re Buszard, 504 F.3d 1364 (Fed. Cir. 2007); In re Margolin, 244 F. App'x 329 (Fed. Cir. 2007); In re Johnston, 435 F.3d 1381 (Fed. Cir. 2006).

[120] Rule 36 affirmances, by their nature, do not have an author. Additionally, per curiam decisions by the court also do not provide an author for the opinion.

[121] In re Skvorecz, 580 F.3d 1262 (Fed. Cir. 2009); In re Wheeler, 304 F. App'x 867 (Fed. Cir. 2008); In re Buszard, 504 F.3d 1364 (Fed. Cir. 2007).

[122] In re Lister, 583 F.3d 1307 (Fed. Cir. 2009); In re Hays, 210 F. App'x 995 (Fed. Cir. 2006).

[123] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[124] See Cotropria, supra note 65, at 915 (noting the importance of nonobviousness).

[125] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[126] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[127] In re Gleave, 560 F.3d 1331 (Fed. Cir. 2009).

[128] In re Baggett, 326 F. App'x 569 (Fed. Cir. 2009); In re Sullivan, 498 F.3d 1345 (Fed. Cir. 2007).

[129] Judicial Biographies, supra note 33.

[130] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[131] E.g., In re Gleave, 560 F.3d 1331 (Fed. Cir. 2009) (Moore, J., on the panel); Chapman v. Casner, 315 F. App'x 294 (Fed. Cir. 2009) (Rader, J., and Lourie, J., on the panel); In re Reuning, 276 F. App'x 983 (Fed. Cir. 2008) (Linn, J., on the panel).

[132] See Moore, supra note 39, at 15 (discussing technical backgrounds and judges on the Federal Circuit).

[133] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[134] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[135] This is because precedential opinions may significantly affect the body of law, unlike their non-precedential predecessors. See Fed. Cir. R. 32.1(b) ("An opinion or order which is designated as nonprecedential is one determined by the panel issuing it as not adding significantly to the body of law.").

[136] The percentages for Judge Moore reflect her availability to serve on a panel for only twenty-nine of the cases in which a precedential opinion was issued.

[137] The cases along with the study's results are on file with the author. See supra note 59 (detailing how the searches for cases were performed).

[138] See supra Part I.C.3 (noting that the two visiting judges who authored opinions were from districts that have become hotbeds for patent litigation).

[139] See Fed. Cir. R. 47.2(b) (discussing the requirement).

[140] See Fed. Cir. Internal Operating P. 3 (discussing the system).

[141] See 28 U.S.C. §1295 (2006) (discussing the Federal Circuit's jurisdiction); see also 35 U.S.C. §141 (2006) (discussing appeals to the Federal Circuit from the BPAI).