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## Testing — and Mostly Rejecting — the Folk Wisdom of the Effective Appellate Brief

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**TESTING — AND MOSTLY REJECTING — THE FOLK WISDOM OF  
THE EFFECTIVE APPELLATE BRIEF<sup>†</sup>**

STEVEN R. MORRISON\* AND BRIAN DARBY\*\*

ABSTRACT

*There is a great deal of folk wisdom regarding how to draft an effective appellate brief. Judges and lawyers offer advice that briefs should be short, should present relatively few issues, should always be followed by a reply brief, and so forth. There is little doubt that aspiring appellate advocates, law professors who teach writing, appellate court clerks, and appellate court judges look to this folk wisdom to learn how to write effective appellate briefs, teach the skill, and evaluate, by proxies, which briefs are likely to be the best.*

*But this folk wisdom has never been empirically tested. We do so in this article. We examined all cases in the Eighth Circuit Court of Appeals that resulted in an opinion in 2016, coding for many of the variables that the folk wisdom discusses. We also coded for the type of holding and type of opinion that the Eighth Circuit published as our dependent variables.*

*The result was that much of the folk wisdom, in our dataset at least, was not statistically supported. We did, however, find some statistically significant correlations between our independent and dependent variables. These results will help to inform the attorneys, professors, clerks, and courts that work with appellate briefs every day. It will help these people draft, teach, and evaluate appellate briefs. It will also further the inquiry into effective appellate writing by calling into question the accepted folk wisdom, and thus opening the doors for other avenues of research.*

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## INTRODUCTION

There is a lot of folk wisdom about the characteristics of successful appellate briefs. It is said that shorter briefs and fewer issues lead to greater appellate success. Bryan Garner has recommended that issue statements not exceed seventy-five words. Given his recommendation to include a major premise, minor premise, and conclusion, it would appear that his ideal issue statement isn't fewer than, say, twenty-five words. Some claim that simple, short arguments are more effective than longer ones. Many attorneys wonder whether participating in oral argument and submitting reply briefs have any effect on appeal success. And appellate cases are supposed to be driven by the law, not the factual complexities of a case. Until now, this folk wisdom has remained empirically untested. In this article, we set forth the results of a quantitative analysis of appellate briefs we performed that tests much of this folk wisdom.

Our data set is all 1,123 cases that resulted in a decision by the Eighth Circuit in 2016. We chose this data set because it was the most recent full calendar year as of the start of this research, and because we reside in and one of us practices in the Eighth Circuit. There are at least three potential representativeness problems with this dataset. First, it is a snapshot of only one year. 2016 in the Eighth Circuit may have been an anomaly. Second, it surveys only the Eighth Circuit, which may value aspects of appellate briefs differently than other federal circuits. Third, it surveys only a federal court. State appellate courts (whether intermediate or supreme) may treat appellate briefs differently.

Nevertheless, we believe that this dataset can provide at least a basis for understanding when, if ever, the anecdotal folk wisdom about appellate briefs is valid. Certainly this dataset will say much about the Eighth Circuit today. It will, perhaps, say less about other circuits and the Eighth Circuit in the distant past. And it may say even less about appellate briefs in state courts.

This is primarily a descriptive project. It pulls its data from appellants' original briefs, the Eighth Circuit's general docket sheet for each case, and the Eighth Circuit's judgment and opinion in these cases. It compiles data on most things in these briefs that are readily quantifiable and likely to be relevant, given the prevailing folk wisdom. It also includes whether oral argument was held, whether the appellant filed a reply brief, what type of opinion the Eighth Circuit issued, and the holding of that opinion.

This article considers only appellants' briefs, not appellee's response briefs. Where there is a cross-appeal, this article considers only the briefs of the first appellant. This approach is necessary to ensure continuity of coding from case to case, and it is appropriate because most of the time the appellee wins the appeal. It is usually not difficult for the appellee to convince the Eighth Circuit that a lower court got it right. Since this article seeks to uncover the characteristics of effective briefs, it makes sense to focus on the briefs that the Eighth Circuit, given its large affirmance rate, treats with the most skepticism.

This article takes the following route. Part I provides a review of the relevant literature. In broad strokes, this section shows that there is a substantial body of empirical scholarship on appellate courts and much folk wisdom regarding the variables to be evaluated in this article, but no empirical data to support that folk wisdom. Part II describes the empirical study that we performed, detailing the theories to be tested, null and alternative hypotheses, target and sample population of cases, methodology for collecting data, identification of data sources, and variables and their codes. Part III reports the results of this study and describes any significant relationship between variables and case outcome. The conclusion departs from this article's descriptive bent to hypothesize *why* these significant relationships exist and what these relationships might mean. The conclusion also plots a course for future research.

### I. REVIEW OF THE LITERATURE

There is a good deal of empirical scholarship on appeals. It includes studies on appellate treatment of jury verdicts<sup>1</sup>; the effect of judges' complex social background on their decisionmaking<sup>2</sup>; the impact of trial courts' deference to appellate rulings<sup>3</sup>; the impact of judges' policy preferences and strategic calculations in an en banc setting<sup>4</sup>; a general empirical description of criminal appeals' outcomes<sup>5</sup>; judicial activism<sup>6</sup>; the harmless error doctrine in criminal appeals<sup>7</sup>; the effect of mental heuristics and "cognitive illusions" on judicial decisionmaking<sup>8</sup>; the effect of judges' political ideologies<sup>9</sup>; the effect of "pathos-based" storytelling on appellate decisionmaking<sup>10</sup>; and others.<sup>11</sup>

1. Kevin M. Clermont & Theodore Eisenberg, *Appeal from Jury or Judge Trial: Defendants' Advantage*, 3 AM. L. AND ECON. REV. 125 (2001).

2. Gregory C. Sisk, Michael Heise, & Andrew P. Morriss, *Charting the Influences on the Judicial Mind: An Empirical Study of Judicial Reasoning*, 73 N.Y.U. L. REV. 1377 (1998).

3. Jonathan S. Masur & Lisa Larrimore Ouellette, *Deference Mistakes*, 82 U. CHIC. L. REV. 643 (2005).

4. Tracey E. George, *Developing a Positive Theory of Decisionmaking on U.S. Courts of Appeals*, 58 OHIO ST. L.J. 1635 (1998).

5. Michael Heise, *Federal Criminal Appeals: A Brief Empirical Perspective*, 93 MARQ. L. REV. 825 (2009).

6. Corey Rayburn Yung, *Flexing Judicial Muscle: An Empirical Study of Judicial Activism in the Federal Courts*, 105 N.W. L. REV. 1 (2011).

7. William M. Landes & Richard A. Posner, *Harmless Error*, 30 J. LEGAL STUD., 161 (2001).

8. Chris Guthrie, Jeffrey J. Rachlinski, & Andrew J. Wistrich, *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 780, 784 (2001).

9. Corey Rayburn Yung, *Judged by the Company You Keep: An Empirical Study of the Ideologies of Judges on the United States Courts of Appeals*, 51 B.C. L. REV. 1133 (2010).

10. Kenneth D. Chestek, *Judging By the Numbers: An Empirical Study of The Power of Story*, 7 J ALWD 2 (2010).

11. JONATHAN MATTHEW COHEN, *INSIDE APPELLATE COURTS: THE IMPACT OF COURT ORGANIZATION ON JUDICIAL DECISION MAKING IN THE UNITED STATES COURTS OF APPEALS* (2002); Robert Anderson IV, *Law, Fact, and Discretion in the Federal Courts: An Empirical Study*

While these studies provide insight into how courts of appeals operate,<sup>12</sup> they have never considered the effect of the appellate brief itself. This is an important gap because, on appeal, parties usually have only two avenues of communication to the courts: the briefs they draft, and the short oral arguments that build upon those briefs. The empirical scholarship on appeals offers little insight into how to best draft this most important of appellate documents.

That is not to say that the literature is short on opinions. Folk wisdom about how to draft an appellate brief abounds:

*Number of sources.* Judge Richard Posner suggests that citing fewer sources is better than citing more sources, because lawyers should not “beat [judges] over the head with statutory language and precedent.”<sup>13</sup> A set of law clerks for the South Carolina Court of Appeals offered that appellate lawyers should “avoid lengthy examples, voluminous case law without explanatory parentheticals, and extraneous information.”<sup>14</sup> Belinda I. Mathie recommends that lawyers “[c]hoose [their] citations with care . . . . Boggling down your brief with extraneous and unnecessary citations creates more work than necessary for the court and reduces your room to make substantive arguments.”<sup>15</sup> And a

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2012 UTAH L. REV. 1 (2012); Jeffrey A. Berger & Tracey E. George, *Judicial Entrepreneurs on the U.S. Courts of Appeals: A Citation Analysis of Judicial Influence* 1 (Vanderbilt Univ. Law Sch., Law & Econ. Working Paper No. 05-24, 2005), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=789544](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=789544); Frank B. Cross & Emerson H. Tiller, *Judicial Partisanship and Obedience to Legal Doctrine: Whistleblowing on the Federal Courts of Appeals*, 107 YALE L.J. 2155 (1998); Frank B. Cross, *Decision Making in the U.S. Courts of Appeals*, 91 CALIF. L. REV. 1457 (2003); Sue Davis, Susan Haire, & Donald R. Songer, *Voting Behavior and Gender on the U.S. Court of Appeals*, 77 JUDICATURE 129 (1993); Ward Farnsworth, *The Role of Law in Close Cases: Some Evidence From the Federal Courts of Appeals*, 86 B.U. L. REV. 1083 (2006); Chris Guthrie & Tracey E. George, *The Futility of Appeal: Disciplinary Insights Into the “Affirmance Effect” on the United States Courts of Appeals*, 32 FLA. ST. U. L. REV. 357 (2005); Jonathan P. Kastellec, *Racial Diversity and Judicial Influence on Appellate Courts*, 57 AM. J. OF POL. SCI. 167 (2013); Jonathan Remy Nash & Rafael I. Pardo, *An Empirical Investigation Into Appellate Structure and the Perceived Quality of Appellate Review*, 61 VAND. L. REV. 1745 (2008).

12. *But see* Hon. Harry T. Edwards & Michael A. Livermore, *Pitfalls of Empirical Studies That Attempt to Understand the Factors Affecting Appellate Decisionmaking*, 58 DUKE L.J. 1895, 1899-1900 (2009) (questioning the value of empirical legal studies “to understand the effect of extralegal factors on appellate decisionmaking”).

13. Hon. Richard A. Posner, *Effective Appellate Brief Writing*, [http://apps.americanbar.org/litigation/litigationnews/trial\\_skills/appellate-brief-writing-posner.html](http://apps.americanbar.org/litigation/litigationnews/trial_skills/appellate-brief-writing-posner.html) [https://perma.cc/Y3F5-NTHR] (last visited Dec. 9, 2018).

14. H. Bruce Williams, *Top Ten Tips for Appellate Brief Writing from Appellate Law Clerks: “Help Us Help You”*, LCBA CLE, Nov. 1, 2012, available at <http://www.lex-co.sc.gov/departments/DeptIQ/mie/Documents/OrderWritingTips.pdf> [https://perma.cc/9JZA-HX5H].

15. Belinda I. Mathie, *Writing Appellate Briefs, for Young Lawyers*, 29 APP. PRAC. 1, 2 (2010), available at [https://www.kattenlaw.com/files/22105\\_Mathie\\_AppellatePractice\\_WritingBriefs.pdf](https://www.kattenlaw.com/files/22105_Mathie_AppellatePractice_WritingBriefs.pdf) [https://perma.cc/WE5A-2N54].

former Federal Circuit law clerk recommends avoiding “long string cites of cases.”<sup>16</sup>

*Number of issues.* Judge Jane R. Roth and one of her former law clerks advise that lawyers “should limit the number of issues . . . a limited set of issues presenting only viable arguments is best . . . Occasionally, an advocate will present ten or fifteen issues in her brief. This is an automatic warning flag that the advocate does not understand what the case is about or that she hopes to hide the weakness of the appeal under a flurry of words.”<sup>17</sup> Similarly, Belinda I. Mathie advises that lawyers “be selective about the issues [they] present on appeal . . . [and] not devote time or space to discussion of marginal points.”<sup>18</sup> It has also been suggested that “[t]here is such a thing as too many issues.”<sup>19</sup> Judge Ruggero Aldisert observed that lawyers who present more than three issues suffer a credibility loss, and that when a lawyers presents eight issues, there is a “strong presumption that no point is worthwhile.”<sup>20</sup> Other judges seem to find a red line at three issues: more than that, and these judges view the brief with suspicion.<sup>21</sup> Judge S. Jay Plager of the Federal Circuit offered that he could not remember sitting on any case that was decided by the “ninth or tenth ‘Question Presented,’ and in part that may be because [he couldn’t] ever remember having read that far into the ‘Question Presented.’”<sup>22</sup> And a former Federal Circuit clerk observed that the statement of the issues is “rarely helpful” because lawyers “present too many issues and the issues are too long and too argumentative.”<sup>23</sup>

*Words per issue.* Where this Federal Circuit clerk recommended that each issue should be short (“a sentence or two”<sup>24</sup>), Bryan Garner recommends that issue statements should not exceed seventy-five words.<sup>25</sup> He proposes a major premise-minor premise-conclusion organization, which is usually feasible within the seventy-five-word limit. The Georgetown University Law Center Writing Center recommends issues of one sentence, which should be no longer

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16. Rachel Clark Hughey, *Effective Appellate Advocacy before the Federal Circuit: A Former Law Clerk’s Perspective*, 11 J. APP. PRAC. & PROCESS 401, 411 (2010).

17. Hon. Jane R. Roth & Mani S. Walia, *Persuading Quickly: Tips for Writing an Effective Appellate Brief*, 11 J. APP. PRAC. & PROCESS 443, 454 (2010).

18. Mathie, *supra* note 15, at 1.

19. Robert B. Dubose, *Appellate Brief Writing: Making a Brief Helpful and Persuasive*, STATE BAR COLLEGE SUMMER SCHOOL 2007, at 4, available at <http://www.adjtllaw.com/assets/Brief%20Writing.Dubose.2007.pdf> [<https://perma.cc/N7EE-QBUA>].

20. JUDGE RUGGERO J. ALDISERT, *WINNING ON APPEAL: BETTER BRIEFS AND ORAL ARGUMENT* 120 (rev. 1st ed. 1996).

21. Hughey, *supra* note 16, at 417.

22. S. Jay Plager, J., *Remarks, Sixteenth Annual Judicial Conference of the United States Court of Appeals for the Federal Circuit*, 193 F.R.D. 263, 277 (1999).

23. Hughey, *supra* note 16, at 408.

24. *Id.* at 409.

25. BRYAN A. GARNER, *THE WINNING BRIEF: 100 TIPS FOR PERSUASIVE BRIEFING IN TRIAL AND APPELLATE COURTS* 104 (3d ed. 2014).

than three to four lines.<sup>26</sup> Assuming each line contains an average of thirteen words, Georgetown recommends issues of no more than fifty-two words. The examples that it provides suggests that issue statements much shorter than that are appropriate.<sup>27</sup>

*Statement of facts.* It is common advice that the statement of facts should include all of the legally relevant facts, even if they do not favor one's client,<sup>28</sup> and that the statement of facts should tell an interesting and complete story.<sup>29</sup> At the same time, a lawyer should not waste space.<sup>30</sup> Thus, one should "think about proportion — the Statement of Facts generally should not take up too much of [a lawyer's] allotted space."<sup>31</sup> Extremely short statements of facts, therefore, may be less effective, as might very long statements of facts. A statement of some middling length should be ideal.

*Overall length of brief.* Bryan Garner, among his many words of wisdom, suggests, in many ways, that shorter legal writing is better.<sup>32</sup> Judge Richard Posner is more pointed, arguing that briefs should be just that — brief.<sup>33</sup> Judge Daniel M. Friedman wrote that "[t]he shorter the brief, the more effective it will be."<sup>34</sup> Federal Circuit Judge Alvin A. Schall wrote that briefs should "be as concise as possible."<sup>35</sup> And the former Federal Circuit clerk reported that "almost every opening brief in a patent case approached the word limit, which seemed to [her] to indicate that attorneys sometimes forget that their case is not the only appeal before the court."<sup>36</sup>

*Reply briefs.* Posner also recommends that attorneys "not forgo the opportunity to file a reply brief. The appellee is bound to make *some* halfway decent points in rebuttal . . . Don't let him or her have the last word."<sup>37</sup> Another

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26. The Writing Center, Georgetown University Law Center, *Persuasive Issue Statements*, at 4 (2015), available at <https://www.law.georgetown.edu/wp-content/uploads/2018/07/Geenberg-Weingast-Issue-Statement.pdf> [<https://perma.cc/Z5SN-A3RJ>].

27. *Id.* at 8.

28. Hon. Jane R. Roth & Mani S. Walia, *Persuading Quickly: Tips for Writing an Effective Appellate Brief*, 11 J. APP. PRAC. & PROCESS 443, 445 (2010); The Writing Center, Georgetown University Law Center, *Writing a Statement of Facts in an Appellate Brief*, at 2 (2014), available at <https://www.law.georgetown.edu/wp-content/uploads/2018/07/StatementofFactsinaBriefFinal.pdf> [<https://perma.cc/DV73-6XLD>].

29. Roth & Walia, *supra* note 28; The Writing Center, *supra* note 28, at 3–4.

30. The Writing Center, *supra* note 28, at 4.

31. *Id.* at 4.

32. BRYAN A. GARNER, LEGAL WRITING IN PLAIN ENGLISH, 24, 27–29, 50, 78, 146, 147 (2013) (arguing for omitting needless words, simplifying wordy phrases, summarizing rather than overparticularizing, keeping sentences short, and creating ample white space on the page).

33. Posner, *supra* note 13.

34. Daniel M. Friedman, *Winning on Appeal*, 9 LITIG. 15, 18 (Spring 1983).

35. Alvin A. Schall, *Remarks, Eleventh Annual Judicial Conference of the United States Court of Appeals for the Federal Circuit*, 153 F.R.D. 177, 196 (1993).

36. Hughey, *supra* note 16, at 415.

37. Posner, *supra* note 13.



commentator has suggested that while reply briefs are usually optional, “there are very few — if any — circumstances that justify the decision to forgo the chance to file a reply.”<sup>38</sup>

*Oral arguments.* A former Eighth Circuit law clerk argued that “[o]ral argument can be critical, but only in a very small percentage of cases,”<sup>39</sup> and that for all cases but a few, “oral argument should not be granted at all.”<sup>40</sup> A former Federal Circuit law clerk, however, suggested, that “[w]hile the brief is very important, the oral argument still matters.”<sup>41</sup> A number of judges on the Federal Circuit, as reported by this law clerk, expressed that oral argument matters to them.<sup>42</sup> They do not, however, say that it unilaterally helps or hurts the appellant; rather, it can serve to clarify the case for them.

These experienced judges, clerks, and lawyers certainly have a wealth of personal experience with effective appellate brief writing, but it is possible that their views are clouded by their own personal preferences, which may have little to do with whether following their advice will demonstrably lead to greater success. This article aims to test these claims, to determine whether they do, in fact, produce more “effective” briefs — by which we mean briefs that result in the reviewing court’s opinion and holding being more favorable to the appellant who has submitted the brief.

## II. DESCRIPTION OF THE STUDY AND METHODS

### A. *Our Study’s Central Question and Eight Research Hypotheses*

Our study aims to test the folk wisdom around successful appellate briefs. We therefore identified the quantifiable aspects of briefs that the folk wisdom would impact, coded for those aspects, and compared this data to the coded data for the Eighth Circuit’s holding and opinion. As the aim of our study is multifaceted, so too are the theories. The literature suggests eight hypotheses:

- A brief with fewer cited sources, all other things being equal, should be more successful than a brief with more cited sources;
- A brief with fewer issues, all other things being equal, should be more successful than a brief with more issues;

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38. Richard C. Kraus, *Crafting an Influential and Effective Reply Brief*, APP. ISSUES, ABA COUNSEL OF APPELLATE LAWYERS, at 1 (Summer 2012), available at [https://www.americanbar.org/content/dam/aba/publications/appellate\\_issues/2012sum\\_ai.pdf](https://www.americanbar.org/content/dam/aba/publications/appellate_issues/2012sum_ai.pdf) [<https://perma.cc/MHZ4-Q9EV>].

39. Michael Duvall, *When Is Oral Argument Important? A Judicial Clerk’s View of the Debate*, 9 J. APP. PRAC. & PROCESS 121, 130 (2007).

40. *Id.* at 121.

41. Hughey, *supra* note 16, at 426.

42. *Id.* at 426-27.

- There is a significant drop in success between briefs that present three issues and briefs that present four issues;
- Briefs that present issues that are set forth in more than seventy-five words, all other things being equal, should be less successful than briefs that present issues that are set forth in seventy-five words or less;
- The success rate of briefs, evaluated against the length of the briefs' statement of the case, will appear as something of a bell curve, where the highest success rate is found somewhere between the briefs with the shortest and longest statements of the case;
- A brief that is, overall, shorter, all other things being equal, should be more successful than a brief that is, overall, longer;
- An appellant who files a reply brief should, all other things being equal, be more successful than an appellant who does not file a reply brief; and
- Holding an oral argument should, all other things being equal, benefit the success of an appellant brief.

In each case, the null hypothesis is that each feature of the brief has no effect on the success of an appellant brief.

### B. *Study Design*

#### *Variables*

We surveyed all 1,123 cases that resulted in a decision by the Eighth Circuit in 2016. We first compiled a list of most of the variables in an appellant's original brief that are readily quantifiable and that appear in the literature as relevant to a brief's effectiveness. We do not, therefore, code for an issue's standard of review, the legal basis for an issue, whether an appellant must show prejudice, and so forth. These are substantive aspects of an appeal that sometimes cannot be easily discerned or quantified. We also did not code for many things that other researchers have covered. The U.S. Appeals Courts Database, for example, codes for type of case (criminal, constitutional, etc.), whether a panel or en banc court heard the case, and many others.<sup>43</sup> The Supreme Court database is similarly wide-ranging.<sup>44</sup> We cover ground that has not yet been covered by these databases or any other project.

These codes and their variable are available in the codebook, found below in Appendix A. There are three dependent variables and nine independent variables, plus one identification variable (CASENUM, which is the Eighth Circuit's assigned case number, e.g. 16-1907).

43. *U.S. Appeals Courts Database*, THE JUD. RES. INITIATIVE AT THE U. OF S.C., <http://artsandsciences.sc.edu/poli/juri/appct.htm> [<https://perma.cc/9L2V-BUXP>].

44. *The Supreme Court Database*, WASH. U. LAW, <http://www.supremecourtdatabase.org/> [<https://perma.cc/H2QK-HFPR>].

The primary dependent variable in this study is HOLDING, which reflects the “success” of an appellant’s original brief based on eleven possible outcomes taken from the Appellate Court Database: (0) Stay, petition, or motion grants, (1) Affirmed, or affirmed and petition denied, (2) Reversed (including reversed and vacated), (3) Reversed and remanded (or just remanded), (4) Vacated and remanded (also set aside and remanded, or modified and remanded), (5) Affirmed in part and reversed in part (or modified, or affirmed and modified), (6) Affirmed in part, reversed in part, and remanded, or affirmed in part, vacated in part, and remanded, (7) Vacated, (8) Petition denied or appeal dismissed, (9) Certification to another court, and (10) Not ascertained.<sup>45</sup> From these data, a ranked response variable HOLDINGRANK was computed as (from most to least “successful,”): (1) HOLDING of 2, 3, 4, or 7; (2) HOLDING of 5 or 6; and (3) HOLDING of 1 or 8. Thus, to be clear, the ten HOLDING categories have been reduced to three HOLDINGRANK categories.

The OPINION is also a dependent variable because it reflects an appellant’s “success,” albeit more weakly than HOLDING because it expresses *how* the court reached its conclusion, rather than the conclusion itself. OPINION expresses, possibly, the strength of the HOLDING. Of six possible outcomes, the dataset saw five of them realized. The strength of the court’s expression of its OPINION, from strongest to weakest, is (1) per curiam; (2) signed, unanimous; (3) signed, with concurrence; (4) signed, with concurrence and dissent; and (5) signed, with dissent. OPINIONRANK is the ranked response variable and has the same values as OPINION.

Thus, the HOLDING and OPINION dependent variables combine to produce twenty potential outcomes (with eleven different ranks), analyzed as OUTCOMERANK. From most successful to least successful, they are:

- 1 = Per curiam reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=1 and HOLDINGRANK=1 [thus a HOLDING=2, 3, 4, or 7]).
- 2 = Signed, unanimous reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=2 and HOLDINGRANK=1);
- 3 = Signed, with concurrence reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=3 and HOLDINGRANK=1);
- 4 = Signed, with concurrence and dissent reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=6 and HOLDINGRANK=1);

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45. HOLDINGS 0, 9, and 10 did not occur in our dataset.

- 5 = Signed, with dissent reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=4 and HOLDINGRANK=1);
- 6 = Per curiam affirmed in part and reversed in part (where OPINION=1 and HOLDING=5);
- 6 = Signed, unanimous affirmed in part and reversed in part (where OPINION=2 and HOLDING=5);
- 6 = Signed, with concurrence affirmed in part and reversed in part (where OPINION=3 and HOLDING=5);
- 6 = Signed, with concurrence and dissent affirmed in part and reversed in part (where OPINION=6 and HOLDING=5);
- 6 = Signed, with dissent affirmed in part and reversed in part (where OPINION=4 and HOLDING=5);
- 6 = Per curiam affirmed in part, reversed in part, and remanded (where OPINION=1 and HOLDING=6);
- 6 = Signed, unanimous affirmed in part, reversed in part, and remanded (where OPINION=2 and HOLDING=6);
- 6 = Signed, with concurrence affirmed in part, reversed in part, and remanded (where OPINION=3 and HOLDING=6);
- 6 = Signed, with concurrence and dissent affirmed in part, reversed in part, and remanded (where OPINION=6 and HOLDING=6);
- 6 = Signed, with dissent affirmed in part, reversed in part, and remanded (where OPINION=4 and HOLDING=6);
- 7 = Signed, with dissent affirmance, petition denied, or appeal dismissed (where OPINION=4 and HOLDINGRANK=3 [thus a HOLDING=1 or 8]);
- 8 = Signed, with concurrence and dissent affirmance, petition denied, or appeal dismissed (where OPINION=6 and HOLDINGRANK=3);
- 9 = Signed, with concurrence affirmance, petition denied, or appeal dismissed (where OPINION=3 and HOLDINGRANK=3);
- 10 = Signed, unanimous affirmance, petition denied, or appeal dismissed (where OPINION=2 and HOLDINGRANK=3);
- 11 = Per curiam affirmance, petition denied, or appeal dismissed (where OPINION=1 and HOLDINGRANK=3).

Because our study is a purely quantitative one that examines appellate briefs, there are two weaknesses that should be noted here. First, for cases that result in a partial affirmance and partial reversal, we do not examine the nature of that split decision. We cannot, therefore, discern the variable rates of “success” among these decisions. Thus, the ten outcomes above with a HOLDING of 5 or

6 produce the same OUTCOMERANK of 6. Second, while an appellant normally hopes that the court will reverse/vacate or remand the case, this is not a uniformly positive outcome. The court may reverse/vacate or remand a case for reasons other than those for which the appellant requested these outcomes. Our study does not account for those (probably relatively rare) cases.

There are nine independent variables, excluding CASENUM, which is an identification variable and simply lists the case number assigned to the case by the Eighth Circuit.

NUMSCRS lists the number of sources cited in the appellant's table of authorities (integers from 2 to 133, median=29). This study examines only an appellant's original briefs that were written by lawyers, so if a brief is unavailable or non-existent, "Briefs unavail" is listed in the NUMSCRS column of the Excel spreadsheet on which we compiled the data; if a brief is pro se, "Pro se" is listed; and if a brief is an *Anders* brief (which is a required brief written in a criminal appeal when the attorney believes there are no viable issues to be argued), "Anders" is listed. Eliminating these cases from the original dataset resulted in our edited, operative dataset of 737 cases.

NUMISSUES lists the number of issues stated in the statement of the issues (integers from 1 to 19, median=2).

WDSPERISS lists the average number of words per issue, as listed in NUMISSUES (numbers from 6 to 320, median=30.5).

STMTTPAGES lists the number of pages that the statement of the case covers (integers from 0 to 39, median=5). This number is calculated by subtracting the page on which the statement begins from the page on which it ends. For statements that appear on only one page, therefore, 0 is entered.

ARGPAGES lists the number of pages that the argument section covers (integers from 2 to 64, median=14). It is calculated the same way that STMTTPAGES is calculated.

PGPERARG lists the average number of argument pages per issue, taken by dividing ARGPAGES by NUMISSUES (numbers from 0.375 to 52, median=7).

TOTALWDS lists the number of words in the entire brief, as reported by counsel in the brief's certificate of compliance (integers from 1150 to 20572, median=5930). Where the length is reported by pages, that number is multiplied by 230 to produce an approximate word count. Where the length is reported by line numbers, that number is multiplied by 13 to produce an approximate word count. Where the brief itself contain no indication of its length, the Eighth Circuit's general docket lists the brief's number of pages; that number is multiplied by 230 to produce an approximate word count.

REPLY lists whether or not a reply brief was filed (No=0, Yes=1).

ARGHELD lists whether or not an oral argument was held (No=0, Yes=1). This does not differentiate between cases in which the appellant requested or did not request an oral argument, nor does it differentiate between cases in which the court initially declined to screen for an oral argument or screened for or

scheduled an oral argument but later changed the case's status to a no-argument case. This variable simply lists whether the argument was held or not.

OPINION lists the type of opinion the court issued: per curiam; signed, unanimous; signed, with concurrence; signed, with dissent; or signed, with concurrence and dissent (whether one judge concurred and a separate judge dissented or one judge concurred in part and dissented in part).

HOLDING lists the court's disposition of the case, including, among others: affirmed; reversed; affirmed in part and reversed in part; and so forth.

### *Statistical Analysis*

Data exploration<sup>46</sup> was conducted with a scatterplot matrix of the seven numerical explanatory variables (NUMSRCS, NUMISSUES, WDSPERISS, STMTYPAGES, ARGYPAGES, PGPERRARG, and TOTALWDS) along with contingency tables of the two categorical dependent variables (REPLY and ARGHELD). We also fit each of the seven numerical explanatory variables to one of three statistical distributions: log-normal, negative binomial, and gamma, using Pearson's  $\chi^2 / DF$  as a measure of goodness-of-fit.

Each of the ranked response variables (HOLDINGRANK, OPINIONRANK, and OUTCOMERANK) were analyzed with a generalized linear model<sup>47</sup> with the multinomial ranked responses linked as cumulative logit/proportional odds and the fixed (explanatory) variables determined by stepwise selection. The response variables HOLDINGRANK and OUTCOMERANK are ordinal in the sense that they are coded so that lower values are considered "more successful," (or "stronger", in the case of OPINIONRANK). This means that the multinomial cumulative logit link models the log-odds ratio of accomplishing a lower-valued response variable, relative to the highest ("worst") possible outcome. Formally, this proportional cumulative logit model can be described as:

$$\log_e \left( \frac{p(Y \leq i)}{p(Y > i)} \right) = \beta_{0i} + \beta_1 x_1 + \beta_2 x_2 \dots + \beta_j x_j$$

Where  $Y$  is the response variable,  $i$  is the ranked value of the response variable,  $\beta_{0i}$  is the intercept associated with rank  $i$ , and  $\beta_j$  is the parameter estimate associated with explanatory variable  $x_j$ . Thus, the model can be read as "the log-odds-ratio of observing a response of rank  $i$  or lower is a function of its intercept log-odds ratio plus the sum of the relevant parameter estimates times their respective explanatory variables." The intercept parameters are estimated for each ranked level of the response variable except for the highest (reference) rank, and the estimated value represents the log-odds ratio of observing that particular rank (or lower) relative to the highest (reference) rank, given all other

46. Alain F. Zuur, Elana N. Ieno & Chris S. Elphick. *A protocol for data exploration to avoid common statistical problems*. 1 METHODS IN ECOLOGY AND EVOLUTION 3 (2010).

47. WALTER STROUP, GENERALIZED LINEAR MIXED MODELS, 398–404 (2012).

fixed effects are set at zero (i.e. no argument, no reply, and  $\ln(1)=0$  sources, issues, pages, etc. . . .). The fixed effect parameters represent the increased log-odds ratio of observing a lower-ranked response for every one unit increase of the fixed effect. In the case of the categorical predictors REPLY and ARGHELD (which are coded 0 or 1), a positive parameter estimate would suggest that the presence of that variable (e.g. holding a reply or argument) is associated with an increased probability of having a lower (or “better”) ranking. Similarly, a positive parameter estimate for a numerical dependent variable indicates that each  $\log_e$ -fold increase in the dependent variable (or 2.7x increase on the original scale, because they were  $\log_e$ -transformed) is associated with an increased log-odds ratio of having a lower-ranked (“better”) response. We also include the squares of each numerical variable, such as  $\ln\text{NUMSRCS}^2$ , which allows the model to test for quadratic, or curvilinear, effects. The presence of both a linear term (whose parameter estimate we’ll call  $\alpha$ ) and also its corresponding quadratic term (whose parameter estimate we’ll call  $\beta$ ) would suggest that the log-odds relationship is curved up or down and has some intermediate apex. The location of the apex, along the log-transformed explanatory variable, should be at  $-\alpha/2\beta$  (or, at  $\exp(-\alpha/2\beta)$  along the original, non-transformed explanatory variable) and the log-odds curve should open up if  $\beta$  is positive, and down if  $\beta$  is negative.

Because of the possibility of multicollinearity between the explanatory variables, the cumulative logit models were constructed in a stepwise selection using Akaike Information Criterion as the stop criteria. Akaike Information Criterion (“AIC”) is a likelihood-based information-theoretic index that describes the quality (or “information content”) of a model, after penalty for the number of parameters in the model, with lower values indicating a better fit. In stepwise selection, the model begins with no fixed effects and computes only the intercepts for each ranked response. At each subsequent iteration of the algorithm, the model takes on the best most explanatory variable, but only if that variable reduces (improves) the AIC score.<sup>48</sup> The stepwise model also has the option to exclude a previously included variable if removal improves the AIC score. This stepwise selection approach is designed to select only the explanatory variables that best explain the response variable and is a partial control on multicollinearity because the AIC (like other information-theoretic indices) includes a penalty for excessive number of parameters without improvement in fit. For example, if variables A and B are highly correlated with C, it would be preferable to select a model with only the one best (most explanatory) variable, if they are indeed redundant. In this case, it would be conceivable for the stepwise model to include variable A in the first round,

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48. The variables that the model has to choose from includes both categorical variables, all of the log-transformed numerical variables, and also squares of all of the log-transformed numerical variables to account for possible quadratic effects.

include variable B in the second round, C in the third round, and then remove variable A and B in subsequent rounds if they essentially contain comparable information to variable C. This stepwise model selection was conducted for each of the ranked response variables using PROC HPGENSELECT (Statistical Analysis Software, SAS Institute, Cary, NC). McFadden’s pseudo- $R^2$  was computed as  $R^2_M = 1 - (\text{Log}L_M / \text{Log}L_N)$  where  $\text{Log}L_M$  is the log-likelihood of the final model and  $\text{Log}L_N$  is the log-likelihood of the null model (intercepts only, no fixed effects). Here is the analyzed procedure of our stepwise selection:

TABLE 1: PROCEDURE OF STEPWISE SELECTION

<i>Selection Details for HOLDINGRANK</i>						
<i>Effects</i>						
<i>Step</i>	<i>Description</i>	<i>In Model</i>	<i>Chi-Square</i>	<i>Pr &gt; ChiSq</i>	<i>-2 LogL</i>	<i>AIC</i>
0	Initial Model	1			866.962	870.962
1	ARGHELD entered	2	31.1292	<.0001	834.547	840.547
2	lnNUMSRCS entered	3	9.0245	0.0027	825.243	833.243
3	lnNUMSRCS2 entered	4	4.4556	0.0348	819.791	829.791
Pseudo- $R^2_{\text{McFadden}}$					0.054	
<i>Selection Details for OPINIONRANK</i>						
<i>Effects</i>						
<i>Step</i>	<i>Description</i>	<i>In Model</i>	<i>Chi-Square</i>	<i>Pr &gt; ChiSq</i>	<i>-2 LogL</i>	<i>AIC</i>
0	Initial Model	1			1424.150	1432.150
1	ARGHELD entered	2	243.9218	<.0001	1150.664	1160.664
2	REPLY entered	3	15.1409	<.0001	1135.333	1147.333
3	lnARGPAGES entered	4	3.9394	0.0472	1131.375	1145.375
4	lnARGPAGES2 entered	5	7.3057	0.0069	1123.691	1139.691
Pseudo- $R^2_{\text{McFadden}}$					0.211	
<i>Selection Details for OUTCOMERANK</i>						
<i>Effects</i>						
<i>Step</i>	<i>Description</i>	<i>In Model</i>	<i>Chi-Square</i>	<i>Pr &gt; ChiSq</i>	<i>-2 LogL</i>	<i>AIC</i>
0	Initial Model	1			2154.634	2172.634
1	ARGHELD entered	2	191.4836	<.0001	1948.165	1968.165
2	REPLY entered	3	24.0361	<.0001	1923.768	1945.768
3	lnNUMSRCS entered	4	8.5557	0.0034	1915.167	1939.167
4	lnNUMSRCS2 entered	5	7.1093	0.0077	1907.283	1933.283
Pseudo- $R^2_{\text{McFadden}}$					0.115	



III. RESULTS OF THE STUDY

Based on this data analysis, we made three initial determinations.

First, all of the seven numerical dependent variables were positively skewed in their frequency distribution and would therefore be more appropriately modeled through natural-log transformations so that they approximated a normal distribution (log-transformed variables now have “ln” in front of the original variable name).

Second, four numerical dependent variables in particular showed strong evidence of collinearity (lnNUMSRCS, lnNUMISSUES, lnARGPAGES, lnTOTALWDS):

FIGURE 1:

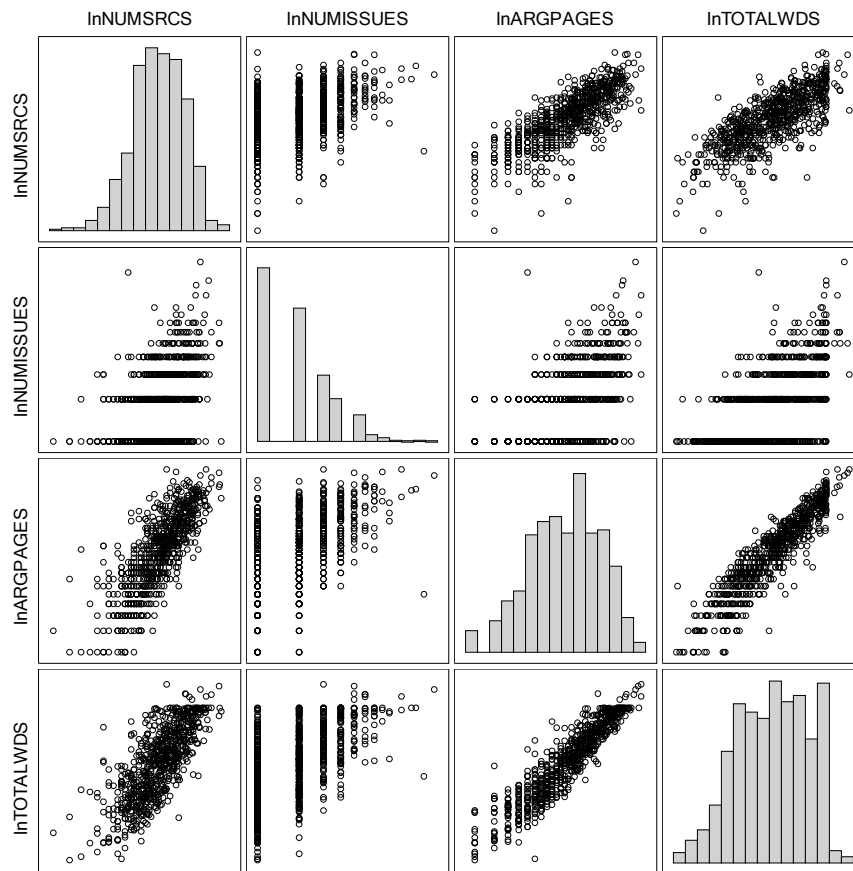


Figure 1. Scatterplot matrix between four log<sub>e</sub>-transformed numeric variables (lnNUMSRCS = number of sources, lnNUMISSUES = number of issues, lnARGPAGES = argument pages, and lnTOTALWDS = total words) that appear to be mutually colinear. Frequency histograms along the diagonal

illustrate that most variables are approximately normally distributed after log<sub>e</sub>-transformation.

Third, the frequency of REPLY and ARGHELD was not random: briefs holding an argument also tended to have a reply more often than would be expected by chance (Fig. 2,  $\chi^2 = 130.62$ ,  $p < 0.0001$ ).

FIGURE 2:

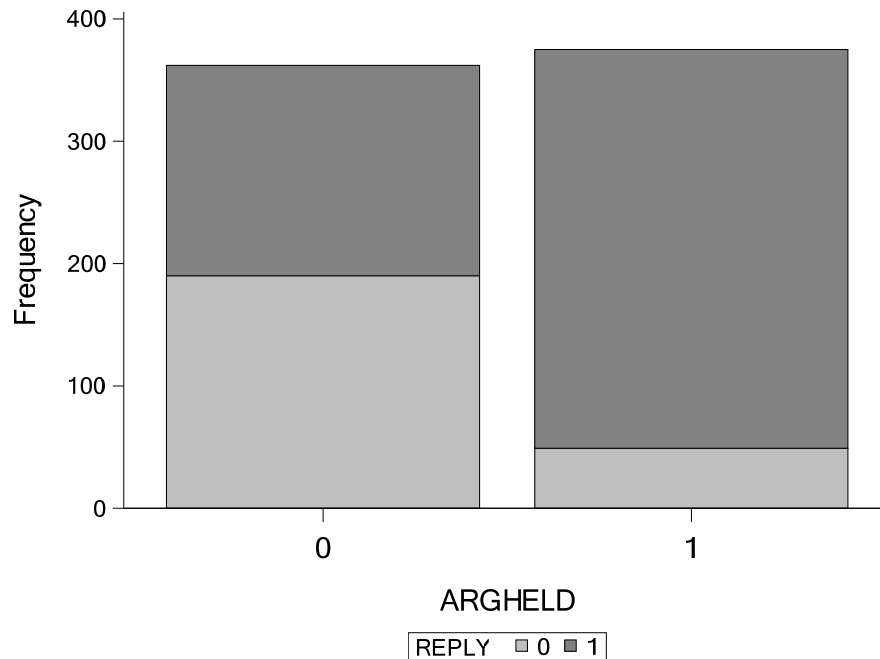


Figure 2. Vertical barchart showing the uneven distribution of cases that did (=1) or did not (=0) hold an argument (ARGHELD) or reply (REPLY).

All of the integer dependent variables appeared to be drawn from a negative binomial distribution, with values of Pearson’s  $\chi^2 / DF$  in the range of 1.00 to 1.22.<sup>49</sup> The two dependent variables that are ratios (PGPERARG and WDSPERISS) appeared to be drawn from a gamma distribution but were somewhat underdispersed (with Pearson’s  $\chi^2 / DF$  values of 0.52 and 0.70, respectively). The two categorical dependent variables (ARGHELD and REPLY) were drawn from a binary distribution with a probability of success ( $\pi$ ) = 50.88 and 67.57, respectively. The mean and scale (dispersion) value for these variables are reported in Table 2:

49. 1.00 is ideal, greater than 2.0 generally suggests poor fit due to overdispersion.

TABLE 2: MEAN AND SCALE OF NUMERICAL VARIABLES

VARIABLE	DISTRIBUTION	MEAN ( $\mu/\pi$ )	SCALE ( $\Phi$ )
NUMSRCS	NEGATIVEBINOMIAL	33.56	0.323
NUMISSUES	NEGATIVEBINOMIAL	2.37	0.092
WDSPERISS	GAMMA	38.33	0.400
STMTPAGES	NEGATIVEBINOMIAL	6.69	0.562
ARGPAGES	NEGATIVEBINOMIAL	16.94	0.399
PGPERARG	GAMMA	8.35	0.378
TOTALWDS	NEGATIVEBINOMIAL	6705.70	0.315
ARGHELD	BINARY	50.88	NA
REPLY	BINARY	67.57	NA

\*For  $X \sim NB(\mu, \Phi)$   $Var(X) = \mu + \Phi\mu^2$

\*For  $X \sim G(\mu, \Phi)$   $Var(X) = \Phi\mu^2$

\*For  $X \sim B(\pi)$   $Var(X) = \pi(1 - \pi)$

In the stepwise selection model analysis, we made three additional determinations.

First, we determined that ARGHELD ( $p=0.0003$ ),  $\ln$ NUMSRCS ( $p=0.0169$ ), and  $\ln$ NUMSRCS<sup>2</sup> ( $p=0.0324$ ) were selected as statistically significant explanatory variables for HOLDINGRANK (Table 3). Thus, holding an argument was positively associated with increased odds of having a better HOLDINGRANK (Fig. 3), while the number of sources exhibited a quadratic relationship with HOLDINGRANK: increasing number of sources was positively associated with increased odds of having a better HOLDINGRANK up to approximately  $\exp(-4.62/(2*-0.59)) = 50$  sources, at which point additional sources reduced the odds of having a better HOLDINGRANK (Fig. 4). Thus, the model for predicting the odds ratio of HOLDINGRANK is:

$$\log_e \left( \frac{p(\text{HOLDINGRANK} \leq i)}{p(\text{HOLDINGRANK} > i)} \right) = \text{Intercept}_i + 0.85 * \text{ARGHELD} + 4.62 * \ln \text{NUMSRCS} + -0.59 * \ln \text{NUMSRCS}^2, \text{ where } \text{Intercept}_i \text{ is the Intercept from Table 3 corresponding to the desired level } i \text{ of HOLDINGRANK.}$$

Second, we determined that REPLY ( $p=0.0029$ ), ARGHELD ( $p<0.0001$ )  $\ln$ ARGPAGES ( $p=0.0028$ ), and  $\ln$ ARGPAGES<sup>2</sup> ( $p=0.0073$ ) were selected as statistically significant explanatory variables for OPINIONRANK (Table 3). Thus, holding an argument and having a reply were both associated with decreased odds of having a better OPINIONRANK, while the number of sources exhibited a quadratic relationship with OPINIONRANK: increasing number of argument pages was associated with decreased odds of having a stronger OPINIONRANK up to approximately  $\exp(-2.1/(2*-0.37)) = 16.7$  pages, at which

point additional pages increased the odds of having a weaker OPINIONRANK. Thus, the model for predicting the odds ratio of OPINIONRANK is:

$$\log_e \left( \frac{p(OPINIONRANK \leq i)}{p(OPINIONRANK > i)} \right) = Intercept_i + -2.62 * ARGHELD + -0.60 * REPLY + -2.10 * \ln ARGPAGES + 0.37 * \ln ARGPAGES^2, \text{ where}$$

Intercept<sub>i</sub> is the Intercept from Table 3 corresponding to the desired level *i* of OPINIONRANK.

Third, we determined that REPLY (*p*=0.0002), ARGHELD (*p*<0.0001), lnNUMSRCS (*p*=0.0027), and lnNUMSRCS<sup>2</sup> (*p*=0.0078) were statistically significant explanatory variables for OUTCOMERANK (Table 3). Thus, holding an argument and having a reply was positively associated with increased odds of having a better OUTCOMERANK, while the number of sources exhibited a quadratic relationship with OUTCOMERANK: increasing number of sources was positively associated with increased odds of having a better OUTCOMERANK up to approximately exp(-2.98/(2\*-0.40))= 41.5 sources, at which point additional sources reduced the odds of having a better OUTCOMERANK. Thus, the model for predicting the odds ratio of OUTCOMERANK is:

$$\log_e \left( \frac{p(OUTCOMERANK \leq i)}{p(OUTCOMERANK > i)} \right) = Intercept_i + 1.86 * ARGHELD + 0.69 * REPLY + 2.98 * \ln NUMSRCS + -0.40 * \ln NUMSRCS^2, \text{ where Intercept}_i \text{ is}$$

the Intercept from Table 3 corresponding to the desired level *i* of OUTCOMERANK.

TABLE 3: FINAL MODELS

Parameter Estimates for HOLDINGRANK								
Parameter	HOLDINGRANK	DF	Estimate	Standard Error	95% Confidence		Chi-Square	Pr > ChiSq
					Limits	ChiSq		
Intercept	1	1	-11.346538	3.347754	-17.90802	-4.78506	11.4873	0.0007
Intercept	2	1	-10.778246	3.346012	-17.33631	-4.22018	10.3763	0.0013
lnNUMSRCS		1	4.623976	1.935096	0.83126	8.41669	5.7099	0.0169
lnNUMSRCS <sup>2</sup>		1	-0.590204	0.275856	-1.13087	-0.04954	4.5776	0.0324
ARGHELD		1	0.848394	0.233075	0.39158	1.30521	13.2497	0.0003

Parameter Estimates for OPINIONRANK								
Parameter	OPINIONRANK	DF	Estimate	Standard Error	95% Confidence		Chi-Square	Pr > ChiSq
					Limits	ChiSq		
Intercept	1	1	3.260176	0.851913	1.59046	4.92989	14.6451	0.0001
Intercept	2	1	7.677157	0.888989	5.93477	9.41954	74.5775	<.0001
Intercept	3	1	8.036950	0.892237	6.28820	9.78570	81.1376	<.0001

*Parameter Estimates for HOLDINGRANK*

<i>Parameter</i>	<i>HOLDINGRANK</i>	<i>DF</i>	<i>Estimate</i>	95%		<i>Chi-Square</i>	<i>Pr &gt; ChiSq</i>
				<i>Standard Error</i>	<i>Confidence Limits</i>		
<i>Intercept</i>	4	1	9.080762	0.912642	7.29202	10.86951	99.0020 <.0001
<i>lnARGPAGES</i>		1	-2.101178	0.704124	-3.48124	-0.72112	8.9049 0.0028
<i>lnARGPAGES2</i>		1	0.373124	0.139169	0.10036	0.64589	7.1882 0.0073
<i>REPLY</i>		1	-0.598983	0.201124	-0.99318	-0.20479	8.8695 0.0029
<i>ARGHELD</i>		1	-2.617620	0.242928	-3.09375	-2.14149	116.1068 <.0001

*Parameter Estimates for OUTCOMERANK*

<i>Parameter</i>	<i>OUTCOMERANK</i>	<i>DF</i>	<i>Estimate</i>	95%		<i>Chi-Square</i>	<i>Pr &gt; ChiSq</i>
				<i>Standard Error</i>	<i>Confidence Limits</i>		
<i>Intercept</i>	1	1	-10.937177	1.657608	-14.18603	-7.68833	43.5358 <.0001
<i>Intercept</i>	2	1	-9.666826	1.646949	-12.89479	-6.43887	34.4514 <.0001
<i>Intercept</i>	3	1	-9.634253	1.646796	-12.86191	-6.40659	34.2260 <.0001
<i>Intercept</i>	5	1	-9.452910	1.645988	-12.67899	-6.22683	32.9820 <.0001
<i>Intercept</i>	6	1	-8.864597	1.644060	-12.08690	-5.64230	29.0725 <.0001
<i>Intercept</i>	7	1	-8.715396	1.643676	-11.93694	-5.49385	28.1153 <.0001
<i>Intercept</i>	8	1	-8.621214	1.643395	-11.84221	-5.40022	27.5203 <.0001
<i>Intercept</i>	9	1	-8.494391	1.643041	-11.71469	-5.27409	26.7281 <.0001
<i>Intercept</i>	10	1	-5.586379	1.628452	-8.77809	-2.39467	11.7682 0.0006
<i>lnNUMSRCS</i>		1	2.981676	0.995666	1.03021	4.93314	8.9680 0.0027
<i>lnNUMSRCS2</i>		1	-0.396322	0.149019	-0.68839	-0.10425	7.0731 0.0078
<i>REPLY</i>		1	0.688649	0.183096	0.32979	1.04751	14.1462 0.0002
<i>ARGHELD</i>		1	1.855179	0.192538	1.47781	2.23255	92.8408 <.0001

FIGURE 3: HOLDINGRANK AS INFLUENCED BY ARGHELD

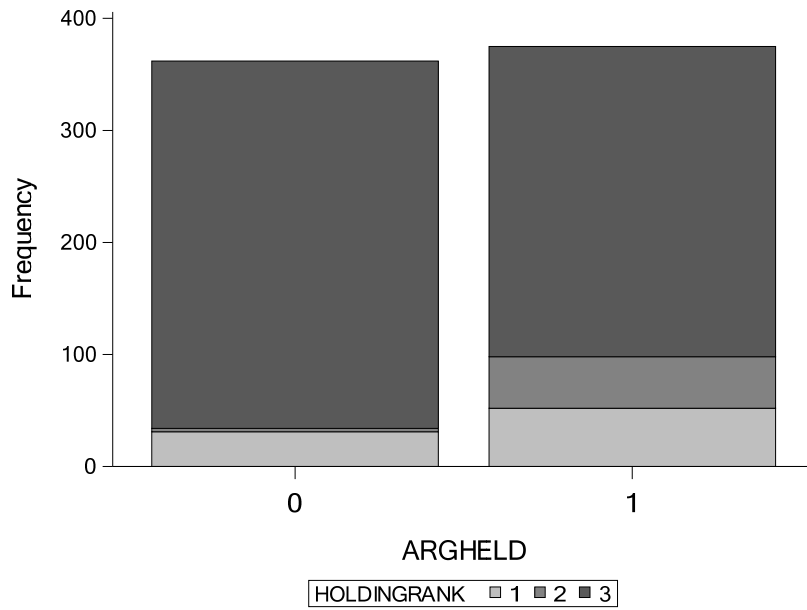


Figure 3. Vertical barchart showing that cases that did hold an argument (ARGHELD =1) tended to have fewer of the least desirable HOLDINGRANK (=3, petition affirmed or dismissed) and more of the preferable levels of HOLDINGRANK (=1&2 petition reversed or remanded in whole or in part).

FIGURE 4: HOLDINGRANK AS INFLUENCED BY LNNUMSRCS

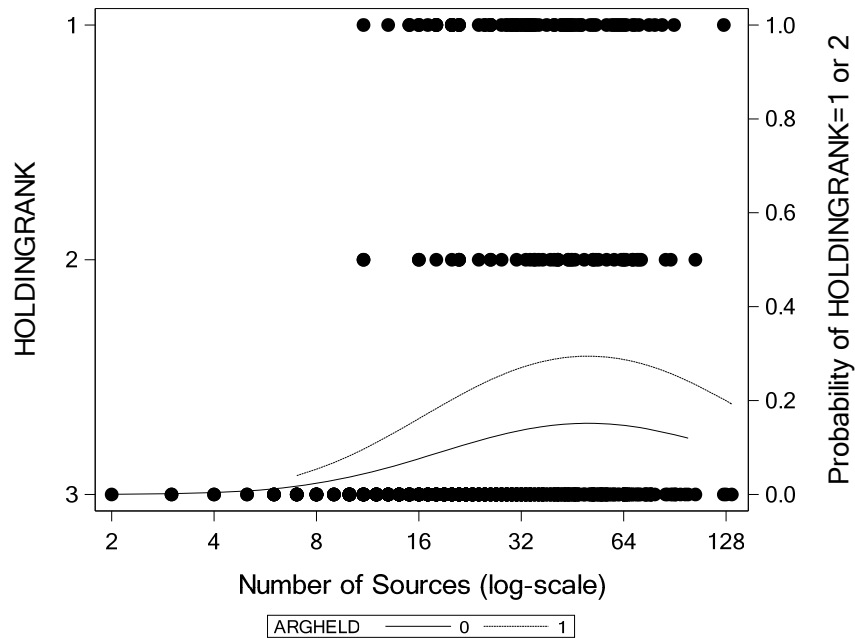


Figure 4. Scatter plot showing the HOLDINGRANK of cases (vertical axis) relative to their number of sources (NUMSRCS, horizontal axis, note the log-scale). The curves represent the model predicted probability of a case having an improved HOLDINGRANK of 1 or 2 (i.e. not 3) as a quadratic function of  $\ln(\text{NUMSRCS})$ ; the solid line represents the probabilities for cases that did not hold an argument ( $\text{ARGHELD}=0$ ), while the dashed line represents the probabilities for cases that did hold an argument ( $\text{ARGHELD}=1$ ). In general, the probability of experiencing a HOLDINGRANK of 1 or 2 (petition reversed or remanded in whole or in part) is low, but this probability is highest at around fifty sources.

FIGURE 5: OPINIONRANK AS INFLUENCED BY ARGHELD

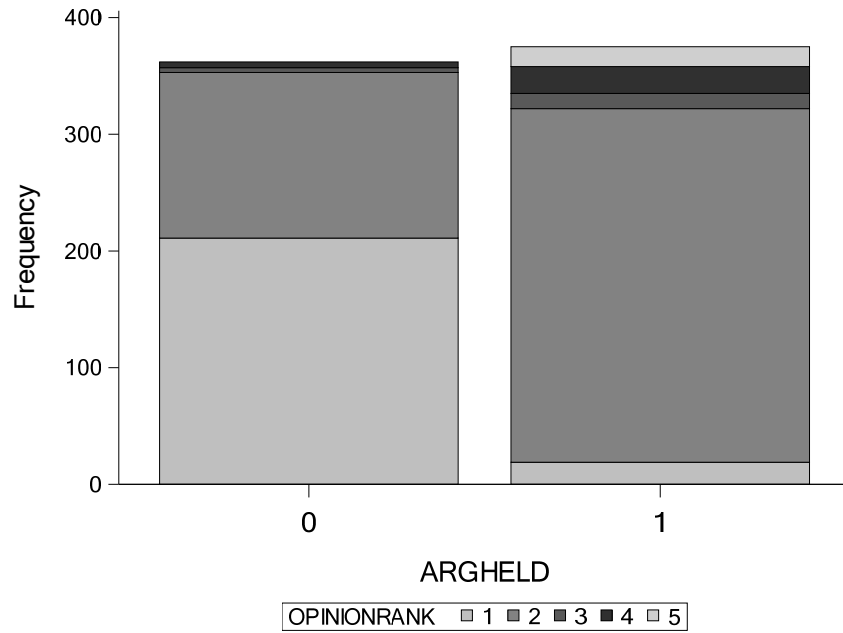


Figure 5. Vertical barchart showing that cases that did hold an argument (ARGHELD=1) tended to have fewer of the strongest level of OPINIONRANK (1= per curiam) and more of the weaker levels of OPINIONRANK (4 & 5 = signed with dissent, whole or in part).



FIGURE 6: OPINIONRANK AS INFLUENCED BY LNARGPAGES

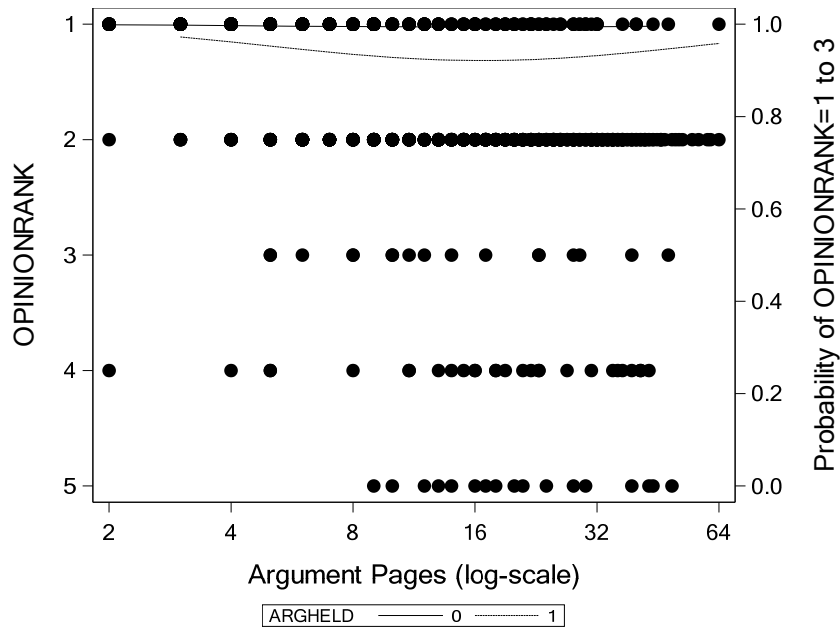


Figure 6. Scatter plot showing the OPINIONRANK of cases (vertical axis) relative to their number of argument pages (ARGPAGES, horizontal axis, note the log-scale). The curves represent the model predicted probability of a case having an OPINIONRANK of 1, 2, or 3 (i.e. not 4 or 5) as a quadratic function of  $\ln(\text{ARGPAGES})$ ; the solid line (not clearly visible on this graph) represents the probabilities for cases that did not hold an argument ( $\text{ARGHELD}=0$ ), while the dashed line represents the probabilities for cases that did hold an argument ( $\text{ARGHELD}=1$ ). In general, the probability of experiencing a OPINIONRANK of 1, 2, or 3 (per curiam, or sign unanimous or with concurrence) is high, but this probability is lowest/weakest at around 16.7 pages.

FIGURE 7: OUTCOMERANK AS INFLUENCED BY ARGHELD

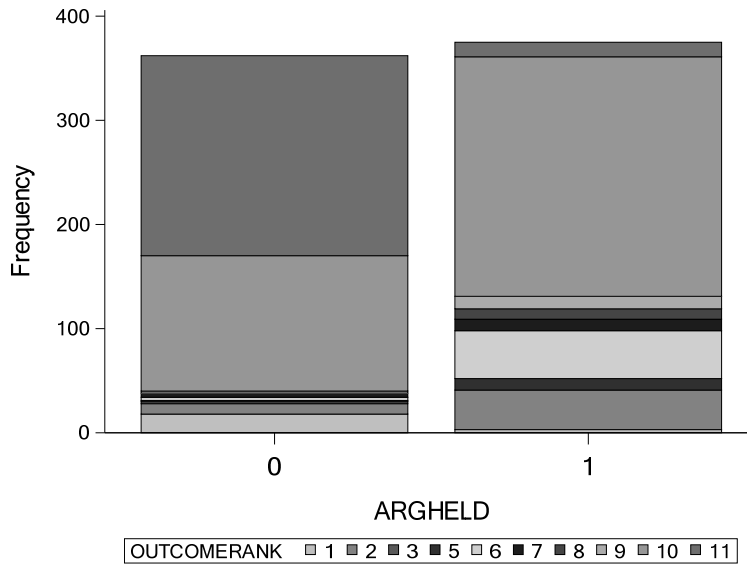


Figure 7. Vertical barchart showing that cases that did hold an argument (ARGHELD =1) tended to have fewer of the least desirable levels of OUTCOMERANK and more of the preferable levels of OUTCOMERANK.

FIGURE 8: OUTCOMERANK AS INFLUENCED BY LNNUMSRCS

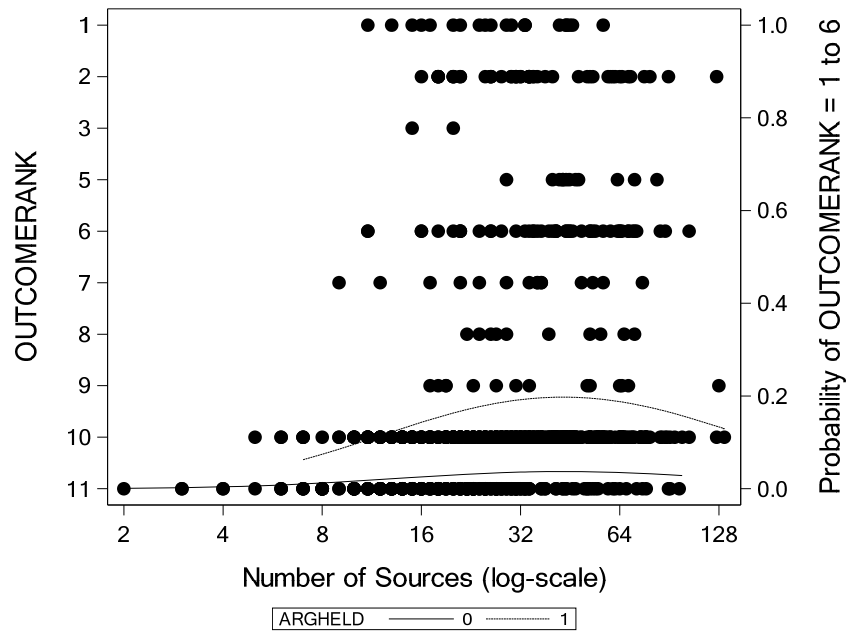


Figure 8. Scatter plot showing the OUTCOMERANK of cases (vertical axis) relative to their number of sources (NUMSRCS, horizontal axis, note the log-scale). The curves represent the model predicted probability of a case having an improved OUTCOMERANK of 1 to 6 as a quadratic function of  $\ln\text{NUMSRCS}$ ; the solid line represents the probabilities for cases that did not hold an argument ( $\text{ARGHELD}=0$ ), while the dashed line represents the probabilities for cases that did hold an argument ( $\text{ARGHELD}=1$ ). In general, the probability of experiencing a OUTCOMERANK of 1 to 6 is low, but this probability is highest at around forty-three sources.

#### CONCLUSION: EXPLANATIONS, THEORIES, THEMES, AND A PATH FORWARD

Our results do not lend strong support for most of the “folk wisdom” advising against lengthy, wordy briefs with numerous arguments and sources, but they also do not necessarily refute other recommendations. For example, holding an argument was associated with more preferable holdings and overall outcomes (but weaker opinions), and this is in support of Rachel Clark Hughey’s observation that oral arguments do matter to some judges. Similarly, having a reply brief was also associated with weaker opinions but more preferable overall outcomes, in support of the recommendations to always submit a reply brief. Interestingly, the positive coefficient associated with  $\ln\text{NUMSRCS}$ s leads to the interpretation that citing a higher number of sources (to a point) is associated with better odds of obtaining a more preferable holding.

It must be emphasized here that a major caveat of this study is that the experimental design is essentially mensurative and not manipulative<sup>50</sup> in the sense that the explanatory variables (ARGHELD, REPLY, NUMSRCS, ARG PAGES, etc...) were simply measured from actual cases, and not manipulated experimentally. This bears with it the obvious implication that our statistical models cannot imply causation, but rather merely association. For example, we cannot say (in the case of Fig. 4) that cases holding an argument had a higher probability of more preferable holding *because* they held an argument, for we do not necessarily know whether holding an argument is not confounded with other attributes (that may not have been measured) such as the knowledge or experience of the legal representation, or, of course, because of the merits of the appellant's case. Instead, all we can say is that holding an argument *was associated with* a higher probability of more preferable holdings.

It might seem counterintuitive that ARGHELD and REPLY have different coefficients for OPINIONRANK and OUTCOMERANK. Holding an argument and having a reply brief appears to be associated with weaker opinions, but more preferable overall outcomes. Since most appeals are affirmed, denied, or dismissed, perhaps weaker OPINIONRANK is actually better (from the perspective of the appellant), as an indicator that the appellant's work in submitting a reply brief and participating in oral argument introduced a seed of "doubt" in the panel.

It is surprising that lnARGPAGES was included in the stepwise selection model of OPINIONRANK, despite not being included in either of the models for HOLDINGRANK or OUTCOMERANK. However, this makes more sense in the light of the strong positive correlation ( $r=0.7859$ ,  $p<0.0001$ ) between lnNUMSRCS and lnARGPAGES (as well as with lnNUMISSUES and lnTOTALWDS, see Fig. 1). In general, briefs with a high number of sources also tend to have a high number of issues, a high number of pages in their argument, and a high number of total words. In the context of a stepwise selection, lnARGPAGES (containing some of the variance, or "information," associated with the other three variables) was sufficiently explanatory to improve the AIC of the OPINIONRANK model and be included in the overall final reduced model.

In fact, since lnNUMSRCS has positive coefficients associated with HOLDINGRANK and OUTCOMERANK, while lnARGPAGES has a negative coefficient associated with OPINIONRANK, it would appear that heavily sourced briefs are associated with more preferable holdings and overall outcomes, while lengthy arguments are associated with weaker opinions.

This appears to be contrary to the "folk wisdom" of avoiding lengthy or verbose briefs, but we'll remind the reader of two things. First, the coefficients

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50. Stuart H. Hurlbert, *Pseudoreplication and the Design of Ecological Field Experiments*, 54 ECOLOGICAL MONOGRAPHS 187 (1984).

associated with  $\ln\text{ARGPAGES}$  and  $\ln\text{NUMSRCS}$  are relatively small, meaning that incremental increases on a natural log scale (or about 2.7-fold increases on a linear scale) increase the odds of improved holdings (or weakened opinions) a very small amount. Second, many of the briefs with the greater number of sources (i.e. over fifty) still have the least preferable holdings or overall outcomes (Figs. 4, 8), suggesting that it may still be true that a greater number of sources may be beneficial up to a point, at which an excessive number of sources may be detrimental.

Perhaps the most important insight that can be drawn from our study is that the folk wisdom regarding appellate briefs either isn't indicated, or where it is indicated, it is only weakly correlated with outcome success. There are, however, six conclusions that can be drawn based on the statistically significant relationships we discovered.

First, an increased number of sources cited (up to a point) plus having an oral argument held is positively correlated with better holdings. This reflects the folk wisdom that oral arguments are good for appellants but rejects the folk wisdom that fewer sources are better (which is, to be sure, not an opinion shared by everyone).

Second, the folk wisdom regarding limiting the number of sources is borne out where the number of sources is extremely high, which is associated with worse holdings and overall outcomes.

Third, the folk wisdom that encourages the filing of a reply brief is probably well-founded but may be less impactful than proponents think. When coupled with a large number of sources (up to a point) and an oral argument, reply briefs are associated with better overall outcomes. Specifically, a reply approximately doubles the odds-ratio of an improved outcome, while holding an argument increases the odds-ratio of an improved outcome by 6.4-fold.

Fourth, a higher number of argument pages (up to a point) is associated with weaker opinions, even if this higher number is a proxy for other variables, such as number of sources cited.

Attorneys should, therefore, take with a healthy grain of salt the advice that their appellate briefs should reflect the particular quantitative mandates of the advice-givers. This advice is, at best, weakly correlated with outcome success, and thus more likely reflects the a priori preferences and assumptions of the advice-givers.

The data does, however, suggest that attorneys who brief their cases well and pursue all possible procedural avenues will, all things being equal, fare better, where briefing a case well means unearthing and utilizing all relevant sources, and where pursuing all possible procedural avenues means filing a reply brief and participating in oral argument.

This insight, however, may be limited in two ways. First, appeals that are well-briefed and engage all possible procedural avenues may be positively correlated with highly meritorious underlying cases. This makes sense.

Attorneys are trained to recognize meritorious cases, and may tend to devote more time and attention to such cases, leading to the use of more sources, the submission of a reply brief, and participation in oral argument.

Second, appeals that are well-briefed and engage all possible procedural avenues may be subject to the political preferences of appellate court panels. Some scholars believe that these preferences inform appellate decision-making better than any other factor. The correlation, however, between appeals that are well-briefed and procedurally complete and judges' political leanings intuitively seems absent. If politics drives judges' decision-making, the quality of the brief and completeness of the procedure shouldn't be a relevant variable.

The next research step, then, would be to compare the nature of appellate briefs, as analyzed in this article, with the qualitative merit of the underlying case. This step would first require the creation of a set of quantifiable variables that effectively reflects the substantive merit of the underlying case. This set would comprise the independent variables of this new study. The HOLDINGRANK, OPINIONRANK, and OUTCOMERANK established in this article's study would comprise the dependent variables. The insight gleaned from this proposed study could be valuable in itself. The second step, then, would be to ask whether there is a positive correlation between the relevant variables for appellate briefs established in our current study with the relevant variables established in this second proposed study. The outcome of this comparison should reveal whether the quality of appellate briefs increases or decreases the odds of outcome success, whether or not the underlying case is relatively meritorious or non-meritorious.

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APPENDIX A: CODEBOOK

CASENUM:	Provides the Eighth Circuit’s assigned case number (ex.: 16-1907). If the case lists more than one case number, the first listed case number is used. If that case does not permit access to the briefs or if the appellant’s brief is otherwise unavailable via PACER, “Briefs unavail” is entered under NUMSRCS. If the brief is pro se, “Pro se” is entered under NUMSRCS. If the brief is an Anders brief and the court affirmed, finding no non-frivolous issues, dismissed the appeal, or otherwise made no dispositive ruling, “AndersAff” is entered under NUMSRCS.
NUMSRCS:	The total number of sources cited in the brief (taking by counting all of the sources in the Table of Authorities section). 20=20 30=30 35=35 Etc.
NUMISSUES:	The number of issues the appellant asserts, as set forth in the statement of issues (determined by counting the formal number of issues the appellant argues. Does not account for multiple issues within each formal issue). 1=1 2=2 3=3 Etc.
WDSPERISS:	The average number of words per issue statement (taken by adding all of the words in the issue statements in the Statement of the Issue(s) section, and dividing by the total NUMISSUES). 20=20 30=30 35=35 Etc.
STMTPAGES:	The total number of pages in the statement of the case (taken by subtracting the page number on which the statement of the case starts from the page number on which the statement of the case ends). Where there is a separate “statement of the case” and “statement of the facts” section, the page numbers for both sections are counted.

- 2=2  
4=4  
7=7  
Etc.
- ARGPAGES: The total number of pages in the argument (taken by subtracting the page number on which the argument starts from the page number on which the argument ends).  
2=2  
4=4  
7=7  
Etc.
- PGPERARG: The average number of pages per issue in the argument (taking by dividing ARGPAGES by NUMISSUES).  
2=2  
4=4  
7=7  
Etc.
- TOTALWDS: The total number of words in the entire brief (as provided in the certificate of compliance). If the total number of words is listed as “less than xxx,” xxx is entered. Thus, if counsel certifies that the brief is “less than 4,000 words,” 4,000 is entered. Where the length of the brief is described in page numbers rather than words, that number is multiplied by 230. If the brief’s count is by line numbers, multiply that number by 13.  
5000=5000  
10000=10000  
15000=15000  
Etc.
- REPLY: Did the appellant file a Reply Brief (found on the Eighth Circuit’s general docket sheet for each page)? If the original brief was submitted by counsel, but the reply brief was pro se, 2 is entered.  
1 = Yes  
2 = No
- ARGHELD: Did the Eighth Circuit hold an oral argument (found on the Eighth Circuit’s general docket sheet for each page)?  
1 = Yes



2 = No (includes an initial determination of no argument and an initial set argument later cancelled by the Court)

OPINION: What type of opinion was issued (found on the Eighth Circuit's general docket sheet)? Ranked as OPINIONRANK.

1 = Per curiam

2 = Signed, unanimous

3 = Signed, with concurrence

4 = Signed, with dissent

5 = Memorandum

6 = Signed, with concurrence and dissent (includes concurrences in part and dissents in part)

HOLDING: What was the court's holding (found on the Eighth Circuit's general docket sheet)

(note: these code variables are taken from the Appellate Court Database)? Ranked as HOLDINGRANK

0 = Stay, petition, or motion granted

1 = Affirmed; or affirmed and petition denied

2 = Reversed (include reversed and vacated)

3 = Reversed and remanded (or just remanded)

4 = Vacated and remanded (also set aside and remanded; modified and remanded)

5 = Affirmed in part and reversed in part (or modified or affirmed and modified)

6 = Affirmed in part, reversed in part, and remanded; affirmed in part, vacated in part, and remanded

7 = Vacated

8 = Petition denied or appeal dismissed

9 = Certification to another court

10 = Not ascertained

OUTCOMERANK: A ranked combination of HOLDING and OPINION:

1 = Per curiam reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=1 and HOLDING=2, 3, 4, or 7);

2 = Signed, unanimous reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=2 and HOLDING=2, 3, 4, or 7);

- 3 = Signed, with concurrence reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=3 and HOLDING=2, 3, 4, or 7);
- 4 = Signed, with concurrence and dissent reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=6 and HOLDING=2, 3, 4, or 7);
- 5 = Signed, with dissent reversed; reversed and remanded/vacated; vacated; remanded; or vacated and remanded (where OPINION=4 and HOLDING=2, 3, 4, or 7);
- 6 = Per curiam affirmed in part and reversed in part (where OPINION=1 and HOLDING=5);
- 6 = Signed, unanimous affirmed in part and reversed in part (where OPINION=2 and HOLDING=5);
- 6 = Signed, with concurrence affirmed in part and reversed in part (where OPINION=3 and HOLDING=5);
- 6 = Signed, with concurrence and dissent affirmed in part and reversed in part (where OPINION=6 and HOLDING=5);
- 6 = Signed, with dissent affirmed in part and reversed in part (where OPINION=4 and HOLDING=5);
- 6 = Per curiam affirmed in part, reversed in part, and remanded (where OPINION=1 and HOLDING=6);
- 6 = Signed, unanimous affirmed in part, reversed in part, and remanded (where OPINION=2 and HOLDING=6);
- 6 = Signed, with concurrence affirmed in part, reversed in part, and remanded (where OPINION=3 and HOLDING=6);
- 6 = Signed, with concurrence and dissent affirmed in part, reversed in part, and remanded (where OPINION=6 and HOLDING=6);
- 6 = Signed, with dissent affirmed in part, reversed in part, and remanded (where OPINION=4 and HOLDING=6);
- 7 = Signed, with dissent affirmance, petition denied, or appeal dismissed (where OPINION=4 and HOLDING=1 or 8);
- 8 = Signed, with concurrence and dissent affirmance, petition denied, or appeal dismissed (where OPINION=6 and HOLDING=1 or 8);
- 9 = Signed, with concurrence affirmance, petition denied, or appeal dismissed (where OPINION=3 and HOLDING=1 or 8);
- 10 = Signed, unanimous affirmance, petition denied, or appeal dismissed (where OPINION=2 and HOLDING=1 or 8);
- 11 = Per curiam affirmance, petition denied, or appeal dismissed (where OPINION=1 and HOLDING=1 or 8).

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