IN THE

SUPREME COURT OF FLORIDA

Case No. SC00-2373

DCA Case No. SC00-4145

DCA Case No. 4D00-4146

Circuit Court Case Nos. CL 00-10965 AB; CL 00-10970; CL 00-10988 AB, CL 00-11000 AB

DCA Case No. 4D00-4153

Circuit Court Case No. CL 00-1-992 AB

ANDRE FLADELL Et al., Appellants/Petitoners
v.
PALM BEACH COUNTY CANVASSING BOARD, ETC. Et al.

COMBINED

MOTION FOR LEAVE TO SUBMIT BRIEF AMICUS CURIAE CONTAINED HEREIN

AND

BRIEF AMICUS CURIAE SUGGESTING, AS A POSSIBLE REMEDY,
AND AS A POSSIBLE ALTERNATIVE TO ORDERING A NEW ELECTION,
A STATISTICAL ADJUSTMENT OF THE BALLOT COUNT

AND

MOTION FOR LEAVE TO PARTICIPATE IN ORAL ARGUMENT

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CERTIFICATE OF FONT SIZE AND STYLE
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SUMMARY OF POSITION AND PROPOSED ACTION BY COURT

Amicus, a professor of public interest law and an expert in the mathematics of voting, seeks leave to file the brief amicus curiae which is included within this document.

The very limited purpose of the Brief Amicus Curiae is to respectfully suggest that the Court consider, as a possible alternative to a new election, a statistical readjustment of the ballot count to correct for any failure to correctly reflect voter intent.

More precisely, Amicus respectfully suggests that if this Court finds that underlying complaint sets forth one or more legal claims which, if established by proof, could entitle plaintiffs to some relief, but also finds that a re-election is precluded by legal considerations and/or time constraints, it remand the case for a factual hearing to determine whether a statistical readjustment of the ballot count can be made with whatever degree of certainty or standard of proof this Court feels is appropriate.

In support of this proposal, Amicus provides information from which this Court can find that it may be possible to make such a statistical readjustment with a certainty exceeding 99.99% to the satisfaction of impartial experts in statistics, design of experiments, and other related fields — a standard of proof far beyond that ordinarily required by courts in any civil case, and far beyond the "95% confidence limit" standard of certainty and accuracy generally accepted by statisticians.

If the Court deems it appropriate and useful, Amicus respectfully requests the opportunity to participate very briefly in oral argument.

PETITION FOR LEAVE TO FILE BRIEF AMICUS CURIAE

Amicus is a Professor of Law at the George Washington University law School. For more than 30 years he had taught and practiced public interest law, and initiated and/or participated in many different proceedings, including those benefiting Democrats as well as those benefiting Republicans. He has no affiliation with any political party or candidate.

Amicus is also a recognized expert in the mathematics of voting, and in the use of statistics and statistical analysis related thereto. For example, he created what is now generally known as the "Banzhaf Index," and used it to analyze voting power in weighted voting situations. His analysis was

adopted as the law of New York by the New York Court of Appeals as a result of his submission of a brief amicus curiae to that courtt.[1]

Subsequently, Amicus used similar techniques to analyze voting power under the Electoral College for the president,[2] an analysis which has generally been accepted by scholarly works in the field,[3] the subject of Congressional hearings,[4] and adoption by various leading newspapers.[5] His mathematical techniques for analyzing voting power are widely known.[6]

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[1] See, e.g., Iannucci v. Board of Supervisors, 220 N.Y. 2d. 244, 229 N.E. 2d. 195, 282 N.Y.S.2d 502 (1967); see generally Banzhaf, Weighted Voting Doesn't Work: A Mathematical Analysis, 19 Rutgers L. Rev. 317 (1965); Simulation of Weighted Voting: The Banzhaf Index, BYTE, March 1984.

[2] See Banzhaf, 3.312 Votes, A Mathematical Analysis of the Electoral College, 13 Villanova L. Rev. 303 (1968).

[3] See, e.g., James Michener, Presidential Lottery, Part C entitled "The Banzhaf Studies" at 220 (1969); Pierce, The People's President, Section O entitled "Computer Analysis of Large versus Small State Power in the Electoral College" at 362 (1968); The Banzhaf Index for Multi-Candidate Presidential Elections, presented at the 1981 SIAM National Meeting.

[4] See Hearings before the Subcommittee on Constitutional Amendments, U.S. Senate, p. 517-42, 904-33; Electoral College Reform, Hearings before the Committee on the Judiciary, House of Representatives, p. 306-74.

[5] See, e.g., St. Louis Post-Dispatch, Nov. 24, 1968; Editorial, The New York Times, Dec. 18, 1968; Editorial, The Washington Post, Dec. 31, 1967, Election of the President.

[6] See, e.g., The Games Scholars Play, Newsweek, 9/6/82; BOOK REVIEW: Bernstein, Finding the Social Aspects of Math [John Allen Paulos, A MATHEMATICIAN READS THE NEWSPAPER], New York Times, 4/12/95 ("*Mr. Paulos's little essay explaining the Banzhaf power index and how it relates to Lani Guinier's ideas about empowering minorities is itself worth the price of the book.*"); BOOK REVIEW: Achenbach, Calculating Between the Lines [John Allen Paulos, A MATHEMATICIAN READS THE NEWSPAPER], Washington Post, 5/21/95 ("*Something called the Banzhaf power index measures power not in terms of how many votes you have but by whether your votes can ever turn a losing coalition into a winning*

Based upon this unique background as a lawyer, and a law professor with an expertise in the mathematics of voting, Amicus seeks to appear before this Court as an amicus curiae in the original and purest sense of the words; one who, without ulterior motives, seeks to assist the court.

Upon information and belief, it appears that Amicus will present to the Court a position which may not espoused by any of the other parties: those challenging the voting results from the butterfly ballot and seeking primarily if not exclusively some type of court ordered re-election; or those who defend the butterfly ballot, and oppose any remedial action whatsoever.

For the reasons set forth very briefly herein, Amicus suggests that there is an additional alternative this Court can and should consider.

BRIEF AMICUS CURIAE OF PROF. JOHN F. BANZHAF III

Judge LaBarga stated that "the Court has made <u>no determination</u> as to the factual validity of plaintiffs' claims" [p 17, emphasis in original]. Likewise he never expressly ruled on whether the plaintiffs below had stated a cause of action. Instead, he apparently considered a new election as the only possible remedy, and ruled that it was legally precluded.

Yet, as the ancient maxim "ubi jus, ibi remedium" constantly reminds us, where there is a wrong, there should be a remedy. This seems to be the clear intent of the Florida Legislature, particularly with regard to elections. For example, § 102.168 (2000), which provides for the basic challenge ["contest"] to election returns, states in section (8) that:

> The circuit judge to whom the contest is presented may fashion <u>such orders</u> as he or she <u>deems necessary</u> to ensure that each allegation in the complaint is investigated, examined, or checked, to prevent or <u>correct ANY alleged wrong</u>, and to provide <u>ANY relief appropriate under such circumstances</u>. [emphasis added]

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coalition.")

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With that as guidance, and in view of this Court's earlier opinion concluding that "the will of the people, not a hyper-technical reliance upon statutory provisions, should be our guiding principle in election cases," it would appear that any remedy — even an unusual one — should at the very least be considered by the trial court.[7]

Unless this Court is able to conclude from the papers now before it that Plaintiffs clearly have not suffered a legal wrong, it should be the duty of Florida's courts to consider if any remedies might be appropriate. If a re-election is precluded either by law or time constraints — a point on which Amicus takes no position — then any possible alternative remedy should at least be considered. Failure to do so would mean that persons who have suffered a very serious wrong — an effective denial of their voting rights — will be given no remedy at all; a consequence to be avoided if at all possible.

A few simple hypothetical situations make it clear why other alternatives — including a statistical readjustment — might be appropriate; at least in the sense that the possibility should not be dismissed without an appropriate hearing by the trial court as to its possible validity.

Suppose, for example, that during an election a specific polling place remains open for 12 hours, and the ballots are counted every hour on the hour. Suppose that, due to inadvertence, the ballots for the hour 1PM-2PM are irrevocably lost or destroyed. If it can be shown by clear and convincing evidence that — during each of the other hours — the vote was between 65% and 75% for the Democratic candidate, and that the number of lost or

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[7] Law Professor Joseph Little of the University of Florida apparently agrees that some type of statistical reallocation of votes was contemplated by the statute: " 'That language gives the court very wide discretion' to expedite all phases of the case and <u>eventually to shift votes around</u>, said Joseph Little, a University of Florida law professor." Court Asked to Speed Action, <u>Washington Post</u> 11/28/00].

destroyed ballots is 1000, it would seem entirely reasonable and appropriate to conclude that the Democratic candidate should receive at least 650 votes for that one-hour period[8] — assuming that such a number might change the outcome throughout the voting district. Any other alternative — e.g., telling the innocent voters that it is too bad that their votes can have no effect because they were lost — would be unthinkable, and fly in the face of legislative intent to provide "relief appropriate under such circumstances."

To take another hypothetical which is even closer to the instant situation, assume that due to a clearly established error in one voting machine, all of the votes cast on election day were recorded as being for a candidate so obscure that he received less than 0.1% of the vote in all of the other voting machines. Rather than simply throwing out all of the votes cast using that machine, common sense would dictate that voting preferences of voters at any one voting machine in a polling place would be very similar to those of voters at the other machines in the same polling place. Once again, making a statistical readjustment of the vote count, to reflect that fact that the votes clearly were not cast for the obscure candidate, is preferable to simply allowing them not to be counted at all because of machine error.

Although it is well beyond the limited time permitted for the preparation of this brief, it is clear that courts in many situations are recognizing the necessity and basic fairness of using statistical methodologies to deal with situations where justice demands a remedy but traditional approaches may not provide it. For example, in cases dealing with plaintiffs' inability to prove that any particular company provided the drug DES which causes serious injuries in offspring, courts — including this Court — have

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[8] As will be shown hereinafter, he could also be awarded at least 600 votes, with an even greater certainty that he was entitled to at least that number.

embraced a statistical market share type approach.[9] Similarly, in dealing with cases where negligence reduced a plaintiff's chances of survival, but "causation in fact" could not be established by a preponderance of evidence, courts have used a variety of statistical approaches.[10] There are many other examples, including statistical adjustment of census figures by states for the purpose of reapportionment.[11]

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[9] See <u>Conley v. Boyle Drug Co.</u>, 570 So.2d 275 (Fla. 1990) ("market share alternate liability" theory); see generally Ortego, MARKET SHARE LIABILITY, C949 ALI-ABA 65); Twerski, Market Share—A Tale of Two Centuries, 55 Brooklyn L. Rev, 869 (1989).

[10] Various courts have permitted proportional recovery; see, e.g., <u>Roberts V. Ohio Permanente Medical Group, Inc.</u>, 668 N.E.2d 480 (1996); <u>Delaney v. Cade</u>, 873 P.2d 175 (1994); <u>Scafidi v. Seiler</u>, 574 A.2d 398 (1990).

[11] In <u>Department of Commerce v. United States House of Representatives</u>, 525 U.S. 316; 119 S. Ct. 765; 142 L. Ed. 2d 797 (1998), the U.S. Supreme Court stated that:

> In a further effort to address growing concerns about undercount in the census, Congress passed the Decennial Census Improvement Act of 1991, which instructed the Secretary to contract with the National Academy of Sciences (Academy) to study the [**770] "means by which the Government <u>could achieve the most accurate population count possible</u>." º 2(a)(1), 105 Stat. 635, note following 13 U.S.C. º 141. Among the issues the Academy was directed to consider was "the appropriateness of using sampling methods, in combination with basic data-collection techniques or otherwise, in the acquisition or refinement of population data." Ibid. <u>Two of the three panels established by the Academy pursuant to this Act concluded that "differential undercount cannot be reduced to acceptable levels at acceptable costs without the use of integrated coverage [***13] measurement," a statistical sampling procedure</u> that adjusts census results to account for undercount in the initial enumeration, Census 2000 Report 7-8, and <u>all three panels recommended including integrated coverage measurement in the 2000 census</u>, id., at 29. See National

Indeed, and more closely on point, several courts have recognized that reallocation of votes after an election based upon statistical techniques may be appropriate, especially when no other viable alternative remedies appears to exist; see, e.g., <u>In re The Purported Election of Bill Durkin</u>, 700 N.E.2d 1089 (Appellate Court of IL, 2nd. Dist, 1998), and cases cited therein, and <u>Leach v. Johnson</u>, 313 N.E.2d 636, (Appellate Court of IL, 5th Dist, 1974), and cases cited therein.

In summary, unless this Court can conclude that Plaintiffs have clearly not suffered a legal wrong entitling them to some relief if such relief is at all possible, it is respectfully submitted that it cannot decide on the record now before it that no statistical readjustment could be possible, and/or that no statistical readjustment can be made in accordance with any reasonably high standard of proof or degree of certainty this Court may adopt. Indeed, as shown briefly below, there is reason to believe that such a statistical reallocation of votes can be made to any degree of certainty.

Research Council, Preparing for the 2000 Census: Interim Report II (A. White & K. Rust eds. 1997) (report of Panel to Evaluate Alternative Census Methodologies); Modernizing the U.S. Census, supra (report of Panel [*324] on Census Requirements in the Year 2000 and Beyond); U.S. Dept. of Commerce, Bureau of the Census, Census 2000 Operational Plan (1997). [emphasis added]

The Supreme Court ruled, solely on the basis of statutory construction, that such statistical techniques cannot be used for Congressional reapportionment.

In the instant case, however, this is no such textual language and legislative history standing in the way of the use of such now-generally-accepted techniques. Indeed, apparently many states are planning to use statistically-adjusted figures for their own reapportionment; a step which directly impacts voting rights.

Recently there appeared, in the <u>New York Times</u> Science Section,[12] an article by an impartial physicist who wrote:

> Who would have guessed that the election of the president of the United States would come down to a question of measurement error? . . .
>
> In many areas of science we are used to analyzing the significance of tantalizingly small signals, like the margin in this election. In such analyses, three questions normally come to mind:
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> Is the size of the signal significant in comparison to random noise? If not, can the resolution of the detector be improved to increase the significance of the signal? And finally, <u>are there sophisticated statistical methods that might resolve features of the signal that would otherwise be buried in the noise</u>? . . .
>
> Finally, I come to the question of the use of <u>statistical methods to try to untangle the uncertainties</u>. Because such methods cannot be applied on an event-by-event basis, they naturally offend our notions that every single vote counts. It may be, however, that <u>they can convincingly unmask anomalies that are far larger than the signals we are trying to unearth</u>.
>
> Everyone has by now heard of the anomalously large vote for Patrick J. Buchanan in Palm Beach County. <u>But is there a statistical way to verify that it is indeed anomalous, and not just large</u>? One way to do this is not to simply count votes for Mr. Buchanan, but to search for trends present everywhere else not present in Palm Beach. For example, if one plots votes for Mr. Buchanan against votes for Gov. George W. Bush on a county-by-county basis, one can search for a possible correlation between support for one candidate and support for the other across the state. With good regularity, counties with a larger number of Bush votes also produced a larger number of Buchanan votes. <u>If one does a statistical test of the Buchanan-Bush correlation, one finds that one can predict the number of Buchanan votes, given the number of Bush votes, with an accuracy of within about 500 votes at least 99 percent of the time</u>.
>
> There is <u>one glaring anomaly</u>, however, and one does not have to be an expert in statistics to spot it. In Palm Beach County,

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[12] ESSAY; Analyze This: A Physicist on Applied Politics, by Lawrence M. Krauss (head of the Physics Department at Case Western Reserve University; <u>New York Times</u> [11/21/00].

this correlation is violated by over 2,500 votes! It is so large that we can argue with <u>great numerical confidence</u> that <u>such a violation would occur at random less than one time in 100,000 measurements</u>. And the level of the effect is eight times as large as the difference in claimed vote totals between the Democratic and Republican candidates in the entire state. If a physics experiment produced such a result, it would be clear that something of significance, warranting further investigation, was at work here. [emphasis added]

Prof. Krauss' article suggests not only that there clearly seems to be a "glaring anomaly" in the election results, but that simple statistical re-analysis — of the type often done after an experiment has been concluded and some form of systematic error has been discovered — can be used to correct it. Indeed, at my request, he was able to do some preliminary calculations which confirm my own view. He reported to me that: "There is a 1 in 10,000 chance that less than 1000 votes for Buchanan were erroneous, and a 1 in 1,000 chance that there are less than 1500 erroneous ballots."

In other words, if Prof. Krauss' conclusions and mine — after an evidentiary hearing — are found to be valid, it should be possible for a court to reallocate at least 1,500 additional votes to Al Gore to a certainty of at least 99.9%. If even greater certainty or correctness is desired, it would be possible to say — with at least 99.99% certainty — that Al Gore deserves at least 1000 additional votes.

This standard of proof is far higher than ordinarily required in science and in law. Ordinarily, the benchmark or rule of thumb for statistical calculations is to achieve at least a 95% certainty; i.e., an uncertainty of less than 5% [a "confidence level" of at least 95%]

Suppose, for example, an expert testifies that it can be said with "reasonable statistical certainty" that taking a drug increases the risk of death by anywhere from 75%-85%. What he means is that the statistical chance that

the correct figure is less than 75%, or more than 85%, is less than 5%. Here it appears, subject of course to an evidentiary hearing at which all views on this remedy can be aired, that one can say with a 99.9% certainty that the lowest level of additional votes that Al Gore could have received would be at least 1500 votes, and with a 99.99% certainty that the proper number should be at least 1000 votes.

Since such numbers could easily change the results of the election, and since the only other alternative remedy (a re-vote) may be precluded for either legal reasons or time considerations, it is respectfully suggested that this Court should not arbitrarily dismiss out of hand the only way the will of the voters could possible be ascertained and given effect.

At the very least, this case, rather than being dismissed if this Court agrees that a re-election is not an appropriate remedy, should be remanded with instructions to at least consider possible alternative remedies; including, but not necessarily limited to, statistical analysis and possible readjustment.

In such a remand, this Court may wish to suggest or even direct the lower court to appoint — as a special master — an unbiased expert in statistical analysis to help determine the validity and feasibility of such a vote reallocation, and to provide the court with the requisite numbers to whatever degree of certainty ["confidence level"] the judge deems necessary.

Alternatively, this Court may wish to suggest or even direct that the lower court appoint several impartial expert witnesses — perhaps chosen from a local university — to testify on these issues at a hearing.

Amicus respectfully suggests that, once a determination that a correction is necessary has been made, and the underlying data [e.g., vote counts, etc.] is agreed to, the task of making such calculations is largely a ministerial one. In other words, virtually all persons with expertize in statistics should reach the same conclusions from the same basic data.

SUMMARY AND CONCLUSION

For the many reasons briefly stated herein, Amicus respectfully suggests that this Court should not dismiss an apparently meritorious case without providing for a hearing on all possible remedies including — especially if a re-election is precluded by legal considerations and/or time constraints — some form of statistical readjustment or reallocation of votes based upon the best available evidence.

§ 102.168 (8), relating to the basic challenge ["contest"] to election returns, provides clear legislative intent that the courts of Florida should order "any relief appropriate under the circumstances" to "correct any alleged wrong." Here, using statistical approaches not dissimilar from those used by courts in other difficult situations which likewise cry out for an effective remedy, in state reapportionment and other statistical adjustments to census data, and even in other voting situations, it appears to be possible to determine with a certainty of at least 99.9% the minimum number of votes which should be reallocated to Al Gore.

Respectfully submitted

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CERTIFICATE OF SERVICE

I hereby certify that a true copy of this document was served via facsimile on all of the following on the 28th day of November 2000.

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Prof. John F. Banzhaf III