

**Response to Lindeman’s Response  
to “Mathematical Proof that Election Science Institute’s  
Test to Rule Out Vote Fraud is Logically Invalid”**

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**Abstract:** On October 31, 2005, the National Election Data Archive released a mathematical proof that the exit poll analyses of the Ohio and national exit poll data released by ESI, Scheuren, Mitofsky in June and presented to the American Statistical Association in October, is illogical bunk. NEDA gave a counterexample to the basic inference ESI uses to draw its conclusions. On November 10, 2005, Mark Lindeman of Bard College wrote an essay he called “*Exit Polls, Vote Fraud, and ‘ESI’s Hypothesis’: A Response to Kathy Dopp’s ‘Mathematical Proof’*” in defense of ESI’s faulty analysis. Lindeman’s essay purported to show that “The evidence presented by ESI and, more recently, Warren Mitofsky does ... pose serious difficulties for accounts that see exit poll discrepancies as strong evidence of fraud.”<sup>1</sup> ESI, Mitofsky, Scheuren, and now Lindeman are muddying the waters by misdirecting attention away from the facts of the 2004 presidential exit poll discrepancies. This essay is a quick attempt to clear the waters again. Lindeman has a PhD and teaches at Bard’s Political Studies Program, and I have a Masters degree in mathematics from the University of Utah. However, that does not change the fact that Lindeman’s essay is incorrect except in places where he provides support for NEDA’s mathematical logic proof that the ESI/Mitofsky/Scheuren exit poll analysis is based on an invalid premise and is therefore mathematical balderdash.

NEDA invites, nay pleads, for a representative of the press to take its math logic proof, along with ESI’s June Ohio exit poll analysis, to any reputable *mathematics* department, to evaluate who is telling the factual truth in this academic debate. A *scientifically valid* analysis of the Ohio exit poll data is being performed by the National Election Data Archive (NEDA) which will serve as a model for future exit poll analyses. In the future, solid scientific analysis of exit poll data should be done immediately following elections, prior to any candidate conceding or being sworn into office.

**“Vote Fraud” versus “Vote Miscounts”**

Lindeman, ESI, Mitofsky, and Scheuren use the words “*vote fraud*” when what we believe they mean is “vote miscounts”. We prefer the term “vote miscounts” rather than “vote fraud” because no statistical analysis of vote counts or exit polls can determine whether vote miscounts are caused deliberately (by fraud) or by innocent errors. Lindeman mistook NEDA’s meaning when we correctly stated that “exit poll disparities are not evidence of *vote fraud*” by which we meant simply that the cause of vote miscounts cannot be determined by mathematical analysis. The term “vote fraud”

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<sup>1</sup> <http://electionarchive.org/ucvAnalysis/US/exit-polls/ESI/ESI-hypothesis-illogical.pdf> and <http://electionarchive.org/ucvAnalysis/US/exit-polls/ESI/ESI-Mitofsky-files/ESI-OH-report.pdf>

implies that miscounts are intentional. One could rule out “vote fraud” by ruling out all “vote miscounts”. If NEDA uses the words “vote fraud” in our mathematical proof, it is only because its purpose was to disprove ESI’s wrongful claim that their analysis had ruled out “vote fraud”. If one cannot rule out vote miscounts with ESI’s invalid analysis, then one can certainly not rule out vote fraud by using ESI’s analysis either.

## **Lindeman Is Right -- NEDA’s Mathematical Logic Proof Offers Poor Guidance**

Lindeman says that “Dopp’s article offers poor guidance for further inquiry into any of these questions.” This is true. NEDA’s mathematical proof was intended to expose the fact that ESI’s analyses which is based on looking for correlations between WPD and Bush vote share differences in the 2000 and 2004 elections is bunk. NEDA’s proof was not intended to give guidance for future analyses. The National Election Data Archive’s mathematical proof was reviewed and contributed to by several professional PhDs, in addition to Kathy Dopp. The National Election Data Archive is performing a *scientifically sound* analysis of Ohio’s exit poll data that *will* offer excellent guidance for future analyses of precinct-level exit poll data.

## **Lindeman Falsely Claims that NEDA’s Proof Mischaracterizes ESI and Mitofsky**

Lindeman states

“neither the Election Science Institute (ESI) nor anyone else mentioned in Dopp’s paper has ever claimed to ‘rule out vote fraud.’”

Yet the second sentence of Election Science Institute’s June paper is:

*"We conclude that the data do not support accusations of election fraud in the Ohio presidential election of 2004."*

And during a debate at the American Statistical Association fall conference on October 14th, Mitofsky put up his last slide using the same invalid analysis and said

“This kills the case for fraud.”<sup>2</sup>

Mitofsky then repeated the same sentiment in an email to Steve Freeman after the debate at 6:50 ET, saying:

"You really should study that last plot I put up. It kills the fraud argument."

Mitofsky’s slide at the ASA conference said “This is a discussion about the exit polls and whether they shed any light on the claims of fraud.”

The same invalid analysis was used by Scheuren and Mitofsky to declare that U.S. exit polls could not shed any light on the possibility of vote miscounts. Yet Mitofsky has recently used exit polls to detect vote fraud and force reelections to occur overseas.

In truth, ESI’s and Mitofsky’s analysis is not useful for concluding whether the data supports vote fraud or not because ESI’s analysis is based entirely on an invalid illogical premise. NEDA’s math logic proof is sufficient to prove that ESI’s analyses from June through October in 2005 are logically invalid and hence analytical bunk.

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<sup>2</sup> According to Josh Mitteldorf, PhD, Temple University who says “I remember the sentence” [that Mitofsky spoke].

## **Lindeman is Right -- Kathy Dopp Cannot Spell**

I want to thank Lindeman for pointing out my spelling error by saying “The problems with the Dopp paper begin in the title – and not just the spelling error...”. My spelling is so bad that my grandmother used to correct my letters and send them back to me.

Lindeman further characterizes my mental capacities, using words and phrases like “careless”, “Dopp’s analysis seems to depend on misinterpreting or conflating...”, “Dopp’s argument is radically misconceived”, “Dopp’s analysis appears to misunderstand the argument”, “Dopp does not adhere to it...”, “Dopp claims they said...”, “Dopp’s strange counterexamples...”, “Dopp’s strategy of ‘logical’ refutation is inherently misdirected.”, “Dopp seems to misunderstand the nature of statistical inference”, “Dopp’s misadventures...”, “blustering” and “obstructing informed inquiry”.

Unfortunately for Lindeman, his pervasive use of unsubstantiated denigration does nothing to demonstrate the veracity of his own case.

## **Lindeman Validates NEDA’s Mathematical Logic Proof**

Lindeman helped make NEDA's case by providing a counterexample to the ESI analysis on page 11 in his essay. Lindeman thus validates NEDA's mathematical proof that the ESI analysis is logically flawed. Lindeman gives further credence to NEDA's math logic proof by claiming that when ESI said something “would” occur, they didn’t mean that it “must” occur, and by recognizing that negative or positive correlations of the variables could occur with or without vote fraud.

However, Lindeman then contradicts himself by again claiming that the ESI analysis poses serious problems for those using exit poll results to expose vote count errors. Lindeman neglects to mention that Mitofsky himself has used exit polls to expose vote miscounts in foreign elections both before, and since, November 2004.

## **Lindeman’s Analysis is Illogical and Inconsistent**

Lindeman states “Dopp’s example is not satisfactory”.<sup>3</sup> However, the particular counterexample (A and not B) that one selects is irrelevant because a plethora of counterexamples exist which would meet Lindeman’s desire for vote fraud co-existing with a stronger correlation between 2000 and 2004 Bush vote share showing random sampling error. It is a well-known mathematical fact that showing one valid counterexample (A and not B)<sup>4</sup> is sufficient to disprove any inference (A implies B). In fact, it is likely that there are countably infinite counterexamples to ESI’s invalid inference. Adding complexity to something that is basically correct does not make it more correct, and adding complexity to something that is fundamentally incorrect as ESI does, does not always make it correct, although it may fool many people as ESI/Mitofsky and others have done. Lindeman neglected to mention that NEDA’s particular counterexample shows vote fraud coexisting with a negative correlation between exit poll discrepancies (WPD) and Bush vote share increases from 2000 to 2004. This is exactly opposite to what ESI says “would” occur. If ESI meant “would” in some probabilistic sense, they performed no probability calculations that they easily could have to support their position. However, that would have required treating precinct vote counts as independent random variables with probabilities fixed by a prior election, not something most would agree with.

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<sup>3</sup> Lindeman also complained that NEDA’s counterexample #1 which was given for completeness and to build a foundation for counterexample #2 which directly disproved the ESI inference, was not germane.

<sup>4</sup> Where we let A=the existence of vote fraud and B=a positive correlation between Bush vote share and within precinct discrepancies (WPD).

Lindeman says that it is “odd” that NEDA uses the “same” scatterplot as ESI. However NEDA's scatterplot is *not* the same as ESI's because it uses different data to visually demonstrate an *opposite* correlation to the one that ESI said *would* exist if there were vote fraud. Lindeman neglects to mention in his essay, that this “odd” scatterplot negates ESI's entire analysis by showing that the basic premise of the ESI analysis is invalid.

Lindeman spends an entire page (6) of his essay giving an example where A and B coexist as though this lends credence to the validity of the inference (A implies B). This is irrelevant, because showing that A and B sometimes co-exist does not allow a conclusion to be drawn one way or the other as to whether or not (A implies B) is a valid inference. One can disprove the inference (A implies B) by showing one example of (A and not B), but one cannot similarly prove that the inference (A implies B) is valid by showing any number of examples of A and B coexisting together, as any mathematician understands.

Lindeman states

“A precinct's partisan vote proportion in a recent election is a strong predictor of the precinct vote in the present election.”

If vote counts were independent random variables with fixed probabilities, then it would be possible to calculate the probability of obtaining B and the probability of obtaining not B (where B = positive correlation between WPD and Bush vote share differences from 2000 to 2004) after assuming various levels of A (vote miscounts). If vote counts were independent random variables, then some of Lindeman's statements in his section “How strong is the shift-swing ‘test’ for vote count fraud?” on pp. 10-12 would be logically correct. However vote counts are not independent random variables with fixed probabilities, so vote counts from one election to the next are subject to nonrandom events such as political events, moving voters causing changing demographics, and the presence or absence strong third party candidates. The logic that each “precinct's partisanship” in one election is a strong predictor of each precinct's partisanship in the next is invalid. If Lindeman were correct, then Herbert Walker Bush and Jimmy Carter would have been elected for second terms. Just because we have the ability to calculate probabilities of random independent events and we can fill in all the slots in a particular calculation does not mean that it is logically correct to do so. NEDA's mathematical proof has demonstrated without doubt that the ESI/Mitofsky exit poll analyses since June are invalid and thus that nothing at all can be concluded from them one way or the other.<sup>5</sup>

Lindeman's discussion of how vote fraud might occur is inconsistent with mathematical analysis. There are more ways for vote fraud to occur than there are voting systems, election procedures, and groups of insiders who have access to vote casting and counting systems. Mathematical analysis cannot determine the cause of vote miscounts. Yet, mathematical pattern analysis can determine whether exit poll discrepancies are more consistent with vote miscounts or exit poll response bias.

## **ESI, Scheuren, Mitofsky, and Lindeman Are Wrong**

Lindeman, in his essay, states that

“ESI argued that if exit poll error evinced vote shifting, one would expect exit poll error to be correlated with the change in vote share between 2000 and 2004. That is, where Bush did better in the 2004 vote count than in the exit poll, Bush would on average do better, compared to 2000, than in precincts where the exit polls actually overstated Bush's 2004 vote share.”

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<sup>5</sup> <http://electionarchive.org/ucvAnalysis/US/exit-polls/ESI/ESI-hypothesis-illogical.pdf>

This is exactly what NEDA's mathematical logic proof shows is an invalid inference. Therefore any analysis based on this inference is meaningless for determining anything one way or the other about the possibility of vote miscounts, vote fraud, or "vote shifting".

Lindeman has, in his essay, wrongfully tried to discredit NEDA as the organization most poised to help restore the accuracy of U.S. vote counts if it can obtain funding for its national public election data archive project.<sup>6</sup> There are crucial tasks to accomplish and correcting misinformation that Lindeman and others wrongly spread about exit polls is wasting time and resources.

A new system needs to be built to collect and publicly disseminate detailed vote counts for post-election analysis prior to candidates conceding. Almost unbelievably, every county in America now reports vote counts in a way that covers up evidence of vote miscounts. The National Election Data Archive is uniquely positioned to implement an election data archive system to ensure that U.S. vote counts accurately reflect voter intent, because it has organized a group of mathematicians and statisticians to analyze the data, and state volunteer groups to help obtain the data, is in touch with other nation-wide election activists, and has developed a design for a national election data archive information system. We lack only funds for programming staff and a technical project manager to implement it.

### **Summary: A National Election Data Archive for Valid Election Analysis**

In his essay Lindeman does *not* show that ESI's analysis is valid or that NEDA's math logic proof is incorrect. In fact, he shows quite the opposite by providing another counterexample to ESI's inference.<sup>7</sup>

*Scientifically valid* exit poll analysis is like taking a person's temperature. If we don't have a temperature, we can rule out the likelihood of significant illnesses (both vote miscounts and exit poll response bias). The current state of scientific knowledge of exit poll discrepancy (WPD) patterns can discern the different "temperature" patterns produced by exit poll response bias compared to vote miscounts and can thereby conclude whether vote miscounts or response bias is most likely to have caused the exit poll discrepancies (WPD). This state of scientific knowledge has been accomplished by the volunteer statisticians and mathematicians of the National Election Data Archive.

In particular, Ron Baiman and myself have derived the algebraic equations for analyzing the WPD patterns caused by both response bias and by vote miscounts, and have derived valid ways to analyze exit poll discrepancy data.<sup>8</sup> If one has a temperature, then we can conclude that one has an illness, and the type of illness (vote miscounts or exit poll response bias) can be surmised by looking at the "temperature" patterns in precincts ordered by candidate vote share.

If the "illness" shown by exit poll discrepancies is vote miscounts as NEDA scientifically shows is most probable, then the cure is routine independent audits and public reporting of detailed vote counts; both performed immediately following elections and before candidates concede. It is simple to ensure

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<sup>6</sup> Lindeman and Liddle both admitted in emails to me that, on the Democratic Underground (DU), they asked moderators to remove my posts and even managed to freeze my thread entitled "The ESI/Mitofsky analysis is Illogical Bunk" because they dislike the words "bunk" and "illogical". Although I am not a Democratic Party member, I sometimes post at DU because I am asked by some of its members to address inaccuracies posted there by O'Dell, Lindeman and Liddle.

<sup>7</sup> I have created a spreadsheet to automatically generate counterexamples which disprove ESI's inference.

<sup>8</sup> See the appendices in "The 2004 Presidential Election: Exit Poll Error or Vote Miscount?"

[http://electionarchive.org/ucvAnalysis/US/exit-polls/USCV\\_exit\\_poll\\_analysis.pdf](http://electionarchive.org/ucvAnalysis/US/exit-polls/USCV_exit_poll_analysis.pdf)

that U.S. vote counts are accurate, and it is quite unbelievable that virtually no measures are taken today to ensure accuracy. Every county in America publicly releases their vote counts in a way that hides evidence of vote count errors by adding counts from different vote types together before reporting them!

The good news is that U.S. citizens have a legal right, under every state's freedom of information act, to the detailed election results data that would instantly reveal anomalous patterns of padded votes or missing votes. Due to the almost unbelievable fact that the vast majority of U.S. vote counts are not *independently* audited for accuracy<sup>9</sup>, a public election data archive may be the *only* means available to ensure the accuracy of U.S. vote counts. If the funds can be raised to hire the technical staff to build a national election data archive and candidates can be convinced not to concede elections without first obtaining and analyzing their own election data, it may be this country's chance to clean up its elections and restore integrity.

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<sup>9</sup> Independent audits are a basic measure that all financial institutions, many businesses and churches employ. With the payoff for election tampering being control of budgets, land use, and other issues ranging from the millions to the trillions, it is difficult to understand why independent audits of vote counts are not routinely performed. Worse, many U.S. election officials have recently bought electronic voting systems that are not independently auditable to replace systems that were.