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Who Really Won the 2004 US Presidential Election? An Examination of Uncorrected Exit Poll Data

Part I: The Unexplained Exit Poll Discrepancy

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Most Americans who listened to radio or surfed the internet on election day this year sat down to watch the evening television coverage thinking John Kerry won the election. Exit polls showed him ahead in nearly every battleground state, in many cases by sizable margins. Although pre-election day polls indicated the race dead even or Bush slightly ahead, two factors seemed to explain Kerry's edge: turnout was very high, good news for Democrats,[1] and, as in every US presidential election with an incumbent over the past quarter-century,[2] undecided voters broke heavily toward the challenger.[3]

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[1] Jack Citrin, Eric Schickler & John Sides, "What If everyone voted? Simulating the impact of increased turnout in senate elections" *American Journal of Political Science*, 2003, 47 (1) 75-90: Nonvoters are generally more Democratic than voters. Democratic Party candidates generally benefit from higher turnout because the increase comes disproportionately from voters in socio-economic groups that traditionally vote Democratic.

[2] Guy Molyneux, "The Big Five-Oh", *The American Prospect Online*, Oct. 1, 2004: There have been four incumbent presidential elections in the past quarter-century. On average, the incumbent comes in half a point below his final poll result; challengers exceed their final poll result by an average of 4 points.

[3] Even the final "corrected" exit poll data presented on the CNN website – more on such corrected data later – indicate that those who decided in the last three days chose Kerry over Bush 55% - 42%. <http://www.cnn.com/ELECTION/2004/pages/results/states/US/P/00/epolls.0.html> (Thursday Nov 14, 2004)

But then, in key state after key state, counts showed very different numbers than the polls predicted; and the differentials were all in the same direction. The first shaded column in Table 1.1 shows the differential between the major candidates' predicted (exit poll) percentages of the vote; the next shaded column shows the differential between their *tallied* percentages of the vote. The final shaded column reveals the "shift." In ten of the eleven consensus battleground states,[4] the tallied margin differs from the predicted margin, and in every one, the shift favors Bush.

Table 1.1[5]: Predicted vs. tallied percentages in battleground states

	Bush predicted	Kerry predicted	Predicted differential	Bush tallied	Kerry tallied	Tallied differential	Tallied vs. predicted
Colorado	49.9%	48.1%	Bush 1.8	52.0%	46.8%	Bush 5.2	Bush 3.4
Florida	49.8%	49.7%	Bush 0.1	52.1%	47.1%	Bush 5.0	Bush 4.9
Iowa	48.4%	49.7%	Kerry 1.3	50.1%	49.2%	Bush 0.9	Bush 2.2
Michigan	46.5%	51.5%	Kerry 5.0	47.8%	51.2%	Kerry 3.4	Bush 1.6
Minnesota	44.5%	53.5%	Kerry 9.0	47.6%	51.1%	Kerry 3.5	Bush 5.5
Nevada	47.9%	49.2%	Kerry 1.3	50.5%	47.9%	Bush 2.6	Bush 3.9
New Hampshire	44.1%	54.9%	Kerry 10.8	49.0%	50.3%	Kerry 1.3	Bush 9.5
New Mexico	47.5%	50.1%	Kerry 2.6	50.0%	48.9%	Bush 1.1	Bush 3.7
Ohio	47.9%	52.1%	Kerry 4.2	51.0%	48.5%	Bush 2.5	Bush 6.7
Pennsylvania	45.4%	54.1%	Kerry 8.7	48.6%	50.8%	Kerry 2.2	Bush 6.5
Wisconsin	48.8%	49.2%	Kerry 0.4	49.4%	49.8%	Kerry 0.4	No dif

The media has largely ignored this discrepancy (although the blogosphere has been abuzz), suggesting that the polls were either flawed, within normal sampling error, a statistical anomaly, or could otherwise be easily explained away. In Part I of this paper, I examine the validity of exit polls, the likelihood of sampling error, and the possibility of statistical anomaly and show that the exit poll discrepancy could not have been due to chance or random error. In Part II, I explore further whether the count was correct.

Exit Poll Data

The data I use for this paper are those posted on the CNN website election night. CNN had the data by virtue of membership in the National Election Pool (NEP), a consortium of news organizations that had pooled resources to conduct a large-scale exit poll (as was done in the 2000

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4 These eleven are classified as battleground states based on being on at least two of three prominent lists: *Zogby*, *MSNBC*, and the *Washington Post*. Another sometimes-mentioned state, Oregon, did not have a comparable exit poll because voting in the state is by mail. (These twelve states did in fact turn out to be the most competitive in the election; in no other state was the winning margin was within 7%.)

5 Source: CNN website. Wednesday November 3, 2004 12:21 am.

election). NEP, in turn, had contracted two respected firms, Edison Media Research and Mitofsky International,[6] to conduct the polls.

Calibrated and Uncalibrated Exit Poll Data

Part of the reason the issue went away for the media – and simultaneously raised suspicion on the web – is secrecy and confusion about the data and what exactly is being characterized as the exit poll. If you go to the CNN website or any other website on which 2004 exit poll data are available, you'll see numbers very different from those released on election day. That's because the survey results originally collected and presented to subscribers were subsequently "corrected" to conform to official tallies.

The pollsters explain this as a natural process: the "uncalibrated" data were preliminary; once the counts come in, they recalibrate their original data on the assumptions that the count is correct, and that any discrepancies must have been due to imbalanced representation in their samples or some other polling error. The pollsters have taken great pains to argue that their polls were not designed to verify election results,[7] but rather to provide election coverage support to subscribers – as one datum that networks could use to project winners and to explain voting patterns, i.e., who voted for whom, and why people voted as they did.

Whatever the merits of calibrating exit poll data, it obscures the issue of *why* the uncalibrated polls were so far off and mostly in the same direction. Although this calibration process may seem perfectly natural to NEP, it confuses nearly everyone else, even sophisticated analysts intimately involved in voting issues. The MIT-Caltech Voting Project, for example, issued a report concluding that exit poll data were consistent with state tallies and that there were no discrepancies based on voting method, including electronic voting systems. But they used these adjusted data to validate the process! In other words, they used data in which the count is

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6 Warren Mitofsky, the founder of Mitofsky International, is credited with having invented the exit poll. David W. Moore, Senior Gallup Poll Editor, "New Exit Poll Consortium Vindication for Exit Poll Inventor" 10/11/2003
7 Martin Plissner**, "In Defense of Exit Polls**: You just don't know how to use them" *Slate* Thursday, Nov. 4, 2004

assumed correct to prove that the count *is* correct. And, sadly, this report is being used to dismiss allegations that anything might be awry.[8]

It's an awful mistake, but entirely understandable -- few of us realized that these data were corrected. Neither the CNN website, nor any other site of which I am aware, gives any indication that the data were anything other than what nearly all of us imagine exit poll data to be – data based solely on subjects surveyed leaving the polling place.

Data Used in This Report

For this report, I use data that apparently are based solely on subjects surveyed leaving the polling place. These data were reportedly not intended for public release,[9] and were available to late evening election night viewers only because a computer glitch prevented NEP from making updates sometime around 8:30 p.m. that evening.[10] They were collected by Jonathon Simon, a former political survey research analyst, and are corroborated by saved screen shots (see Figure 1.1). I happened to have sixteen exit poll internet pages stored in my computer memory, and in each case, his figures are identical to mine. The numbers are also roughly consistent with those released elsewhere (Appendix B shows *Slate* numbers at 7:28 EST).

To derive the "predicted values" used in Tables 1.1 and 1.5, I combine the male and female vote, weighted for their percentage of the electorate. Ohio exit poll data (Figure 1.1) indicate that 51% of men and 53% of women voted for Kerry. Since the electorate is 47% male/53% female, Kerry's overall share of the exit poll was calculated as (51% x 47%) + (53% x 53%) or 52.1%.[11] Doing the same for calculations for other battleground states and comparing these numbers with final tallies (*New York Times*, Nov. 7), I completed the columns in Tables 1.1 and 1.5.
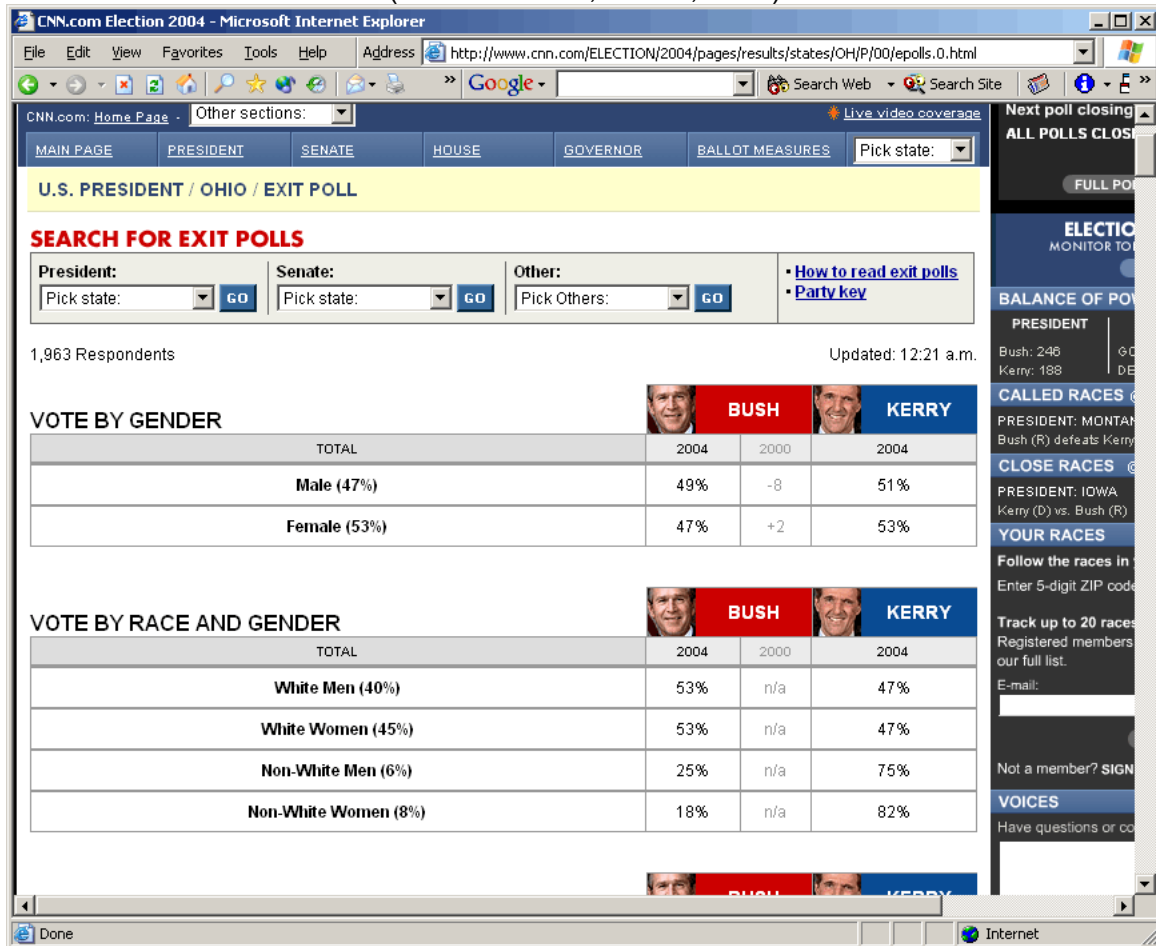
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8 Tom Zeller, Jr. "Vote Fraud Theories, Spread by Blogs, Are Quickly Buried," *New York Times* (Front page); John Schwartz, "Mostly Good Reviews for Electronic Voting," *New York Times*; Keith Olbermann *MSNBC Countdown*. All three on November 12, 2004.

9 Martin Plissner**, "In Defense of Exit Polls**: You just don't know how to use them" *Slate* Thursday, Nov. 4, 2004

10 Richard Morin, "New Woes Surface in Use of Estimates," *Washington Post*, Thurs, Nov. 4, 2004; Page A29

11 Among the limitations of the CNN exit poll data is the lack of significant digits. Rounding errors mean that exit poll numbers for individual state analyses could be off by up to .5. This is unlikely because it comes from two groups, male and female, and it's unlikely that they are both rounded that much in the same direction. Regardless, the strength of the finding is such that even if all numbers had been rounded the full .5 in an unfavorable direction, the basic finding would still hold.

Figure 1.1. CNN web page with apparently "uncorrected" exit poll data
(12:21 am Wed, Nov. 3, 2004)

CNN.com Election 2004 - Microsoft Internet Explorer

Address http://www.cnn.com/ELECTION/2004/pages/results/states/OH/P/00/epolls.0.html

CNN.com: Home Page · | Other sections: | Live video coverage

MAIN PAGE | PRESIDENT | SENATE | HOUSE | GOVERNOR | BALLOT MEASURES | Pick state:

U.S. PRESIDENT / OHIO / EXIT POLL

SEARCH FOR EXIT POLLS

President: | Senate: | Other: | • **How to read exit polls**
Pick state: GO | Pick state: GO | Pick Others: GO | • **Party key**

1,963 Respondents　　　　　　　　　　　　　　　　　　　Updated: 12:21 a.m.

VOTE BY GENDER

	BUSH	BUSH	KERRY
TOTAL	2004	2000	2004
Male (47%)	49%	-8	51%
Female (53%)	47%	+2	53%

VOTE BY RACE AND GENDER

	BUSH	BUSH	KERRY
TOTAL	2004	2000	2004
White Men (40%)	53%	n/a	47%
White Women (45%)	53%	n/a	47%
Non-White Men (6%)	25%	n/a	75%
Non-White Women (8%)	18%	n/a	82%

Next poll closing
ALL POLLS CLOSE

FULL PO

ELECTIO
MONITOR TO

BALANCE OF POW
PRESIDENT
Bush: 246　　GO
Kerry: 188　　DE

CALLED RACES
PRESIDENT: MONTAN
Bush (R) defeats Kerry

CLOSE RACES
PRESIDENT: IOWA
Kerry (D) vs. Bush (R)

YOUR RACES
Follow the races in
Enter 5-digit ZIP code

Track up to 20 races
Registered members
our full list.
E-mail:

Not a member? SIGN

VOICES
Have questions or co

Done　　Internet

Are the Data Valid?

　　Some commentators on an early draft of this paper rejected these data as unweighted, meaning that they have not been adjusted to appropriately weight demographic groups pollsters knowingly under- or over-sampled,[12] but it makes no sense that NEP would *ever* distribute unweighted data to anyone, let alone publish them on the web election night. NEP's predecessor, Voter News Service, warns in bold letters in its 2000 methodology statement never to use unweighted data for any reason (see Appendix A). Pollsters want to get it right. Their customers are depending on it. Broadcasters want to be alerted to probable outcomes, so as to plan their coverage accordingly

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12　Using *unweighted* data, Democrats would almost always outpoll Republicans. Pollsters oversample minorities so that they have a sufficient sample size of important demographic groups – but then they negatively weight respondents in these groups to adjust for their actual percentage of the electorate.

(e.g., pre-writing stories so they can be completed shortly after poll-closings, assigning top reporters to winners' headquarters, being prepared for when concession or victory speeches might be forthcoming, etc.). In this case, subscribers were taken by surprise. Anchor people were discussing who Kerry would choose for his cabinet, conservative radio hosts were warning how now we're going to see the true John and Teresa Heinz Kerry. Prominent pollster John Zogby trusted the data sufficiently to call the race for Kerry. In the end, network managers had to scramble for coverage; editors and journalists had to rewrite headlines and lead stories.

It is alternatively possible that the data were already partially calibrated to the count by 12:20 am, but given the *Washington Post* story and the abrupt change at 1:30 am, that seems unlikely. If, in fact, the data already had been partially calibrated, however, it would mean that the pure exit poll numbers favored Kerry to an even greater extent.

In summary, I'd rather have NEP data; lacking that (and unless NEP has a change of heart, no one is going to see those until well into 2005[13]), these CNN data look good, and can be used to generate some highly suggestive findings.

On (Uncorrected) Exit Polls

Conducting an exit poll presents many challenges, several of which potentially might have caused errors that would have resulted in election day discrepancies. I'll discuss these at length in a later section of this report (along with a discussion of potential count errors), but in general, we have reason to believe that exit polls, by which I mean **uncorrected** exit polls, are accurate survey instruments. Exit polls are surveys taken of representative respondents from the overall voting population. Both the logic behind them and experience suggest that these surveys should be able to predict overall results within statistical limits. It is relatively easy to get a representative

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[13] When the data is finally released, it may also be unusable for these purposes, because that would require a weighting model that did not assume the correct. First, we won't know whether precincts were originally chosen randomly or to ensure balance, e.g., by oversampling a minority group. Second, we won't know whether individual respondents have been weighted to adjust for exit poll observations, e.g., African-Americans disproportionately participated in the poll, or to make the numbers match up with the tallies, e.g., African Americans *must have been* oversampled because otherwise Kerry's vote total would have been higher.

sample, and there is no problem with figuring out who is actually going to vote or how they will vote.

In Germany, the minute the polls close, polling agencies release prognoses that have proven highly reliable. In the three most recent national elections there, poll percentages diverged from official counts by an average of only **0.26%** (Table 1.2). They have been almost as accurate for the German vote in the European Parliament Elections (Table 1.3), averaging **0.44%** differential from tallied results over the past three elections.

Table 1.2[14]: **Exit Poll Predictions vs. Official Counts in German National Elections**

Parties	2002 predicted	2002 tallied	2002 diff	1998 predicted	1998 tallied	1998 diff	1994 predicted	1994 tallied	1994 diff	average dif
SPD	38.0%	38.5%	0.5%	41.0%	40.9%	0.1%	36.5%	36.4%	0.1%	
CDU/CSU	38.0%	38.5%	0.5%	35.0%	35.2%	0.2%	42.0%	41.4%	0.6%	
Green	9.0%	8.6%	0.4%	6.5%	6.7%	0.2%	7.0%	7.3%	0.3%	
FDP	7.5%	7.4%	0.1%	6.5%	6.2%	0.3%	7.0%	6.9%	0.1%	
PDS	4.0%	4.0%	0.0%	5.0%	5.1%	0.1%	4.0%	4.4%	0.4%	
Rest	9.0%	8.6%		6.0%	5.9%		3.5%	3.6%		
Average differential			**0.30%**			**0.18%**			**0.30%**	**0.26%**

Table 1.3: **Exit Poll Predictions vs. Counts in European Parliament Elections (German part)**

Parties	2004 predicted	2004 tallied	2004 diff	1999 predicted	1999 tallied	1999 diff	1994 predicted	1998 tallied	1998 diff	average dif
SPD	22.0%	21.5%	0.5%	31.0%	30.7%	0.3%	33.0%	32.2%	0.8%	
CDU/CSU	45.5%	44.5%	1.0%	48.0%	48.7%	0.7%	40.5%	38.8%	1.7%	
Green	11.5%	11.9%	0.4%	7.0%	6.4%	0.6%	10.0%	10.1%	0.1%	
FDP	6.0%	6.1%	0.1%	3.0%	3.0%	0.0%	4.0%	4.1%	0.1%	
PDS	6.0%	6.1%	0.1%	6.0%	5.8%	0.2%	4.5%	4.7%	0.2%	
REP							3.5%	3.9%	0.4%	
Rest	9.0%	9.8%		5.0%	5.4%		4.5%	6.2%		
Average differential			**0.42%**			**0.36%**			**0.55%**	**0.44%**

To make the numbers more comparable to the US presidential election, I have grouped the parties into their coalitions in Table 1.4.[15] The results are very accurate, in all cases predict correctly the winner, and show no systematic skew.

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14 Source: Election data: http://www.bundeswahlleiter.de/ (English: http://www.bundeswahlleiter.de/wahlen/e/index_e.htm) Prognoses: www.forschungsgruppe.de the predictions of another polling company can be found at http://de.wikipedia.org/wiki/Prognosen/Hochrechnungen_der_Bundestagswahl.htm; its predictions are in all cases within 1% of ZDF). I'd like to thank Dr. Andreas M. Wuest, Dr. Michael Morrissey, Kurt Gloos, and Lars Vinx for their help in compiling this data.

15 The FDP Freie Demokratische Partei (liberals) is aligned with the Christian Democratic Party, and the Social Democratic Party (SPD) is aligned with the Greens. PDS (socialists) and Republikaner (extreme right) are not in any coalition.

Freeman: Election '04 exit poll discrepancy   *page 8*

Table 1.4: Exit Poll Predictions vs. Counts for Coalitions in German National Elections

Election	Coalition	SPD/ Green predicted	CDU/CSU FDP predicted	Predicted differential	SPD/Green tallied	CU/FDP tallied	Tallied differential	Tallied vs. predicted
2004 European Parliament		33.5%	51.5%	CF 18.0	33.4%	50.6%	CF 17.2	SG 0.8
2002 National election		47.0%	45.5%	SG 1.5	47.1%	45.9%	SG 1.2	CF 0.3
1999 European Parliament		38.0%	51.0%	CF 13.0	37.1%	51.7%	CF 14.6	CF 1.6
1998 National election		47.5%	41.5%	SG 6.0	47.6%	41.4%	SG 6.2	SG 0.2
1994 European Parliament		43.0%	44.5%	CF 1.5	42.3%	42.9%	CF 0.6	SG 0.9
1994 National election		43.5%	49.0%	CF 5.5	43.7%	48.3%	CF 4.6	SG 0.9

In the US, exit polls have also been quite precise. Students at BYU have been conducting Utah exit polls since 1982.[16] They write:

> […] results are very precise; In the 2003 Salt Lake [City] mayoral race, the KBYU/Utah Colleges Exit Poll predicted 53.8 percent of the vote for Rocky Anderson and 46.2 percent for Frank Pignanelli. In the actual vote, Anderson carried 54 percent of the vote to Pignanelli's 46 percent.

True to their word, predictions in this year's contests were quite accurate. In the Utah presidential vote, for example, they predicted Bush 70.8%, Kerry 26.5%. The actual was Bush 71.1%, Kerry 26.4%. Consistently accurate exit poll predictions from student volunteers, including in this presidential election, suggest we should expect accuracy, within statistical limits, from the world's most professional exit polling enterprise.

Not only can exit polls accurately predict actual voting, they have been widely used to verify elections. When Mexico sought legitimacy as a modernizing democracy in 1994, Carlos Salinas instituted reforms designed to ensure fair elections, and central among these were exit polls.[17] Exit pollsters were hired again for the subsequent presidential election in 2000,[18] and not coincidentally, it was the first loss for the Institutional Revolutionary Party (PRI) in its 72-year history.

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16 http://exitpoll.byu.edu/2004results.asp. As far as I have been able to determine, this was the only other exit poll conducted on the 2004 presidential election, aside from an LA Times poll, for which I could not determine whether or not the data were corrected.

17 Paul B. Carroll and Dianne Solis, "Zedillo's apparently clean win at polls diminishes threat of Mexican unrest." *The Wall Street Journal* August 23, 1994 pA2

18 Rebeca Rodriguez, "U.S. political consultants signed to conduct exit poll in Mexico." *Knight Ridder Newspapers*, June 16, 2000

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In Russia, and throughout the former Soviet block, exit polls have been used to verify elections. Last fall, international foundations sponsored an exit poll in the former Soviet Republic of Georgia during a parliamentary election. Just as happened recently in the Ukraine, exit polls projected a victory for the main opposition party, and when the sitting government announced that its own slate of candidates had won, supporters of the opposition stormed the Parliament and the sitting President resigned under pressure from the United States.[19]

Statistical Analysis of the Three Critical Battleground States: Ruling out Chance or Random Error

Three Critical Battleground States

The conventional wisdom going into the election was that three critical states – Ohio, Pennsylvania, and Florida – would likely determine the winner of the presidential election. Typical analyst comments included:

> Since Election 2000, Republicans and Democrats have banked their aspirations on an electoral trinity: Florida, Pennsylvania and Ohio. As the Big Three goes, so goes the nation.
> - David Paul Kuhn, CBS News: "High-Stakes Battle for the Big 3" Oct. 26, 2004

> Conventional wisdom for months, including RCP's, had been that whoever won two of the "big three" Ohio, Pennsylvania and Florida would almost certainly become President.
> - Real Clear Politics: posting 10/28/04

> The accepted wisdom is that whoever wins two out of the three states of Ohio, Pennsylvania and Florida will win the election.
> - Rob Watson, BBC News: October 28, 2004

The numbers and logic were straightforward. Of the other battleground states: Michigan and Minnesota leaned Democratic; Colorado and Nevada leaned Republican. Iowa, New Hampshire and New Mexico don't have many electoral votes. Wisconsin has a long tradition as a liberal state, and only 10 electoral votes compared to 20, 21, and 29 for the big three.

Campaign activities were also consistent with this logic. Ohio, Pennsylvania, and Florida were the three states the candidates visited most, and in which they spent the most money.[20]

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19 Georgia President Eduard A. Shevardnadze resigned under pressure from both the US and Russia. (Martin Plissner, "Exit Polls to Protect the Vote." *New York Times* 10/17/04)
20 See stories cited above.

The conventional wisdom proved correct. Bush won two of the three and ascended to electoral victory as a result. In each of these states, however, exit polls differed considerably from recorded tallies (Table 1.5).

Table 1.5: Predicted vs. tallied percentages in the three critical battleground states

	Sample size	Bush predicted	Kerry predicted	Predicted differential	Bush tallied	Kerry tallied	Tallied differential	Tallied vs. predicted
Florida	2846	49.8%	49.7%	Bush 0.1[21]	52.1%	47.1%	Bush 5.0	Bush 4.9
Ohio	1963	47.9%	52.1%	Kerry 4.2	51.0%	48.5%	Bush 2.5	Bush 6.7
Pennsylvania	1930	45.4%	54.1%	Kerry 8.7	48.6%	50.8%	Kerry 2.2	Bush 6.5

A Statistical Anomaly?

A basic question to ask on looking at such a discrepancy is whether it is just a statistical anomaly. It can happen, for example, that a fair coin tossed ten times will land heads each time, but it doesn't happen often (1 out of 1,024 times). If we witness this, we will at least suspect that the coin might be adulterated, especially if the stakes are high and we are not permitted to inspect the coin carefully.

Statistical significance, which means that the discrepancy is such that it is unlikely to occur by chance, depends on four factors – the size of the discrepancy, the sample size, sample characteristics, and the level of significance (just how unlikely does it have to be?). Table 1.5 provides sample size and discrepancy. For statistical purposes, these samples are quite large. Two thousand or so respondents is roughly the size of most national polls.

Without access to the data and methodology, we cannot model the sample characteristics precisely. But we do know the general procedures by which exit polls are conducted. Appendix A provides the 2000 presidential election exit poll methodology and a bibliography of articles on the process from that and other elections. Based on these we can make a reasonable approximation.

A random sample of a population can be modeled as a normal distribution curve. Exit polls, however, are not random samples. To avoid prohibitive expense, exit poll samples are clustered,

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21 Earlier exit polls, including one released by Slate at 7:28 EST, 28 minutes after the Florida polls closed showed Kerry leading 50% to 49% (Appendix B)

which means that precincts, rather than individuals, are randomly selected. This increases variance and thus the margin of error because of the possibility that precinct voters share similar characteristics which differentiate them from the rest of the state in ways that past voting behavior would not predict. An analysis of the 1996 exit polls estimated that the cluster sample design adds "a 30 percent increase in the sampling error computed under the assumption of simple random sampling" (Merkle and Edelman, 2000, p. 72). That study is particularly apt because the 1996 state exit polls involved roughly the same number of precincts (1,468) as this year's polls (1,480).[22] Pollsters also have techniques to decrease variance, most notably stratification, which helps ensures that the sample is representative of the overall population.[23] In the analysis below, however, I conservatively assume no counterbalancing effects.

Figure 1.2 depicts the resulting distribution curve for samples of 1,936 randomly selected respondents from approximately 40 randomly selected precincts in a state in which 48.5% of the vote went for Kerry. The thin blue density curve is that of a simple random sample; the wider purple curve is of a clustered sample with no stratification. The horizontal double arrow below the curve indicates the poll's statistical margin of error, the corresponding 95% confidence interval.[24] If one hundred unbiased samples were drawn from this population, we would expect that in 95 (on average), Kerry would poll between 45.6% and 51.4%. And because half of the 1-

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[22] http://www.exit-poll.net/faq.html#a7

[23] Pollsters also use a counterbalancing process that decreases variance – stratification. Identifying voters by key characteristics that predict voting behavior (race, sex, age, income, ethnicity, religion, party affiliation, etc…) ensures that the sample is representative of the overall population, either by seeking out subjects with specific demographic characteristics and/or weighting groups depending on their representation in the sample compared with that of the overall voting population. By getting samples in which minorities are over-represented (but subsequently negatively weighted), pollsters can ensure adequate sample sizes of each of these representative subgroups. Knowing exactly how much to weight over- or under-represented population depends on an accurate knowledge of overall demographics of the electorate. Historical data, census data, and registration roles, can be used to complement sampling site counts to try to weight the sample accurately.

An early draft of this paper based on an assumption that the effects of stratification could balance the effects of clustering, generated headline-grabbing probability of 250,000,000-to-one odds. In this analysis, I assume no counterbalancing effects at all due to stratification. Although, in principle, pollsters can ensure a more representative sample than chance alone would dictate, they face challenges in knowing exactly what weight to assign a group. The only measure of the demographics of actual voters on Election Day is the exit poll itself.

[24] To determine the margin of error, calculate the standard error of a random sample using the formula $\sqrt{\frac{p(1-p)}{N}}$ where p = Kerry percentage of the vote and N is the sample size. (.0113). To adjust for the fact that this is a clustered sample, add 30% (.01466 or 1.47%). Sixty-eight percent of the time, a prediction from a sample this size would be within one standard error. Ninety-five percent of the time, it will be within 1.96 standard errors (2.87% in this case).

in-20 cases that fall outside the interval would be low rather than high, 97.5% of the time we

would expect Kerry to poll no more than 51.4%. It turns out that the likelihood that Kerry would

poll 52.1% from a population in which he receives only 48.5% of the vote is less than one-in-one-

hundred (.0073).

Figure 1.2. Normal distribution curve for sample predictions based on Kerry's tally in Ohio
If you were to conduct this poll 20 times, 19 times you should get a result between 45.6% and 51.4%. The
likelihood of the NEP poll prediction exceeding the actual vote by as much as 3.6% is less than 1 in 100.
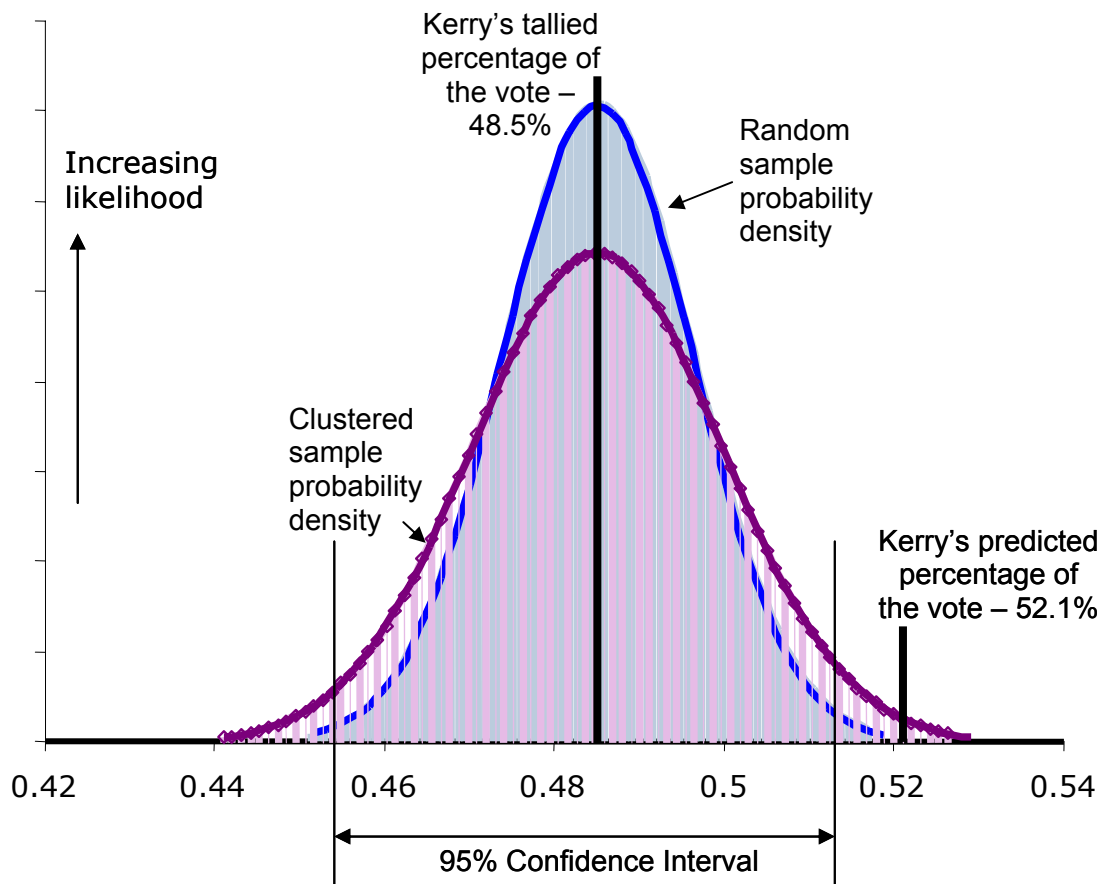
Conducting the same analysis for Florida, we find that Kerry's poll prediction of 49.7% of the

vote is likewise outside the 95% confidence interval. Given a population in which he receives

only 47.1% of the vote, the chances that he would poll 49.7% out of 2,846 respondent in an exit

poll with no systematic error is less than two-in-one-hundred (.0164). In the third critical

battleground state, Pennsylvania, Kerry's poll numbers are outside the 95% confidence interval as

well. Although he did carry the state, the likelihood that an exit poll would predict 54.1%, given 50.8% support of the electorate is just slightly more than one-in-one-hundred (.0126).

Assuming independent state polls with no systematic bias, the odds against any two of these statistical anomalies occurring together are more than 5,000:1 (five times more improbable than ten straight heads from a fair coin). The odds against all three occurring together are 662,000-to-one. As much as we can say in social science that something is impossible, it is impossible that the discrepancies between predicted and actual vote counts in the three critical battleground states of the 2004 election could have been due to chance or random error.

-------------------------- End of Part I -----------------------

Appendix A: How Exit Polls are Conducted

2000 Voter News Service Exit Poll Methodology[25]

METHODOLOGY STATEMENT
The VNS exit poll was developed and conducted by Voter News Service. The exit poll results are based on interviews with a probability sample of voters exiting polling places on Election Day, 2002.

Sampling
The samples were selected in two stages. **First**, a probability sample of voting precincts within each state was selected that represents the different geographic areas across the state and the vote by party. Precincts were selected with a probability proportionate to the number of voters in each precinct. Each voter in a state had the same chance to have his or her precinct selected. There is one exception. In some states, precincts that have large minority populations were sampled at a higher rate than other precincts. The sample weighting (described below) adjusts the representation of these precincts to their correct share of the total vote. **Second**, within each precinct, voters were sampled systematically throughout the voting day at a rate that gives all voters in a precinct the same chance of being interviewed.

The National sample is a subsample of the state sample precincts. The probability of selecting these precincts was the same as if the sample had been selected at a uniform rate nationwide, with the exception that minority precincts were again selected at a higher rate.

Weighting
The exit poll results are weighted to reflect the complexity of the sampling design. That is, the weighting takes into account the different probabilities of selecting a precinct and of selecting a voter within each precinct. For example, states that were selected at a higher rate receive a smaller weight than other precincts of the same size. There is also an adjustment for voters who were missed or refused to be interviewed, which is based on their observed age, race and sex.

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25 http://webapp.icpsr.umich.edu/cocoon/ICPSR-STUDY/03527.xml or http://www.ropercenter.uconn.edu/usvns2002_2.html

NOTE: THE EXIT POLL RESULTS ARE ONLY MEANINGFUL IF THEY ARE WEIGHTED. UNWEIGHTED TABULATIONS MAY BE SERIOUSLY MISLEADING AND SHOULD NOT BE USED FOR ANY REASON.

Bibliography on How Election Exit Polls are Conducted

Konner, Joan (2003). "The Case for Caution." Public Opinion Quarterly 67(1):5-18.

Merkle, Daniel M. and Murray Edelman (2000). "A Review of the 1996 Voter New Service Exit Polls from a Total Survey Error Perspective." In *Election Polls, the News Media and Democracy*, ed. P.J. Lavrakas, M.W. Traugott, pp. 68-92. New York: Chatam House.

Merkle, Daniel M. and Murray Edelman (2002). "Nonresponse in Exit Polls: A Comprehensive Analysis." In *Survey Nonresponse*, ed. R. M. Groves, D. A. Dillman, J. L. Eltinge, and R. J. A. Little, pp. 243-58. New York: Wiley.

Mitofsky, Warren J. (2003). "Voter News Service After the Fall." *Public Opinion Quarterly* 67(1):45-58.

Mitofsky, Warren J. (1991). "A Short History of Exit Polls. In *Polling and Presidential Election Coverage*, Lavrakas, Paul J, and Jack K. Holley, eds, Newbury Park, CA: Sage. pp. 83-99

Website

The single best source that I have found for information on exit polling and polling in general has been "Mystery Pollster: Demystifying the Science and Art of Political Polling" - By Mark Blumenthal http://www.mysterypollster.com/. The comments are extensive, knowledgable, and usually fair. (The one notable exception is his unfairly harsh critique of the first draft of this paper.)

Appendix B: Slate Election Day Exit Poll Numbers

Updated Late Afternoon Numbers

Mucho flattering to Kerry; plus Nader makes an appearance.
By Jack Shafer
Updated Tuesday, Nov. 2, 2004, at 4:28 PM PT

Florida	**Minnesota**	**Colorado**	**Iowa**
Kerry 51	Kerry 52	Kerry 49	Kerry 50
Bush 49	Bush 46	Bush 50	Bush 49
	Nader 2	Nader 1	

Michigan			**Nevada**
Kerry 52	**New Jersey**	**Arkansas**	Kerry 49
Bush 46	Kerry 54	Kerry 45	Bush 48
Nader 1	Bush 44	Bush 54	Nader 1
	Nader 1	Nader 1	

Wisconsin			**West Virginia**
Kerry 51	**Pennsylvania**	**Missouri**	Kerry 45
Bush 48	Kerry 53	Kerry 47	Bush 54
Nader 1	Bush 46	Bush 52	Nader 1

Ohio	**New Mexico**	**New York**	**New Hampshire**
Kerry 51	Kerry 50	Kerry 62	Kerry 54
Bush 49	Bush 48	Bush 36	Bush 44
	Nader 1	Nader 2	Nader 1