# "The Most Liberal Senator"?: <br> Analyzing and Interpreting Congressional Roll Calls 

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#### Abstract

The non-partisan National Journal recently declared Senator John Kerry to be the "top liberal" in the Senate based on analysis of 62 roll calls in 2003. Although widely reported in the media (and the subject of a debate among the Democratic presidential candidates), we argue that this characterization of Kerry is misleading in at least two respects. First, when we account for the "margin of error" in the voting scores -- which is considerable for Kerry given that he missed $60 \%$ of the National Journal's key votes while campaigning -- we discover that the probability that Kerry is the "top liberal" is only.30, and that we cannot reject the conclusion that Kerry is only the $20^{\text {th }}$ most liberal senator. Second, we compare the position of the President Bush on these key votes; including the President's announced positions on these votes reveals the President to be just as conservative as Kerry is liberal (i.e., both candidates are extreme relative to the $108^{\text {th }}$ Senate). A similar conclusion holds when we replicate the analysis using all votes cast in the $107^{\text {th }}$ Senate. A more comprehensive analysis than that undertaken by National Journal (including an accounting of the margins of error in voting scores) shows although Kerry belongs to the most liberal quintile of the contemporary Senate, Bush belongs to the most conservative quintile.


[^0]"Scoring" lawmakers based upon the votes they cast while serving in Congress is both commonplace and politically consequential. However, scoring legislators' voting records is not without its problems -- even when performed by organizations without a specific policy agenda. A telling illustration of the impact that these "scores" have on political debate recently arose in the Democratic presidential primary for the 2004 presidential election.

On February 29, 2004, the non-partisan publication National Journal released its analysis of congressional voting for 2003. Of particular interest was the finding that Sen. John Kerry -- the presumptive Democratic nominee for president -- was identified as the most liberal senator in 2003 based upon the analysis of 62 "key" votes. This finding was widely publicized and became the subject of a Democratic presidential debate held the very next night in New York City.

Despite being conducted by a non-partisan source, we show that the publicity and subsequent influence of the ratings on political discourse is misleading in at least two respects. First, ignoring the "margin of error" associated with the scores is politically consequential; the conclusion of the National Journal (and publicized by the press) that Kerry is the most liberal senator in 2003 is doubtful if the votes Kerry missed while campaigning for the Democratic nomination are properly accounted for.

Second, the voting scores were not placed in a proper political context. What made the ratings newsworthy were the scores of the Democratic presidential candidates. But frankly, a fairer picture emerges when we consider President Bush's position on issues considered by the Senate. Including President Bush in the analysis significantly changes the political interpretation of the data: Kerry appears to be as "liberal" as Bush is "conservative" for the votes that the National Journal analyzed in 2003. In short, Kerry's apparent "liberalism" is only half of the story; the other piece of news is the apparent "conservatism" of President Bush. Given that we can reasonably
expect charges of "extremism" to be part of the cut and thrust of this year's election campaign, we offer the following analysis as a modest corrective.

## Roll Calls and the 2004 Presidential Election (So Far)

Using roll call votes to track lawmakers' behavior is prevalent both in the political arena and in academia. Politically motivated groups such as the Americans for Democratic Action, the American Conservative Union, the Sierra Club, the National Federation of Independent Business, the U.S. Chamber of Commerce, the National Rifle Association, the National Right to Life organization, NARAL, and the AFL-CIO all routinely score legislators according to whether legislators vote in accordance with their respective policy agendas. These resulting scores are used not only to mobilize members and target incumbents in elections (e.g., the Americans for Democratic Action "Zeros and Heroes" list), but the groups also seek to influence lawmakers' votes by publicizing which votes are going to be scored ahead of time. As CQ Weekly reports "interest groups -- and members of Congress themselves -- use legislative scorecards for much more than reflecting an assessment of each lawmaker's record or mobilizing supporters at the grass-roots level at election time. Scorecards, interest groups and lawmakers agree, have become an effective tool of the lobbying trade" (Cochran 2003:924).

Non-partisan organizations and publications such as Project Vote Smart, the National Journal, and CQ Weekly also routinely and independently score legislators. Unlike the scores produced by partisan organizations (which are intended to serve political purposes), the scores of non-partisan publications aim to present an objective assessment of lawmakers' voting behavior. While the voting scores given by partisan groups' scores reveal the extent to which lawmakers agree with policy agenda of the particular group, the scores of non-partisan groups seek to measure how liberal and
conservative legislators are. In so doing they provide an important public service: for instance, an interested citizen might well rely on the non-partisan scores as reasonably unbiased summaries of the ideological positions of their congressional representatives, perhaps with a view with to assessing whether they should vote for them in the next election.

The scores of ostensibly neutral arbiters like National Journal shape political discourse in less passive ways. Precisely because the source is neutral, noteworthy features of the National Journal scores attract the attention of the press and the campaigns. In particular, candidates seeking to define one another as "extreme" and "out-of-step" with voters may use the scores to validate their claims. It is well-known that a ". . . problem for members of Congress seeking the presidency is their extensive voting records, which can -- and usually are -- deciphered, deconstructed and even distorted by opponents looking to given those positions a negative spin" (Martinez 2004: 458). Evidence from impartial sources may provide the basis for such claims.

The presumptive Democratic presidential nominee - Senator John Kerry (MA) - is especially susceptible on this score, if only because his voting history is so long: 6,310 recorded votes cast over 20 years of service in the Senate. Since the candidacy of Lyndon B. Johnson, only two other presidential candidates have had lengthier roll call records (and therefore recorded positions on national issues). The holders of the top two spots -- Senator Bob Dole and Representative Gerald Ford -- both lost their presidential bids. Kerry's Republican opponents are seeking to ensure that Kerry shares their fate, for as CQ Weekly reports: "Republicans are combing through the 6,310 votes Kerry has cast in the Senate to date, looking for this or that position as an indication that the likely Democratic challenger to President Bush is out of step with mainstream America" (Martinez 2004:458).

Precisely this opportunity presented itself when the non-partisan National Journal
issued its ratings of lawmakers for 2003 in January of 2004. The ratings revealed that Kerry was the most "liberal" senator in 2003. In interpreting this result, the National Journal wrote, "To be sure, Kerry's ranking as the No. 1 Senate liberal in 2003 -- and his earning of similar honors three times during his first term, from 1985 to 1990 -will probably have opposition researchers licking their chops" (Cohen, 2004).

The national impact of the scores was immediate. On February $28^{\text {th }}, 2004$-- the day after the scores were released -- Kerry's ranking was reported in the Boston Herald ("Liberal Label Sticks; GOP Jumps on Kerry Over Senate Ranking"), the New York Post ("Survey: Kerry A Flaming Liberal") and the Washington Times ("List Says Kerry Top Senate Liberal"). Kerry's ranking also surfaced during the Democratic presidential debate sponsored by CBS and the New York Times held on February $29^{\text {th }}$ in New York City. Elizabeth Bumiller, a reported for the New York Times, questioned Sen. John Kerry about his rating as the most liberal senator in 2003:

BUMILLER: The National Journal, a respected, non-ideological publication covering Congress. . . has just rated you, Senator Kerry. . . the most liberal senator in the Senate. How can you hope to win with this kind of characterization, in this climate?

KERRY: Because it's a laughable characterization. It's absolutely the most ridiculous thing l've ever seen in my life.

BUMILLER: Are you a liberal?
KERRY:... I mean, look, labels are so silly in American politics. I was one of the first Democrats in the United States Senate in 1985 to join with Fritz Hollings in deficit reduction. Now, does that make me a conservative? I fought to put 100,000 police officers on the streets of America. Am I a conservative?

BUMILLER: But, Senator Kerry, the question is...

KERRY: Do you know what they measured in that? First of all, they measured 62 votes. I voted 37 times; 25 votes they didn't even count because I wasn't there to vote for them. Secondly, they counted my voting against the Medicare bill, which is a terrible bill for seniors in America, they called that being liberal. Lots of conservatives voted against that.

In addition, they counted my voting against George Bush's tax cut that we can't afford. I thought it was fiscally conservative to vote against George Bush's tax cut. They call it liberal.

BUMILLER: Is this a helpful characterization in this campaign?
KERRY: I think it's the silliest thing l've ever heard.

In addition to Kerry's dismissal of the National Journal scores, Sen. John Edwards responded "I don't think anybody in America cares about what some inside-Washington publication says about your ideology." Perhaps. But there is no doubt that the charges as to the "extremism" of both Kerry and Bush will play a critical role in the campaign for president this year.

Since roll call scores permit both the press and partisan groups to characterize (or validate characterizations) of opposition candidates, an understanding of roll call scores is essential in order to determine the extent to which they should influence political discourse. For example, how much weight should be given to the ratings of the National Journal (produced by Will Schneider -- a senior political analyst for CNN and frequent commentator on contemporary politics) in light of Kerry's criticisms; is Kerry's reaction mere political "spin" or does it speak to a more serious criticism of the scoring procedure that finds him "the most liberal senator in 2003"?

Also, how does President Bush rate relative to Kerry? Even if it is the case that Kerry is among the most liberal Senators, the political weight of this characterization depends critically on the extremism of his opponent. Quite simply, the choice between
a liberal and a moderate is much different than the choice between a liberal and a conservative.

## Identifying the Most Liberal Senator(s)

The National Journal scores are based on 62 key roll calls from the Senate, and 73 from the House. In reporting its methodology, the National Journal notes:

The ratings rank members of Congress on how they vote relative to each other on a conservative-to-liberal scale in each chamber. The scores are based on lawmakers' votes in three areas: economic issues, social issues, and foreign policy. The scores are determined by a computer-assisted calculation that ranks members from one end of the ideological spectrum to the other, based on key votes . . . selected by National Journal reporters and editors (Cohen, 2004).

In addition to publishing the results in a February $28^{\text {th }}$ cover story entitled "How they Measured Up," the scores are posted on the National Journal website. The most newsworthy result in the rankings is that John Kerry is reported to be more liberal than $97 \%$ of the Senate, and more conservative than $4 \%$ of the Senate. No other Senator is ranked "more liberal" in the National Journal rankings. John Edwards is ranked "second most liberal" by this measure, estimated by National Journal to be more liberal than $95 \%$ of the Senate, and more conservative than $6 \%$ of the Senate.

One problem is that there are no "margins of error" for the reported scores. It is well-known that the results from public opinion polls are inexact measures of true public opinion and that the error associated with the results must be acknowledged. The same is also true for roll call scores. In fact, the uncertainty that accompanies a voting score (or ought to) is most easily explained using analogies from the realm
of public opinion polling. Uncertainty results from using a small number of roll call votes, just as a small sample size induces uncertainty in the results of an opinion poll. There is also the question of validity: the legislator's decision on any analyzed vote may well have been influenced by party pressure, presidential pressure and/or lobbying by interested groups, and is not a perfect reflection of the legislator's ideology (analogously, survey questions are imperfect, and don't tap respondents' attitudes they we think they might). Finally, the lawmaker may have missed some votes (i.e., surveys are subject to bias from non-response).

These sources of errors have important political consequences for the proper interpretation of Kerry's voting record (indeed, any voting record) and the 2003 National Journal scores. As Kerry noted in the New York debate, as a result of his presidential campaign, he (and the other Democratic presidential candidates) missed a sizable fraction of the votes that the National Journal analyzed. For the 62 key roll calls in the Senate in 2003, the average abstention rate is $2.9 \%$-- with 56 senators voting on every analyzed vote and 23 senators voting on all but one. Interpreting President Bush's announced positions on the 62 votes (as reported in CQ Weekly) as evidence of how Bush would vote were he in the Senate allows us to compare the percentage of recorded votes by Bush and the Democratic presidential candidates. Table 1 summarizes the findings.

| Lawmaker | Absentee Rate <br> 62 National Journal <br> Key Votes |
| :--- | :---: |
| President George W. Bush | $61 \%$ |
| Sen. John Kerry | $60 \%$ |
| Sen. Joseph Lieberman | $40 \%$ |
| Sen. John Edwards | $35 \%$ |
| Sen. Robert Graham | $24 \%$ |

Table 1: Absentee Rates, Selected Lawmakers

As is immediately evident from Table 1, the President and the presidential candidates took positions on only some of the analyzed votes. In fact, the two presidential candidates -- Bush and Kerry -- announced positions or voted only 40\% of the time. Kerry was right to suggest in the New York primary debate that his absenteeism is consequential -- there is far less data with which to estimate his voting score (and those of his fellow presidential candidates) than for the typical senator. Using fewer votes (i.e., smaller sample size) to score Kerry means that Kerry's score will contain a larger margin of error than those of other candidates. Any conclusion about Kerry's voting score and his relative rank ordering in the senate should be sensitive to this important feature of the roll call data.

To demonstrate both the validity of Kerry's reaction and the importance of reporting "margins of errors" for vote scores we first replicate the analysis of the National Journal using the method outlined in Clinton, Jackman and Rivers (2004). The intuition underlying statistical models of legislative voting such as that employed by the National Journal and us is that each roll call presents each legislator with a choice between a "yea" position and a "nay" position. Legislators are presumed to vote for the position most similar to their own ideal policy position/outcome. The most-preferred policy outcome for a legislator may is a function of possibly several factors: these include personal ideology, the ideology of the legislator's constituency, lobbying by interest groups and pressure from party leaders. Voting scores can therefore be interpreted as measuring the legislator's most preferred policy position/outcome; legislators with lower scores can be interpreted as preferring more liberal policy outcomes relative to legislators with higher scores. ${ }^{1}$

It is important to note that the scores cannot be interpreted as measuring "liberalism" or "conservatism" per se; there is no necessary relationship between the scores

[^1]of legislators and whether a legislator is best classified as a "liberal" or "conservative" in any absolute sense, or according to some abstract ideological standard. Low scores reflect "liberalism" (and high scores "conservatism") only to the extent that the key votes presented choices between "liberal" and "conservative" outcomes. Scoring legislators only reveals whether some legislators are more liberal than others based on the analyzed votes -- not how faithfully the voting history reflects a particular ideological conception. ${ }^{2}$

We present our results in a series of graphs. Figure 1 shows our estimated voting scores for the 100 Senators (solid points) along with a $95 \%$ margin of error for each voting score (horizontal bars). Negative scores are associated with more liberal ideal positions and positive scores represent more conservative ideal positions. Blue dots indicate Democratic Senators, generally to the left of Republican Senators (red dots) -the notable exception being Zell Miller (GA).

We see immediately that some senators' voting scores are estimated with considerably wider margins of error than for other senators. This is a product of two factors: (1) the relative lack of data resulting from absenteeism -- all else equal, the less data we have the larger the margin of error -- and (2) extremism -- all else equal, as ideological extremism increases the margin of error increases because the voting record becomes less informative (e.g., while the data suggest Rick Santorum is relatively conservative, since we seldom observe Senator Santorum voting for the more liberal position we don't know precisely how conservative he is). ${ }^{3}$ Both features appear to influence

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Senator Kerry's score; our best guess is that Kerry is quite liberal, but it is difficult to precisely state "how liberal" given the combination of a relatively one-sided voting record and relatively little data.

Figure 2 ranks the Senate from most liberal to the most conservative based on the voting scores (and margins of error) graphed in Figure 1. By definition, the ranks and their margins of error must lie within 1 and 100 inclusive. Again, the dots indicate the most likely rank for the indicated senator, while the horizontal bars indicate $95 \%$ margins of error. Given that the voting scores graphed in Figure 1 contain a margin of error, so too will any rank-ordering based on these scores. Given the margins of error, there is considerable uncertainty in the ranks and it is not possible to assign a given senator to a particular rank with absolute certainty. Nonetheless, we can estimate the probability that a given senator is the most liberal senator (has a rank of 1 ): only three Senators have any appreciable chance of being the most liberal Senator, namely Kerry (0.38 probability), Senator Sarbanes ( 0.28 ), and Senator Reed ( 0.24 ).

We can also compare any two senators to assess the probability that they statistically distinguishable. For instance, the probability that Senator Edwards has a voting score more conservative (greater than) Senator Kerry's is.90, short of the traditional $95 \%$ standard used in social-scientific research but moderately strong evidence nonetheless. The probability that Senator Lieberman has a more conservative voting record than Senator Kerry is an overwhelming. 998 (which is the same probability that Lieberman's voting record is more conservative than Edwards' voting record).

Note also that Kerry's voting score is indistinguishable from the other senators with non-trivial probabilities of being the "most liberal", Senators Sarbanes and Reed: the probabilities that these Senators have voting scores more liberal than Kerry's are is relatively smart, but we lack a precise estimate of how smart the student is in an absolute sense. Indeed, this is one of the motivations behind adaptive testing in standardized tests; i.e., tailoring the difficulty of items to the ability of test-takers, as revealed by their responses to items answered earlier in the test.

Figure 2: Rank Ordering and 95\% Confidence Intervals using 62 National Journal Key Votes
both. 51 , or roughly 50-50. That is, while these Senators each have a slightly lower probability of being the "most liberal" senator than does Kerry, Kerry's voting score is indistinguishable from their voting scores (for the 25 roll calls in which Kerry casts a vote --- out of the 62 key roll calls analyzed by National Journal --- Kerry's voting record is indistinguishable from Sarbanes' and Reed's. Any of these three Senators could be the "most liberal" senator of 2003.

## Comparing Bush and Kerry

A second problem with the analysis thus far is that it is silent on the comparison that is arguably most politically consequential -- the relative positions of President Bush and Senator Kerry. This comparison is relatively straightforward to make: we compute a voting score for President Bush treating Bush as an additional legislator in the statistical analysis, with a voting record on the National Journal key votes given by Bush's announced positions on these votes as reported by CQ Weekly. Table 1 reveals that both Kerry and Bush failed to take a position on approximately $60 \%$ of the 62 analyzed votes, and so we expect to recover an implied voting score for Bush that has a large margin of error associated with it.

Figure 3 presents our estimated relative rank ordering for both the $108^{\text {th }}$ Senate and President Bush using the 62 key votes of 2003 identified by the National Journal. Bush's implied voting record is at least as conservative as any Republican senator. In fact, seventeen Republican senators have voting records that are in complete agreement with Bush's announced positions (ignoring abstentions). The fact that Bush announced positions relatively infrequently (on 24 of 62 key votes) generates considerable uncertainty in the voting score we assign him. In turn, this generates considerable uncertainty in the rank orderings among conservative Republicans, just as Kerry's high rate of absenteeism, coupled with a relatively extreme voting record

Figure 3: Rank Ordering and 95\% Confidence Intervals Including President Bush using 62 National Journal Key Votes
generates uncertainty in any assessment of how liberal Kerry might be. The probability that Bush lies to the right of the entire Senate is.41; other contenders for the "most conservative senator" include Senator McConnell of Kentucky (probability of.18), Senator Allen of Virginia (.16) and Senator Burns of Montana (.11).

It is worth repeating that the combination of short and extremely one-sided voting histories means that estimates of legislators' voting scores (and rank orderings) are imprecise. Although the most probable rank ordering supported by the data locates Bush as more conservative than the entire Senate, a conventional 95\% margin of error on Bush's voting score extends far into Republican ranks: in fact, there is better than a $5 \%$ chance that Bush is less conservative than as many as twenty-two senators. Likewise, although the most probable rank ordering supported by the data locates Kerry as more liberal than the rest of the Senate, there is a better than $5 \%$ chance that Kerry is less liberal than as many as sixteen senators. These margins of error are large when one considers that Senate consists of one hundred legislators, underscoring the limits of the available data.

## A Longer Horizon: Bush and Kerry in the $\mathbf{1 0 7}^{\text {th }}$ Congress

The analysis above highlights the difficulties of estimating voting scores for incumbent legislators who are actively seeking the presidency. Campaigning takes these legislators away from Washington, generating considerably high rates of abstention in their voting records in the run up towards an election. Indeed, the problem is probably more pernicious: the roll calls that do draw candidates back to Washington to cast votes are not a random subset of roll calls, but on issues where their votes might have been extremely important for procedural reasons. Party loyalty might explain some of these votes rather than a genuine ideological position. In fact, there is some evidence that this is precisely what happened:

As John Kerry was preparing to fly to Des Moines to unveil his health care platform on May 15 , his well-laid plans for furthering his presidential candidacy were suddenly complicated by his day job representing Massachusetts in the United States Senate. The Republican leadership had chosen that day for the climactic votes on President Bush's second major tax cut -- sure to be among the defining issues of the 2004 campaign. So, like the other five members of Congress seeking the Democratic presidential nomination, Kerry scrambled his campaign schedule and was on hand to vote against the bill that ultimately became last year's $\$ 330$ billion, 11-year tax-cut" (Kady II, 2004: 22).

The majority party (in this case, the Republicans), might also manipulate the legislative agenda to force the presidential candidates of the minority party into difficult positions. For these reasons, it may not be realistic (either statistically or politically) to characterize a presidential candidate's ideology on the basis of their voting history while actively campaigning.

To determine if analyzing more votes in a non-presidential year is (both statistically and politically) consequential we analyze the 498 non-unanimous roll calls of the $107^{\text {th }}$ Senate. Again, we include President Bush in the analysis, adding his announced positions to the roll call data (Bush publicly announced positions on 63 of the 498 non-unanimous roll calls). In contrast to the National Journal key votes of 2003, Kerry misses just 15 of the 498 non-unanimous roll calls in the $107^{\text {th }}$ Senate. ${ }^{4}$

Figure 4 presents the rank-ordering and $95 \%$ confidence intervals that result from the analysis of this larger data set. Taking this longer time horizon and analyzing more votes in a non-presidential election year reveals a slightly different conclusion. The

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Figure 4: Rank Ordering and 95\% Confidence Intervals Including President Bush using all non-unanimous roll calls from the $107^{\text {th }}$ Senate.
probability that Kerry is the most liberal senator in the $107^{\text {th }}$ Senate is infinitesimally small. Our best guess is that Kerry is the $16^{\text {th }}$ most liberal senator, and a $95 \%$ confidence interval on his rank ranges from the $10^{\text {th }}$ most liberal to the $20^{\text {th }}$ most liberal. In contrast, the probability that President Bush is the most conservative lawmaker in the analysis is 31\%; other contenders include Senators Helms (R-NC, with probability 0.24 ), Kyl (R-AZ, 0.20) and Gram (R-TX, 0.17). Our best guess is that Bush is more conservative than the entire Senate, but since the President did not take a position on every vote we cannot estimate his score (and rank) with much precision. As a result, a $95 \%$ confidence interval over Bush's rank extends from the most conservative to the $27^{\text {th }}$ most conservative.

In summary, with this larger set of data, the conclusion that Kerry is extremely liberal simply isn't supported. To be sure, Kerry is more liberal than most senators, and we would unambiguously locate him among the most liberal quintile of the Senate. But Kerry is far from being the most liberal senator in the $107^{\text {th }}$ Senate; the late Paul Wellstone (D-MN) is unambiguously to the left of the rest of the $107^{\text {th }}$ Senate. In fact, the only conclusion that is supported by analyses of both the $107^{\text {th }}$ Senate and the 62 votes analyzed by the National Journal is that Kerry and Bush are among the most liberal and most conservative quintiles, respectively.

## Conclusion

A voting score simplifies a legislative voting history into a single number, providing an easily understood and easily communicated basis for comparing legislators. But it is important that voting scorecards be understood in perspective. A re-analysis of the 62 key votes studied by the non-partisan National Journal are actually much more ambiguous than reported. The probability that Kerry is the most liberal senator is only $30 \%$-- far from the certainty implied by newspaper headlines. Furthermore, using
conventional levels of statistical significance, we cannot rule out the possibility that Kerry is actually only the $20^{\text {th }}$ most liberal senator based on the 62 votes in 2003 analyzed by the National Journal.

An analysis including the public positions taken by President Bush reveals that Bush lies in the most conservative quintile of senators. Analyses that fail to include the publicly announced positions of President Bush fail to provide an appropriate context for interpreting Kerry's score. A more balanced analysis, one that includes both Bush and Kerry, finds that both are extreme relative to the Senate; although Kerry is more liberal than a large majority of the Senate, so too is Bush more conservative than most of the Senate. This conclusion also results when votes cast in the $107^{\text {th }}$ Senate are analyzed.

Political scientists have devoted considerable effort (e.g., Clausen 1973; Poole and Rosenthal 1997; Clinton, Jackman and Rivers 2004) to analyzing roll call votes and the properties of vote scores for legislators (e.g., Snyder 1992). Given a political environment in which candidates are eager to use information to portray their opponents as extreme, it is important to place any vote scores in a proper context. Just as it is problematic to report public opinion results without accounting for the margin of error, so too is it problematic to report vote scores without accounting for the scores' uncertainty. The characterization of Sen. John Kerry as "the most liberal" senator resulting from the publication of the National Journal scores is unfortunate when considered in this light. As we have demonstrated, the political implications of the scores change once we account for the scores' margin of error and the context.

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[^1]:    ${ }^{1}$ Of course, this assumes that the score is such that low scores are liberal and high scores are conservative.

[^2]:    ${ }^{2}$ This important caveat applies to many measurement procedures in social-scientific settings: no matter how reliable our measurement procedures, we often face doubts as to the validity of our measures. We simply can't measure latent traits such as a legislator's ideological position, the quality of a hospital, or human intelligence the same way we measure height, weight, distance, time, temperature, or latitude and longitude. For all of the latter examples the concepts are well defined and there are established conventions regarding units of measurement and reference points, making valid measurement possible. Voting scores do not faithfully reflect varying degrees of liberalism, say, the way a ruler lets us measure the lengths of objects.
    ${ }^{3}$ The analogy from in an educational setting is the student who gets every question asked of them correct: until the student is asked questions that they answer incorrectly, all we know is that the student

[^3]:    ${ }^{4}$ We also break the voting history of Jeffords (VT) into two pieces, corresponding to his switch from a Republican to an Independent; the data strongly suggest that his voting records changed as a result of this switch.

