

An Unrecognized Need for Ballot Reform

*The Effects of Candidate Name Order
on Election Outcomes*

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Since the firestorm that erupted nationwide on November 7th, 2000, election technologies in the United States have come under close scrutiny. A commission headed by former presidents (National Commission on Election Reform, 2001), an interuniversity consortium of academic scholars (Caltech/MIT Voting Technology Project, 2001b. See Alvarez et al., this volume.), and a good many ordinary citizens have recognized and thought hard about the potentially disastrous consequences of a voting system that falls prey to errors and biases. To be sure, elections like the presidential contest of 2000, with a margin slim enough both within a state and across states to make even the smallest discrepancies in vote counts consequential, are rare indeed. So the substantial expense entailed by changing voting technology to improve accuracy may seem unjustified on financial grounds alone. But such improvement seems more clearly worthwhile in light of its potential to enhance public trust in the electoral process in America and to promote the principle of fairness at the center of American values.

Yet there is a paradox inherent in our nation's approach to the debacle of 2000. While a tremendous amount of energy is being devoted to considering and implementing costly voting reform, lurking in the shadows is another systematic bias that has been altering and will continue to alter the outcomes of many electoral contests, unchecked and unacknowledged in all the debates sparked by the debacle of 2000.

In this chapter, we focus on that source of bias in an effort to pull it out of the shadows, to characterize its operation and consequences, and, we hope, to inspire people who care deeply about electoral fairness in the United States to end it. This source of bias has its roots in the basics of human psychology. The

choices people make among alternatives are routinely influenced by the order in which the choosers consider their various options. It ought to come as no surprise that this bias influences election outcomes from a cognitive perspective. And it is surely no surprise to politicians that this bias influences election outcomes, as they have shown an awareness of it for at least a century. Yet election laws around the country nonetheless reinforce and perpetuate the bias rather than attenuate it.

The bias has a simple cause: the order of candidates' names on the ballot. For at least a century, politicians have speculated that name order matters, and most social scientists who have studied the phenomenon concluded that it is real, but state legislators and courts have rarely acted to remove this source of electoral bias.

After reviewing both the speculations about name order effects and the variations in state laws and court decisions, we offer a psychological theory to explain why name order matters and present data from analyses of the 1992 Ohio elections to show that there are indeed substantial name order effects. We then report new findings on the 2000 election in three major states. Most strikingly, we find that even in the highly-publicized and hotly-contested presidential race, name order mattered.

EARLY SPECULATIONS

At least since the beginning of the last century, seasoned political observers have believed that the ordering of candidates' names on ballots has some influence on the outcomes of elections (see Darcy and McAllister 1990). For example, Woodrow Wilson (1910, p. 593) asserted:

I have seen a ballot which contained several hundred names. It was bigger than a page of newspaper and was printed in close columns as a newspaper would be. Of course, no voter who is not a trained politician, who does not know a great deal about the derivation and character and association of every nominee it contains, can vote a ticket like that with intelligence. In nine out of ten cases, he will simply mark the first name under each office, and the candidates whose names come highest in the order will be elected.

Some years later, Joseph Harris (1934, p. 181) asserted:

Much more important than the order of offices on an election ballot is the order in which the names of the candidates appear in office group ballots. This is particularly true in direct primary and nonpartisan elections, and is of most importance in cases where several persons are to be elected to the same office. The position at the top of a list of candidates is of material help to the candidate thus favored, especially for minor positions.

These experienced observers speculated that being listed first helps a candidate to win an election, especially when thoughtful decision-making is costly

to voters: When ballots are long, many candidates are competing for the same office, voters are not well informed, or party affiliation cannot facilitate voters selections. Under these circumstances, proposed these observers, voters may be affected by name order when making their decisions.

NAME ORDER LAWS

If the early observers were correct and name order does indeed affect the balance of votes cast, and if legislators want to see to it that election outcomes are fair and unbiased, then state laws could prescribe a system of name ordering that advantages no particular candidate. In fact, this is just what is done in Ohio.¹ State law requires that the order of candidate names be rotated from precinct to precinct, such that each candidate is listed first in an equal number of precincts. No candidate has the privilege of a first-place listing more often than any other candidate.

Ohio is not alone in this regard.² North Dakota, Montana, and Idaho carry out similar procedures, rotating from precinct to precinct or across paper ballots or counties. In races run in all counties in California, name order is rotated across assembly districts in a similar fashion.³ In Kansas, name order rotation is done either by precinct or by county. In all nonpartisan races in Iowa, candidates are rotated by precinct, and candidates in nonpartisan races in Arizona are rotated from paper ballot to paper ballot. Michigan rotates candidate names across precincts for nonpartisan races, and Minnesota and Nebraska rotate candidate names across ballots or precincts. Some additional states have procedures that mimic the effect of rotating candidate names, such as Arkansas, where a separate random order of candidate names is created in each county.

But that's it. Only twelve states in the United States rotate name order fully in some or all of their elections. The vast majority of states do not take any such steps to eliminate any advantage of one candidate over another in this regard. The diversity of alternative systems used is startling, as shown in Table 4.1.

One might guess that some of the approaches not entailing name rotation are mandated by very old laws, put in place before the possibility of name order bias was recognized. In fact, some such laws were put in place very recently. Alaska required prior to 1995, for example, that candidate names be rotated on the ballot to give all candidates placement in the first position equally often. But in 1995, the state legislature amended this rule to require instead that one single randomly-determined name order be used for each race. The recommendation to make this change came from the lieutenant governor's Election Policy Transition team, which asserted that "research indicates that the order of candidates' names on American ballots does not significantly influence voters" and that using a single name order would save money and reduce the potential for voter confusion (see *Sonneman v. State of Alaska* 1998).

What could account for this diversity of approaches? Perhaps name order doesn't actually affect election outcomes, and so no system is any better than any other system. Another possibility is that many politicians, parties, special

TABLE 4.1 Procedure for Ordering Candidate Names in General Election**Procedure for Ordering Names**

Rotation of candidate names across ballots, across precincts, across counties, or across assembly districts.

All candidates are listed in one order, determined randomly by a random alphabet.

Democratic Party and Republican Party candidates are listed before all other candidates, in a random order generated separately by each county.

Listed next are all candidates affiliated with other parties, in an order determined by the date on which the candidate filed to be on the ballot in the county. Finally, all candidates not affiliated with a party are listed, again in an order determined by the candidate's filing date in each county.

Democratic Party candidates are listed first;

Republican Party candidates are listed second; candidates affiliated with other parties are listed next (in alphabetical order by party name); candidates unaffiliated with parties are listed last (in alphabetical order by candidate surnames).

All candidates are listed in one order, determined randomly, either for the entire state or for each county separately.

Candidates from the major parties are listed first in a random order, followed by the remaining candidates listed in a random order, done either statewide or separately by county.

Candidates are listed alphabetically by candidate surnames.

Candidates from "major" parties are listed in a random order first, followed by all other candidates in alphabetical order by candidate surname.

In the race for president, candidates from "major" parties (Democratic and Republican) are listed first in alphabetical order by party name, followed by all candidates affiliated with other parties, listed alphabetically by party name. Candidates must be affiliated with a party to be listed.

Procedure for Ordering Names

In each election held in November of an even-numbered year, the recognized political parties are placed in an order that applies to all races, and candidates not affiliated with a party are grouped together (ordered alphabetically by surname) somewhere in the midst of that list of parties. That order applies to all elections for the next two years. For the elections held in November two years later, the party at the top of the order is moved to the bottom of the party ordering list, and that new order is used for all elections during the next two years.

The incumbent running for reelection is listed first, followed by candidates affiliated with other recognized parties, in alphabetical order by surname, followed by other candidates, ordered alphabetically by candidate surname.

Candidates affiliated with major parties are listed in descending order of the number of votes cast statewide for their party in the most recent race for governor. The remaining candidates are listed either in the order in which they were certified to be on the ballot or in a single random order or alphabetically or in descending order of the largest number of residents to be represented by the offices for which candidates from a party are running.

Each county lists the candidates in descending order of the number of votes cast in the county in the most recent race for governor. Other parties are then listed alphabetically by party name, and then candidates not affiliated with parties are listed alphabetically by surname.

Candidates are listed in descending order of the number of votes cast statewide for their party in the most recent race for president of the United States. The remaining candidates are listed in the order in which they filed to be listed on the ballot. Candidates are listed in descending order of the number of votes cast in the primary election for that race.

Candidates are listed in descending order of the number of votes received by their parties in the most recent election for U.S. congressional representative in the county. Candidates affiliated with parties that did not run candidates in that race are listed next, in a random order. And candidates not affiliated with any parties are listed next, in alphabetical order by candidate surname.

State(s) Using That Procedure

South Carolina*

Massachusetts

Pennsylvania, Georgia,* New York,
Connecticut, Nebraska, Texas,*
Florida,* Missouri*

Arizona*

Washington,* West Virginia*

Oklahoma,* Washington,* Utah*

Wyoming*

TABLE 4.1 (continued)

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TABLE 4.1 Procedure for Ordering Candidate Names in General Election (continued)**Procedure for Ordering Names**

Candidates are listed in descending order of the number of votes cast statewide for their party in the most recent race for secretary of state. Parties that did not have a candidate in that race have their candidates listed next in the order in which they filed to be listed on the ballot. Candidates not affiliated with parties are listed next, in the order in which they filed to be listed on the ballot.

Major party candidates are listed in a county in descending order of the number of votes cast in the county for their party in the most recent race for secretary of state. Next are listed candidates affiliated with other parties in the order in which they filed to be on the ballot. Candidates not affiliated with any party are listed next in the order in which they filed to be on the ballot.

Candidates are listed in descending order of the number of votes cast statewide for their party in the most recent race for governor or president of the United States (whichever race occurred more recently). Candidates not affiliated with parties that ran candidates in that race are listed in a random order.

Candidates are listed in descending order of the number of voters registered as a member of their party who participated in the most recent state general election. Following these candidates are all other candidates, listed in the order in which they qualified to be on the ballot.

Ordering of candidate names in nonpartisan races is left to the discretion of the elections official in each county.

Candidates affiliated with the current governor's party are listed first, followed by candidates affiliated with other parties (listed in descending order of the number of registered voters registered to that party in the state), followed by candidates not affiliated with a party (listed in alphabetical order by candidate surname).

Candidates from the Democratic and Republican parties are listed first in a single randomly determined order by party name, followed by candidates affiliated with "minor" parties (listed in a different single randomly determined order by party name), followed by the remaining candidates (listed in a different single randomly determined order by candidate name).

State(s)

Michigan

Indiana

Wisconsin*

New Hampshire*

New Jersey*

Maryland*

Colorado*

Procedure for Ordering Names

In the race for President, the Democratic and Republican candidates are listed first in alphabetical order by candidate surname. Then the candidates affiliated with minor parties are listed in alphabetical order by candidate surname. And finally, candidates not affiliated with major or minor parties are listed in alphabetical order by candidate surname.

Partisan races: Candidates from the Democratic, Libertarian, and Republican parties are listed first (in alphabetical order by party name), followed by candidates not affiliated with those parties (in alphabetical order by candidate surname).
Nonpartisan races: The probate judge in each county has the discretion to order names in any way.

Candidates affiliated with the party of the incumbent president of the United States are listed first, followed by the candidates affiliated with the other major party, followed by other candidates in a single randomly determined order.

Candidates from parties with whom 5 percent or more voters are registered are listed first, alphabetically by party name. Candidates affiliated with other parties are listed next, alphabetically by party name. Candidates not affiliated with any party are listed next, alphabetically by candidate surname.

Candidates are listed in the order in which they filed to be on the ballot, with the earliest filers listed first.

Candidates affiliated with major political parties are listed first (in whatever order the county auditor of each county chooses), followed by candidates affiliated with other parties (in whichever order the county auditor chooses), followed by candidates not affiliated with any party (in whichever order the county auditor chooses).

Candidates of the four "major parties" are listed in ascending order of the average number of votes cast for a candidate affiliated with their party in all of the most recent statewide elections.

Candidates not affiliated with the major parties are listed in a random order determined separately for each county or municipality.

Each county clerk may order candidate names however he or she likes.

State(s)

Colorado*

Alabama

Kentucky

North Carolina*

Missouri*

Iowa*

Minnesota

Utah*

TABLE 4.1 Procedure for Ordering Candidate Names in General Election (continued)

Procedure for Ordering Names	State(s) Using That Procedure
The State Board of Elections sends a sample ballot to the County Boards of Elections, and many of them use that sample ballot (although they are permitted to order names however they wish). On the sample ballot, candidates of the Democratic and Republican parties are listed first, alphabetically by party name. Next, candidates affiliated with other parties are listed alphabetically by party name. Finally, candidates not affiliated with any party are listed alphabetically by surname.	Mississippi

*Some (but not all) races run in this state use this procedure.

interests, and incumbents believe that name order does affect election outcomes, and the states vary in terms of whether they want to ensure fairness or protect certain interests or whether they want to expend resources to do so. States that require name rotation invest resources to print and distribute multiple different versions of ballots, and counting of ballots is a bit more complex when varying name orders are used. These resources are more substantial when different precincts use different voting methods (i.e., some use paper ballots and others use punch cards). States that use one random or alphabetical ordering expend considerably fewer resources and take a step in the direction of fairness but nonetheless systematically advantage some candidates over others. And states that advantage incumbent parties or office-holders perpetuate these partisan biases.⁴

DISPUTES IN COURT

In addition to Wilson (1910) and Harris (1934), mentioned earlier, another group of observers has registered concern: candidates who lost elections by small margins and candidates whose names were or would be listed on a ballot in a position other than first and who took their complaints to court (see, e.g., *Bolin v. Superior Court* 1958, *Culliton v. DuPage County Board of Election Commissioners* 1976; *Elliot v. Secretary of State* 1940; *Gould v. Grubb* 1975; *Kautenburger v. Jackson* 1958; *Ullian v. Grove* 1978; *Weisberg v. Powell* 1969). It is instructive to consider the evidence presented in these cases and the court findings themselves. Experts have testified that being first on the ballot gives an advantage of anywhere from 2.5 to 25% of the vote.⁵ Not all expert testimony on this issue has shared this perspective. One expert testified that name order effects do not influence the outcome of political races that receive a large amount of public attention.⁶ Yet another expert argued that there was not enough evidence on which to base an opinion about name order effects.⁷

In many cases, courts have written opinions clearly stating that candidate name order does matter. For example, the Supreme Court of Arizona wrote: "It is a commonly known and accepted fact that where there are a number of candidates for the same office, names appearing at the head of the list have a distinct advantage." (*Kautenburger v. Jackson* 1958).

In response to such testimony, courts have sometimes ruled that biased election procedures must be remedied. For example, in *Culliton v. DuPage County Board of Election Commissioners*, 1976, the United States District Court for the Northern District of Illinois, Eastern Division, ruled that DuPage County, Illinois, must devise a system for rotating candidates' names in order to remove any bias advantaging any one candidate or party, for use in future elections. In other cases, courts acknowledged that it was possible that name order might have biased an election outcome, but based a decision not to overturn the election on direct evidence showing that the presence and magnitude of a name order effect on the election in question was probably not large enough to have altered the outcome.⁸

Even more strikingly, in February 2002 Los Angeles Superior Court Judge Judith Chirlin ruled that the City Clerk in Compton (California) had violated California's name ordering law in that city's 2001 race for Mayor, incorrectly listing Eric Perrodin first and incumbent Omar Bradley second. Based upon testimony about the likely magnitude of the name order effect in that race, Judge Chirlin ruled that Bradley would have won if the candidates' names had been ordered properly. She therefore overturned the election result and ordered that Bradley be installed in office. California's 2nd District Court of Appeal overturned Judge Chirlin's ruling on the grounds that California law did not require reversing name order, highlighting potential legal ambiguity.

In rare instances, courts have written opinions denying the existence of name order effects, but not on the basis of any evidence. For example, in *New Jersey Conservative Party et al. v. John J. Farmer et al.* (1999), the court wrote:

That there is voter apathy and a malaise creeping in our electoral process may be assumed for the moment. The expected consequence of such a condition, however, would be an increasing number of registered voters staying home on election day. The poor turnout in the Republican and Democratic primaries in 1999 referred to in the earlier proceeding appears to support the existence of growing voter indifference. But it is an odd act of indifference for a voter to take the trouble of going to the polls only to then cast a vote without thought; this court, in the absence of clear proof, prefers to believe—perhaps naively—this windfall vote simply does not exist. The apathetic or indifferent may, and no doubt do, stay away from the polls—lately in droves—but nothing before the court suggests they do show up at the polls in order to vote in an unguided fashion.

Despite such exceptions, many people in legal settings, including plaintiffs, experts, and judges, have believed that name order effects could well affect election outcomes. But are these observers correct? Why would a citizen take the trouble of going to the polls but then cast a vote without much thought?

WHY MIGHT NAME ORDER EFFECTS APPEAR?

Name order effects are in fact easy to imagine in light of a variety of findings from past psychological research. Understanding these effects must begin by acknowledging that contemporary American elections often confront voters with tremendously challenging tasks. Voters have routinely been asked to make choices in well over two dozen races, ranging from highly visible contests to races for offices so obscure that many voters probably could not describe the job responsibilities associated with them. In 1911, for instance, Cleveland, Ohio, voters were confronted with 74 candidates for city offices, 12 candidates for Board of Education, 14 candidates for Municipal Court Judges, and 32 candidates for Constitutional Convention (Davies 1992). Matters were no better in 1992: Cleveland voters were asked to cast ballots in over forty county and statewide races, plus a number of districtwide races.

Because races for highly visible offices (e.g., for U. S. president and congress) receive a great deal of news media attention, often involve well-known incumbents, and usually involve explicit endorsements of candidates by political parties, voters who wish to make substance-based choices can do so in principle. However, candidates in such races rarely take clear and divergent stands on specific policy issues (Berelson, Lazarsfeld, and McPhee 1954; p. 1978), and media coverage of such contests usually focuses on the horserace rather than on the candidates' records and policy positions (Patterson 1994). The cognitive demands of sifting through lots of such media coverage and extracting useful, substantive information about candidates' positions are therefore probably so substantial as to outstrip most voters' incentives to do the work (Downs 1957). So people rely on only a small subset of substantive information to make vote choices, pursuing what Popkin (1991) called "low information rationality."

Media coverage of races for less visible offices (e.g. Attorney General, Auditor, Judge, Sheriff, Coroner, and Board of Education) is often much more limited, making it even more difficult for voters to make choices based on substance (e.g. Graber 1991). People pursuing low information rationality can sometimes rely on cues, such as party affiliation, that can help them identify candidates with whom they are likely to agree on policy issues (Campbell, Converse, Miller, and Stokes 1960; Miller and Shanks 1996). But party affiliations are often not listed on the ballot for the very races that receive the least media coverage. Alternatively, people can rely on name recognition: The candidate whose name sparks a stronger sense of familiarity may be seen as most likely to be the incumbent, who by virtue of his or her presumed experience may be considered the safer choice (e.g. Jacobson 1987; Mann and Wolfinger 1980). But because holders of low-visibility offices probably get very little media attention during their tenures, voters may only rarely recognize their names.

What do people do when no such cues are present at all to guide their choices? If someone knows nothing about any of the races being run on a particular election day, he or she may stay home rather than cast a ballot (Delli Carpini and Keeter 1996), in line with political theorists' notion that democratic governance should be carried out only by those citizens who are able to do so responsibly (see Dahl 1989; Pennock 1979). However, well-intentioned get-out-

the-vote efforts may sometimes provide transportation to and press minimally informed and minimally motivated citizens into casting votes when they are completely uninformed about the candidates. And sometimes, more informed citizens go to the polls to vote in a few highly visible contests, yet they are asked to vote in minimally publicized races for relatively obscure offices as well. The higher "roll-off" rates (i.e., the proportion of people who went into the voting booth but failed to cast a vote in a particular race) typical of such races presumably reflect some voters' choices to abstain on the less visible races because they lack sufficient knowledge to make a choice (Burnham 1965; Robinson and Standing 1960; Vanderleeuw and Engstrom 1987). However, other people may feel that to be responsible democratic citizens they must not only go to the polls but must also cast votes in all listed races, even when they know only a little about the candidates and have not made a firm choice among them before entering the voting booth. New technologies—such as blinking lights on machines calling attention to races in which a person has not yet voted—may encourage people to cast votes in these cases.

How do people vote under such circumstances? One psychological theory suggests that people may be inclined to select the first name they see in a list of candidates, creating a "primacy effect" (Krosnick 1991). People tend to evaluate objects with a confirmatory bias. Specifically, people usually begin a search of memory for information about an object by looking for reasons to select an answer choices, rather than reasons not to select them (Klayman and Ha 1987; Koriat, Lichtenstein, and Fischhoff 1980). In considering a list of political candidates, voters probably search memory primarily for reasons to vote for each contender rather than reasons to vote against him or her. When working through a list, people think less and less about each subsequent alternative because they become increasingly fatigued and short-term memory becomes increasingly clogged with thoughts. Therefore, people may be more likely to generate supportive thoughts about candidates listed initially and less likely to do so for later-listed candidates, biasing them toward voting for the former.

This theory is consistent with dozens of experiments that presented objects visually and nearly always found bias toward selecting initially offered options (for a review, see Krosnick and Fabrigar, forthcoming). For example, when students take multiple-choice knowledge tests, they are biased toward selecting answers offered early in a list, so they tend to answer items correctly more often when the correct answer is listed first than when it is listed last (e.g., Cronbach 1950; Mathews 1927). When people are told that an experimenter will imagine a series of questions and they should guess which of a set of offered response choices is the correct answer, people tend to select the first ones listed (Berg and Rapaport 1954). When people are asked to taste a set of beverages or foods (e.g., four brands of beer) and select their favorite, they are biased toward choosing the first one they consider (e.g., Coney 1977; Dean 1980). Voters may well manifest the same sort of bias in elections.

People attempting to retrieve reasons to vote for a candidate may occasionally fail completely, however, retrieving instead only reasons to vote against him or her. If this happens for all candidates in a given race, cognitive fatigue and short-term memory congestion would presumably bias a citizen toward

generating more reasons to vote against the first-listed candidate than reasons to vote against later-listed candidates. This would induce a "recency effect," that is, a bias toward selecting candidates listed last (see Schwarz, Hippler, and Noelle-Neumann 1993; Sudman, Bradburn, and Schwarz 1996).

Name order might also influence the votes cast by people who have no information at all about the candidates in a race but nonetheless feel compelled to vote in all races in order to be "good citizens." According to Herbert Simon's (1957) notion of satisficing, people are inclined to settle for the first acceptable solution to a problem they confront, especially when the costs of making a mistake will be minimal. If citizens feel compelled to vote in races regarding which they have no information, they may settle for the first name listed, because they have no reason to think that the candidate is not acceptable.

There is one other possible reason for primacy effects: ambivalence. If a voter has paid close attention to a well-publicized race and learned both favorable and unfavorable information about all competing candidates, the voter may feel substantial ambivalence, finding it difficult to choose between the competitors. In this situation, people may settle for the first name they see because they cannot make a choice on substantive grounds, despite having plenty of information about the competitors.

There is abundant theoretical justification for the hypothesis that the order of candidates' names on ballots may influence voters' choices in some races. If people simply settle for the first listed contender when they have no information at all about a race or feel deeply ambivalent, primacy effects will occur. Primacy effects would also be expected in races about which voters do have some information when they can generate at least some reasons to vote for each of the candidates. But when voters can only retrieve reasons to vote against competitors, recency effects would be expected.

Order-based choice should be less likely when voters are more knowledgeable about candidates and have made substance-based choices before election day (Lodge, McGraw, and Stroh 1989). Name order effects should, therefore, be strongest in races that have received little news media coverage and among voters who are exposed to little or none of such coverage. Order-based choice should also be most common in races that do not offer voters heuristic cues, such as party affiliations of the candidates or incumbency-based name recognition. Cognitive fatigue is likely to build as a voter considers race after race on a long ballot, which may increase the likelihood of name order effects. Also, races listed toward the end of a ballot may be perceived as less important than those near the beginning, so voters may be less motivated to cast votes carefully in the former and may therefore be more influenced by name order.

THE STATE OF THE EVIDENCE

During the last 50 years, many studies have been published exploring the impact of candidate name order on election outcomes. These studies have produced evidence suggesting more primacy effects (candidates receiving more votes when listed first) than recency effects (candidates receiving more votes

when listed last) or what we call "middle" effects (in races of three or more candidates, candidates receiving more votes when listed in the middle). So it is understandable that scholars might have looked at this evidence and viewed it as supporting the primacy claim.

In fact, we think that Smolka (1977) had it just right in saying that nothing had been proven by this literature, even as of 1990, because of two major design flaws in the approaches taken: inadequate tests of statistical significance and failure to randomly assign groups of voters to different name orders.

Many studies of candidate name order effects failed to report statistical significance tests of differences between the voting patterns of people who saw candidates' names in different orders (e.g., Brooks 1921; Byrne and Pueschel 1974; Hughes 1970; Mackerras 1968; Mueller 1969; Nanda 1975; Scott 1972; White 1950). We therefore cannot assess the likelihood that the differences observed in these studies were due to name order effects or were only illusory, due to chance variation. And among the studies that did report statistical significance tests, some computed them improperly, yielding the same uncertainty of meaning (e.g., Bain and Hecock 1957; Nanda 1975).⁹

Even more problematic, many studies did not involve assignment of voters to different name orders at all. Rather, these studies simply looked at whether, when combining across a large number of elections, candidates listed in different positions typically do better or worse on average (Bagley 1966; Bakker and Lijphart 1980; Brook and Upton 1974; Brooks 1921; Byrne and Pueschel 1974; Hughes 1970; Kelley and McAllister 1984; Lijphart and Pinter 1988; Mackerras 1968; Masterman 1964; Mueller 1970; Nanda 1975; Robson and Walsh 1974; Upton and Brook 1974; Upton and Brook 1975; Volcansek 1981). Obviously, if such differences are observed, they might be due to some factor other than candidate name order effects, such as alphabetic-based preferences.¹⁰

Only two studies (Darcy 1986; Gold 1952) did not have at least one significant design flaw that precludes making reasonable inferences, and neither found statistically significant name order effects, nor did they explore the impact of such potential mitigating factors as party affiliations or incumbency. Therefore, no conclusions can be drawn from this literature with confidence; whatever conclusions one draws should be reached extremely cautiously and tentatively based upon only these two studies (see also Darcy and McAllister 1990).

OUR FIRST INVESTIGATION: OHIO, 1992

We undertook the first sizable investigation of name order effects that avoided many of the pitfalls that plagued past work in the area. To do so, we took advantage of the fact that Ohio rotates candidate names from precinct to precinct (Miller and Krosnick 1998). Because this constitutes the essence of a true experiment, we were able to test whether candidates received more votes when listed first or last or in some other position.

We gathered precinct-by-precinct vote returns for the three largest counties in Ohio in 1992: Franklin (which contains Columbus), Cuyahoga (which contains Cleveland), and Hamilton (which contains Cincinnati). There were 879

precincts in Franklin County, 2,036 in Cuyahoga County, and 1,041 in Hamilton County. These constituted the units of analysis with which our tests were computed. Analyses of variance conducted on the mean vote totals received by the candidates in the precincts for 118 races in 1992 indicated that statistically significant name order effects appeared in 48% of the races, nearly always advantaging candidates listed first, by an average of 2.5 percentage points.

The tendency for primacy effects to dominate was apparent even in races with nonsignificant name order effects. In races involving two candidates, 75% of the races with nonsignificant name order effects were in the direction of primacy effects. Moreover, the average magnitude of the nonsignificant two-candidate primacy effects (1.14%) was more than 50% greater than that of the nonsignificant two-candidate recency effects (.74%). Likewise, in races involving three or more candidates, 81% of the candidates who had nonsignificant name order effects manifested trends toward primacy, whereas only 19% manifested trends toward recency effects. If there were truly no name order effects present in these races, we would expect to see an even balance of trends toward primacy and recency. The clear prevalence of primacy effects suggests that when compared to the variation between precincts in election outcomes, many name order effects are sufficiently small to go undetected by significance tests, even with this many precincts involved.

In the 1992 study, name order effects were most common when voters lacked substantive information with which to choose between the competitors. One substantive basis for choice is party identification: When voter knows the party affiliations of the candidates, he or she can easily vote for the member of his or her own party. When races are well publicized by the news media, voters presumably know a great deal about the candidates' personal and political histories, positions on policy issues, and more considerations with which to evaluate them. And when an incumbent is running for reelection, voters have presumably learned a great deal about him or her while in office. Not surprisingly, name order effects were less likely to appear when candidates' party affiliations were listed on the ballot, when a race had been well publicized, and when an incumbent was running for reelection. We also found that name order effects were especially likely to occur among voters who were less educated, presumably because they were less attentive to political affairs and accumulated less knowledge about politics in general and candidates running for office in particular. Interestingly, controlling for other race characteristics, name order effects were *more* likely to appear in races listed near the top of the ballot (in which voters feel more compelled to vote) than in races lower down (where voters more readily roll off if they lack information or feel ambivalent).¹¹ Taken together, this evidence paints a convincing portrait of name order effects as robust and startlingly common in contemporary elections.¹²

The results we reported (Miller and Krosnick 1998) may at first appear to be inconsistent with the two previous studies of this phenomenon that did not suffer from serious design flaws that found no reliable name order effects (Darcy 1986; Gold 1952). However, these studies were different from ours in ways that probably account for the differences in results.¹³

A NEW INVESTIGATION: NAME ORDER EFFECTS IN 2000 IN OHIO, NORTH DAKOTA, AND CALIFORNIA

To further fill out the body of available evidence on name order effects, we conducted new analyses of vote returns in Ohio, North Dakota, and California in 2000. We begin by describing the races selected and the methods used to rotate name order in those races. Then we outline our findings.

Contests Analyzed

In order to be included in our analyses, a contest had to meet a number of criteria. We eliminated all races that involved only one candidate running for an office or where a voter could cast a vote for more than one of the competitors running for a single office. We eliminated races in which the order of the candidates' names was not rotated across voters in a random or quasi-random (e.g., sequential assignment of precincts to name orders) fashion. We eliminated races run in a relatively small number of precincts (in Ohio or North Dakota) or assembly districts (in California) because we would have limited statistical power to detect a name order effect if one had in fact occurred. Specifically, in Ohio and North Dakota, we only analyzed races in which all voters in at least one entire county voted, thus eliminating races that were run in only a subset of precincts in a county. We also did not analyze races run in counties in Ohio that had less than 50 precincts per rotation order.¹⁴ In California, we analyzed data from all statewide races in which candidates' name rotation was done by assembly district and the vote returns were published separately for each assembly district.

Name Rotation

In Ohio, name orders were rotated as described fully by Miller and Krosnick (1998). The process started with listing all of the precincts in the county in an order determined by size of city, date of precinct creation, and the spelling of the precinct names. Then, for each race, a series of different name orders were developed, beginning first with an alphabetical ordering of the candidates. Each additional name order was created by moving the first listed candidate to the end of the list until each candidate had been listed first in one and only one order. The number of name orders created therefore equaled the number of candidates in the race. The first name order was assigned to the first listed precinct; the second name order was assigned to the second precinct; and this assignment procedure continued, rotating repeatedly through the name orders, until every precinct had been assigned to a name order. This was done independently for each race, without regard to the rotation scheme used for the other races on the ballot.

In North Dakota, name rotation was conducted independently by each county. The process began by listing the precincts in descending order according to the total number of votes cast for governor in the last election, starting with the precinct with the largest number of total votes cast and ending with the precinct with the smallest number of total votes cast. The name order as-

signed to the first precinct on the list was determined by lot. Each subsequent name order was created by moving the first-listed candidate to the end of the list. The first name order was assigned to the first listed precinct; the second name order was assigned to the second precinct; and this assignment procedure continued, rotating repeatedly through the name orders, until every precinct had been assigned to a name order. This was done independently for each race, without regard to the rotation scheme used for the other races on the ballot.

The rotation process for statewide races in California began by first listing all 80 assembly districts in an order beginning with the assembly district at the northwest corner of the state and then working inland and south to end with the assembly district in the southeast corner of the state. The name order assigned to the first assembly district on the list was determined randomly. The name order assigned to the second district on the list was created by moving the first-listed candidate to the end of the list. Additional name orders were created by repeating this process of moving the first-listed candidate to the end. The assignment procedure continued, rotating repeatedly through the name orders, until every assembly district had been assigned to a name order. This was done independently for each race, without regard to the rotation scheme used for the other races on the ballot.

Analysis Strategy

The data were analyzed using the same method employed by Miller and Krosnick (1998). We conducted analyses of variance and regressions to test the significance of linear and nonlinear effects of name order.

RESULTS

Two-Candidate Races

Of the 170 two-candidate races run in Ohio and North Dakota, 39, or 23%, showed statistically significant or marginally significant name order effects. All but two of the statistically significant or marginally significant effects were primacy effects. The percentage point difference between the votes obtained in first and last positions in the races that showed significant or marginally significant primacy effects ranged from 1.41% to 6.32% and averaged 2.88%.¹⁵

Races with More Than Two Candidates¹⁶

Of the 136 candidates who ran in races with more than 2 candidates, 50, or 37%, showed statistically significant or marginally significant name order effects. Of the significant or marginally significant effects, 74% were primacy effects, 2% were recency effects, 18% were middle effects, and 6% were primacy and recency effects. The average magnitude of the difference between the first and last positions was notably greater for the significant or marginally significant primacy effects (1.36%) than for the significant or marginally significant recency effect (40%), suggesting that the primacy effects were more robust.¹⁷

Perhaps our most interesting finding relates to the presidential election (see Table 4.2). Being listed first on the ballot was an advantage for some candidates. George W. Bush received more votes when he was listed first than when he was listed last in all three states. This difference was marginally statistically significant in California and of a strikingly large magnitude: 9.45 percentage points. Although nonsignificant, the trends in North Dakota and Ohio were in the same direction—1.69 percentage points in North Dakota and .76 percentage points in

TABLE 4.2 Name Order Effects in Races for U.S. President and U.S. Senate

Race	California			North Dakota			Ohio		
	Direction of Effect	Percent Difference between First and Last Position	Direction of Effect	Percent Difference between First and Last Position	Direction of Effect	Percent Difference between First and Last Position	Direction of Effect	Percent Difference between First and Last Position	
U.S. President									
Brown	Primacy	.09	Primacy	.02	Primacy***	.08	Primacy***	.08	
Buchanan	Primacy	.06	Primacy†	.41	Primacy***	.18	Primacy***	.18	
Bush	Primacy†	9.45	Primacy	1.69	Primacy	.76	Primacy	.76	
Gore	Recency	-4.47	Primacy	.13	Primacy	.67	Primacy	.67	
Hagelin	Primacy***	.06	Primacy	.12	Primacy*	.02	Primacy*	.02	
Nader	Primacy	.03	Recency	-.14	Primacy*	.10	Primacy*	.10	
Phillips	Primacy†	.11	Primacy	.03	Primacy***	.06	Primacy***	.06	
N	80		367		12,142				
U.S. Senate									
Benjamin	Primacy*	1.47							
Camahart	Primacy*	.28							
Campbell	Middle†	-4.57							
Feinstein	Primacy	6.24							
Lightfoot	Primacy**	.35							
Rees	Primacy and Recency*	2.05							
Templin	Primacy	.40							
N	80								
U.S. Senate									
Celeste					Primacy***	1.80			
Dewine					Primacy***	1.66			
Eastman					Primacy***	.20			
McAlister					Primacy***	.60			
N					12,142				

Note: For California, N = number of assembly districts; for North Dakota and Ohio, N = number of precincts.

*p < .10 **p < .05 ***p < .001.

One interesting implication of this evidence involves incumbents' well-documented advantage in winning elections. This phenomenon has been explained by a number of factors, including the ability of incumbents to amass greater stores of campaign funds, but little attention has been paid to the fact that name order effects may be partly responsible as well. In a number of states that do not require name rotation, the ordering schemes that were used gave advantages to incumbents. For example, in Massachusetts, the incumbent running for reelection is always listed first. And in various other states, the first candidate listed in a race is specified to be from the party that most recently won that race. Such schemes not only advantage incumbent candidates and parties and enhance the likelihood of stability of governmental personnel from election to election, but they also discourage divided government by consistently according a small advantage to all members of a single party. Some courts have recognized this bias and overturned such laws (e.g., *Gould v. Grubb* 1975; *Holtzman v. Power* 1970; *McLain v. Meier* 1980).

Our findings also have implications regarding the efficacy of democratic electoral systems. Name order effects are instances in which nonsubstantive factors affect election outcomes. As V. O. Key (1957, iii) put it, "A basic condition for the health of a democratic order is the existence of procedures and machinery for the conduct of elections in whose fairness and neutrality a general confidence prevails." Evidence of the impact of name order on election outcomes, he said, would suggest that, "In earthly practice the majority will may be both influenced and distorted by the most humdrum minutiae of election procedure and administration" (*ibid.*, iii). This sort of concern is articulated especially well by Ortiz (this volume).

Rather than viewing our evidence as bad news, as Key might have, we see it as encouraging. Although name order effects in the 1992 Ohio elections and in the 2000 election in Ohio, North Dakota, and California were prevalent, they were also quite small and concentrated among a subset of election contests. Furthermore, had name rotation not been done, the majority will could have been distorted in only 3% of the races of the 1992 Ohio races we examined. Given the magnitude of the name order effects we did observe, it appears that only a very small minority of voters made what Key (1966) would presumably call "irresponsible" choices in this sense. In close elections, however, these few irresponsible voters may determine who wins and who loses.

Our evidence suggests that President George W. Bush acquired more votes when listed first than when listed later in all three states we examined, marginally significantly so in one. Because his brother (a Republican) was governor of Florida, that state's law required that the Republican candidate for President be listed first on all of Florida's ballots. If the name order effects we saw in other states were present in this race in Florida, the number of votes President Bush gained as a result of this law would most likely have been substantial enough to affect the outcome of the 2000 presidential election. In that light, it seems all the more important for states to remove the bias in name ordering prevalent around the country so that Americans can have full confidence in the outcomes of its electoral contests.

Ohio. These percentage point differences each correspond to thousands of votes. Pat Buchanan manifested statistically significant primacy effects in North Dakota and in Ohio, and Ralph Nader manifested a significant primacy effect in Ohio.

Al Gore's regressions revealed nonsignificant trends in the direction of primacy effects in all three states. The percentages of votes Gore received when listed first, second, third, fourth, fifth, sixth, and seventh were 53%, 58%, 64%, 55%, 52%, 52%, and 57%, respectively. Thus, he gained more votes on average when listed first, second, or third (mean = 58.33%) than he did on average when listed fifth, sixth, or seventh (mean = 53.67). Interestingly, he gained about 4 percentage points fewer votes when listed first than when listed last, which yields the negative 4.47 in Table 4.2. But that difference does not accurately represent the overall trend and was not significant, nor was the difference between the 53% of votes Gore earned when listed first and the 58% of votes he earned when listed second.

To summarize, of the 21 tests of name order effects for the seven presidential candidates in the three states, 19 manifested trends toward primacy effects, 9 of them being significant or marginally significant. No significant or marginally significant effects in other directions appeared. This clearly suggests that the presidential race was not immune to name order effects. Although this may have occurred because some voters lacked sufficient information about the candidates to make informed choices, it seems more likely to be attributable to ambivalence.

Elections of representatives to the U.S. Senate were similarly susceptible to name order effects in 2000 (see Table 4.2). The race for U.S. Senate in California manifested plenty of significant name order effects: Five of the seven candidates manifested trends toward primacy effects, three of them significant. One significant primacy and recency effect appeared, and one marginally significant middle effect appeared as well. Likewise, the race for U.S. Senate in Ohio manifested significant primacy effects for all four candidates, even for the Republican incumbent (Dewine, 1.66%) and well-known Democratic challenger (Celeste, 1.8%).¹⁸

IMPLICATIONS

Our results indicate that there is more than a slim chance that name order could affect the outcome of a close election—even in a major, highly salient race—so it seems worthwhile for all states to assign positions to all candidates equally often across precincts. Indeed, 4 of the 188 races we examined previously (Miller and Krosnick 1998) would have had different results if only one name order had been used, depending on which was chosen (the Franklin County races for County Commissioner I, Supreme Court Justice I, and Court of Appeals Judge IV and the Cuyahoga County Commissioner I race). These four races represent only 3% of the races we examined then, but they nonetheless suggest that effort should be spent to balance name orders in future elections and that states without statutes requiring name rotation should consider adopting them.

Some readers will no doubt be surprised that George W. Bush's vote total would have been so substantially affected by name order in California because some conditions of that race generally discourage such effects. In particular, party affiliations of the candidates were listed on the ballot, and the race was tremendously publicized, through the news media generally and through the voter information booklets distributed to all Californians. On the other hand, no incumbent was running for reelection, and the race was at the top of the ballot, both factors encouraging name order effects. More importantly, the nature of the race was such that many voters may well have been very ambivalent about the candidates. Indeed, seasoned scholar Kathleen Frankovic called the American public the "Ambivalent Electorate" in 2000 (Frankovic and McDermott 2001). Such ambivalence is likely to have contributed to the appearance of name order effects in that race.

It is also important to note that changing laws and rotating the ordering of candidate names is not the only way to minimize name order effects. Evidence that such effects occur less often when races are well publicized, when candidates are listed with political party affiliations, and when voters are especially engaged in politics (Miller and Krosnick 1998) points to other intervention tools. Enhancing publicity to allow the public to make informed choices among candidates, enhancing public motivation to acquire and process such information, increasing the number of candidates whose names are listed with political party affiliations on ballots, and increasing the extent to which members of the public identify with particular parties should reduce the magnitude of name order effects as well.

But the appearance of the marginally significant name order effect in votes for President Bush is an important reason to hesitate before concluding that such interventions can eliminate all name order effects. The presidential race involved candidates labeled with party affiliations and a great deal of publicity, yet a name order effect appeared nonetheless. It is therefore clear that publicity, engagement, and party affiliations do not eliminate all chances of a name order effect appearing. The theory we offered here suggests that when name order effects occur under such circumstances, they are likely to be the result of voters' deep ambivalence about two equally appealing or equally unappealing candidates. Because such ambivalence may happen frequently in the future, the best technique for preventing name order effects from biasing election outcomes appears to be rotation.

Not all rotation methods are equally effective. Among the eight states that do currently rotate at least some candidate names, each one uses a different approach. The more populated each unit used for rotation is, the fewer such units will exist in a state. And rotating across fewer units allows random chance variation in unit population size a greater opportunity to distort election outcomes. We therefore recommend rotating from precinct to precinct, as Ohio does. That way, many smaller units are used, which permit more effective rotation statewide and also permit rotation of names for races run within single counties or assembly districts. In addition, Ohio rotates candidate names across absentee ballots from ballot to ballot, a procedure we also recommend. If all this were to be done in every state across the country, the expense of conducting

elections would be greater, and the potential for mistakes in implementation would rise as well, but the most important outcomes of our nation's democratic governance process would certainly be fairer, and perceptions of the legitimacy of our governments would be commensurably enhanced.

NOTES

1. Our discussion from here on focuses on ballots cast on election day in general elections; laws regarding primaries are substantially more complex and are not discussed. Absentee ballots are also not discussed.
2. Our description of name ordering procedures is based upon the published name ordering statutes for the States and upon telephone conversations with elections officials in the various states. It proved to be very difficult to confirm all elections procedures with confidence by these methods, so what we offer here are our best assessments of the procedures implemented as of 2002.
3. A variety of procedures are used in California races not run in the entire state. Names of candidates competing for Congressional Representative and the State Board of Equalization are rotated by Assembly districts. State Senators and members of the State Assembly are not rotated unless the districts in which they are running encompass more than one county, in which case each county draws its own random order of the alphabet and orders candidate names according to that random alphabet. For offices voted on throughout a county, candidates' names are rotated by Assembly district if there are five or more Assembly districts within the county. If there are four or fewer Assembly districts within a county, candidate names are rotated by supervisorial districts. If a race is run in only a portion of one county, candidate names are listed according to the random alphabet drawn by the Secretary of State. Candidates for Justice of the Supreme Court and Court of Appeals of California are arranged according to the random alphabet and are not rotated at all. States may also vary in the credibility they attribute to the argument that name order rotation limits the value of sample ballots distributed to voters during a campaign. If citizens mark a desired candidate on the sample ballot while at home and then vote for the candidate listed in that position on the ballot (not checking to see whether the names match), differences between candidate name orders on sample ballots and actual ballots on election day may cause voting errors.
5. See, for example, *Bohus v. Board of Education Commissioners*, (1971) where the advantage was estimated to be from 2.5 to 25% of the vote; and *Sangmeister v. Woodard 1977*, where being listed first was reported to garner "3.3% more votes than second place" (463). In *McLain v. Meier* (1980), the advantage was "at least 5 percent" (1166). In *Koppel et al. v. New York State Board of Elections et al.* 2000, a name order effect of 4.7% was found in a particular election. Testimony in *Clough v. Guzzi* 1976 reported a 5% to 15% increase in the first candidates' total vote.
6. Professor Robert Darcy has testified a number of times (e.g., *Graves et al. v. McElderry et al.* 1996; *Koppel et al. v. New York State Board of Elections et al.*, 2000), asserting, for example, that, "Position bias is certainly not a factor which affects the outcome of any political races for public office in those partisan elections that receive a large amount of public attention" (*Graves et al. v. McElderry et al.* 1996). Darcy's testimony was based primarily on his own studies of name order effects and his critiques of the methods used in other previous studies.
7. Professor Richard Smolka said, "There has virtually nothing at all been done on the subject and much less anything been shown. There is no evidence upon which to base an opinion" (*Sangmeister v. Woodard* 1977, 463).

8. For example, in a 1972 Ohio State Senate race between Robin Turner and Gene Slagle, Turner lost by 155 votes. Due to improper implementation of the name rotation required by Ohio law, Slagle's name appeared first on 15,289 ballots in Marion County, whereas Turner's name appeared first on 7,629 ballots in that county. In *Turner v. Slagle* (1972), the parties stipulated that when Slagle was listed first, Slagle got 44.2% of the votes, whereas when Turner's name was listed first, Slagle got 42.0% of the votes, a pattern consistent with a primacy effect. Adjusting the vote totals to simulate the numbers of votes that would have been cast for the candidates had name order been rotated properly indicates that Slagle would have received 76 fewer votes and Turner would have received 76 more votes, yielding totals of 57,472 for Slagle and 57,469 for Turner. There is no basis in these numbers to overturn the election outcome, and the Supreme Court of Ohio did not do so.

In a similar case (*Pfeifer v. Fisher* 1991), the Ohio Supreme Court ruled that although Paul Pfeifer was not listed first as often as Lee Fisher was in their race for attorney general of Ohio because the name order rotation required by Ohio law was improperly implemented in Mahoning County, statistical analysis of the election returns showed that Pfeifer and Fisher did not in fact get statistically significantly more votes when listed first than when listed second and that the difference in number of votes obtained was not large enough to have affected the election outcome. Noting this evidence, the court let the election result stand.

9. In name order effect studies, when each voter is *individually* assigned to a name order independently of all other voters, the number of observations on which a statistical test should be computed is the total number of voters participating in the study. This would be the case if a coin were to be flipped for each voter to determine the order he or she is to receive.

However, in some studies, voters were not individually assigned to name orders. Rather, groups of voters (i.e., all those in the same precinct) were assigned to name orders, so that all members of a group received the same order. If this is done, it is inappropriate to use the total number of voters as the basis for computing the statistical significance of observed differences (see Darcy and McAllister 1990, p. 8; Judd and Kenny 1981, pp. 55–57). Such an approach will yield statistical tests that are too liberal, thus making observed differences seem less likely to have occurred by chance alone than is actually the case. Statistical tests in such studies must instead be based on the number of *groups* of voters (in most cases, precincts). Because various studies should have computed their significance tests in this fashion but did not, their results overestimate the level of statistical significance of the differences they observed.

10. In many studies, candidates were listed alphabetically on the ballots (Bagley 1966; Bakker and Lijphart 1980; Brook and Upton 1974; Brooks 1921; Hughes 1970; Kelley and McAllister 1984; Lijphart and Pintor 1988; Mackerras 1968; Masterman 1964; Mueller 1970; Nanda 1975; Robson and Walsh 1974; Upton and Brook 1974, 1975; the basis for ordering was not specified by Byrne and Pueschel 1974 or Volkens 1981, and it may well have been alphabetical). The question being asked in these studies, then, is whether candidates whose last initials come early in the alphabet do better or worse than candidates whose last initials are in the middle of or late in the alphabet. If such differences are observed, it is impossible to know whether they are due to candidate name order effects or voters' preferences for certain last initials.

There is good reason to believe that voters are probably biased toward candidates whose last initials come early in the alphabet. Two arguments can be made in support of this proposition, both of which follow from the fact that the general

population has last initials concentrated primarily in the first half of the alphabet, a phenomenon documented in the United States, Ireland, and Australia (see, e.g., Masterman 1964; Miller and Krosnick 1998; Robson and Walsh 1974). It is well documented that people tend to like the letters in their own names, especially their initials, better than they like letters not in their names (e.g., Johnson 1986; Nuttin 1985). This preference will probably lead people to have a special positive regard for political candidates who share their own initials, since similarity enhances attraction (see Byrne 1971). Because there are more people in the general public with last initials early in the alphabet, this would lead to a bias in an electorate as a whole toward electing candidates whose initials are early in the alphabet.

A second reason why elections could be biased toward candidates with last initials early in the alphabet involves the *mere exposure effect*. Simply being repeatedly exposed to an object typically increases one's liking of that object (Zajonc 1968). Therefore, because many more people in the general population have last initials early in the alphabet, all members of the population are likely to be exposed to such names more often than they are to names with last initials late in the alphabet. As a result, the general population should have a slight tendency to like last names early in the alphabet more than last names late in the alphabet. This slight preference may then lead some voters to prefer candidates whose last initials are early in the alphabet. Clearly, then, studies involving only alphabetical listings of candidates on ballots cannot be used to make inferences about candidate name order effects.

11. We tested the impact of circumstantial factors in regressions predicting the magnitude of the name order effect in the races using an array of variables describing the races' characteristics. We explored the impact of voter education by comparing name order effects in different regions of the state that differed in the average education level of voters.

12. Confidence in these findings is bolstered by their consistency with three previous studies of name order effects in experimental simulations of elections (Coombs, Peters, and Strom 1974; Kamin 1958; Taebel 1975). In two of these studies, respondents were asked to vote in hypothetical elections, were assigned to receive candidates' names in different orders, and were given little or no information about the candidates (Kamin 1958; Taebel 1975). Both studies found significant primacy effects, in line with our results. In a third study, respondents were asked to vote for one of two candidates about whom they had no information; a strong bias toward voting for the first candidate listed was apparent (Coombs et al. 1974). This primacy effect weakened considerably when respondents were told about the party affiliations of the candidates and were told about their standings in public opinion polls (Coombs et al. 1974), reinforcing our evidence regarding partisanship and voter knowledge. Thus, our evidence about the 1992 Ohio elections dovetails reassuringly with evidence from experimental studies of hypothetical elections.

13. Darcy (1986) examined only partisan races held in Colorado, and we found that name order effects are much less likely to occur in partisan than nonpartisan races. In addition, the Colorado counties Darcy (1986) examined used party-block ballots, in which all the Democratic Party candidates for all offices were listed in one column (labeled "Democratic"), and all the Republican Party candidates were listed in another column (labeled "Republican"). In half of the precincts, the Democratic column preceded the Republican column, and in the other half, the Republican column preceded the Democratic column. This type of ballot layout presumably encouraged voters to cast ballots based upon candidates' party affiliations, because this information was very salient. Our results suggest that this minimized or eliminated name order effects.

Gold (1952) examined the effect of name order in the 1951 American Anthropological Association elections, conducted by mail and giving voters all the time they needed to gather information about the candidates before making choices. This presumably decreased the likelihood of order-based voting.

14. Given that many counties in North Dakota contained fewer than fifteen precincts, and that many counties failed to cooperate with our requests for vote returns, we worked to obtain data from enough counties to yield at least fifty precincts for each of the seven rotation orders for the race for U.S. president. Of the fifty-three counties in the state, we ended up with data from fourteen of the sixteen largest (excluding one county that did not rotate name order and one county that was unresponsive to repeated requests for vote returns).
15. The prevalence of primacy effects also appears if we examine the direction of the nonsignificant effects. Of the 131 nonsignificant order effects, 90, or 69%, of them were in the direction of primacy effects, and 31% were in the direction of recency effects. A sign test indicates that this is highly unlikely ($p < .001$) to have occurred by chance alone. Moreover, the average magnitude of the nonsignificant two-candidate primacy effects (.90%) was 24% greater than that of the nonsignificant two-candidate recency effects (.73%). This leaning toward primacy effects among the nonsignificant differences is unlikely to have occurred by chance alone and therefore suggests that there were more real primacy effects in these races than we had statistical power to detect.
16. Characterizing the directions of name order effects in these races is a bit complex because the effect may not be monotonic. Although simple primacy or recency effects could certainly occur, a candidate could get more votes when listed either first or last than when listed in the middle of an array. This would be what we will refer to as a "primacy and recency" effect. It is also conceivable that a candidate might get more votes when listed in the middle of an array than when listed either first or last. This is what we will refer to as a "middle" effect.
17. This trend toward primacy effects was apparent even in the instances in which differences between name orders were not statistically significant or marginally so. Of the 86 nonsignificant order effects in races involving more than two candidates, 63 (or 73%) were in the direction of primacy effects, and only 23 (or 27%) were in the direction of recency effects. A sign test again indicates that this is extremely unlikely ($p < .001$) to have occurred by chance alone. The average magnitude of the difference between the first and last positions was larger for the nonsignificant primacy effects (.65%) than the nonsignificant recency effects (.54%).
18. Significant name order effects appeared in these analyses less often than in those reported by Müller and Krosnick (1998). This is most likely attributable importantly to the greater prevalence of partisan races among the set examined here (listing party affiliations of candidates on ballots reduces the likelihood of primacy effects; see Müller and Krosnick 1998) and to the smaller sample sizes examined here for most races. For example, whereas 79% of the two-candidate races in Ohio analyzed here were partisan, only 57% of the two-candidate races analyzed by Müller and Krosnick (1998) were partisan. And whereas the average sample size for the two-candidate races analyzed here (excluding the two statewide races) was 443, the average sample size was 1,132 for the two-candidate races analyzed by Müller and Krosnick (1998).

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