



Best Practices

Ballot Order: Randomization and rotation

Candidate order without bias

July 2025
Center for Civic Design

Introduction

The Voluntary Voting System Guidelines (VMSG 2.0), a standard published by the federal Election Assistance Commission as mandated by the Help America Vote Act, includes the principle that the voting system and ballot design should have no bias.

One of the ways that a ballot can introduce bias is the order candidates are presented in each contest. This aspect of ballot design is set in state election code. Although the details vary, all states require some method of specifying the candidate order, such as:

- Alphabetical order
- Randomized alphabetical order
- Party order
- Random draw of the candidates
- A rotation of candidate order between districts

The decision to randomize ballots is based on a recognition of the effect of candidate order on election outcomes. There is a robust political science literature showing that ballot position can impact votes by a few percentage points to over 10%.

VMSG 2.0 Principle 5

Equivalent and Consistent Voter Access 5.2-A — No bias

The voting system must not introduce bias for or against any of the contest options presented to the voter.

Table of contents

Introduction	2
---------------------	----------

Social science on the effect of ballot order	4
There are many possible reasons for the ballot order advantage	4
The largest effect is with lesser-known candidates	4
The largest effect was found in the 2000 election	4

There are many options to produce randomness	5
Create a randomized alphabet at a central office to ensure a consistent procedure for the whole state	5
Use a mechanical tool for the draw	5
Rotation is an extension of simple randomization	5

Randomize by lot	6
-------------------------	----------

Randomize by alphabet for all contests	7
---	----------

Randomize by changing the starting letter of the alphabet	8
--	----------

Randomize using a device	9
Hand-crank	9
Electronically operated	9

Add ballot rotation for extra randomness	10
---	-----------

Ballot design resources	11
--------------------------------	-----------



Social science on the effect of ballot order

There are many possible reasons for the ballot order advantage

There is strong evidence that being in the first position in the contest gives a candidate some advantage. However, the size of the effect varies. The advantage depends on the number of candidates, the type of election, and how well-known they are. The research literature presents both data from different elections and debates over how important ballot order is, including:

- Psychological theories about how voters make decisions
- Whether any effect at all is an argument that undermines candidate equality
- The strength of the effects in different electoral contexts

The largest effect is with lesser-known candidates

An examination of the effects of ballot order in California elections, where strong rules for randomization and rotation create a natural experiment, found the largest impact in primary elections. In California, being listed as first benefitted all candidates. They concluded that the largest impact is in elections where candidates are lesser-known.¹

An analysis of elections in Ohio found that candidates listed first almost always had an advantage, but the effect was stronger in low-salience elections with minimal publicity or where candidates are not well-known.²

A 1998 study of ballot rotation in New York City found that the advantage to holding the first position was greater than the margin of victory. The data suggested that ballot position would have determined the outcome without rotation.³

The largest effect was found in the 2000 election

At the highest end of the advantage offered by ballot order, a study of the 2000 Presidential election found that George W. Bush gained a 10-point advantage by being listed first vs. last.⁴

1 Estimating Causal Effects of Ballot Order from a Randomized Natural Experiment: the California Alphabet Order. Ho, D.E and Imai, K, (2008) Public Opinion Quarterly, Vol. 72, No. 2, Summer 2008, pp. 216-240

2 The Impact of Candidate Name Order on Election Outcomes. Miller, J. M. and Krosnick, J.A (1998) Public Opinion Quarterly, Vol 62, No. 3 (Autumn 1998) 291-330

3 The Effects of Ballot Position on Election Outcomes". Koppell, Jonathan G.S. and Steen, Jennifer A., (2004). Publications from President Jonathan G.S. Koppell.

4 An Unrecognized Need for Ballot Reform: Effects of Candidate Name Order: The Politics and Prospects of American Election. Miller, J. M., Krosnick, J. A., & Tichy, M. (2004). In A. N. Crigler, M. R. Just, & E. J. McCaffery (Eds.), Rethinking the Vote: The Politics and Prospects of American Election.



There are many options to produce randomness

Create a randomized alphabet at a central office to ensure a consistent procedure for the whole state

Although it is possible to randomize candidates by drawing lots among the final candidates for each office, this method is not efficient or effective.

A more practical method is to create a single randomized alphabet at the state level. This procedure only needs to happen once and can then be applied to all contests.

This method offers several advantages:

- Ensures consistency across all races
- Allows for transparent publication of the results
- Simplifies ballot proofing and auditing

Whatever method is used, the randomized order or rules should be published only *after* the candidate filing deadline.

Use a mechanical tool for the draw

Mechanical devices like bingo spinners or lottery ball poppers minimize any human influence. They are simple to understand and observe. And they are more transparent than a computer program.

Both computer randomizing and manual drawing of slips of paper can cause problems.

- Computer programs are not transparent. A computer randomizer won't produce the same result twice.
- Manual procedures can introduce bias if the person drawing the lots can identify a candidate or letter. Allowing each county to decide on their procedure can compromise consistency statewide.

Rotation is an extension of simple randomization

Rotation introduces further randomness by varying the order of candidates on ballots across different districts within a jurisdiction. This method is especially impactful in statewide contests, because it ensures that each candidate appears first on some portion of the ballots.

Rotation adds further variation within a contest by rotating the position of the candidates in different districts. This approach offers the most advantage in statewide competitions, so all candidate are listed first on some of the ballots.

Using a randomized alphabet is a good first step. Adding ballot rotation can be an option that election administrators work towards.



Randomize by lot

Randomization is done by each county for each contest

Instead of using a formula, a random candidate order can be determined by drawing the candidate names for each contest one by one.

If a contest is for an office that crosses county lines, each county would repeat this procedure for their ballots. The result is that the order is different in each county. This means This means that voters in District 1 would see the candidates in one order, but it would be different from voters in District 2 or 3, as shown in the example below.

It would be unusual, but not impossible, for two counties to draw candidates in the same order.

One challenge is that if a district includes more than one county, the order will be different in each. It would be unusual, but not impossible, for two counties to draw the candidates in the same order.

This means that voters in District 1 would see a different ballots, while voters in District 2 all see the same ballot order.

District 1 — County A	District 1 — County B	District 1 — County C
1. Lilian Cohen	1. Mary Tawa	1. Joe Li
2. Barbara Williams	2. Lilian Cohen	2. Mary Tawa
3. Joe Li	3. Joe Li	3. Lilian Cohen
4. Luis Garcia	4. Luis Garcia	4. Barbara Williams
5. Mary Tawa	5. Barbara Williams	5. Luis Garcia



Randomize by alphabet for all contests

Candidate order can use a randomized alphabet

This type of randomization can be done once for every election and used for all contests in all counties in a state.

In this type of randomization, a central authority – typically the state elections office – creates an alphabet made up of the 26 letters, using a randomly selected order.

Candidates in each contest are then arranged according to the randomized alphabet.

For example, using the randomized alphabet below, the candidates would be listed in the order shown

A Z R **C** H E **W** L F N Y X O D K S M J P Q V U B **G** I **T**

Here's the ballot order for these candidates for District 1:

- Lilian **C**ohen
- Barbara **W**illiams
- Joe **L**i
- Luis **G**arcia
- Mary **T**awa

See it in action

California uses this method.

The drawing happens at the Secretary of State's office with press and public present. The resulting alphabet is published publicly and sent to all counties.

You can see:

- [Press release from SOS](#)
- [Sample letter to counties](#)

Randomize by changing the starting letter of the alphabet

Candidate order uses an alphabet starting from a random first letter

This method can be done once for every election and used for all contests in all counties.

In this type of randomization, a central authority – typically the state elections office – randomly draws one letter to be the starting letter for the alphabet for that election.

Candidates in each contest are then arranged in alphabetical order starting with the letter drawn. For example, if the starting letter is W, the alphabet would be:

W X Y Z A B C D E F G H I J K L M N O P Q R S T U V

And the ballot order for these candidates for District 1 would be:

- Barbara **W**illiams
- Lilian **C**ohen
- Luis **G**arcia
- Joe **L**i
- Mary **T**awa

See it in action

North Carolina uses this method, with the added randomization of whether the alphabet is reversed. So, in this example, the reversed alphabet would be:

W V U T S R Q P O N M L K
J I H G F E D C B A Z Y X

The drawing is done after the final candidate filing deadline. For public viewing, North Carolina live streams ballot order selection process.

[You can watch the 2024 video.](#)

Randomize using a device

Randomizer devices are easy to observe for transparency and correctness of the procedure

These inexpensive tools are sold to organizations for bingo games, fantasy drafts and other raffles. They use small marbles or ping-pong balls with a letter or number written on each one. The device has a mechanism to stir up the balls and then pop them out of the container one by one.



Bingo Spinner photo from Amazon

Hand-crank

- Balls are placed in a wire cage
- A hand-crank stirs up the balls
- As the cage is turned, one ball falls through an opening



Automatic Lottery Ball Machine photo from Amazon

Electronically operated

- Electrically operated systems are a little more expensive but work on a similar principle.
- Both continue to mix up the ballots between each draw.

Add ballot rotation for extra randomness

Ballot rotation is used for offices elected by the whole state, or for districted offices

Whatever ballot order you start with, the order is rotated by 1 for each district.

This method works with any form of randomization because the candidates are the same on all ballots for any contest. The rotation for a statewide office is typically done by Assembly District.

Here's an example of the candidates for Governor, rotated:

District 1	District 2	District 3
• Lilian Cohen	• Barbara Williams	• Joe Li
• Barbara Williams	• Joe Li	• Luis Garcia
• Joe Li	• Luis Garcia	• Mary Tawa
• Luis Garcia	• Mary Tawa	• Lilian Cohen
• Mary Tawa	• Lilian Cohen	• Barbara Williams

If you use a randomized alphabet, you could order candidates for any office in a rotation

For example, in the election for assembly, in each district, the rotation would start on successive letters of the alphabet. The order of the letters does not change, just which one is first.

District 1 A Z R C H E W L F N Y X O D K S M J P Q V U B G I T
District 2 Z R C H E W L F N Y X O D K S M J P Q V U B G I T A
District 3 R C H E W L F N Y X O D K S M J P Q V U B G I T A Z
District 4 C H E W L F N Y X O D K S M J P Q V U B G I T A Z R

Ballot design resources

Ballot design checklist

Questions to ask when designing or reviewing a ballot.

civicdesign.org/a-best-practice-ballot-design-checklist

Field Guides to Ensuring Voter Intent

civicdesign.org/fieldguides

Better Ballots

A review of ballots that have caused voter errors.

brennancenter.org/publication/better-ballots

A better ballot for New York

Redesigns for the New York ballots to make them more usable.

civicdesign.org/a-better-ballot-for-new-york

Ballot standards in Virginia


An example of a state ballot standard with both legal and design requirements.

civicdesign.org/example/updated-ballot-standards-for-virginia

For questions and to learn more find us:

 civicdesign.org

 hello@civicdesign.org

 (410) 921-6811

 @civicdesign

Civic Designing

Practical tips and civic design research

Civic Design Irregulars

News for friends interested in civic design



**Center for
Civic Design**