

Preface

The U.S. presidential election system is a creation of the 1787 Constitutional Convention participants. This system is a part of the Great Compromise between the small and large states of free settlers, reached at the Convention by the Founding Fathers. Article 5 of the Constitution, adopted at the Convention, determines how to change the Constitution by means of constitutional amendments. Twenty seven amendments have been ratified since 1787, and some of the amendments have substantially modified the election system. However, its fundamental principle—to elect a President and a Vice President based upon the will of the states (and the District of Columbia since the 1964 election), rather than upon the will of the nation as a whole—has remained unchanged. The will of the states can be expressed in the Electoral College or in Congress (in elections thrown into Congress in which the House of Representatives is to elect a President, whereas the Senate is to elect a Vice President).

American society is highly polarized in its perception of the existing election system. Critics of this system call it outdated, and even “dangerous” [1] and point out that no country in the world has replicated this system [2]. They believe that the system is unfair, the Electoral College—one of its major parts—is a “vestige of slavery” [1, 3], and a President should be elected by popular elections in just the same way as U.S. Senators and Governors are elected in the states [2] though numerous attempts to introduce direct popular presidential elections in the country by means of amending the Constitution have failed. Proponents of the existing system believe that the system should remain as is and that it provides stability in the country by encouraging the two-party political system [4]. They believe that under any direct popular election, a President will be elected by densely populated parts of the country, whereas the will of voters in sparsely populated areas will be ignored [5]. There are also people who believe that neither the current system nor any direct popular election system can serve the nation well and avoid weird though constitutionally possible election outcomes [6, 7].

The purpose of this book is not to attempt to reconcile these opinions, some of which are emotionally motivated, are not backed up by facts, and are not justified by numerical calculations. Rather, the author attempts to discuss

how the election system works based upon provisions of the Constitution and Federal statutes and relevant Supreme Court decisions. Also, the author points out “loopholes,” which exist in some of the documents representing each of these three sources of information and determining presidential election rules.

The author is a D.Sc. in systems analysis and applied mathematics, and the presidential election system is a system that is the subject of this analysis. As usual in systems analysis of any system—and the U.S. presidential election system is no exception—the detecting and understanding of what is right about the system under study, rather than who is right in the perception of the system, is the subject of systems studies. From this viewpoint, one may see the book as the next element in the set of attempts aimed at comprehensively discussing the pros and cons of the existing election system and its alternatives. These attempts were undertaken by Massachusetts Institute of Technology (Center for Engineering Systems Fundamentals and Sloan School of Management) in partnership with Elsevier (which published a special issue of *Mathematical and Computer Modeling*, entitled *Mathematical Modeling of Voting Systems and Elections: Theory and Applications*, 2008 [8]), with Carnegie Corporation of New York (which sponsored MIT’s conference *To Keep or Not to Keep the Electoral College*, 2008 [9]), with the San-Diego Union Tribune (the initiator of *How to elect a President: the National Dialog* 2009 [10]) and with INFORMS (which organized a special “Electoral College” section at the 2008 INFORMS meeting in Washington D.C., 2008 [11]).

The author, who has been studying the presidential election system for more than ten years, presents the results of using logical analysis and mathematical modeling—two principal elements of systems analysis—to study this system. However, the book is structured in such a manner that all the mathematical considerations are collected in the Appendices to the book. So the main body of the book is understandable to readers of all walks of life, and its understanding does not require any specific knowledge while certainly requiring a willingness to understand the material and a readiness to follow the author’s logic. These two requirements are natural to expect from those studying U.S. presidential elections professionally—constitutional lawyers, political scientists, and reporters spotlighting presidential election campaigns. So the text of the book is written in such a manner that everyone interested in learning about presidential elections will be able to read and understand it.

The book offers both the logical analysis of facts relevant to the presidential election system (that are present in the Constitution and in the Federal statutes) and their interpretation available in opinions of the Supreme Court. Also, the mathematical analysis of regularities embedded in the election system and peculiarities of their use in the practice of presidential elections are presented in the book. Such a combination of topics in one book may seem unusual to the reader, especially to one familiar with numerous books on the presidential election system in general and on the Electoral College in particular. However, from the author’s viewpoint this kind of a book is long overdue,

since only the logical and mathematical analyses of the election system can help distinguish true from plausible about this system. Such a book should separate facts as such from their interpretation. Indeed, the aim of logical analysis in general is to outline logically possible alternatives and provide either a proof that one of them is true or a set of pros and cons for each of them (when the proof is unknown or impossible). The aim of mathematical analysis is different. It attempts to prove or disprove some formalized hypotheses on the subject of studies, for instance, about alternatives outlined by logical analysis. Also, it should provide an analysis of available data relating to the hypotheses (if such data is available). In conformity to the presidential election system, both analyses are needed, and the book aspires to provide them.

The emergence of the National Popular Vote (NPV) plan to reform the existing presidential election system is illustrative of how indispensable the above-mentioned analyses are. The idea underlying the NPV was proposed by Professor Robert Bennett—a prominent constitutional lawyer—in the aftermath of the 2000 election. A similar idea was independently proposed by Professors Akhil Amar and Vikram Amar, also prominent constitutional lawyers. In 2006, Dr. John Koza—a prominent computer scientist—slightly modified this academic idea, which has given birth to a national movement to introduce direct popular presidential elections *de facto*, without amending the Constitution. This movement received editorial support from several national newspapers and has grown to a powerful organization, capable of lobbying its ideas in all the 50 states and in the District of Columbia (D.C.). Moreover, this organization has managed to convince state legislatures of several states, including California—the largest state in the Union—to adopt the NPV as a state law.

However, the foundation of the NPV seems quite brittle [12], since the idea underlying the NPV plan is based upon a questionable interpretation of a provision from Article 2 of the Constitution. While the NPV proponents and backers (and there are constitutional lawyers among them) are not the Supreme Court, they, nevertheless, assert that their interpretation of the above-mentioned constitutional provision is correct, and, consequently, the NPV plan is in line with the Constitution. Not only do they not analyze the alternative to their interpretation of the above-mentioned constitutional provision though this alternative underlies the existing election system; they also call myths any arguments of those who attempt to criticize the way they construe the plenary right of the state legislature to choose a manner of appointing state presidential electors. Additionally, they have waged a campaign in the media and on the Internet asserting that under the NPV plan, presidential candidates will allegedly campaign in every state. They base this assertion on the fact that all the votes cast (for state and D.C. presidential electors, still not for President and Vice President!) will have one and the same weight. However, they provide neither a proof nor at least a numerical back up to their (quite counterintuitive) hypothesis. Moreover, they once again call myths any arguments of those who object to their assertion. This is an example of a situation in which both the

logical analysis and the mathematical analysis of both the current election system and the NPV plan can help separate “apples from oranges.” For the first time, both analyses are offered in one book.

Chapter 6 deals with the logical analysis of the NPV plan, including the analysis of the constitutionality of the above-mentioned underlying belief of the NPV originators and supporters. This chapter argues that this belief may contradict the Supreme Court decision concerning the application of the Equal Protection Clause from the Fourteenth Amendment of the Constitution. However, unlike the NPV originators and proponents, the author does not claim that his analysis—while supported by simple numerical calculations—is necessarily the one that the Supreme Court would eventually recognize. (If the NPV election rules were ever introduced, and their constitutionality were challenged in court, including the Supreme Court.) Nor does the author claim that his viewpoint on how presidential election campaigns will likely be run under the NPV election rules is necessarily the right one. However, unlike the NPV originators and supporters, the author provides some numerical calculations backing up his viewpoint.

In the absence of the logical analysis of proposals to change the current election system, most of the debates about the system remain in the realm of opinions of reporters interested in spotlighting the issue and (though quite rarely) opinions of political scientists. As a result, only two politically supported ideas—to adopt the NPV plan and to keep the existing election system as is—are discussed. Other ideas on the matter are not even heard, creating the impression in society that the NPV plan is the only way to change the system, since it allegedly does not require amending the Constitution (as its originators and supporters believe). Moreover, many Americans do not sufficiently understand how the Electoral College really works, and the promotional campaign of the NPV plan promises voters something that this plan (if it were ever accepted and enforced) may not deliver, that under this plan, presidential election campaigns will be waged nationwide.

All this has created the illusion that the NPV plan is “a simple solution” to a complicated constitutional problem that has concerned the nation for more than two centuries. While telling the nation about the “equality of votes” for all voting voters—which is the equality of the weight of a vote that a voting voter has in an election—the NPV originators and proponents do not explain to the American people that under the NPV plan, the voters may lose their voting power, i.e., the ability to affect the election outcome both in their states and nationwide. This contributes to keeping the discussion of what kind of election system the country needs in the twenty first century out of the picture.

It is clear that if the country really needs a new presidential election system, this new system should be better (and at least not worse) than the current one. This means, in particular, that one should be able to compare election systems by certain criteria that should be understandable by and acceptable to society;

however, developing such criteria is not an easy task. In any case, at the very least, interested voters and other residents of the country can only benefit from the logical and mathematical analyses of the system that is currently in use and any system that is offered to them as a replacement of the existing system. It is this knowledge that this book aspires to offer to the readers. Besides the current system, several recently developed plans to improve the system, including the NPV and a plan making the will of the states and the will of the nation as a whole equally important in deciding the election outcome, are considered and analyzed in detail. From the author's viewpoint, this knowledge may help interested voters and country residents better understand the following:

1. How effectively different presidential candidates run their election campaigns.

Indeed, the Electoral College has its internal logic, which dictates the winning strategies (if they exist for a particular presidential candidate in a particular election). So the quality of the election campaign that a candidate runs speaks volumes regarding his or her ability to lead, and running a successful campaign helps voters decide on the strategic abilities of the candidate.

2. How important can a vote cast for presidential electors be even in a "safe" (or "flyover") state if the state legislature chooses the right manner of appointing state presidential electors.

This understanding may help voters force their state legislatures to choose a better method of appointing state presidential electors than they currently use and to avoid disadvantaging the voters. It may also help the voters prevent the state legislature from passing bills affecting the value of their votes—under the pressure of lobbyists—if state voters find such bills unreasonable and not serving their states. Finally, this knowledge may help them evaluate the quality of service that particular state legislators provide to their constituencies in matters concerning the value of state voter votes. It will force the legislators to analyze the constitutionality and consequences of their decisions on changing the election system in use before making the decisions, a strong leverage to encourage state election officials to be knowledgeable of the election system.

3. How to separate a party's propaganda from real information on the course of the election campaign and the current positions of all participating candidates.

This, in turn, will force reporters to compete for knowledge about the election system, as well as to avoid the simplistic coverage of presidential election campaigns and election rules, since both lack of knowledge about the system and superficial coverage of the campaigns may cause them losing their audience.

4. How to explain weird election outcomes if they occur, and how to be able to detect mistakes and misstatements that reporters sometimes make.

5. How to evaluate proposals to change the existing election system and to estimate their chances of withstanding constitutional scrutiny.

At the same time, the book aspires to accomplish another important mission—to bridge approaches to studying the presidential election system by political scientists, constitutional lawyers, mathematicians, and systems analysts interested in studying American presidential elections. To this end, the book offers a) several mathematical models formalizing some numerical peculiarities embedded in the election system, b) the analysis of mathematical features of these models, and c) applications of the models for detecting quantitative features of the election system. The book demonstrates the power of systems analysis and applied mathematics to quantitatively analyzing both constitutional matters relating to the presidential election system and consequences of applying particular election rules. This may encourage all the above-mentioned four groups of professionals to study all the aspects of the system—constitutional, political, and quantitative. Should this happen, one may expect the transformation of public discussion of presidential election matters from verbal exchanges of opinions to substantive debates. Positions of the debate participants that are logically consistent and backed up by quantitative considerations made by professionals in the field or by the participants themselves may dominate such debates.

The reader will have a chance to be certain that some Supreme Court decisions relating to state elections in general are based on the quantitative analysis of constitutional provisions. Moreover, these decisions are key to evaluating the constitutionality of plans to change the current system, including the NPV plan.

The author also hopes that the appearance of the book will contribute to changing the way civic matters are taught in American public schools. That many Americans do not understand how the Electoral College works—to say nothing about the other parts of the presidential election system—in spite of having studied this system in schools, speaks volumes about the quality of civic education in America. However, the Electoral College is an excellent subject for logical analysis, and both school teachers and students can develop their ability to think logically by studying the presidential election system.

Moreover, the Electoral College regularities can be used as examples of subjects in mathematical studies in schools and even at universities. An excellent article by George Polya—a prominent American mathematician—published in *Mathematical Teacher* [13] illustrates how a school teacher may use some Electoral College quantitative features as a subject of studies in math classes. All the studies of the election system—both civic and mathematical—in schools are especially important. Indeed, school graduates are future voters, and the more “electorally” educated they are, the better are the chances that they may request an election system adequate to the country’s needs. Several lectures given by different specialists studying American presidential elections and, particularly, the Electoral College, which have been recorded by MIT World [14], are also an excellent source enriching both civic and mathematical studies of this subject in American schools.

Despite the fact that the Presidency is one of the three branches of the U.S. government, and the election system substantially affects the choice of the country's Chief Executive, until recently, discussions of the system have been a seasonal event. Even the 2000 election did not spark discussion regarding the way America chooses its Presidents, and all the further debates focused on voting technologies [15]. Only in 2006, after the New York Times published an article regarding the National Popular Vote plan, did the discussion of election rules in the media commence.

The author believes that the major merit of the NPV plan consists of putting presidential election rules in the limelight and making them as important as are technologies of casting and canvassing votes. Though the author opposes the idea underlying the NPV plan—both its essence and the manner in which the NPV originators want to implement it—and provides evidence that this plan may violate the Constitution, he respects the intent of the NPV originators and proponents to find a way to improve the system of electing a President. In particular, the author appreciates the invitation of the NPV originators and proponents to be part of a civilized debate on the Electoral College issues at American University in Washington D.C. in 2009 [16].

A few words about those who have encouraged the author's work in the field of U.S. presidential elections are in order.

The first book published by the author in the field of American presidential elections—*Extreme Outcomes of U.S. Presidential Elections* (2003)—was well received by Vice President Dick Cheney and Linn Cheney. A warm letter that the author received from them was critical to the author's decision to continue his work in the field. Encouraging letters regarding the book received from President Bill Clinton and President Jimmy Carter strengthened this decision and convinced the author that the analysis of the logical fundamentals of the presidential election system is important. These letters also convinced the author that educational, analytical books on this subject could contribute to making this system more understandable to American voters and residents. A valuable discussion of fuzzy election rules and their possible impact on election outcomes with Senator Bob Dole—the author of two sophisticated plans for reforming the existing election system—has contributed to the direction the author has chosen to present the election system in publications.

The book *Extreme Outcomes of U.S. Presidential Elections* was discussed with Dr. Norman Ornstein (American Enterprise Institute) and with Professor David King (John F. Kennedy School of Government, Harvard University), two nationally recognized experts in the field. Those valuable discussions convinced the author that fuzzy election rules and “loopholes” in provisions of the Constitution and Federal statutes relating to the presidential election system should remain in the focus of the author's research. Encouraging letters from these two experts moved the author to think about writing another book on the subject of presidential elections, a much smaller volume accessible for

understanding important features of the election system. A discussion of the election system in an interview with John Baer—a prominent journalist with the Philadelphia Daily News—regarding the intent of the Colorado state legislature to change a manner of awarding Colorado’s electoral votes in presidential elections contributed a great deal to forming the author’s decision to write such a book. This book, entitled *How America Chooses Its Presidents*, was published in 2007 and in 2009 (the second edition).

In 2004, the author published the second book on the subject of presidential elections—*Winning the U.S. Presidency: Rules of the Game and Playing by the Rules*—which addressed some quantitative issues of the election system that are key to planning presidential election campaigns and developing campaign strategies. This book was favorably received by President Bill Clinton, President George W. Bush, and Governor Arnold Schwarzenegger. Their encouraging letters to the author contributed a great deal to the author’s research in the field of quantitative analysis of regularities embedded in the Electoral College, which the author published in Elsevier’s International Mathematical Journals.

In 2005, the author started joint research with Professor Richard Larson (Massachusetts Institute of Technology), a prominent scientist, an internationally recognized leading expert in the field of applied queueing theory, and Director of MIT’s Center for Engineering Systems Fundamentals. This research was motivated by reports about long lines on Election Day both in the 2000 and the 2004 elections. Since then, the author’s research in both directions—the systems analysis of the presidential election system and the analysis of voting standards with respect to polling stations as service systems—has been under Professor Richard Larson’s patronage. Professor Richard Larson and the author co-authored several articles on voter queues and voting standards published in national newspapers and magazines. Professor Richard Larson rendered enormous support in promoting the author’s book *How America Chooses Its Presidents* (2007) and organized the author’s public lecture *The Electoral College in U.S. Presidential Elections: The Logical Foundations, Mathematics, and Politics*, which was held at MIT and recorded by MIT World [17] and is widely available on the Internet.

Interestingly, in 2010, the author made a presentation at the X International Meeting of The Society for Social Choice and Welfare regarding the analysis of new plans for reforming the U.S. presidential election system. After the presentation, the author was approached by a European researcher who showed him the recording of the above-mentioned public lecture on his smart phone.

Both Professor Richard Larson and Professor Arnold Barnett—a prominent scientist and expert on the Electoral College’s quantitative features from MIT’s Sloan School of Management—supported the idea to hold the conference *To Keep or Not to Keep the Electoral College*, sponsored by Carnegie Corporation of New York and the Sloan School of Management.

The conference brought together leading national experts in the field of the Electoral College and other parts of presidential elections and gave the author an opportunity to discuss and debate many issues with prominent constitutional lawyers, political scientists, and historians. The conference featured open discussions among Professors Akhil Amar, Vikram Amar, Robert Hardaway, Judith Best, Robert Bennett, Pual Schumaker, Alexander Keyssar, David Kind, John Fortier, and the author. The conference also featured Dr. Alan Natapoff—a prominent Electoral College scholar and the author of a proposal to reform the presidential election system, whose public lectures always draw a lot of attention throughout the country—and Professor Arnold Barnett, who is a co-author of a proposal to reform the Electoral College [18] and a lecturer on the subject [14].

Professor Arnold Barnett also invited the author to organize and chair a session dedicated to the Electoral College quantitative features at the INFORMS annual meeting in Washington D.C. in 2008 [11]. This invitation gave the author a unique opportunity to discuss these features with applied mathematicians working in the field.

Professor Richard Larson and Professor Ervin Rodin—a distinguished and nationally recognized applied mathematician and teacher, who has always supported the author's works in different fields of applied mathematics—supported the idea to publish *Mathematical Modeling of Voting Systems and Elections: Theory and Applications*, a special issue of Mathematical and Computer Modelling, an International Journal published by Elsevier. The preparation and scientific editing of this special issue turned out to be a fruitful project of MIT's Center for Engineering Systems Fundamentals [8] and gave the author additional opportunities to get acquainted with several distinguished mathematicians and political scientists working in the fields of the mathematics of voting and systems analysis of voting systems and elections.

In the course of working on *How America Chooses Its Presidents* the author had a unique opportunity to work with Gay Haldeman and Dr. Robert Irvin—two distinguished editors at MIT's Writing Center, headed by Dr. Steve Strang. Both editors have answered numerous questions on wording and punctuation that the author asked and advised the author regarding the writing style in the course of preparing the author's publications in American newspapers. Gay Haldeman kindly agreed to edit the main body of the present book, which the author highly appreciates. Dr. James Green—a Ph.D. in political science, a talented writer, and a distinguished editor—helped the author a great deal by discussing the subject of all three above-mentioned author's books on U.S. presidential elections, as well as by answering the author's questions regarding particular writing constructions representing usage in American English.

In April 2009, The League of Women Voters of Waltham, Massachusetts, invited the author to debate the NPV plan with Pam Wilmot (Common Cause of Massachusetts), which was very helpful and gave the author a chance to

hear and understand the positions of different members of the League. Finally, Professor Jamie Raskin—a Maryland Senator and Director of the Law & Government Program at Washington College of Law, a distinguished constitutional lawyer, and one of the ardent proponents of the NPV plan—invited the author to participate in the panel *Is America Ready for Popular Election of the President?* at American University in Washington D.C., sponsored by the American Constitutional Society and the Law School of the American University [16]. Dr. John Koza, the originator of the NPV plan, Dr. John Samples, Director of the CATO Institute’s Center for Representative Government, Professor Jamie Raskin, and the author—the panelists—publicly discussed their positions regarding the presidential election system, plans to improve it, and chances of those plans to succeed. This panel—chaired by Caroline Fredrickson, Executive Director, the American Constitution Society for Law and Policy—was a unique opportunity for the author, since it allowed the author to discuss details of the NPV plan with its originator and to explain the author’s alternative plan for reforming the election system (see Chapter 7). Also, it let the author see how the audience reacted to all the issues addressed in the course of the panel discussion, which has affected the choice of the topics included in the present book and the manner of their presentation.

The author expresses his deep, sincere appreciation to all the above-mentioned individuals and organizations for their support and encouragement of the author’s efforts to analyze the U.S. presidential election system and to make the results of this analysis available to all interested people.

Finally, the author would like to express his appreciation to Elsevier for its kind permission to use in this book the articles that the author published on the presidential election system in Elsevier’s International Mathematical Journals in 2002-2008.

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