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The Self-Organization of American Society in Presidential and Sentorial Elections

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9. The Self-Organization of American Society in Presidential and Senatorial Elections

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9.1 Historical Background

The American electorate is commonly regarded as a hierarchic system of electoral groups that differ in their responses to the issues and tactics of electoral campaigns. Taken together, the groups comprise the entire electorate; they are normally represented in social or political organizations, but do not coincide with them. Cultural, social, economic, territorial, ethnic, and other factors divide voters into electoral groups. Each group, in turn, can be subdivided into smaller units, down to the indivisible, though variable element of the individual voter.

American elections are often summarized as follows:

- The candidate's task is to optimize his platform and campaign strategy to win over as many electoral groups as possible, without antagonizing too many other groups.
- At the peak of electoral campaigns, the quest for such optimization goes out of proportion, which makes the campaign shallow and separated from the real interests of society.
- The outcome of the election to a large extent depends on the ability of each candidate to manipulate electoral groups through advertising, rhetoric, and stage-managed events.

This formulation appears plausible, and it has consistently guided coverage of American elections. But it leaves a number of questions unanswered. Though bifurcations do occur in nature, there needs to be specific evidence for the belief that a huge electorate (10^8 for a presidential election and 10^6–10^7 for senatorial ones) easily changes its collective decision under the influence of transient factors that are irrelevant to the governing of the country.

Besides, this account shows little respect for American democracy or the American voter. It portrays voters as excitable simpletons who are easily swayed by television commercials and emotional appeals.

The problem of elections in the U.S. deserves an alternative hypothesis. In our papers [9.3, 9.5, 9.6] we have proposed the hypothesis that the collective decision of the American electorate (on the national scale when the president is elected, or in each state during senatorial elections) is determined by long-term factors that can usually be gauged well in advance of an electoral campaign. This means, first, that debates, advertising, nightly news reports, and other campaign events have little to do with the outcomes of elections and, second, that election results can be predicted reliably many months in advance without recourse to polls.

In [9.5] we have tried to find parameters which describe the political environment prior to an election and predict the outcome of American presidential elections. In [9.6] we examine the same problem for senatorial elections in all 50 American states.

Given a lack of adequate theory, both problems were tackled phenomenologically through the analysis of pre-election situations in the past. The results are relevant for understanding the electoral process, developing theoretical models, and for predicting electoral results.

Our work shows that presidential elections are referenda on the performance of the party in power. Rather than choosing between individual candidates or between Republicans and Democrats, the electorate decides whether to retain or reject the party that controls the White House. If the nation has fared well during the term, the executive party is re-elected; otherwise the presidency changes hands. This pattern has remained unchanged at least since the election of Abraham Lincoln in 1860 despite enormous changes in the electorate and the society during the subsequent 130 years.

Although other investigators have also probed the conditions under which incumbent administrations rise or fall, their work has focused narrowly on the state of the economy. Strictly economic models, however, fail to capture the dynamics of many American elections (e.g., 1860, 1912, 1968, and 1976). Our work in [9.5] gauges not just the economy, but such measures of incumbent performance as policy change, foreign successes and failures, scandal, and social unrest.

We found that the choice of a senator is fundamentally different from the election of a president. Senate elections are not primarily referenda on the performance of the previous term. They are to some extent contests between parties and candidates, although in fact their outcome depends more upon the relative strengths of the competitors going into the campaign than on what they say or do during the campaign itself. That is why we found that senatorial elections, like presidential elections, could also be forecast in advance of campaigns.

The logic and algorithms of the present analysis follow Gelfand's school of pattern recognition analysis. Specifically, we draw upon the experience of earthquake prediction research [9.1]. For both presidential and senatorial elections we sought to predict the winners of elections, but not their percentage of the vote. Likewise, we eliminated certain information through the discretization of parameters to the lowest level of resolution, 'yes' or 'no'. Similar 'robust' methods are widely used in the heuristic analysis of complicated data, especially when dealing with small samples. The apparent loss of information involved has often produced the stable results that elude more 'detailed' analyses that are subject to fluctuations in the values of particular variables.

9.2 The American Presidential Election: Formal Analysis

Initial Data. The historical study of American elections suggested the choice of a set of integral parameters that may affect the outcome of presidential elections. We were guided by the hypothesis that elections turned on the strength and performance of the incumbent party. These parameters were determined at the minimum level of resolution, as answers to certain 'yes' or 'no' questions given in Table 9.1. Each question can be answered prior to an upcoming election, usually by the time that parties have nominated their candidates. The questions are formulated so that an affirmative answer favors victory of the party in power. The unexpected finding is that this set of questions is sufficient to predict the outcome of elections.

The answers to the questions for pre-election situations from 1860–1980 are given in Table 9.2. This material forms our initial data.

The analysis follows a procedure that is common for pattern recognition. Let us divide the pre-election situations into two types: *I* (incumbent will win) and *C* (challenger will win). Victory is defined as a popular vote plurality regardless of the verdict in the electoral college.

The problem is formulated as follows. We are given 'learning material' that consists of examples of elections *I* and *C*, with the answers to the questionnaire (Table 9.1) for each election. From this data

Table 9.1. Questionnaire for presidential elections

A 'yes' answer favors the incumbent party. When five or more answers are 'yes' a victory for the incumbent party is predicted. Otherwise a victory for the challenging party is predicted.

1 **Party mandate.** After the midterm elections, the incumbent party holds more seats in the U.S. House of Representatives than it did after the midterm elections.

2 **Contest.** There is no serious contest for the incumbent party nomination.

3 **Incumbency.** The incumbent party candidate is the sitting President.

4 **Third party.** There is no significant third party or independent campaign.

5 **Short-term economy.** The economy is not in recession during the election campaign.

6 **Long-term economy.** Real per-capita economic growth during the term equals or exceeds mean growth during the previous two terms.

7 **Policy change.** The incumbent administration effects major changes in national policy.

8 **Social unrest.** There is no sustained social unrest during the term.

9 **Scandal.** The incumbent administration is untainted by major scandal.

10 **Foreign military failure.** The incumbent administration suffers no major failure in foreign military affairs.

11 **Foreign military success.** The incumbent administration achieves a major success in foreign or military affairs.

12 **Incumbent charisma.** The incumbent candidate is charismatic or a national hero.

13 **Challenger charisma.** The challenger party candidate is not charismatic or a national hero.

Table 9.2. Presidential elections 1860–1988 classified by questionnaire

Question numbers 1–13 correspond to Table 9.1. Answer 'yes' = 0 and 'no' = 1.

Incumbent victories

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1864	0	0	0	0	0	1	0	1	0	0	0	1	0	3
1868	0	0	1	0	0	0	0	1	0	0	0	0	0	2
1872	1	0	0	0	0	0	1	1	0	0	0	0	0	3
1880	0	1	1	0	0	0	0	0	0	0	1	1	0	4
1888	1	0	0	0	0	0	1	1	0	0	1	1	0	5*
1900	1	0	0	0	0	0	0	0	0	0	0	1	1	3
1904	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1908	0	0	1	0	0	1	0	0	0	0	0	1	0	3
1916	1	0	0	0	0	1	0	0	0	0	0	1	0	3
1924	1	0	0	1	0	0	0	0	1	0	0	1	0	4
1928	0	0	1	0	0	0	1	0	0	0	0	1	0	3
1936	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1940	1	0	0	0	0	0	0	0	0	0	1	0	0	2
1944	1	0	0	0	0	0	0	0	0	1	0	0	0	2
1948	1	0	0	1	0	1	0	0	0	1	0	1	0	5
1956	0	0	0	0	0	0	1	0	0	0	0	0	0	1
1964	1	0	0	0	0	0	0	0	0	1	0	1	0	3
1972	1	0	0	0	0	1	1	0	0	0	0	1	0	4
1984	0	0	0	0	0	1	0	0	0	0	1	0	0	2
1988	0	0	1	0	0	0	1	0	0	0	0	1	0	3

Challenger victories

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
1860	0	1	1	1	0	0	1	1	0	0	1	1	0	7
1876	1	1	1	0	1	1	1	0	1	0	1	1	0	9*
1884	1	1	1	0	1	1	1	0	0	0	1	0	0	7
1892	1	1	0	1	0	0	0	1	0	0	1	1	0	6
1896	1	1	1	0	1	1	1	1	0	0	1	0	0	8
1912	1	1	0	1	0	0	1	0	0	0	1	1	0	6
1920	1	1	1	0	1	1	0	1	0	1	0	1	0	8
1932	1	0	0	0	1	1	1	1	0	0	1	1	1	8
1952	0	1	1	0	0	1	1	0	1	1	0	1	1	8
1960	1	0	1	0	1	1	1	0	0	1	1	1	1	9
1968	1	1	1	1	0	0	0	1	0	1	1	1	0	8
1976	1	1	0	0	0	1	1	0	1	1	1	1	0	8
1980	1	1	0	1	1	0	1	0	0	1	0	1	1	8

* Electoral vote did not coincide with popular vote results.

we attempt to find the 'recognition rule' that predicts the outcome of a specific election from answers to the same questionnaire.

Algorithm. Given that the learning material consists of only 31 elections, we have chosen the simplest algorithm, 'recognition by the Hamming distance' [9.5]. It may be described briefly as follows.

First, the 'kernel' is determined. This is the set of answers which are encountered more frequently in elections I than in elections C.

To find the kernel the following numbers are calculated:

$$K(i) = \frac{n(i/I)}{n(I)} - \frac{n(i/C)}{n(C)},$$

where $i = 1,2,\ldots$ is the sequence number of a question from Table 9.1, $n(i/I)$ and $n(i/C)$ show how many elections I and C have the answer 'yes' to question i, and $n(I)$ and $n(C)$ show how many elections I and C are in the learning material.

The answer to question i in the kernel is 'yes' if $K(i) \geq k$ and 'no' if $K(i) \leq -k$, where k is a numerical threshold. If $|K(i)| < k$ the question is not used for recognition.

Second, the distance D between the election and the kernel is calculated as follows:

$$D = \sum_i W(i),$$

where $W(i)$ is the 'weight' of question i:

$$W(i) = \frac{|K(i)|}{\max_i |K(i)|}.$$

Only the answers which are contrary to those in the kernel are included in this summation. If all $W(i)$ are replaced by 1 then D is simply the number of answers which are unfavorable to the incumbent party (the number of 'no' answers).

Third, a rule of recognition is formulated as follows. If $D \leq L$, an election is recognized as I, a win for the incumbent party, and if $D > L$, an election is recognized as C, a win for the challenging party, where L is a certain threshold.

Data Analysis. For purposes of analysis we assumed $W(i) = 1$ and $k = 0.1$. Including all elections from 1860 to 1980 in the questionnaire we obtain a kernel of all zeroes (all answers 'yes'). This follows the intuitive formulation of the questionnaire. The division of elections acording to that kernel is shown in the last column of Table 9.2, which sets the threshold *a posteriori* as $L = 5$.

A central question for pattern recognition is the reliability of the rule of recognition. The rule derived for presidential elections correctly divides past elections into incumbent and challenger victories. Successful forecasts of the 1984, 1988, and 1992 elections provide additional evidence of the rule's reliability. For its statistical evaluation more forecasts are required.

The stability of our results is also established by exploring variations in the questionnaire. We performed a logical exercise similar to the 'seismic history' experiment in [9.1]. Beginning in 1900 we determined the outcome of each successive election using information from all previous elections. Thus we have recreated the position of a forecaster anticipating every election from 1900 through 1980 on the basis of data from the previous elections dating back to 1860. This experiment gives correct results for 19 of 21 elections, indicating that the situations leading to incumbent or challenger victories has changed little during the past 130 years.

A number of additional tests were performed. We found, for example, that results were unchanged when we excluded the five elections in which the number of votes cast for the two main parties differed by 1% or less (1880, 1884, 1888, 1960, 1968) or when we included only twentieth-century elections in the questionnaire.

We also used the algorithm Cora III [9.1] which can formulate composite questions from combinations of the original set. This failed to produce better or additional results. What makes the Hamming distance algorithm preferable is that it is less vulnerable to accidental combinations that have little substantive meaning.

9.3 Midterm Senatorial Elections: Formal Analysis

Analysis of senatorial elections, held between presidential election years, provides a sufficient sample size to obtain statistically verifiable results. The logic and algorithms of the analysis were the same as those used for presidential elections. The work for [9.6] was performed in 1985 and used to forecast the outcomes of the 1986 elections.

The basic data were taken from the history of the three previous midterm elections, those of 1974, 1978, and 1982. Each of the 50 states was included in at least one of these contests. For the analysis, we selected the same set of integral parameters for all states. They are given in Table 9.3.

The answers to the questions from Table 9.3 are given in [9.6]. As before, the wording of the questions implies that 'yes' is preferable for I elections. Accordingly, the kernel again consists of all zeroes.

Figure 9.1 shows the results of applying pattern recognition to the data. These results establish the following decision rule: the incumbent party retains its senatorial seat (I) if $D < 5$ and loses it to the opposition party (C) if $D \geq 5$.

The forecast of the 1986 election published a week in advance provided a test of this decision rule. This forecast is found in Table 9.4, together with the evaluations of predictions by political authorities and the actual results. Our forecast was correct in 30 states of the 34.

We subjected the 1986 results to statistical analysis, considering (a) the correlation between questionnaire results and election outcomes, and (b) the predictive power of the questionnaire.

			WY82I				
			UT82I	VT82I			
			TX82I	NJ82I			
			TN82I	NE82I			
			RI82I	MO82I			
			PA82I	IN82I			
	WV82I		MN82I	MT78I			
	WI82I		MI82I	KY78I			
	WA82I	OH82I	MA82I	KS78I			
	ND82I	NY82I	HI82I	GA78I			
	MT82I	ME82I	DE82I	DE78I			
	MS82I	MD82I	CT82I	AR78I			
	TN78I	FL82I	AZ82I	AL78I	WY78I		
	OR78I	NM78I	WV78I	PA74I	NM82C		
	WI74I	NC78I	VA78I	OR74I	NJ78C		
	WA74I	ID78I	TX78I	OK74I	NH78C		
SC78I	SC74I	AK78I	RI78I	MD74I	NE78C	CA82I	
IL78I	MO74I	SD74I	LA78I	AR74I	ME78C	UT74I	
LA74I	IN74I	KS74I	NC74I	AK74I	CO78C	OK78C	SD78C
ID74I	IL74I	IA74I	NY74I	MI78C	VT74C	MN78C	MS78C
HI74I	CT74I	CA74I	ND74I	NV82C	KY74C	NV74C	OH74C
GA74I	AL74I	AZ74I	MA78C	IA78C	CO74C	NH74C	FL74C
0	1	2	3	4	5	6	7

Fig. 9.1. Division of off-year election returns (1974–1982) by the Hamming distance D from the kernel (i.e., by the number of 'no' answers to the questionnaire in Table 9.3). Each election is represented by the two-letter state abbreviation, the year, and the outcome: I for an incumbent-party victory, C for a challenger-party victory

To test condition (a) we examined the results for all 34 elections. To test condition (b) we excluded elections whose outcome, according to expert opinion, was easily predictable. Specifically, we excluded all elections identified as 'probably secure' in Congressional Review (Table 9.4).

A detailed analysis, presented in [9.6], established the statistical significance of our results both for the 34 elections and the smaller set of less predictable contests.

Our forecast of the 1990 midterm elections, likewise published in advance [9.4], proved correct in 32 of 35 states. Thus 62 of 69 predictions (90%) for the midterm elections of 1986 and 1990 were correct. In the 1990 cycle, moreover, the forecast correctly anticipated the victory of incumbent party candidates in virtually every state, despite widespread press reports that 'anti-incumbent' sentiment was sweeping the nation.

The reliability of the rule of recognition for midterm senatorial elections was also established through the same numerical experiments applied to presidential elections. Detailed results can be found in [9.6]. The sole source of instability lies in the threshold $L = 5$ that divides elections into I and C. Changing the threshold by 1 leads to numerous mistakes, as shown in Fig. 9.1. With only eight parameters this instability is hardly avoidable; it remains when weights $W(i)$ are introduced into the algorithm.

That our prediction was successful despite this instability implies that each parameter is an essential indicator of electoral outcomes. It may also suggest that the parameters are mutually dependent so that a change in one is likely to be accompanied by a change in others. There may yet be tendencies within the electorate that we have not been able to diagnose through additional questions.

We also used the same methods to analyze senatorial elections held in presidential years [9.5]. Although we did not publish forecasts of the 1988 elections ahead of time, we review presidential year elections to make the picture complete.

The first six questions from Table 9.3 remained unchanged for presidential election years. The last two were replaced with the questions 7A and 8A shown in Table 9.3.

The use of this questionnaire with $D = 5$ correctly predicted the results of 32 of 35 senatorial elections in 1988.

Table 9.3. Eight questions for midterm senatorial elections

Senators are elected for a term of six years. Approximately one-third of the senators are re-elected every two years, in some cases in the middle of the presidency, and in others simultaneously with the presidential election.

A 'yes' answer favors the incumbent party. If no more than four answers are 'no' a victory for the incumbent party is predicted. Otherwise a victory for the challenging party is predicted.

Incumbent party candidate:

1 The incumbent party candidate is the sitting Senator.

2 The incumbent party candidate is a major national figure.

3 There was no serious contest for the incumbent party nomination (the candidate collected no less than two-thirds of the vote in the first round).

Incumbent party:

4 The incumbent party won 60% or more of the vote in the previous election.

5 The incumbent party raised at least 10% more money for the campaign than the opposition.

Challenger candidate:

6 The challenger candidate is not a national figure or a past or present Governor or Member of Congress.

7 The challenger candidate is from the same party as the current President.

8 There was no serious contest for the challenger party nomination.

If the senatorial and presidential elections take place in the same year, the last two questions are replaced with:

7A The questionnaire for the presidential election predicts victory for the incumbent party.

8A The incumbent party has a majority in the lower house of the state legislature.

Table 9.4. 1986 senatorial election forecast and returns

State	Answer[1]									CR[2]	Forecast[3]	Actual result
	1	2	3	4	5	6	7	8	*D*			
HI	0	0	0	0	0	1	0	0	1	PS	*I*	*I*
OH	0	0	0	0	1	0	0	0	1	PS	*I*	*I*
SC	0	0	0	0	0	1	0	0	1	PS	*I*	*I*
UT	0	0	0	0	0	0	1	0	1	PS	*I*	*I*
AK	0	1	0	1	0	0	0	0	2	PS	*I*	*I*
CT	0	1	0	1	0	0	0	0	2	PS	*I*	*I*
KS	0	0	0	0	0	1	1	0	2	PS	*I*	*I*
KY	0	1	0	0	0	1	0	0	2	PS	*I*	*I*
ND	0	1	0	0	0	0	1	0	2	PV	*I*	*C* *
AR	0	1	0	1	0	0	1	0	3	PS	*I*	*I*
CA	0	0	0	1	1	1	0	0	3	V	*I*	*I*
IL	0	1	0	1	0	1	0	0	3	PS	*I*	*I*
IN	0	0	1	1	0	0	1	0	3	PS	*I*	*I*
IA	0	1	0	1	0	0	1	0	3	PS	*I*	*I*
NH	0	1	0	1	0	0	1	0	3	PS	*I*	*I*
OR	0	0	1	1	0	0	1	0	3	PV	*I*	*I*
VT	0	1	0	1	1	0	0	0	3	PV	*I*	*I*
AZ	1	1	0	1	0	0	1	0	4	PS	*I*	*I*
CO	1	1	0	1	1	0	0	0	4	V	*I*	*I*
ID	0	1	0	1	1	0	1	0	4	V	*I*	*I*
LA	1	1	0	0	1	0	0	1	4	HV	*I*	*I*
NY	0	1	0	1	0	1	1	0	4	PS	*I*	*I*
NC	0	1	0	1	1	0	1	0	4	PV	*I*	*C* *
OK	0	1	0	1	1	0	1	0	4	V	*I*	*I*
WA	0	1	0	1	1	0	1	0	4	PV	*I*	*C* *
WI	0	1	0	1	0	1	1	0	4	V	*I*	*I*
AL	0	1	0	1	1	1	1	0	5	V	*C*	*C*
FL	0	1	0	1	1	0	1	1	5	HV	*C*	*C*
GA	0	1	0	1	1	1	1	0	5	PV	*C*	*C*
MO	1	1	0	1	1	0	0	1	5	HV	*C*	*C*
PA	0	1	0	1	1	1	1	0	5	V	*C*	*I* *
MD	1	1	0	0	1	1	1	1	6	HV	*C*	*C*
NV	1	1	0	1	1	0	1	1	6	HV	*C*	*C*
SD	0	1	1	1	1	0	1	1	6	HV	*C*	*C*

[1] Answer 0 = 'yes' and 1 = 'no'.

[2] CR gives Congressional Review assessment of the incumbent party:
PS probably secure
PV potentially vulnerable
V vulnerable
HV highly vulnerable

[3] Result *I* is incumbent party victory and *C* is challenger party victory.

* Forecast happened to be wrong.

9.4 Discussion

Self-organization and Predictability. In the natural world, intricate chaotic systems, after appropriate smoothing, often display stable regularities, including predictability. These regularities are difficult, if not impossible, to derive from the behavior of the system's elementary components. Our results for the American political system suggest that American society comprises such a system during presidential and senatorial elections. The hierarchic system of American electoral groups has stable and predictable aggregate-level behavior with a high degree of integration for the entire nation and even for individual states.

This integration occurs despite the contradictory interests and outlooks of electoral groups. The laws governing the outcome of elections have remained stable at the aggregate level from 1860 through 1988, even though three-fourths of today's voters – women, 18 to 20-year-olds, African-Americans, and the great majority of descendants from Latin America, Asia, and Eastern and Southern Europe – were not part of the nineteenth-century electorate. Electoral systems may thus display features similar to large-scale physical systems that likewise exhibit collective behavior comprehensible only at the level of the system as a whole.

What determines collective choice in American presidential elections is the enduring, pragmatic nature of the American electorate. Contrary to the conventional wisdom, our results suggest that issues and ideology, party affiliation, speeches, debates, and advertising count for little or nothing on election day. What matters is the electorate's assessment of how well an incumbent administration has governed the nation. And that assessment is usually clear before the general election campaign even begins. The analysis thus restores the unity between politics and governing that is torn apart in conventional accounts of how elections turn on the strategy and tactics of campaigns.

The parameters developed for presidential elections probe the multiple dimensions of incumbent-party power and performance. The first four parameters primarily gauge conditions that reflect the strength and unity of the party in power. The next seven parameters measure incumbent achievements and failures across a wide range of public concerns. The final two parameters recognize that personality can make a difference in presidential politics, but only when a candidate is either unusually compelling or of heroic stature.

Only one of the thirteen parameters (13) can be influenced directly by the opposition party. This indicates that an incumbent party largely holds its fate in its own hands. Still, many of the parameters may not be within the administrations's control.

Our findings, for example, suggest an explanation of George Bush's 1988 victory that is radically different from the generally accepted version of events. According to the conventional wisdom, after trailing by as many as 17 percentage points in the polls, Bush began a remarkable 'comeback' with his eloquent convertion speech (primarily crafted by master speechwriter Peggy Noonan). He then launched a devastating barrage of negative attacks on Mike Dukakis, orchestrated by political adviser Lee Atwater and designed by advertising expert Roger Ailes. When Dukakis failed to respond to charges that he furloughed dangerous criminals and fouled Boston Harbor, Bush surged permanently ahead. Thus, a brilliantly designed – if shallow and vicious – campaign allegedly changed the minds of the voters.

Our conclusions compel a different version of what actually happened in 1988. Based on the record of the previous four years, as measured by the 13 parameters, a Bush victory was apparent long before the public ever heard of speechwriter Peggy Noonan or furloughed rapist Willie Horton.

Six months prior to the election and three months before Bush's alleged comeback, the following forecast was published: "Barring a suddenly stalled economy and a major disaster between now and election day, George Bush is a shoo-in for the presidency, no matter who winds up as the Democratic nominee." [9.3]

The ability to forecast elections prior to campaigns, however, does not mean that candidates can cease campaigning. Campaigns are integral to the political system in which the parameters operate. If one or both parties decided not to take part in the campaign, the nature of the electoral system might change, with consequences that are as yet unclear.

Still, our results do raise the question of what a party should do when historical factors show that it is likely to lose an election. What certainly will not help are the usual attempts to manipulate voters. No master stroke of strategy, advertising trick, or campaign event has ever reversed an unfavorable situation for either the incumbent or the challenging party.

But the disadvantaged party can at least attempt to change the rules of the political game. A party that has the historical odds stacked against it has nothing to lose and perhaps much to gain by running a campaign of candor and substance. For the opposition, it may be the only chance to recover the White House, short of waiting for disaster to befall the president and the country. To run a new kind of campaign, an opposition candidate would have to fire the ad men, cancel the TV spots, and talk straight to the public about how they would govern the country, revealing at least:

- Prospective cabinet appointments,
- Specific legislative changes,
- Concrete taxing and spending plans,
- Drafts of international treaties,
- Alternative solutions to national crises.

If circumstances were against the party in power, the incentive to run an honest and substantive campaign would be reversed. But the results would still be to elevate the shallow and trivial campaigns that have become routine in America's quadrennial contests for president.

As democracy has spread throughout the world, the contagion of a politics based on attack strategies, sound bites, and stage-managed events has followed. A more substantive and honest presidential campaign in the United States might remove this sand from the bearings of democracy worldwide.

The pragmatic electorate also emerges in senatorial elections. Once again, issues, ideology, and campaign events play no role in prediction. But the analysis of senatorial elections also includes no direct performance measures comparable to those included in the presidential analysis. What is most surprising is that neither the national nor the state economy affects the results of senatorial elections.

Voters thus have more diffuse expectations of senators than of presidents. For Senate elections, perceptions of incumbent performance are captured only indirectly through questions about nomination contests, the political stature of opposition-party candidates, and the competition for financial support.

Taken together, our results illustrate the potential to analyze social systems with the same aggregate-level methods used for studying intricate chaotic systems in the natural world. For presidential elections,

extremely smoothed parameters describing the social, economic, and political situation in an election year are averaged for the United States as a whole. The same set of parameters is correlated with the outcomes of elections at least since 1860. For senatorial elections, the same set of similarly smoothed parameters are applied to each of the 50 states. At least since 1874, in all states, for each election year, the outcomes of elections for the Senate follow the same basic pattern.

Our conclusions are generally confirmed by early, published forecasts of senatorial elections in 1986 and 1990 and of presidential elections in 1984, 1988, and 1992. The finding that elections can be predicted without reference to campaigns, issues, or ideologies points to the need for a radically revised understanding of how presidential and senatorial elections really work in the United States.

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Preface

This book addresses the problem of predictability of various phenomena, both of physical origin (such as weather, climate, earthquakes, biological media, and dynamical chaos) and of a social nature (election preferences, laws of ethnogenesis, and so on).

The book explores the predictive power of modern science, and consists of a set of survey chapters by distinguished experts, who have written them in a style that is understandable to nonexperts. The importance of the problems under review and the academic distinction of the team of authors ensure that this book will attract a large audience of readers who are interested in learning more about the achievements and prospects of modern science.

All the authors have sought to make their articles popular enough to be understood by the average mathematically literate reader. At the same time, however, the articles discuss a number of fundamental questions that deserve expert attention. I hope we have managed to meet both these requirements, which are so hard to reconcile.

I am very grateful to all the contributors, who eagerly accepted the request to write chapters for this book and completed the work within a very tight deadline. I would like to thank M. G. Makhova and A. V. Karaseva for assistance in readying the manuscript for publication, to S. N. Gonshorek for efforts that helped this book see the light, to E. B. Grigoreva and A. A. Starkov for their timely and expert translation of the book, and to J. A. Ross at Springer-Verlag for copy-editing the text and typing the camera-ready copy.

Moscow, January 1993 Yu. A. Kravtsov

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