

Chapter 6

A Gentle Combination of Plurality Vote and Proportional Representation for *Bundestag* Elections

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6.1 Introduction

In the decision of 3 July 2008 the German Federal Constitutional Court called upon the *Bundestag* to amend the Federal Election Act (*Bundeswahlgesetz*) in order to avoid negative voting weights, and set a deadline of 30 June 2011 (Schreiber 2009; Meyer 1994). Though the issue did not stimulate much public discussion, several problem analyses and solutions were proposed in the literature (Arnim von 2008; Behnke 2010a; Holste 2009; Isensee 2010; König 2009; Meyer 2009; Nohlen 2009; Pukelsheim 2008; Pukelsheim and Rossi 2010, Prittwitz von http://www.volkervonprittwitz.de/anders_waehlen.htm, Roth 2008). Some of the proposals redesign the *Bundestag* system in quite a drastic way.

The present paper assembles an overview of those options that stay close to the existing system. These options (and others) have been developed under the assumption that the Court's decision demands an amendment definitely eliminating negative voting weights (Sect. 6.2). However, if the Court's decision is interpreted in a direction to eliminate negative voting weights in practice, to the greatest possible extent, notwithstanding their existence in theory, then the *Bundestag* enjoys a greater margin of discretion to amend the electoral system (Sect. 6.3). With a view towards this more liberal interpretation of the Court's decision, we propose another option which may be a viable way to amend the electoral act. The new option is called the "gentle combination" of plurality vote for the election of persons and of a

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proportional representation list system (Sect. 6.4), and appears to be attractive from various points of view (Sect. 6.5).

To begin with we briefly outline the electoral system for the German *Bundestag*. The system combines the election of persons, proportional representation, and federalism. The voters' constituency votes serve to elect (by plurality) a constituency candidate, within each of 299 single-member constituencies. The voters' list votes are cast for a party's State list. The allocation of seats then is carried out in three stages. First, 598 *Bundestag* seats are apportioned in proportion to the parties' nationwide count of list votes. Next, each party's national seat contingent is allocated among the States where the party presented a candidate list. Finally, the seats of a party in a State are filled by the party candidates who were the plurality winner in their single-member constituency, and then the remaining seats are filled from the candidate list which the party presented in that State.

In cases when a party's constituency winners in a State exceed the party's share of seats in the proportional representation allocation, the constituency winners retain their seats and the *Bundestag* is expanded beyond the original house size of 598. For example, the 2009 election resulted in 21 overhang seats for the CDU and 3 overhang seats for the CSU. The creation of overhang seats, beyond the originally intended house size of 598 seats, is closely related to the occurrence of negative voting weights. Overhang seats may originate from an over-proportional share of constituency seats. During many decades this was the predominant view, and was tolerated because the support of the voters was considered sufficient justification for the creation of overhang seats even though they reach beyond the proportional representation share of seats. But the diverging success of constituency votes and of list votes can also be exaggerated by voters withholding their list vote from the party of their choice, thus exercising a negative voting weight (Meyer 1994).

Such a situation was manifest during the 2005 *Bundestag* election. The death of a candidate in the Dresden I constituency necessitated a by-election in which too many votes in favor of the CDU would have cost that party a *Bundestag* seat. Due to press coverage and Internet activities, about ten thousand CDU voters withheld their list vote from the CDU. This incident led to the 3 July 2008 decision of the Court and its call upon Parliament to amend the Federal Election Act in order to avoid any negative voting weights.

6.2 Four Options Close to the Current System

Negative voting weights may arise because the current Federal Election Act combines a proportional representation system with the election of persons and, additionally, takes into account the federal structure of Germany with its 16 States. Depending on how the three components (proportional representation, election of persons, and federal structure) are combined, the resulting electoral systems may differ.

We present an overview of four options that maintain the current ballot design with its two votes and thus stay particularly close to the present electoral system. Option F intends to honor the federal structure of Germany and treats each State

as a separate electoral district (2.1). Thus constituency votes and list votes acquire quite a different character and entail serious constitutional problems.

As an alternative system the Court decision mentions the “trench system” (*Grabenwahlssystem*), here labeled Option G (2.2). Option G disassociates the two components of proportional representation and the election of persons, by filling one half of the *Bundestag* seats through plurality votes in single-seat constituencies, and the other half through proportional representation. As a result, representation of voters of smaller parties is practically cut in half which, presumably, is hard to communicate to the public.

In Option P the election of persons dominates over the proportional representation component (2.3). In contrast, Option V focuses on the proportional representation dominance (2.4). Both options reproduce the current electoral system in “regular instances” where overhang seats do not occur. These options take some corrective actions only in exceptional situations where the electoral results lead to overhang seats. Option P leaves the results of the election of persons untouched and adjusts the results from the proportional representation calculations, Option V proceeds inversely.

Reaching beyond options that stay close to the current system, there is a greater leeway for a re-arrangement of the system components to avoid negative voting weights. For example, Behnke favors the implementation of two-seat constituencies (Behnke 2010b). Meyer opts for a one-vote ballot which then is doubly evaluated, once as a constituency vote and once as a list vote (Meyer 2009). Prittwitz proposes a system with a one-vote ballot, where a federal list of candidates is formed *ex post* on the basis of how many constituency votes each candidate drew (Prittwitz http://www.volkervonprittwitz.de/anders_waehlen.htm).

6.2.1 Option F: Separate per-State Apportionments

Option F proposes to disentangle the three components of the *Bundestag* electoral system by carrying out the proportional representation calculations separately for each of the 16 States. This would presuppose that, sometime during the legislative period, the Constituency Commission allocates the 598 *Bundestag* seats to the 16 States. On election day, the seat contingent of a State is apportioned among parties proportionally to the number of list votes they draw. Hence the current system of a single federal election would be re-arranged into 16 separate, but simultaneously conducted, State elections.

Option F runs into conflict with the unitary character of the *Bundestag*. According to Article 38 I of the Basic Law (*Grundgesetz*) the members of the *Bundestag* shall be representatives of the whole people (*Vertreter des ganzen Volkes*), rather than representatives of 16 separate “State people”. Moreover, if in a State a party features more constituency winners than are proportionally warranted (that is, the party wins “overhang seats”), the list votes for that party in that State would become totally ineffective and irrelevant. In the 2009 election, one fifth of all list votes would

have been invalidated. This is in strong contrast to the imprint on the ballot sheets informing citizens that it is the list vote that is decisive (*maßgeblich*) to determine the composition of the *Bundestag*. Option F runs the risk of violating the principle of electoral equality that is guaranteed in the Basic Law.

6.2.2 Option G: Trench System

Another possibility is the “trench system” wherein half of the *Bundestag* seats are allocated through plurality, while the allocation of the other half is based on proportional representation. At present, constituency sizes vary considerably. The variation is judged constitutionally acceptable because the decisive votes are the list votes, not the constituency votes. If, as in the trench system, constituency votes also become decisive, constituency sizes would need to be equilibrated in a better way. However, no initiative has been taken to do so, and the time until 30 June 2011 seems to be running out.

Option G is not just adopting minimal corrections to the current system in order to avoid negative voting weights, but is calling for radical changes. The effect will be that representation of voters of smaller parties is cut in half of their current representation. The seats thus freed are re-allocated to the larger parties.

6.2.3 Option P: Plurality Vote Dominant

This option treats constituency votes as untouchable. In each constituency, the candidate with the most constituency votes receives the constituency seat. It is common jargon to call such a seat a “direct seat” (*Direktmandat*). The proportional representation calculation is then carried out conditional on the direct seats already allocated. The adjustments take a slightly different form whether they apply to the super-apportionment (among parties on the federal level), or to the sub-apportionments (within parties, across the 16 States).

On the level of the super-apportionment calculation, the *Bundestag* house size will be increased beyond the initial 598 seats until all direct seats are accommodated by the proportional representation calculations. For example, in the 2009 elections the CSU won 45 direct seats, while its list votes justified only 42 seats. In such a case Option P raises the size of the *Bundestag* to 641 seats such that the proportional share of the CSU increases to 45 seats and hence carries all direct seats. This enlargement strategy is possible because the proportional representation calculations are evaluated using the divisor method with standard rounding (Webster/Sainte-Laguë). Up to 2008 the Federal Election Act prescribed the Hare quota method with residual fit by largest remainders (Hamilton) where the enlargement strategy is hampered by paradoxical effects (Alabama paradox).

In the sub-apportionment calculations, where for each party its nationwide seats are apportioned among its State lists, Option P uses the direct-seat restricted divisor method with standard rounding. This method guarantees that, for each party's State list, the seat allocation meets or exceeds the number of direct seats of that party in that state, while the remaining seats are allocated according to the proportionality principle. Option P combines proportional representation and the election of persons so that the more advantageous of the two components prevails.

Option P yields results identical with the current electoral system as long as no overhang seats intervene. In exceptional cases when overhang seats occur, the adjustment mechanisms of Option P take effect and produce slight deviations from the current system.

6.2.4 Option V: Proportional Representation Dominat

Option V discards the rule that the plurality winner in a constituency is guaranteed a seat. To begin with, Option V executes the super-apportionment and the per-party sub-apportionments, strictly following the proportional representation principle. These numbers determine the maximum number of seats allocated to the parties' State lists.

Hence the cases that need to be taken care of are those where the number of proportionality seats of a party in a State falls short of its number of plurality winners. In such a case some of the plurality winners will not get a seat. Therefore the law must provide an abstract and *ex ante* rule who among the plurality winners will get a seat, and who will have to stay back. To this end Option V relies on the constituency vote counts and excludes those plurality winners who drew the fewest constituency votes. Of course, this would be fair only if constituency sizes are approximately equal.

Option V, too, reproduces the results from the current electoral system in the regular instances when the electoral results do not lead to overhang seats. Otherwise the plurality winners with the fewest constituency votes remain without a seat unless the number of direct seats is supported by the number of proportionality seats. In any case, the *Bundestag* house size of 598 seats is met exactly. Option V is not new, but was used in the State of Bavaria for the 1954 election of the Bavarian State Parliament. The law was challenged to the Bavarian Constitutional Court who judged the regulation to be constitutional. The logic and the argumentation of the judgement would seem to carry over to present day conditions (Table 6.1).

6.3 Contents and Meaning of the Law-Making Mandate

The possibility to gently combine personal and proportional representation (Option S below) reduces both, the number of overhang seats and the likelihood that negative voting weights occur, although it does not avoid either of these outcomes

Table 6.1 Overview of options

Option	Constituency seats	Proportionality seats	Level of federalism	House size	Negative voting weight
F Per-state apportionment	Retained	Retained	16 states	598+x	Impossible
G Trench system	Retained	Retained	Germany	598	Impossible
P Plurality vote dominant	Retained	Adjusted	Germany	598+y	Unlikely
V Proportional vote dominant	Adjusted	Retained	Germany	598	Impossible
S Gentle combination	Adjusted	Adjusted	Germany	598+z	Unlikely

entirely. The question arises whether the implementation of the gentle combination is nevertheless compatible with the law-making mandate of the Court's 3 July 2008 judgement. An answer to this question requires a short analysis of the general significance of law-making mandates of the Constitutional Court (3.1), and then a closer examination of the specific content and scale of the law-making mandate of the 3 July 2008 decision (3.2).

6.3.1 Law-Making Mandates of the Constitutional Court

These law-making mandates considerably tackle the antagonism between the principles of democracy and the rule of law, both of which shape, according to Articles 20 and 28 of the Basic Law, the constitutional order of the Federation as well as the 16 States.

While the principle of democracy guarantees the legislator a considerable degree of legislative leeway, the principle of the rule of law commands the adherence to the constitutional principles in Articles 20 III, 1 and 1 III Basic Law. Due to the separation of powers the Court is the only authority to overrule political decisions transposed into legislation by the legislator, who is democratically legitimized through direct elections, in case the limits mentioned were crossed.

There is a gradual difference between the competence to overrule acts of parliament on the one hand and the task to enact new regulations within a certain period of time on the other. While the annulment of rules affects the question 'how' the legislator makes use of its leeway, the law-making mandate concerns the question 'whether' the legislator makes use of its leeway at all. Nevertheless the parliamentary legislator, being confronted with law-making mandates of the Court, has never openly revolted against them, for good reasons. First of all, in a modern and open constitutional state the legislator has no unlimited margin of discretion anymore. International and supranational guidelines as well as the constitution itself oblige and confine the legislator. There are various rudimental and generally formulated passages in the constitution – like Article 38 III Basic Law – that therefore have to be observed by the legislator.

Furthermore, the Court issues concrete law-making mandates only if the law in question is of such importance that its immediate repeal would entail even more unconstitutional consequences than its retention. Hence, law-making mandates are not a more severe, but rather a milder consequence of a violation of the constitution. The rule in question does not immediately become inapplicable but shall remain in force until the legislator enacts a law that is in line with the constitutional principles. Thus the Court restricts the legislator's margin of discretion in order to ensure its legislative leeway. Therefore, law-making mandates by the Constitutional Court are – subject to their concrete contents – basically not only permissible but also necessary to demonstrate the separation of powers between the Court which preserves the constitution, and the legislator who acts in political terms. Law-making mandates can eventually be regarded as an expression of a delayed temporary unconstitutionality, as the affected rule does not become void immediately but only if the law-making mandate is not realized within the set time limit.

Regarding the law-making mandate of 3 July 2008, the Constitutional Court's encroachment upon the legislator's margin of discretion turns out to be even milder, also because it actually merely repeats and specifies the legislative mandate embodied in the constitution in Article 38 III of the Basic Law. Calling upon the law-maker to adopt a rule in conformity with the constitution within a certain time period is in accord with the constitutional separation of powers. It is more the expression of the Constitutional Court's responsibility enshrined in the constitution and does not imply that it is exceeding its authority on executive powers.

6.3.2 Contents and Scale of the Law-Making Mandate

Answering the question about content and scale of the concrete law-making mandate is more difficult. In headnote no. 2 of its judgement the Court obliges the legislator to adopt a rule that is in accordance with the constitution until 30 June 2011. This *per se* vaguely formulated mandate refers to headnote no. 1 in which the Court holds the Federal Election Act violated the principles of equal and direct suffrage “insofar as it is thus made possible that an increase in list votes would lead to the loss of seats of a party's State list, or that the loss of list votes would lead to an increase of seats of a party's State list.” According to the wording, the mere possibility of the occurrence of votes with negative weight would immediately trigger the violation of the constitutional voting principles, and be unconstitutional. This would indicate that the amendment by the legislator must rule out even the slightest theoretical possibility of the occurrence of these effects regardless of how unlikely they may be. At second glance, however, at least four reasons make us doubt that the central reasoning of the Court must be understood in such an uncompromising manner.

First of all, the legislative leeway with regard to the necessity to specify the Federal Election Act is not only determined by a single issue but by a variety of guidelines. The principles set up in Article 38 I Basic Law, which protect the voters' decisions and the impact of their votes, have to be respected just like the principle

of equal opportunities for political parties in Articles 21 I and 3 I Basic Law and the MPs' equal status rights in Article 38 I. In addition an appropriate reference to the federal system may be included. This does not directly result from Article 38 I Basic Law, but is the consequence of the federal character of the States' constitutional order. To orient the whole electoral system exclusively towards preventing even the slightest possibility of the occurrence of votes with negative weight would unduly confine the already restricted legislative leeway and would prevent the legislator from focusing on other aspects.

Secondly, one cannot deduce from the Court's concrete remarks the strict prohibition of votes with negative weight. While the law-making mandate, briefly summarized in headnotes no. 1 and 2 seems to be absolute, the Court's reasoning shows that it knows about the difficulties of the various requirements of the electoral system. The Court refers to it as a "complex system of regulations" and acknowledges that "even a minor change to the Federal Election Act could, in the present constellation, possibly lead to far-reaching structural changes." The Court would seem to conclude from this only the long deadline for the legislator to amend the electoral law. At the same time, however, it knowingly accepts the occurrence of votes with negative weights in the (then) upcoming 2009 *Bundestag* election. Votes with negative weight are thus not to be avoided at any expense but have to be balanced with other interests.

Thirdly, the Court has, in earlier decisions, continuously approved of the constitutional restriction of the legislative leeway, which can almost be called magical because this restriction is not consistent and does not always have to be strictly adhered to. The issue of the votes with negative weight was – albeit named differently – already brought before the Court in a 1997 case dealing with a lawsuit filed by the State of Lower Saxony. Yet the Court did not treat this problem, let alone declare it unconstitutional. Therefore many academic commentators have pointed out the contradiction between the present statement of unconstitutionality, and the Courts former reasoning concerning overhang seats. Of course, the Court may – not least because of the changing in the personnel – from time to time cautiously adjust its own judicature. Also, it may be that in 1997 the Court concentrated less on the votes with negative weight and more on the overhang seats. However, considering the concrete circumstances of the 2008 decision, the crucial aspect seems to be that the votes with negative weight could be used "tactically" in the constellation of by-elections, and that the ballot box failed to be a black box for all voters, but seemed transparent to some. In view of this incidence, declaring the votes with negative weight illegal may appear to be uncompromising, but it should rather be seen as an effort to prevent tactical voting. Leaving aside the question of how such a "tactical" voting decision could be distinguished from a "real" voting decision, we would stress that such a voting behavior is peculiar to the very special constellation of a by-election. If no by-election takes place, the effect of votes with negative weight cannot be operationalized.

Fourthly, we feel that it is necessary to relativize the prohibition of votes with negative weight because the electoral law as a whole should not be determined by the pursuit of certain abstract ideals but by its concrete usage. More than in

any other field of law, the Court requests the legislator to consider electoral law as *law in action* and to adjust the *law in books* if necessary. In view of this, the Court's interest is not to prevent even the slightest possibility of the occurrence of votes with negative weight in order to maintain an uncorrupted electoral law but primarily, to prevent this effect from being abused in concrete cases. Therefore a rule to reduce the occurrence of votes with negative weight and in addition, to reduce the necessity of by-elections by adequately regulating the move-up procedure of substitute candidates (*Nachrückregelung*), would fully meet the requirements of the Court's law-making mandate.

By-elections are always a massive encroachment on the principle of equal suffrage. For this reason it is desirable to prevent by-elections if possible. This effort is only marginally related to the issue of votes with negative weights. As the gentle combination, to be detailed below, regulates the relation between personal and proportional representation and thus arithmetically binds the two components to each other, we feel encouraged to also use it to prevent by-elections.

We feel that these considerations are sufficient to justify the proposal of a gentle combination between personal and proportional representation (Sect. 6.4) and to discuss its qualitative features (Sect. 6.5). Yet, if the constitutional principles demand the definite elimination of negative voting weights, or if application of the gentle combination will prove not to decrease negative voting weights to an extent we had hoped for, there is a tighter variant, Option W, which definitely does away with negative voting weights. However, the system-stabilizing and self-healing powers of Option W are inferior to those of Option S.

6.4 Option S: The Gentle Combination

Our proposal is based on two considerations. Firstly, the Court's call for an amendment should be satisfied by staying as close as possible to the current electoral system. At present, neither the political actors nor the interested public indicate that they want a novel electoral design. Therefore Option S leaves all regular situations intact and touches only upon the exceptional cases that may complicate the current system.

Secondly, we follow the goal formulated in Section 1 I of the Federal Election Act, according to which the members of the *Bundestag* are elected in accordance with the principles of proportional representation combined with the election of persons (*nach den Grundsätzen einer mit der Personenwahl verbundenen Verhältniswahl*).

Thus we concentrate on the parts of the electoral system that constitute the elements combining proportional representation and the election of persons. We regard the "combination" of proportional representation and of the election of persons as a fundamental goal that calls for a deliberate and careful system design. Option S appears to be a compromise solution mediating between Options P and V where one of the two system components dominates over the other.

Option S respects the obligation that every constituency is represented in parliament by (at least) one of the constituency candidates. Deviating from the current law, however, we do not imply that the plurality winner is the sole person who can represent the constituency. In exceptional cases one of the competing candidates may represent the constituency.

Exceptional cases may arise in order to reduce the occurrence of negative voting weights. A constituency where the exceptional rule is applied is called an *exceptional constituency*. Exceptional constituencies may be represented in Parliament by candidates who have been voted into Parliament over their State list, rather than attracting a plurality of constituency votes.

Extending the privilege of parliamentary representation from the plurality winner to other constituency candidates admittedly mean a certain change of paradigm. However, the change of paradigm focuses on a judicial view rather than on a practical view. Factually, only a third of the *Bundestag* members are the sole representatives of their constituency. Two-thirds of the constituencies are represented by two or more *Bundestag* members. This shows that, when proportional representation is combined with the election of persons, the quote of “my constituency” does not have the same meaning as in a pure plurality system. The quote only indicates that the representative is at home in this constituency, and that this is where he or she has the center of political activities outside Parliament. Even this criterion may occasionally fail since many candidates are not residents of “their” constituency, but just stand as candidates in addition to acquiring a position on the party’s State list.

The exceptional case, where a constituency is represented by some constituency candidate other than the plurality winner, becomes relevant only when there are more plurality winners of a party in a State than there are proportionality seats for that party in that State. According to the current law such situations generate overhang seats (*Überhangmandate*), which in the law are referred to as a “discrepancy number” (*Unterschiedszahl*). Such a discrepancy may occur in the super-apportionment when the 598 *Bundestag* seats are allocated among parties in proportion to their nationwide list votes. On the other hand a discrepancy number may also emerge in one of the sub-apportionments when the nationwide seats of a party are distributed among that party’s State lists.

Confusing cross-references in the current law inhibit a transparent description of the rules. Moreover, they appear inappropriate in that they equate unequal procedures. The super-apportionment procedure concerns the composition of the *Bundestag* with respect to the political spectrum. Quite in contrast, the sub-apportionments reflect the federal structure and adjoin a geographical dimension. Political representation and federal representation are two distinct issues.

For this reason Option S proposes different amendments for the (nationwide) super-apportionment, and for the (per-party) sub-apportionments. In the super-apportionment among parties, a modest increase of the house size avoids overhang seats (4.1). During the within-party sub-apportionments, “overhang seats of a new kind” may occur (4.2). In either case we illustrate Option S by means of the 2009 *Bundestag* election.

6.4.1 Gentle Super-Apportionment

Striving for a modest amendment, the gentle super-apportionment does not come to bear in regular cases, but only in exceptional cases. Option S proceeds as follows. It starts out by apportioning all 598 *Bundestag* seats mentioned in Section 1 I of the Federal Election Act.

6.4.1.1 Regular Cases

A regular case comprises those instances when a party is apportioned at least as many proportionality seats as are needed nationwide to accommodate its plurality winners. In case all parties constitute a regular case, the super-apportionment terminates.

6.4.1.2 Exceptional Cases

An exceptional case occurs when the plurality winners of a party outnumber its nationwide proportionality seats. In 2009, the CSU featured 45 plurality winners, but was allocated just 42 proportionality seats. In fact, this the only instance in the post-war history of the Federal Republic of Germany where the nationwide allocation of seats fell short of the total number of plurality winners.

In exceptional cases Option S proceeds as follows. All plurality winners of a given party in a given State are ranked by decreasing constituency vote counts. The plurality winners with the largest counts receive a seat until the number of proportionality seats is exhausted. Hence Option S does not allocate more seats than are made available through the initial house size of 598 seats.

There remain a few exceptional constituencies where the constituency vote count of the plurality winner is too low to be allocated a seat. For these exceptional constituencies Option S makes special arrangements. It checks in the constituency of the plurality winner whether there are competing candidates who get their seat via their State list. If so, the constituency is considered to be represented in the *Bundestag*, and the plurality winner does not get a seat. In case all exceptional constituencies are represented by competing candidates of the plurality winner, the super-apportionment has reached its end.

In the remaining case, when there exist exceptional constituencies where no competitor of the plurality winner obtains a seat via a State list, Option S makes the following adjustments to guarantee local representation. It increases the house size, one by one, and re-calculates the proportionality seats until all constituencies are represented.

In summary, Option S gently combines proportional representation with the election of persons in such a way that, through the super-apportionment adjustments, political parties are allocated a number of seats in proportion to their nationwide

count of list votes. At the same time it guarantees each constituency representation in the *Bundestag*. In most cases the constituency representative is the plurality winner, in exceptional cases it may be a competitor of the plurality winner. In any case, all 299 constituencies send at least one of the constituency candidates into the *Bundestag*. Thus Option S complies with the local representation principle of Section 1 II of the Federal Election Act.

6.4.1.3 Application to the 2009 Election

The abstract rules of Option S are illustrated using the electoral data of the 2009 *Bundestag* election. The CDU counted 173 plurality winners in constituencies nationwide. Starting out with a house size of 598 seats, the initial proportional representation calculation apportions 173 proportionality seats to the CDU. Hence all CDU plurality winners are carried by the CDU proportionality seats, a regular case. The other parties also constitute a regular case, except the CSU.

The CSU is an exceptional case. Her candidates emerged as the plurality winners in all Bavarian constituencies (45). However, the initial proportional representation calculation awards the CSU fewer proportionality seats (42), see Table 6.2.

Hence a discrepancy number comes into being, $45 - 42 = 3$. To carry out the gentle combination, the CSU plurality winners are sorted by decreasing constituency vote counts. The 42 strongest plurality winners are awarded a seat. The last three plurality winners, with rank score 43, 44, and 45, are further analyzed, see Table 6.3.

Rank 43 is occupied by the plurality winner of constituency 227 (Deggendorf), with 49,398 constituency votes (53% of the constituency votes in that constituency).

Table 6.2 Gentle combination 2009 for 598 seats. Initial super-apportionment calculation

Party	List votes	Quotient	Proportionality seats
CDU	11,828,277	173.4	173
SPD	9,990,488	146.497	146
FDP	6,316,080	92.6	93
Linke	5,155,933	75.6	76
Grüne	4,643,272	68.1	68
CSU	2,830,238	41.501	42
Sum [divisor]	40,764,288	[68,196]	598

Each 68,196 list votes account for about one proportionality seat.

Table 6.3 Gentle combination 2009 for 598 seats. Three CSU exceptional constituencies with rank score 43–45

Rank score	Constituency vote	%	Parties with successful competitors	Number and name of constituency
43	49,398	53	–	227 Deggendorf
44	48,943	37	SPD, Linke	244 Nürnberg-Nord
45	47,519	39	SPD	245 Nürnberg-Süd

Rank 44 is attained by the plurality winner of constituency 244 (Nürnberg-Nord), with 48,943 constituency votes (37%). Rank 45 features the plurality winner of constituency 245 (Nürnberg-Süd), with 47,519 constituency votes (39%). It turns out that constituencies 244 and 245 are represented by competitors of other parties who succeeded to obtain a seat via their party list. For this reason the plurality winners of constituencies 244 and 245 do not get a seat.

In constituency 227 (Deggendorf) none of the other candidates managed to obtain a seat via their party list. In order not to leave this exceptional constituency unrepresented, the initial house size of 598 seats is increased, one by one, until the plurality winner or another Deggendorf candidate obtains a seat. When the house size reaches 609 seats, the proportionality seats of the FDP are raised. The raise is handed on to the FDP list in Bavaria. The additional seat carries the FDP candidate of constituency 227 (Deggendorf) into the *Bundestag*. All three constituencies which initially were exceptional are now represented by a successful competitor, whence the plurality winners in these constituencies fall short of obtaining a seat in parliament. The final super-apportionment is shown in Table 6.4.

6.4.2 Gentle Sub-Appportionments

Sub-apportionment calculations follow the same strategy of honoring regular cases. Special regulations apply only in exceptional cases.

6.4.2.1 Regular Cases

A regular case is any situation where all plurality winners of a party in all constituencies of a State are carried by the proportionality seats of that party in that State. For regular cases, the gentle combination terminates and reproduces what the current law would do.

Table 6.4 Gentle combination 2009 for 609 seats. Final calculation for the super-apportionment

Party	List votes	Quotient	Proportionality seats	Plurality winners
CDU	11,828,277	177.0	177	173
SPD	9,990,488	149.49	149	64
FDP	6,316,080	94.51	95	0
Linke	5,155,933	77.1	77	16
Grüne	4,643,272	69.48	69	1
CSU	2,830,238	42.3	42	42
Sum [divisor]	40,764,288	[66,830]	609	296

Each 66,830 list votes account for about one proportionality seat.

6.4.2.2 Exceptional Cases

An exceptional case occurs in the presence of a party which in some State features more plurality winners than are carried by the proportionality seats. In such a case the plurality winners of that party in that State are ranked by decreasing constituency votes. The plurality winners with the stronger constituency vote counts are allocated a seat until the number of proportionality seats is exhausted.

For the few remaining exceptional constituencies Option S examines whether another candidate moves into the *Bundestag* via his or her party list. If there is a successful candidate from another party, the plurality winner is passed over and does not obtain a seat.

The final constellation to be considered is that there exists an exceptional constituency in which none of the candidates who compete with the plurality winner has been successful to obtain a seat via his or her State list. It is only now that Option S creates an “overhang seat of a new kind”. The house size increases by the number of these overhang seats of a new kind.

These additional seats are created not exclusively under the conditions of a plurality system, but are justified by the principle of regional representation. The interrelation with the electoral system *in toto* gives overhang seats of a new kind a quality quite different from the character of overhang seats of the current kind. Because of this different character, and because of the identifiability of the overhang seats of a new kind, the decision of the Court that overhang seats cease to exist when the seat holder leaves the *Bundestag* becomes obsolete.

6.4.2.3 Application to the 2009 Election

In the 2009 election four of the five sub-apportionments constitute a regular case that all plurality winners of a party are carried by their parties’ proportionality seats. The CDU constitutes an exceptional case.

As shown in Table 6.4, the house size of 609 seats allocates 177 seats to the CDU. With the sub-apportionment calculation, it transpires that there are 20 exceptional constituencies, in seven States. In these seven States, the CDU plurality winners are ranked by decreasing constituency vote counts. The lowest-ranked plurality winners identify the exceptional constituencies, see Table 6.5.

The third column in Table 6.5 shows that 13 of the 20 exceptional constituencies are represented by other candidates, while in seven constituencies no candidate obtained a *Bundestag* seat. For these seven exceptional constituencies Option S creates overhang seats of a new kind. Table 6.6 exhibits the final tally for the CDU lists. The nationwide super-apportionment and the per-party sub-apportionments yield a *Bundestag* that grows from 598 seats (initial house size), passes through 609 seats (super-apportionment increase), and terminates with 616 seats (by creating seven overhang seats of a new kind).

Table 6.5 Gentle combination 2009 for 609 seats. Twenty CDU overhang seats with associated exceptional constituencies

State/rank score	Constituency votes	%	Parties with successful competitors	Number and name of constituency
SH-9	48,136	39	–	006 Plön/Neumünster
MV-5	38,102	33	–	018 Neubrandenburg/. . ./Uecker-Randow
MV-6	34,633	29	SPD, FDP	013 Schwerin/Ludwigslust
SN-13	45,876	34	Linke	163 Chemnitz
SN-14	44,147	41	–	152 Nordsachsen
SN-15	42,704	33	SPD	153 Leipzig I
SN-16	41,101	29	SPD, Grüne	154 Leipzig II
TH-7	40,063	29	Grüne	192 Gotha/Ilm-Kreis
RP-12	53,705	46	FDP, Grüne	203 Bitburg
RP-13	50,035	39	–	211 Pirmasens
BW-29	54,172	47	–	286 Schwarzwald-Baar
BW-30	54,169	45	–	293 Bodensee
BW-31	53,872	38	FDP, Linke, Grüne	271 Karlsruhe-Stadt
BW-32	53,829	43	SPD	261 Esslingen
BW-33	50,967	42	–	288 Waldshut
BW-34	48,662	43	SPD	292 Biberach
BW-35	48,518	34	SPD	258 Stuttgart I
BW-36	48,137	36	FDP, Linke, Grüne	275 Mannheim
BW-37	44,002	35	SPD, Linke, Grüne	259 Stuttgart II
SL-4	45,748	32	SPD	296 Saarbrücken

6.5 Merits of the Gentle Combination

The possibility that a constituency may not be represented by the plurality winner is novel from the point of view of both voters and candidates. Yet this change, gentle as it is, comes along with multiple benefits. Firstly, by-elections may be avoided by substituting a deceased or resigned constituency candidate with a list candidate (5.1). An operationalization of negative voting weights, such as during the 2005 by-election in constituency 160 (Dresden I), would no longer be possible. Secondly, overhang seats of a new kind decrease to about a third of the overhang seats of the old kind (5.2). Thirdly, the overhang seats of a new kind are justified by guaranteeing the electorates their regional representation (5.3).

Fourthly, the gentle combination enhances the competitive character of the election. It provides a motivation for all – voters, candidates, and parties – to design constituencies that are as much as possible of the same size (5.4). Fifthly, smaller parties get a role to play even though they cannot profit from overhang seats. They can devise strategies to avoid them by identifying prospective exceptional

Table 6.6 Gentle combination 2009 for 609 seats. Sub-apportionment calculation for the CDU state lists

State	List votes	Quotient	Proportionality seats	Overhang seats
Schleswig-Holstein	518,457	7.8	8	1
Mecklenburg-Vorpommern	287,481	4.3	4	1
Hamburg	246,667	3.7	4	
Niedersachsen	1,471,530	22.0	22	
Bremen	80,964	1.2	1	
Brandenburg	327,454	4.9	5	
Sachsen-Anhalt	362,311	5.4	5	
Berlin	393,180	5.9	6	
Nordrhein-Westfalen	3,111,478	46.6	47	
Sachsen	800,898	12.0	12	1
Hessen	1,022,822	15.3	15	
Thüringen	383,778	5.7	6	
Rheinland-Pfalz	767,487	11.49	11	1
Baden-Württemberg	1,874,481	28.1	28	3
Saarland	179,289	2.7	3	
Sum [divisor]	11,828,277	[66,800]	177	7

Each 66,800 list votes account for about one proportionality seat.

constituencies, nominating candidates who may obtain a list seat, and thereby outmaneuvering the plurality winner (5.5). Sixthly, the gentle combination may enhance the transparency of voter behavior (5.6). Finally, Option S can be advanced to an Option W that definitely annihilates negative voting weights, at the expense of losing some of the benefits mentioned (5.7).

6.5.1 Avoidance of By-Elections

The gentle combination may be employed to avoid by-elections that otherwise would become necessary. Every by-election that takes place on a day different from the main election day is subject to different circumstances. These effects are independent from the occurrence of negative voting weights. Four of the seven by-elections since 1961 had to be conducted a couple of weeks after the main election day, such as the one during the 2005 election in constituency 160 (Dresden I).

For the avoidance of by-elections, Option S offers the possibility to profit from the novel combination of the proportional representation component with the election of persons. In the light of the current law it is alien to substitute a list candidate in place of a constituency candidate. However, since the gentle combination combines the two components, it seems possible to arrange for such a substitution. This would provide a rather pragmatic solution to the avoidance of by-elections.

For the 2005 election, where the NPD candidate in constituency 160 (Dresden I) deceased during the campaigning period, the first candidate from the NPD list in the Free State of Saxony who did not stand in some constituency would have been the one to substitute. This would have been a candidate whose home town was listed as

Coburg, Bavaria. However, on place eight there was a candidate from Dresden I who also did not campaign in any other constituency and who could have functioned as a substitute.¹ With a substitution of the deceased candidate, the by-election could have taken place on the main election day. The problem of negative voting weights would not have surfaced, and the voters in Dresden I would not have been affected by the peculiarities of the electoral system in any other way than the other voters in the rest of Saxony.

6.5.2 Reduction of Overhang Seats

At present 97 of the 299 constituencies in Germany are solely represented by the plurality winner. In the other 202 constituencies, additional candidates also obtained a seat in the *Bundestag*. Based on these numbers we predict that roughly a third of the constituencies are solely represented by their plurality winners, in which cases overhang seats of a new kind may become necessary. Hence switching from the current law to the proposed gentle combination, about a third of the overhang seats may persist.

A cumulative retrospective evaluation of past elections confirms the estimate. The period from 1980 through 2005 saw a total of 60 overhang seats. When reevaluating the elections with the gentle combination, 18 of these 60 overhang seats would have persisted.

6.5.3 Representativeness of Constituencies

The gentle combination secures at least one representative from every constituency. In allocating a seat to the plurality winner, the current law exclusively refers to constituency votes, that is, to the system component that covers the election of persons. In contrast, the gentle combination refers to the electoral system as a whole and merges the results from the election of persons and from the proportional representation component. In doing so, the gentle combination follows the goal that is set out in the Federal Election Act. The gentle combination interprets the Act in a wider sense that not only the plurality winner is legitimized to represent the constituency, but also any other candidate who obtains a *Bundestag* seat through his or her party's State list.

From a legal point of view the constituency votes lose some of their directness, since their effect is evaluated jointly with the results of the list votes. This follows the predominant view that candidates in a constituency stand as an individual, while candidates on a (closed) party list run on behalf of a political party. Factually,

¹We gratefully acknowledge assistance from Renate Recknagel of the Statistical Office of the Free State of Saxony for retrieving the information on the 2005 party lists.

constituency candidates are also nominated by political parties, and their party affiliation is not less visible than the party affiliation of list candidates. As a matter of fact, Members of the *Bundestag* who obtain a seat via their party list also act as a representative of their constituency, run a constituency bureau, and maintain a high level of visibility in their constituency.

6.5.4 Equality of Constituency Sizes

The gentle combination refers exceptional cases to the absolute counts of constituency votes, not to relative vote shares. Hence the sizes of the constituencies play a central role and should be as equilibrated as possible. Of course, constituencies should always be of the same size, but the gentle combination emphasizes that unequal sizes entail unequal consequences.

For instance, the gentle combination would have led to twenty exceptional cases during the 2009 elections. As shown in Tables 6.3 and 6.5 the exceptional constituencies extend from the nationwide smallest constituency 227 (Deggendorf) with 189,600 population, to the 149th smallest constituency 192 (Gotha/Ilm-Kreis) with a population of 248,381. All exceptional constituencies belong to the smaller half of the constituencies nationwide. Six exceptional constituencies are among the very small constituencies with less than 212,676 population, deviating from the average 250,222.4 by more than 15%.²

A motivation to create constituencies of equal size is reinforced only when using the (absolute) constituency vote counts, and does not come to bear when referring to the (percentage) constituency vote shares. The 2009 plurality winner in the constituency 227 (Deggendorf) attracted 53% and hence more than half of the constituency votes. This result loses some of its appeal when noting that in the nationwide smallest constituency it is easier to meet a rather homogeneous electorate than elsewhere.³

²We have $74,816,496/299 = 250,222.4$. (We are grateful to Manfred Thoma from the Federal Statistical Office for supplying the census data as of 31 December 2008.) – Other countries measure the size of a constituency by the electorate (Max-Planck-Institut für ausländisches öffentliches Recht und Völkerrecht 1997). – For the 2009 election the Constituency Commission produced two reports (Bundestagsdrucksachen 16/4,300 and 16/6,286, on the basis of the census data of 31 December 2006). The constituency boundaries that were implemented by the decision of the *Bundestag* on 24 January 2008 deviate from both reports. Neither the parliamentary debate nor the accompanying printed matters advance reasons for the deviations, nor were the sizes of the actual constituencies documented by numbers. – An example of blatant unequal constituency geometry is analyzed in Arnim von (2003).

³As a member of the European Commission of Democracy and Law (Venice-Commission) Germany recommends since 2002 on an international level that constituencies should be drawn such as not to deviate more than 10% and 15% from the average [[www.venice.coe.int/docs/2002/CDL-AD\(2002\)023rev-e.pdf](http://www.venice.coe.int/docs/2002/CDL-AD(2002)023rev-e.pdf)]. However, on a national level the current ranges of 15% and 25% persist (Section 3 III 3 Federal Election Act).

6.5.5 *Encouragement of Political Competition*

The gentle combination opens up new possibilities for smaller parties to help avoiding overhang seats. This may be illustrated using the 2009 election data. There are 16 exceptional constituencies where overhang seats are avoided because the constituencies are represented by candidates other than the plurality winners. Smaller parties which cannot hope for overhang seats are encouraged to nominate their candidates in prospective exceptional constituencies high up on their list, in order to increase their chances of winning a list seat. As shown in Sect. 6.5.4 it suffices to focus on the 150 constituencies that are smaller in size than the average. Should the prospective speculation become reality such that the smaller parties' candidates win seats, the plurality winner from the larger party does not advance into the *Bundestag* and overhang seats of a new kind are avoided.

From the candidate's point of view the gentle combination creates a legitimization that reaches out beyond her or his constituency. A constituency candidate competes not only against the candidates of the other parties in that constituency, but with their party friends who run in other constituencies of the same State. In order not to miss a seat, he or she must strive for not being ranked too low in terms of constituency vote counts. This ranking is determined by the voters. In contrast, the nomination on a State list is a matter of party committees.

6.5.6 *Transparency of the Balloting Process*

The gentle combination reinforces the effects of constituency votes and of list votes in a way agreeing with the intentions of the electoral system. For instance, when in Baden-Württemberg many voters cast their constituency vote for the CDU constituency candidates and their list vote for the FDP list, they help the CDU candidate to acquire a top position in the constituency vote ranking and to obtain a seat. Hence the effect of the split-votes is exactly what it is supposed to be, in that the constituency votes support the constituency candidate as a person.

At the same time the proportional re-weighting through split-votes is less predictable under the gentle combination than under the current law. Those plurality winners who do not obtain a sufficient number of constituency votes must fear the possibility that in exceptional constituencies other candidates may represent the constituencies. Vote splitting may exercise a detrimental effect in all those other constituencies where the plurality winner does not obtain sufficiently many constituency votes (Fürnberg and Knothe 2009; Gschwend 2007; Jesse 1988; Schoen 1999; Winkler 1999).

6.5.7 *Option W: Representativity and Proportionality*

Since the gentle combination does not avoid overhang seats in all cases, there still remains a certain possibility that overhang seats emerge and imply negative

voting weights. If this residual probability is considered unacceptable, then Option S may be extended to Option W. Option W definitely puts an end to negative voting weights, while ensuring that each constituency is represented by at least one member of the *Bundestag*.

Option W follows the strict rule, both in the super-apportionment and in the ensuing sub-apportionments, to identify as many plurality winners with fewer constituency vote counts and with successfully competing candidates as are needed to avoid overhang seats.

Thus Option W realizes the principle of local representation, since every constituency is represented by its plurality winner or by another successful constituency candidate. The necessary calculations turn out to be less laborious, since super- and sub-apportionments need to be determined only once. The house size of 598 seats is met precisely.

We illustrate Option W with the data of the 2009 election. The super-apportionment yields the nationwide seat numbers as shown in Table 6.2 and coincides with the initial calculation for the gentle combination Option S. There are 45 CSU plurality winners, while the proportionality seats for the CSU amount to only 42. Upon inspection the plurality winners that are left without a seat turn out to be those from constituency 229 (Passau), constituency 244 (Nürnberg-Nord), and constituency 245 (Nürnberg-Süd). In contrast, the plurality winner in constituency 227 (Deggendorf) does get a seat since none of his competitors acquired a seat over their party list. The plurality winner in the constituency 229 (Passau) is ranked 42, with 54,275 constituency votes (47%), but the constituency is represented also through a deputy from the FDP. The other constituencies mentioned are listed in Table 6.3.

6.6 Concluding Remarks

In this paper we have presented a novel Option S, to combine the principles of proportional representation and of the election of persons in the Federal Election Act. The new option stays close to the current electoral system while unwanted effects such as negative voting weights are reduced.

The further one moves away from the current system, the greater becomes the leeway for the required amendment. It remains to be seen whether some of the options of the present paper, or some other options that entail changes of a more substantial sort, are going to be adopted by the *Bundestag*.

At the time of writing it is not yet known which, if any, of these or other proposals currently contemplated by the Bundestag will ultimately be adopted and sanctioned by the German Federal Constitutional Court.

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Electoral Systems

Paradoxes, Assumptions, and Procedures

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Preface

The essays in this volume were presented by academic experts in voting theory from seven countries, as well as by two voting practitioners, at an international workshop on “Assessing Alternative Voting Procedures”, held on 30 July – 2 August 2010 at Chateau du Baffy, Normandy, France. It received generous financial support from the Leverhulme Trust (Grant # F/07 004M).

The main purpose of the workshop was to explore both the theoretical and actual vulnerability to various voting paradoxes or pathologies of voting procedures designed to elect a single candidate. The following five relatively recent election-related events served as background to the workshop deliberations:

- The phenomenon displayed (again) in the 2000 US presidential elections, where George W. Bush was elected by the Electoral College although Albert Gore received more popular votes.
- The decision by the German Federal Constitutional Court on 3 July 2008 mandating the Bundestag to amend by June 2011 the procedure by which it is elected so as to avert, or significantly decrease, the impact of non-monotonicity afflicting it.
- Several mayoral elections conducted in the US (e.g., in Burlington, VT., in March 2009) displaying the non-monotonicity paradox.
- The release by the British Academy on 10 March 2010 of a report summarizing the properties of parliamentary voting procedures currently used in the world but without mentioning the voting paradoxes (pathologies) to which they are vulnerable.¹
- The decision of the UK parliament in May 2010 to conduct a referendum in May 2011 as to whether the UK should elect its parliament by the Alternative Vote procedure instead of the current Plurality procedure (aka “First Past the Post”).

¹ Hix, S., Johnston, R., & McLean, I. (2010). *Choosing an electoral system: A research report prepared for the British Academy*. London: British Academy Policy Centre. ISBN 978-085672-588-3.

As outlined below, these events are explored in some of the chapters in this volume.

The volume is divided into three parts containing a total of 13 chapters.

The first part (comprising Chaps. 1–2) contains brief introductory remarks on electoral procedures of representative assemblies and decision-making rules within them. It classifies the types of representative assemblies and the manner in which they are elected, and thereafter explores possible decision rules that could be instituted within them so as to make them truly representative.

Chapter 1 formulates two main political dichotomies, each offering two alternatives. This gives rise to a fourfold political classification of voting procedures. The first main dichotomy distinguishes between legislatures based on *proportional representation*, and those based on *district representation*. The second main dichotomy distinguishes between elections employing a *deterministic voting procedure* and those using lottery. Following this fourfold classification the chapter proceeds to explore what social-choice theory has to offer in each of these four classes.

Chapter 2 argues that regardless of how a representative assembly is elected, it cannot truly be representative if (permanent) minorities in it are unable to affect decisions due to a majoritarian decision rule. This chapter briefly examines some alternative decision rules that would increase the actual voting power of minority groups.

The second part of the volume (Chaps. 3–9) surveys paradoxes afflicting single-winner voting procedures, as well as assessing the theoretical and empirical frequencies of some of these paradoxes.

Chapter 3 contains a comprehensive review and illustration of the main paradoxes that may afflict each of 18 single-winner voting procedures. It argues that in order to better assess the probability of occurrence of every paradox to which a given voting procedure is vulnerable, one must first determine what are the necessary and/or sufficient condition(s) for this paradox to occur under the given procedure. As this has so far not been achieved with respect to most paradoxes/procedures, perhaps a more reasonable way for selecting a voting procedure would be to limit the choice of a voting procedure only to those procedures that are not vulnerable to what the author considers as especially serious pathologies.

Chapters 4 and 5 investigate the probability of occurrence – in two particular settings – of the general phenomenon variously known as *majority-deficit*, or *election inversion*, or *referendum paradox*, that can occur in any two-tier electoral system, whereby the candidate (or party) that receives the largest number of votes in the entire electorate is either not elected or does not receive the largest number of parliamentary seats.

Chapter 4 investigates this phenomenon in the context of US presidential elections where it last occurred in the 2000 US presidential election. This chapter identifies the sources of election inversions by the US Electoral College, establishes logical bounds on the phenomenon, and estimates the frequency and magnitude of inversions on the basis of historical state-by-state US presidential election data.

Chapter 5 investigates this phenomenon in the context of French local (cantonal) elections. Despite the fact that the cantons are of unequal population size, each

of them is represented by one representative in the region's assembly (called *conseil general*) who is elected by the plurality-with-runoff procedure. The authors' objective is to find how many representatives should be allocated to each canton as a function of its population size so as to minimize the frequency of the referendum paradox. They find that the optimal number should be very close to being proportional to the square root of each canton's population. Thus this is probably the first experimental study to support what has long been advocated in the theoretical literature on voting power and known as the "square root rule".

Chapter 6 outlines five alternative proposals to avert, or significantly decrease, the non-monotonicity of the election procedure of the German Bundestag, whereby every voter casts two votes – one for a preferred constituency representative and the other for a preferred party list. The interplay of these two votes with the Federal structure of Germany has led to instances of non-monotonicity: a vote for a party list reduced the number of seats it received in the Bundestag. At the time of writing it is not yet known which, if any of these or other proposals currently being contemplated, will be adopted by the Bundestag and sanctioned by the German Federal Constitutional Court.

The last three chapters of Part II (Chaps. 7–9) present and defend alternative methods for assessing the probabilities of various voting paradoxes.

Chapter 7 defends computer simulations designed to estimate the probability of voting paradoxes in three-candidate single-winner elections based on the models known in the literature as the Dual Culture Condition, the Impartial Culture Condition, and the Impartial Anonymous Culture Condition. Although admittedly these models do not reflect realistic scenarios, it is argued that they still add very significantly to research on the probability of occurrence of various voting paradoxes; in particular, they suggest that most extreme voting paradoxes should be expected to be rare events.

The same authors continue to investigate in Chap. 8 which of five single-winner voting procedures (Plurality, Negative Plurality, Borda, Alternative Vote, and Coombs' procedure) is more likely to maintain the social preference ordering when there are three candidates, a Condorcet Winner exists, and various degrees of group coherence in voters' preferences are introduced.

In contrast to Chaps. 7 and 8, Chap. 9 argues that any evaluation of the probability of various voting phenomena – e.g., that the social preference ordering contains a cycle, or the likelihood that a Condorcet Winner is elected when s/he exists, or that voters vote strategically rather than sincerely – needs to be based on a statistical model that describes how voters behave in actual elections. This chapter uses two sets of data, one from actual elections and the other from survey of voters, to evaluate 12 statistical models that make different assumptions regarding voters' behavior in three-candidate single-winner elections (and hence reach different conclusions) regarding voters' behavior in three-candidate single-winner elections.

The final part of the volume comprises four chapters (Chaps. 10–13). It discusses considerations other than susceptibility to paradoxes in selecting a voting procedure.

In Chap. 10 it is argued that the paradoxes afflicting single-winner voting procedures may not be the best criterion, and that selection should be based on additional criteria. Moreover, it is argued that the determination of who of the competing candidates ought to be elected should not necessarily be based on the voters' (ordinal) rankings of the candidates because voters are often capable of a much more refined expression of their preference ordering among the candidates.

Chapter 11 is an advocacy essay, supporting the replacement of the current plurality procedure by which the UK elects its members of parliament with the Alternative Vote (AV) procedure. Although it has been decided in the 5 May 2011 referendum in the UK to keep the plurality procedure for electing the UK parliament, this chapter should be of interest not only to activist proponents or opponents of AV, but also to electoral-system scholars because of its balanced and nuanced analysis of the AV procedure.

Since all the other chapters in this volume are concerned with single-winner electoral procedures, we thought it is appropriate – at least for the purpose of charting directions for possible future research – to include in this volume also one chapter which addresses multi-winner electoral procedures, e.g., procedures for electing teams or fixed-size committees. Chapter 12 describes various multi-winner procedures and proposes several properties that may be used for assessing the desirability of such procedures. It is concluded that Approval balloting is the most natural approach to multi-winner elections.

At the end of the workshop it was agreed among its 22 participants to hold a vote as to the best single-winner procedure for electing a mayor for a city or town. Each of the participants listed in his or her ballot one or more of 18 proposed single-winner procedures that s/he approved, and it was agreed that the winner would be the procedure which received the most approval votes. The last chapter in this volume (Chap. 13) describes and analyzes this election. It also contains explanations supplied by some of the participants as to why they voted the way they did. As far as we know, this is the first time that voting theorists hold a vote on voting procedures. The decision to hold the vote was spontaneous. Consequently, no one had much time to think things over, discuss them with others, or calculate. Arguably, this detracts from the significance of the result; but perhaps it adds to its significance, in that the opportunity for strategic manipulation was diminished. In either case, it seems likely that if the experiment is ever repeated, the circumstances will be different; or that knowledge of this experiment may mean that future ballots will be more carefully considered. Thus, this vote may be unique in that it may have been the first and last “naïve” vote on voting rules by voting theorists.

Of course, some assertions made in some essays included in this volume are controversial. But this is to be expected from voting theorists and practitioners, who are engaged in the highly important and sensitive issue of how to aggregate individual preferences into a binding social decision. Perhaps one of the merits of this volume is that it brings these controversies to the attention of a wider public.

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