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Recenze

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Erratum to

"The 2009 European Parliament Elections: From Votes to Seats in 27 Ways"

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We apologize that when this paper was published, the acknowledgment footnote on page 148 was unfortunately omitted during the type-setting process. The acknowledgment footnote is given bellow:

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The 2009 European Parliament Elections: From Votes to Seats in 27 Ways

Kai-Friederike Oelbermann*
Antonio Palomares†
Friedrich Pukelsheim‡

Abstract

An account on the exact description on how votes are translated into seats during the 2009 European Parliament elections is presented. A complete list of weblinks to the national electoral provisions of the 27 Member States, and to the official election results is included. The electoral provisions are subject to *principles common to all Member States* laid down in the European Electoral Act as amended in 2002. We scrutinize conformance with regard to Articles 1–3, that is (1) the seat apportionment procedure (three different divisor methods, quota methods with ten different quotas and two different largest remainder variants, and single transferable vote systems with random and fractional transfer), (2) the concept of regional representation (establishment of constituencies, subdivisions into districts, and electoral alliances), and (3) electoral thresholds (relative to valid votes, relative to votes cast, and implicit thresholds). It turns out that Bulgaria and Lithuania impose thresholds higher than five percent of votes cast, and that the Italian provisions include self-contradictory clauses with respect to the regional subdivision.

Keywords

European Parliament, Elections 2009, Electoral System, European Electoral Act, Political Groups in the European Parliament

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Introduction

In the 27 Member States the electoral procedures differ considerably. Thus our title uses the plural form, elections, when referring to how the European Parliament is elected. In view of the non-existence of a European electoral authority it is a challenging project to assemble the election results for the 27 Member States. For instance, the total number of EU citizens that had the franchise to vote is not given by any official EU board. Summing up the electorates of the 27 Member States, we find that 384 928 081 EU citizens had the right to vote. This made the European Parliament elections of 4–7 June 2009 the largest transnational elections in history.

Our research aim is to document the 27 seat apportionment procedures. The precise vote counts, rather than shares of votes, are recorded in order to reconstruct the European-wide election results. Moreover, we elaborate the articles pertinent to the seat apportionment procedures in the 27 national electoral provisions. A complete list of weblinks of the election results and the national provisions is contained in the bibliography. The identification of the 27 electoral procedures gives rise to check whether and how the *principles common to all Member States*, as laid down in the European Electoral Act as amended in 2002, are fulfilled.

While Member States publicize the national election results in their traditional ways, we introduce a scheme to unify the calculations and to ease comparisons between the different seat apportionment procedures. We add information on the affiliation of national parties to Political Groups in the European Parliament. The election results, seat apportionment procedures, and links to pertinent articles in the electoral provisions are also provided in our public domain Java program *BAZI—Calculation of Allocations by Apportionment Methods in the Internet*, available at `http://www.uni-augsburg.de/bazi`.

Our paper updates the information on previous elections, (Silvestro, 1990) for the 1989 elections, (Blackman, 1999; Puntscher-Rieckmann, Pollak, Bapuly, Mokre and Slominski, 2003) and (Nohlen, 2004; Farrell and Scully, 2005) for the 2004 elections. It complements works on the 2009 elections, (Lehmann, 2009; OSCE, 2009; Zicht, Fehndrich, Cantow and Wilke, 2010; Wuest and Tausendpfund, 2009).

In the political sciences, measures such as effective thresholds, effective magnitudes, and effective numbers of parties play a prominent role (Taagepera and Shugart, 1989; Gallagher and Mitchell, 2008). These measures are not considered in the present paper, as they do not intervene in the actual seat apportionment calculation. The Parliament's role and functioning, neither considered in this work, are described from various viewpoints in such works as (Lenz, 1995; Hovehne, 1999; Axt, 2006; Wuest and Stoever, 2006; Wessels, 2008). For the debate on the Union's democratic deficit, see such papers as (Millar, 1990; Reif and Schmitt, 1997; Nohlen, 2004; Farrell and Scully, 2007; Toplak, 2007).

During our study we met with some difficulties, of which the major were the following.

- Identification of national electoral provisions in the Internet is by no means an easy task. Some Member States seem to provide legal information only in their mother tongues.
- Tracing the election results in the Internet was not trivial either. In fact, sometimes it remains unclear which authority publicizes the election results, see (Wall, Ellis, Ayoub, Dundas, Rukambe and Staino, 2006).
- The Italian link broke after some months, the files having been moved to the election archive of the Ministry of the Interior. We remark that those data feature vote counts for the five districts not summing up to the total given.
- The official Cypriot link broke, too, and thereafter failed us permanently.
- The French provisions stipulate that the threshold refers to *voix exprimées*, which we would translate into votes cast. However, the threshold is calculated relative to valid votes.

Throughout the paper titles of laws and treaties are printed in SMALL CAPITALS. Quotes from official documents appear in *italics*, as do terminological conventions. *Independent candidates* are taken to be candidates with no party affiliation, as in Romania, Estonia, and the United Kingdom. In contrast, *nominees* are candidates who also run for a party, as in the STV systems in Malta, Ireland, and the UK-constituency of Northern Ireland.

Table 1: Member State indices for the 2009 elections. 736 seats are allotted in the ACCESSION TREATY OF BULGARIA AND ROMANIA. Four States establish constituencies. Thresholds refer to valid votes or to votes cast, or emerge implicitly. Six Member States use two-step systems to handle regional subdivisions and electoral alliances

Member State		Seats	Const.	Threshold	Procedure	Two-step systems
AT	Austria	17	1	4% of valid v.	DivDwn	
BE	Belgium	22	3	—	DivDwn	
BG	Bulgaria	17	1	implicit[a]	HaQgrR	
CY	Cyprus	6	1	1.8% of valid v.	HQ3grR	
CZ	Czech Republic	22	1	5% of valid v.	DivDwn	
DE	Germany	99	1	5% of valid v.	DivStd	16 districts, DivStd
DK	Denmark	13	1	—	DivDwn	3 alliances, DivDwn
EE	Estonia	6	1	—	DivDwn	
EL	Greece	22	1	3% of valid v.	HQ3-EL[b]	
ES	Spain	50	1	—	DivDwn	
FI	Finland	13	1	—	DivDwn	1 alliance, plurality[c]
FR	France	72	8	5% of valid v.[d]	DivDwn	
HU	Hungary	22	1	5% of valid v.	DivDwn	
IE	Ireland	12	4	—	STVran	
IT	Italy	72	1	4% of valid v.[e]	HQ1grR	5 districts, HQ1grR
LT	Lithuania	12	1	hybrid[f]	HQ2gR2	
LU	Luxembourg	6	1	—	DivDwn[g]	
LV	Latvia	8	1	5% of v. cast	DivStd	
MT	Malta	5	1	—	STVran	
NL	Netherlands	25	1	—	DivDwn	3 alliances, HaQgrR
PL	Poland	50	1	5% of valid v.	DivDwn	13 districts, HaQgrR
PT	Portugal	22	1	—	DivDwn	
RO	Romania	33	1	5% of valid v.[h]	DivDwn	
SE	Sweden	18	1	4% of valid v.	Div0.7	
SI	Slovenia	7	1	4%[i]	DivDwn	
SK	Slovak Republic	13	1	5% of valid v.	DQ3grR	
UK	United Kingdom	72	12	—	DivDwn[j]	
Sum		736	50			

[a]) Based on HQ4 (equivalent to 5.8 percent of votes cast).
[b]) A hybrid residual apportionment involving DQ4, see Subsection "Survey of the 27 Member States".
[c]) On the basis of personal votes.
[d]) Per constituency.
[e]) Minority parties possibly exempted from the threshold.
[f]) Five percent of votes cast, and full-seat restricted greatest remainder variant (equivalent to 6.7 percent of votes cast).
[g]) Six votes per ballot.
[h]) Separate threshold for independent candidates based on HQ4 (equivalent to 2.9 percent of votes cast).
[i]) Unclear, refers to *votes in the whole country*.
[j]) Except for STVfra in Northern Ireland.

We conclude the Introduction with a brief overview. In Section "EU documents and national electoral provisions" we describe that the European legislation on the electoral procedure comes in two parts. Firstly, EU primary law and accession treaties determine the composition of the European Parliament, thus prescribing the number of representatives to be elected in each Member State. Secondly, the national electoral provisions must conform to common principles laid down in the EUROPEAN ELECTORAL ACT AS AMENDED IN 2002.

In Section "Pertinent articles of the European Electoral Act 2002" we turn to the common principles that are particularly pertinent to the seat apportionment procedures, of which there are three. The first principle deals with electoral thresholds. Art. 3 allows the introduction of thresholds that *may not exceed 5 per cent of votes cast*. Most thresholds are calculated relative to valid votes, others relative to votes cast, and in some cases they emerge implicitly within the apportionment calculation. Thresholds in Bulgaria and Lithuania appear to violate Art. 3, both exceeding 5 percent of votes cast, see Subsection "Electoral thresholds, and effective votes (Art. 3)".

The second principle, in Art. 2, deals with regional representation within a Member State. This may be achieved in two ways. The first permits a Member State to *establish constituencies* for which the number of seats is pre-specified *a priori*. Then seats are apportioned separately within each constituency, see Subsection "Single electoral area, and the establishment of constituencies (Art. 2)". Another way is for a Member State to *subdivide its electoral area in a different manner*. Here we speak of a subdivision of the electoral area into *electoral districts*. The number of seats allocated to each district is decided upon *a posteriori*, depending on the vote counts. The Italian provisions appear to be self-contradictory in pre-specifying *a priori* seat numbers to the districts which do not conform with the actual seat numbers (Pennisi, Ricca and Simeone, 2009). It transpires that electoral alliances among several parties are methodologically related to the handling of electoral districts. Therefore both concepts are explained side by side, see Subsection "Subdivision into electoral districts, and electoral alliances (Art. 2)".

The third principle, in Art. 3, demands for *proportional representation*. We found eleven different seat apportionment procedures. We use the term *apportionment method* to refer to a succinct electoral calculation, while the term *system* may reach beyond, see Subsection "Proportional representation, and seat apportionment procedures (Art. 1)".

Section "Translation of votes into seats: Methods and systems" is dedicated to the details of proportional seat apportionment calculations. The procedures used are either divisor methods, quota methods, or single transferable vote (STV) systems. Divisor methods are traditionally defined by divisor sequences, thoroughly analyzed in (Balinski and Young, 2001). In our opinion the characterization by rounding rules and divisors is more perspicuous. The divisor D can be interpreted as an *electoral key* which enables a single-stage verifiability of the final seat numbers, see Subsection "Divisor methods of apportionment". Quota methods are characterized by a certain quota and a certain residual fit. We found ten different quotas and two different residual apportionments, see Subsection "Quota methods of apportionment". Describing single transferable vote systems we distinguish whether votes are transferred by an element of randomness or at fractional weight, see Subsection "Single transferable vote systems".

Section "Apportionment procedures used in the 2009 elections" is the core section. In Subsection "Format of tables, and Political Groups in the European Parliament" we explain our unified scheme for the seat apportionment procedures, and give European-wide election results with respect to Political Groups in the European Parliament. In Subsection "Survey of the 27 Member States" we document the 27 ways of translating votes into seats.

Section "Conclusion" concludes with a general outlook, in particular with regard to enhance the degree of uniformity of the electoral procedures.

EU documents and national electoral provisions

The composition of the European Parliament, that is, the allotment of seats among its Member States, has been changed again and again. The Committee on Constitutional Affairs of the European Parliament continues to deal with the topic (Europarl(2009a). National seat allotments are not determined by a mathematical formula, but emerge from negotiations. The June 2009 composition relied on the Act Concerning the Conditions of Accession of the Republic of

Bulgaria and Romania and the adjustments to the treaties on which the European Union is founded (Eur-lex, 2005). Art. 9(1) stipulates that the *number of Members of the European Parliament shall not exceed 736*, and Art. 9(2) prescribes the seat contingent of each Member State. Due to the Lisbon Treaty (Eur-lex, 2009) the total number of representatives will be raised to 751 by the end of the year 2010. In the course of this paper we restrict our attention to the 736 seats at stake during the elections in June 2009.

European legislation on the apportionment of seats among registered parties and independent candidates originates from the Treaty establishing the European Coal and Steel Community (Eur-lex, 1951). By Art. 21(1), in force for almost twenty years, representatives were *designated by the respective Parliaments*, while Art. 21(3) called for *proposals for a uniform electoral procedure*.

In 1976 the then European Communities agreed on the Act concerning the election of the representatives of the Assembly by direct universal suffrage, hereafter referred to as European Electoral Act (Eur-lex, 1976). Art. 7(2) enunciated that the *electoral procedure shall be governed in each Member State by its national provisions*. On this basis the first European Parliament elections were held in 1979.

The mandate to draw up proposals for a uniform procedure was moderated with the 1999 Amsterdam Treaty (Eur-lex(1999), and found its way in way into the Lisbon Treaty. Art. 223(1) (*ex* Art. 21(3) in (Eur-lex, 1951) calls for a uniform electoral procedure *or [for] elections in accordance with principles common to all Member States*. The 2002 Amendments of the European Electoral Act (Eur-lex, 2002) specify these common principles. The renumbered version of this Act is annexed to the recent draft report of the Committee on Constitutional Affairs (Duff, 2010).

As for the seat apportionment procedures, the national electoral provisions must be based on *proportional representation* (Art. 1(1)). Furthermore, Member States *may establish constituencies …or subdivide its electoral area in a different manner* (Art. 2), and electoral thresholds *not exceed[ing] 5 per cent of votes cast* may be included (Art. 3).

> European Electoral Act 2002, Art. 1(1). *In each Member State, members of the European Parliament shall be elected on the basis of proportional representation, using the list system or the single transferable vote.*
>
> European Electoral Act 2002, Art. 2. *In accordance with its specific national situation, each Member State may establish constituencies for elections to the European Parliament or subdivide its electoral area in a different manner, without generally affecting the proportional nature of the voting system.*
>
> European Electoral Act 2002, Art. 3. *Member States may set a minimum threshold for the allocation of seats. At national level this threshold may not exceed 5 percent of votes cast.*

Details on the national electoral provisions confronted us with three essential difficulties. The first is to get hold of the 27 texts of law. Seventeen Member States entertain specific laws for the European Parliament elections: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, France, Hungary, Italy, Latvia, Lithuania, Germany, Greece, Poland, Romania, Slovak Republic, and United Kingdom. On the other hand Spain, Finland, Luxembourg, Netherlands, and Sweden subsume the European electoral provisions into their national electoral laws. As a last group Cyprus, Ireland, Malta, Portugal, and Slovenia possess laws on the European Parliament elections which, however, contain cross-references to national electoral acts, in particular when it comes to the details of the seat apportionment procedures. There is a document of the scientific service of the European Parliament with weblinks for the national electoral provisions which, unfortunately, the author points out to be incomplete, see (Lehmann, 2009). A complete list of weblinks is appended to this paper.

The second difficulty arises from the 23 official EU languages. To the best of our knowledge Austria, Belgium, Bulgaria, Cyprus, Germany, Spain, France, Greece, Italy, Luxembourg, and Portugal do not provide English translations of their national electoral provisions. The help of native speakers turns out to be indispensable, as we gratefully acknowledge.

The third difficulty lies in the wording of some of the sections in the provisions. In Slovenia, it is not clear to us whether the threshold is calculated relative to valid votes, or relative to votes cast. In the Slovak Republic, the notion of quotients being *rounded off* means standard rounding, as pointed out to us by the former head of the Slovak Statistical Office. The Greek provisions are hard to find and difficult to understand, due to antiquated language, as our Greek correspondent assured us comfortingly.

Pertinent articles of the European Electoral Act 2002

The common principles of the European Electoral Act as amended in 2002 leave a wide margin of appreciation for the seat apportionment procedures. In order to work out how the Member States make use of this margin, we discuss the articles quoted above in reverse order, first Art. 3, then Art. 2, and finally Art. 1.

Electoral thresholds, and effective votes (Art. 3)

The well-known electoral principle *One person, one vote* demands that all votes shall be treated equally. Yet, the imbalance in the number of representatives elected in the Member States entails that voters from smaller Member States have more power than voters from larger Member States. Even within a Member State one vote is not always equal to the other. We distinguish between *valid votes* and *invalid votes*. The definitions differ among Member States. For example, blank votes are valid in Spain, but invalid in Germany. In France there is a discussion whether valid votes should comprise blank votes.

Due to electoral thresholds, as permitted by Art. 3, votes cast for parties or independent candidates with too small a support are discarded. We say that the retained votes are *effective*, while the discarded votes are *ineffective*. In the absence of any electoral threshold, all valid votes become effective.

For 25 Member States, the effective votes provide the sole basis for the seat apportionment calculation. In Greece and Cyprus, ineffective votes do play a role though parties still must pass the threshold before they can be apportioned a seat. In the 2009 elections the effective votes total is 148 271 668, while 12 086 125 votes are discarded because of being ineffective.

Ten Member States have no threshold: Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, Malta, Netherlands, Portugal, and Spain.

Thresholds relative to valid votes are applied in Cyprus (1.8 percent), Austria, France, Italy, and Sweden (4 percent), Czech Republic, Hungary, Germany, Poland, and Slovak Republic (5 percent). Thresholds relative to votes cast are applied in Latvia and Lithuania (5 percent). In Slovenia it is not clear to us whether the four percent threshold is calculated relative to votes cast or relative to valid votes.

The remaining four thresholds are of a rather peculiar type, explained thoroughly in Subsection "Survey of the 27 Member States". In Italy, there is a four percent threshold relative to valid votes, except for parties of ethnic minorities. In Romania, the electoral provisions distinguish between a five percent threshold relative to valid votes for registered parties, and a lower threshold for independent candidates.

In Bulgaria and Lithuania the 2009 thresholds exceed five percent of votes cast, and thus violate Art. 3. In Bulgaria an implicit threshold amounts to 5.8 percent relative to votes cast. If the threshold had been at five percent relative to votes cast, one additional party would

have been apportioned a seat. In Lithuania, the five percent threshold relative to votes cast is accompanied by an implicit threshold that emerges from the apportionment method. It results in a 6.7 percent threshold relative to votes cast. Luckily, each party passes either both thresholds, or neither.

Single electoral area, and the establishment of constituencies (Art. 2)

With a view toward Art. 2 of the European Electoral Act 2002, four Member States choose *to establish constituencies … without affecting the proportional nature of the voting system*. Prior to the election, the available seats are allotted among several *constituencies*. After the election, the seat apportionment calculations are carried out separately for each constituency. Belgium establishes three constituencies, France eight, Ireland four, and United Kingdom twelve. In the remaining 23 Member States the seat apportionment is carried out across the whole electoral area.

Altogether the 2009 elections give rise to 50 seat apportionment calculations, 23 single electoral areas, plus 3 constituencies in Belgium, 8 in France, 4 in Ireland, and 12 in the United Kingdom.

Subdivision into electoral districts, and electoral alliances (Art. 2)

Art. 2 of the European Electoral Act as amended in 2002 also permits the subdivision of the electoral area *in a different manner*. Subdivisions of the whole electoral area into several electoral districts occur in Germany, Italy, and Poland. The number of representatives elected per district are determined dynamically, by the election results. Thus proportionality among parties is achieved across the entire electoral area. A two-step system is implemented to carry out the seat apportionment.

The first step is the *super-apportionment*, allocating all available seats among parties according to their nationwide vote totals. The second step consists of one *sub-apportionments* per party to apportion the nationwide party seats among the districts.

The concept of a subdivision into several districts is closely related to the formation of *electoral alliances* (also known as *list apparentements*). Electoral alliances were formed in Denmark, Finland, and the Netherlands. They also call for a two-step system. The *super-apportionment* allocates the available seats among alliances and stand-alone parties. Subsequently, a *sub-apportionment* calculation is conducted for each alliance to allocate its seats among the members.

In Denmark, Finland, Germany, and Italy the methods for the super-apportionment and the sub-apportionments are alike. The Italian provisions also pre-specify *a priori* seat numbers to the districts. However, these numbers are not realized. In the Netherlands and Poland, the methods for the super-apportionment and the sub-apportionments differ.

Proportional representation, and seat apportionment procedures (Art. 1)

Art. 1 of the European Electoral Act as amended in 2002 obliges the Member States to built their national electoral provisions *on the basis of proportional representation*. Proportionality can be achieved by means of *apportionment methods for list systems* such as divisor methods (also known as highest average formulas), and quota methods (also known as greatest remainder formulas). *Single transferable vote systems* (STV), explicitly mentioned in Art. 1, are also feasible. Details of these seat apportionment procedures are given in the following section.

Table 2: Seat apportionment procedures used in the 2009 elections. Divisor methods make use of a (flexible) divisor and a (fixed) rounding rule. Quota methods employ a (fixed) quota and a (flexible) residual fit. Single transferable vote systems are characterized by the transfer apportionment

	Divisor methods (highest average formulas)
DivDwn	Divisor method with rounding down (Jefferson, D'Hondt, Hagenbach-Bischoff)
DivStd	Divisor method with standard rounding (Webster, Sainte-Laguë)
Div0.7	Divisor method with modified standard rounding (Scandinavian method)
	Quota methods (greatest remainders formulas)
HaQgrR	Hare quota method with residual fit by greatest remainders
HQ1grR	Hare quota variant 1 with residual fit by greatest remainders
HQ2gR2	Hare quota variant 2 with full-seat restricted residual apportionment gR2
HQ3grR	Hare quota variant 3 with residual fit by greatest remainders
HQ3-EL	Hare quota variant 3 with Greek residual fit
DQ3grR	Droop quota variant 3 with residual fit by greatest remainders
	Single transferable vote (STV) **systems**
STVfra	Droop quota, and fractional transfer apportionment
STVran	Droop quota, and random transfer apportionment

Translation of votes into seats: Methods and systems

Divisor methods of apportionment

Divisor methods follow the motto *Divide and round*. Let h be the given *house size*, the number of representatives to be elected in a certain Member State or in a certain constituency. The effective votes are denoted by v_j where j designates a party or an independent candidate. Firstly, we divide the effective votes v_j by a feasible divisor D. Secondly, the resulting fractional quotients v_j/D are rounded by a pre-specified rounding rule to obtain an integer seat number. The divisor D is determined so as to allocate exactly h seats. Different rounding rules generate different divisor methods. The 2009 European Parliament elections employ three rounding rules: rounding down, standard rounding, and modified standard rounding.

Rounding down, $\lfloor\cdot\rfloor$. A positive number is rounded down to its integer part. Example: $\lfloor 3.45 \rfloor = 3$, or $\lfloor 6.87 \rfloor = 6$. The *divisor method with rounding down* (DivDwn) is often named after *Jefferson, D'Hondt*, or *Hagenbach-Bischoff*.

Standard rounding, $\langle\cdot\rangle$. A positive number is rounded to the integer nearest to it. Example: $\langle 3.45 \rangle = 3$, or $\langle 6.87 \rangle = 7$. The *divisor method with standard rounding* (DivStd) is often named after *Webster*, or *Sainte-Laguë*.

Modified standard rounding. Same as standard rounding, except that a number below 0.7 is rounded down to 0, and a number between 0.7 and 1 is rounded up to 1. The *divisor method with modified standard rounding* (Div0.7) is also referred to as the *Scandinavian method*.

The divisor D may be interpreted as an *electoral key*. It provides a single-stage access to the final seat number of each party, given by the rounded quotient of votes divided by the divisor D. Therefore we always display a divisor D, so that the method is captured by the phrase: *Each D votes yield about one seat*. In contrast, verifying the results with highest averages involves the time-consuming computation of all the averages.

A feasible divisor D, that is a divisor that results in the allocation of exactly h seats, may be determined as follows. For every participant j, the votes v_j are divided by *signposts* peculiar to the rounding rule specified, say $s(1), s(2), s(3)$, etc. The resulting quotients $v_j/s(1), v_j/s(2)$,

$v_j/s(3)$, etc., are taken to signify some sort of *averages*. They are ordered in decreasing size. Now seats are handed out, one by one until all seats are gone, to the participants with the highest averages. The last highest average used, and the first highest average not used define the *divisor interval*. Finally an arbitrary number may be picked from the divisor interval to be used as a divisor D.

The signposts $s(1), s(2), s(3)$, etc. are determined by the rounding rule specified. Rounding down comes with the sequence $1, 2, 3$, etc. or, equivalently, with $2, 4, 6$, etc. For this reason the method is also known as the *even-number method*. Standard rounding uses the signposts $0.5, 1.5, 2.5$, etc. or, equivalently, $1, 3, 5$, etc. This is why the method is also termed the *odd-number method*. Modified standard rounding uses the signposts $0.7, 1.5, 2.5$, etc. or, equivalently, $1.4, 3, 5$, etc.

In the 2009 European Parliament elections, 16 Member States applied the divisor method with rounding down: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Hungary, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, and United Kingdom (except for the constituency of Northern Ireland). Germany and Latvia used the divisor method with standard rounding, and Sweden the divisor method with modified standard rounding.

Quota methods of apportionment

Quota methods are a family of apportionment methods that follow the motto *Divide and sort*. The apportionment method is split into a main apportionment that is based on a pre-specified quota Q, and a residual apportionment. The seats apportioned in the main apportionment practically always fail to exhaust the house size h, leaving some r seats to be taken care of in the residual apportionment.

Main apportionment. Determine the quota Q, and divide it into the effective votes v_j of participant j. The integer part of the resulting quotient, $\lfloor v_j/Q \rfloor$, signifies the number of seats apportioned in the main apportionment.

Residual apportionment. The r residual seats are apportioned according to the remainders $v_j/Q - \lfloor v_j/Q \rfloor$, the quotient's fractional parts. A prescription is specified to sort the participants, and to allocate the remaining r seats in the sequence of this sorting.

The 2009 European Parliament elections used the generic Hare quota HaQ, its three variants HQ1, HQ2, HQ3, and the Droop quota variants DQ3 and DQ4. The quotas are defined as follows:

$$\text{HaQ} = \frac{\text{effective votes}}{h}, \qquad \text{DrQ} = \left\lfloor \frac{\text{effective votes}}{h+1} \right\rfloor + 1, \text{ (in STV systems)}$$

$$\text{HQ1} = \left\lfloor \frac{\text{effective votes}}{h} \right\rfloor, \qquad \text{DQ1} = \max\left\{ \left\lfloor \frac{\text{effective votes}}{h+1} \right\rfloor, 1 \right\}, \text{ (not in EP 2009)}$$

$$\text{HQ2} = \left\lceil \frac{\text{effective votes}}{h} \right\rceil, \qquad \text{DQ2} = \left\lceil \frac{\text{effective votes}}{h+1} \right\rceil, \text{ (not in EP 2009)}$$

$$\text{HQ3} = \left\lfloor \frac{\text{valid votes}}{h} \right\rfloor, \qquad \text{DQ3} = \left\langle \frac{\text{effective votes}}{h+1} \right\rangle,$$

$$\text{HQ4} = \left\lceil \frac{\text{valid votes}}{h} \right\rceil, \text{ (for thresholds)} \qquad \text{DQ4} = \max\left\{ \left\lfloor \frac{\text{unused voting power}}{r+1} \right\rfloor, 1 \right\}.$$

The generic Hare quota HaQ is the quotient of the effective vote total divided by the number of seats to be allocated. It is applied in Bulgaria, Netherlands (super- and sub-apportionments), and Poland (only sub-apportionments). The variant HQ1 is applied in Italy (super- and sub--apportionments). The variant HQ2 is applied in Lithuania. In Greece the main apportionment uses the variant HQ3. The variant HQ4 is applied in Bulgaria for the electoral threshold pertaining to parties, and in Romania for the electoral threshold pertaining to independent candidates.

Of the Droop quota family, variant DQ3 is applied in the Slovak Republic, and variant DQ4 is applied in Greece in the course of the first part of the residual apportionment.

The fashion which remainders to consider for the allocation of the r residual seats, depends on the prescription specified. In the 2009 elections the *residual fit by greatest remainders* (grR) and its variants gR2 and -EL are employed. The variants are defined as follows:

grR	All remainders are sorted by decreasing size,
gR1	The r residual seats are given to the strongest party (not applied in EP 2009),
gR2	Remainders are sorted by decreasing size only of parties with Q votes or more, also referred to as *full-seat restricted residual apportionment*,
-EL	Remainders are sorted by decreasing size, of certain parties only, see details for Hellenic Republic in Subsection "Survey of the 27 Member States".

The residual fit by greatest remainders (grR) is applied in Bulgaria, Cyprus, Italy (super- and sub-apportionments), and Slovak Republic. Variant gR1 is not employed in the 2009 elections. Variant gR2 is used in Lithuania, and variant -EL is used in Greece.

Single transferable vote systems

Single transferable vote systems obey the motto *Count and transfer*. Voters mark a preference order of individual nominees on their ballot sheets. The apportionment procedure comes in two parts. The main apportionment checks whether the vote count reaches the Droop quota DrQ. The second part takes the form of a transfer apportionment, evaluating the voters' preferences.

Main apportionment. Determine the Droop quota DrQ. Nominees whose votes reach the quota DrQ are awarded a seat.

Transfer apportionment. If a nominee's votes exceed the quota DrQ the surplus votes are transferred to other nominees according to the voters' preferences, with the larger surpluses transferred first. If no further nominees reach DrQ votes, the nominee with the fewest votes is eliminated and her votes are transferred.

The seats apportioned in the main apportionment stay far below h, leaving r residual seats. The voters' transfer ranking indicates to whom votes are to be transferred, if the nominee of their first, or subsequent, choice has already reached the quota Q. The same applies if the nominee has obtained too few votes and has thus been eliminated.

There are two ways to conduct the transfer. The first way is to consider all ballot sheets and calculate fractional weightings to affect the transfer. The second way incorporates an element of randomness to decide which ballot sheets are to be transferred.

STVfra	All ballot sheets are transferred, with fractional weightings.
STVran	The ballot sheets of a nominee that has reached the quota or the ballot sheets of a nominee that has been eliminated, are sorted into sub-parcels with respect to the nominee next in the transfer ranking. In proportion to the sub-parcel's size, the ballot sheets that happen to be on top of each parcel are transferred to the next nominee.

In the 2009 European Elections, Northern Ireland uses the fractional part variant (STVfra), while Ireland and Malta apply the random transfer apportionment (STVran).

Apportionment procedures used in the 2009 elections

Format of tables, and Political Groups in the European Parliament

Member States are sorted by their two-letter codes as given by the European Union's interinstitutional style guide (Publications, 2009).

The first columns of our tables show names of registered parties, independent candidates and nominees. In order to adjoin a European dimension and to substitute for the non-visible European party system, these names are listed together with the Political Group in the European Parliament they are affiliated to (Schleicher, 2011). Their acronyms and sizes (in number of seats) are taken from the Parliament's website on the election results (Europarl, 2009b).

European People's Party	EPP	265
Progressive Alliance of Socialists and Democrats	S & D	184
Alliance of Liberals and Democrats for Europe	ALDE	84
European Greens / European Free Alliance	GREENS/EFA	55
European Conservatives and Reformists	ECR	54
European United Left / Nordic Green Left	GUE/NGL	35
Europe of Freedom and Democracy	EFD	32
Non-attached members of the European Parliament	NA	27
Sum		736

The second columns of our tables give votes that enter into the apportionment calculation. Generally, these are the effective votes, excepts for Cyprus and Greece where ineffective votes are needed to compute the quota HQ3. This restriction reduces the number of parties. In the Czech Republic, for instance, twenty-nine parties are discarded as they have not passed the electoral threshold.

The third columns display quotients. In the case of divisor methods, these are the quotients of effective votes divided by the divisor D displayed in the bottom line of each table. For example, in Austria the ÖVP-quotient is $858\,921/140\,000 = 6.14$. In case of quota methods, the third column displays quotients of effective votes divided by the quota Q displayed in the bottom line of each table. For example, in Bulgaria the ГЕРБ-quotient is $627\,693/128\,619 = 4.880$.

The fourth columns display final seat numbers. For divisor methods, the quotients in the third column are rounded according to the applicable rounding rule to obtain the seat numbers. For quota methods, the remainders that result in an additional seat during the residual apportionment are printed in bold-face type.

In case a Member State establishes several constituencies, the pertinent tables are displayed one after the other. For two-step systems, the vote counts that are subjected to a sub-apportionment calculation are printed in italic type, together with the corresponding divisor or quota.

STV systems are more difficult to monitor. For this reason we include first preferential votes only, and indicate whether a nominee is awarded a seat or not. It so happens that the final seat apportionments go along with the first preferential vote counts in all cases except two. In the Irish constituency of *Dublin* one of the elected nominees (Joe Higgins, 50 510 votes) has fewer first preferential votes than a non-elected nominee (Eoin Ryan Jnr, 55 346 votes). In Malta David Casa is elected with 6 539 first preferential votes, while three nominees with more first preferential votes (Joseph Cuschieri 19 672, Marlene Mizzi 17 724, Baldacchino Abela 12 309) are not elected.

Survey of the 27 Member States

AT – Republic of Austria

Austria allocates its 17 seats across the whole electoral area. There is a four percent threshold relative to valid votes. The divisor method with rounding down is used, DivDwn.

There are 2 864 621 valid votes. Four percent thereof is 114 584.8. Six parties have at least 114 585 votes, and participate in the apportionment calculation. This leaves 39 594 ineffective votes, cast for another two parties. From the divisor interval $[136\,009; 142\,252]$ we use divisor 140 000.

EP2009AT	Votes	Quotient	DivDwn
ÖVP: EPP	858 921	6.14	6
SPÖ: S & D	680 041	4.86	4
Martin: NA	506 092	3.61	3
FPÖ: NA	364 207	2.60	2
GRÜNE: GREENS/EFA	284 505	2.03	2
BZÖ: NA	131 261	0.94	0
Sum [Divisor]	2 825 027	[140 000]	17

BE – Kingdom of Belgium

Belgium allocates its 22 seats in three constituencies. There is no electoral threshold. The national electoral provisions allot 13 seats to the *Nederlands kiescollege*, 8 seats to the *College électoral français*, and 1 seat to the *Deutschsprachiges Wahlkollegium*. All constituencies use the divisor method with rounding down, DivDwn.

(1) The *Nederlands kiescollege* has divisor interval $[237\,031; 269\,696]$, we use divisor 250 000.
(2) The *College électoral français* has divisor interval $[213\,364; 238\,315]$, we use divisor 230 000.
(3) The *Deutschsprachiges Wahlkollegium* has divisor interval $[7\,878; 12\,475]$, we use divisor 10 000.

EP2009BE	Votes	Quotient	DivDwn
(1) *Nederlands kiescollege*			
CD & V: EPP	948 123	3.79	3
Open Vld: ALDE	837 884	3.35	3
Vlaams Belang: NA	647 170	2.59	2
sp.a: S & D	539 393	2.16	2
N-VA: GREENS/EFA	402 545	1.61	1
GROEN!: GREENS/EFA	322 149	1.29	1
Lijst Dedecker: ECR	296 699	1.19	1
PVDA+: NA	40 057	0.16	0
SLP: GREENS/EFA	26 541	0.11	0
LSP: NA	8 985	0.04	0
CAP: NA	6 398	0.03	0
Sum [Divisor]	4 075 944	[250 000]	13
(2)*College électoral français*			
PS: S & D	714 947	3.11	3
MR: ALDE	640 092	2.78	2
ECOLO: GREENS/EFA	562 081	2.44	2
CDH: EPP	327 824	1.43	1
FN: NA	87 706	0.38	0
WALLONIE D'ABORD: NA	37 505	0.16	0
R.W.F.: NA	30 488	0.13	0
PTB+: NA	28 483	0.12	0
LCR-PSL: NA	7 954	0.03	0
CAP D'ORAZIO: NA	7 626	0.03	0
PC-GE: NA	7 533	0.03	0
MS: NA	4 939	0.02	0
Sum [Divisor]	2 457 178	[230 000]	8

EP2009BE (*continued*)	Votes	Quotient	DivDwn
(3) *Deutschsprachiges Wahlkollegium*			
CSP: EPP	12 475	1.25	1
PFF: ALDE	7 878	0.79	0
ECOLO: GREENS/EFA	6 025	0.60	0
PS: S & D	5 658	0.57	0
ProDG: NA	3 897	0.39	0
VIVANT: NA	2 417	0.24	0
EdW: NA	330	0.03	0
Sum [Divisor]	38 680	[10 000]	1

BG – Republic of Bulgaria

Bulgaria allocates its 17 seats across the whole electoral area. The implicit electoral threshold is determined by variant 4 of the Hare quota, HQ4 $= \lceil \text{valid votes}/h \rceil$. The Hare quota HaQ with residual fit by greatest remainders is used, HaQgrR.

There are 2 576 434 valid votes. The threshold is HQ4 $= \lceil 2\,576\,434/17 \rceil = 151\,555$. Six parties pass the threshold and participate in the apportionment calculation. This leaves 389 911 ineffective votes, cast for another six parties. The quota happens to be an integer, HaQ $= 2\,186\,523/17 = 128\,619$.

However, the threshold of 151 555 votes amounts to 5.8 percent of the 2 601 677 votes cast, in violation of Art. 3 of the *European Electoral Act as amended in 2002*. If the threshold were five percent relative to votes cast, that is 130 084 votes, the 146 984 votes for ПП "*ЛИДЕР*" would have been retained, and the party would have been apportioned a seat (at the expense of НДСВ).

EP2009BG	Votes	Quotient	HaQgrR
ГЕРБ:EPP	627 693	4.**88**	5
КОАЛИЦИЯ ЗА БЪЛГАРИЯ:S&D	476 618	3.**71**	4
ДПС:ALDE	364 197	2.**83**	3
АТАКА:NA	308 052	2.40	2
НДСВ:ALDE	205 146	1.**595**	2
СИНЯТА КОАЛИЦИЯ:EPP	204 817	1.592	1
Sum [Quota]	2 186 523	[128 619]	17

CY – Republic of Cyprus

Cyprus allocates its 6 seats across the whole electoral area. There is a 1.8 percent threshold relative to valid votes. Variant 3 of the Hare quota with residual fit by greatest remainders is used, HQ3grR.

There are 306 325 valid votes. The threshold amounts to $\lceil 5\,513.85 \rceil = 5\,514$. Five parties pass the threshold and participate in the apportionment calculation. This leaves 9 770 ineffective votes, cast for another eight parties. The quota is HQ3 $= \lfloor 306\,325/6 \rfloor = \lfloor 51\,054.17 \rfloor = 51\,054$.

EP2009CY	Votes	Quotient	HQ3grR
DISY: EPP	109 209	2.14	2
AKEL: GUE/NGL	106 922	2.09	2
DIKO: S & D	37 625	0.**74**	1
EDEK: S & D	30 169	0.**59**	1
EVROKO: ALDE	12 630	0.25	0
Ineffective votes	9 770	—	—
Sum [Quota]	306 325	[51 054]	6

CZ – Czech Republic

The Czech Republic allocates its 22 seats across the whole electoral area. There is a five percent threshold relative to valid votes. The divisor method with rounding down is used, DivDwn.

There are 2 358 934 valid votes. Five percent thereof is 117 946.7. Four parties have at least 177 947 votes, and participate in the apportionment calculation. This leaves 573 828 ineffective votes, cast for another twenty-nine parties. From the divisor interval $[74\,194.6; 75\,447.4]$ we use divisor 75 000.

EP2009CZ	Votes	Quotient	DivDwn
Občanská demokratická strana: ECR	741 946	9.89	9
Česká str. sociálně demokrat.: S & D	528 132	7.04	7
Komunistická str. Čech a Moravy: GUE/NGL	334 577	4.46	4
Křesť. demokr. unie – Čs.str. lid.: EPP	180 451	2.41	2
Sum [Divisor]	1 785 106	[75 000]	22

DE – Federal Republic of Germany

Germany allocates its 99 seats across the whole electoral area. There is a five percent threshold relative to valid votes. The *Christlich Demokratische Union* (CDU) presented fifteen district lists for a sub-apportionment. The divisor method with standard rounding is used throughout, DivStd.

There are 26 333 444 valid votes nationwide. Five percent thereof is 1 316 672.2. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 2 840 893 ineffective votes, cast for another twenty-six parties. The super-apportionment has divisor interval $[233\,954; 236\,630]$, we use divisor 235 000. In the CDU sub-apportionment, the divisor interval is $[238\,752; 246\,111]$, we use divisor 240 000.

EP2009DE	Votes	Quotient	DivStd	Quotient	DivStd
CDU: EPP [*Divisor*]	8 071 391	34.35	34	[*240 000*]	
= *Nordrhein-Westfalen*	*2 091 945*			8.72	9
+ *Baden-Württemberg*	*1 478 135*			6.16	6
+ *Niedersachsen*	*962 510*			4.01	4
+ *Rheinland-Pfalz*	*660 252*			2.75	3
+ *Hessen*	*596 878*			2.49	2
+ *Sachsen*	*567 231*			2.36	2
+ *Schleswig-Holstein*	*308 368*			1.28	1
+ *Thüringen*	*304 858*			1.27	1
+ *Sachsen-Anhalt*	*213 731*			0.89	1
+ *Berlin*	*208 395*			0.87	1
+ *Mecklenburg-Vorpommern*	*201 447*			0.84	1
+ *Sachsen*	*162 696*			0.68	1
+ *Brandenburg*	*140 616*			0.59	1
+ *Hamburg*	*128 443*			0.54	1
+ *Bremen*	*45 886*			0.19	0
SPD: S & D	5 472 566	23.29	23		
Grüne: GREENS/EFA	3 194 509	13.59	14		
FDP: ALDE	2 888 084	12.29	12		
Linke: GUE/NGL	1 969 239	8.38	8		
CSU: EPP	1 896 762	8.07	8		
Sum [Divisor]	23 492 551	[235 000]	99		

DK – Kingdom of Denmark

Denmark allocates its 13 seats across the whole electoral area, without an electoral threshold. There are three electoral alliances. The super-apportionment and the three sub-apportionments use the divisor method with rounding down, DivDwn.

The divisor interval for the super-apportionment turns out to be [157 008;162 522], we use divisor 160 000. In the sub-apportionments, *Alliance 1* has divisor interval $[123\,868; 125\,859]$, we use divisor 125 000. *Alliance 2* has interval $[148\,600; 158\,013]$, we use 150 000. *Alliance 3* has interval $[84\,277.5; 168\,555]$, we use 100 000.

EP2009DK	Votes	Quotient	DivDwn	Quotient	DivDwn
Alliance 1 [*Divisor*]	975 136	6.09	6	[*125 000*]	
=*Socialdemokratiet: S & D*	*503 439*			4.03	4
+*Socialistisk Folkeparti: GREENS/EFA*	*371 603*			2.97	2
+*Radikale Venstre: NA*	*100 094*			0.80	0
Alliance 2 [*Divisor*]	785 036	4.91	4	[*150 000*]	
=*Venstre: ALDE*	*474 041*			3.16	3
+*Konservative Folkeparti: EPP*	*297 199*			1.98	1
+*Liberal Alliance: NA*	*13 796*			0.09	0
Dansk Folkeparti: EFD	357 942	2.24	2		
Alliance 3 [*Divisor*]	224 014	1.40	1	[*100 000*]	
=*Folkebevagelsen mod EU: GUE/NGL*	*168 555*			1.69	1
+*JuniBevagelsen: NA*	*55 459*			0.55	0
Sum [Divisor]	2 342 128	[160 000]	13		

EE – Republic of Estonia

Estonia allocates its 6 seats across the whole electoral area. There is no electoral threshold. The divisor method with rounding down is used, DivDwn.

The divisor interval turns out to be $[34\,502; 34\,508]$, we use divisor 34 505. The independent candidate Indrek Tarand drew 102 460 votes. Had he handed in a list, he would have been assigned two seats. But he did not, so his votes gave him just a single seat.

EP2009EE	Votes	Quotient	DivDwn
KESK: ALDE	103 506	2.9997	2
Indrek Tarand: GREENS/EFA	102 460	—	1
REF: ALDE	60 877	1.76	1
IRL: EPP	48 492	1.41	1
SDE: S & D	34 508	1.00	1
ROH: GREENS/EFA	10 851	0.31	0
Hel: NA	9 832	0.28	0
RL: ECR	8 860	0.26	0
Kle: NA	7 137	0.21	0
EÜP: GREENS/EFA	3 519	0.10	0
LIB: EFD	2 206	0.06	0
EKD: NA	1 715	0.05	0
VEE: NA	1 267	0.04	0
PK: NA	612	0.02	0
Žur: NA	585	0.02	0
Oig: NA	292	0.01	0
Aas: NA	263	0.01	0
Sum [Divisor]	396 982	[34 505]	6

EL – Hellenic Republic

Greece allocates its 22 seats across the whole electoral area. There is a three percent threshold relative to valid votes. The apportionment calculations combine the Hare quota variant HQ3 with a rather unique split residual apportionment, which we abbreviate by HQ3-EL where EL is short for Greece.

For a party j, let v_j designate its votes, and x_j its number of seats apportioned in the main apportionment. The residual apportionment has an initial part, and a terminal part. The initial residual apportionment relies on the *unused voting power* $\mathrm{UVP}_j = v_j - x_j \cdot \mathrm{HQ3}$, that is, the number of votes beyond those already having been awarded their HQ3 share. The unused voting power UVP_j is divided by the Droop quota variant DQ4 and rounded down, to obtain an initial integer increment y_j. The terminal residual apportionment only admits parties not having received a seat in the initial residual apportionment (that is, $y_j = 0$), and uses the greatest remainder variant -EL to obtain terminal integer increments z_j.

There are 5 127 537 valid votes. Three percent thereof is 153 826.1. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 377 997 ineffective votes, cast for another

twenty-one parties. The main apportionment uses quota HQ3 = $\lfloor 5\,127\,537/22 \rfloor = 233\,069$. The initial part of the residual apportionment uses DQ4 = $\lfloor (\text{total UVP})/(4+1) \rfloor = \lfloor 932\,295/5 \rfloor = 186\,459$.

EP2009EL	Votes	Quotient	Main	UVP	Quotient	HQ3-EL
Pa.So.K: S & D	1 878 982	8.06	8	14 430	0.08	8
ND: EPP	1 655 722	7.10	7	24 239	0.**13**	8
K.K.E.: GUE/NGL	428 282	1.84	1	195 213	**1.**—	2
La.O.S: EFD	366 637	1.57	1	133 568	0.**72**	2
Sy.Riz.A: GUE/NGL	240 930	1.03	1	7 861	0.04	1
OP: GREENS/EFA	178 987	0.77	0	178 987	0.**96**	1
Ineffective votes	377 997	—	—	377 997	—	—
Sum [Quota]	5 127 537	[233 069]	18	932 295	[186 459]	22

ES – Kingdom of Spain

Spain allocates its 50 seats across the whole electoral area. There is no electoral threshold. The divisor method with rounding down is used, DivDwn.

The divisor interval is $[279\,172; 290\,010]$, we use divisor 280 000.

EP2009ES	Votes	Quotient	DivDwn
PP: EPP	6 670 377	23.82	23
PSOE: S & D	6 141 784	21.93	21
CEU: ALDE	808 246	2.89	2
IU-ICV-EUiA-BA: GUE/NGL, GREENS/EFA	588 248	2.10	2
UPyD: NA	451 866	1.61	1
Edp-V: GREENS/EFA	394 938	1.41	1
II: NA	178 121	0.64	0
LV-GVE: NA	89 147	0.32	0
PACMA: NA	41 913	0.15	0
PUM+J: NA	24 507	0.09	0
Libertas: NA	22 903	0.08	0
IZAN-RG: NA	19 735	0.07	0
AES: NA	19 583	0.07	0
PCPE: NA	15 221	0.05	0
PSA: NA	13 993	0.05	0
POSI: NA	12 344	0.04	0
PFyV: NA	10 456	0.04	0
CDS: NA	10 144	0.04	0
FE de las JONS: NA	10 031	0.04	0
DN: NA	9 950	0.04	0
iF: NA	9 721	0.03	0
FN: NA	7 970	0.03	0
RC: NA	7 547	0.03	0
PH: NA	7 009	0.03	0
UV: NA	6 072	0.02	0
MSR: NA	6 009	0.02	0
SAIn: NA	5 877	0.02	0
CDL: NA	5 733	0.02	0
FA: NA	5 165	0.02	0
Extremadura Unida: NA	5 007	0.02	0
PREPAL: NA	4 767	0.02	0
UCE: NA	3 483	0.01	0
UNA: NA	3 183	0.01	0
AA: NA	2 255	0.01	0
UCL: NA	1 991	0.01	0
Sum [Divisor]	15 615 296	[280 000]	50

FI – Republic of Finland

Finland allocates its 13 seats across the whole electoral area, without an electoral threshold. There is one electoral alliance. The super-apportionment uses the divisor method with rounding down, DivDwn. In the sub-apportionment, seats are apportioned according to personal votes cast for the candidates.

The super-apportionment has divisor interval $[98\,690; 101\,453]$, we use divisor 100 000. In the sub-apportionment of *Alliance 1 (Perussuomalaiset + Kristillisdemokraatit)* seats are apportioned to the candidates with the most votes. The two strongest candidates of *Perussuomalaiset* receive 130 715 and 9 374 votes, the strongest candidate of the *Kristillisdemokraatit* has 53 803 votes. Therefore both parties are apportioned one seat each.

EP2009FI	Votes	Quotient	DivDwn	Plurality
Kansallinen Kokoomus: EPP	386 416	3.86	3	
Suomen Keskusta: ALDE	316 798	3.17	3	
Sosialidemokraattinen: S & D	292 051	2.92	2	
Alliance 1	232 388	2.32	2	
=*Perussuomalaiset: EFD*	*162 930*	—		1
+*Kristillisdemokraatit: EPP*	*69 458*	—		1
Vihreä liitto: GREENS/EFA	206 439	2.06	2	
Ruotsalainen kansanpuolue: ALDE	101 453	1.01	1	
Vasemmistoliitto: GUE/NGL	98 690	0.99	0	
Liisa Sulkakoski: NA	8 463	0.08	0	
Suomen Kommunistinen : NA	8 089	0.08	0	
Köyhien Asialla: NA	4 338	0.04	0	
Itsenäisyyspuolue: NA	3 563	0.04	0	
Suomen Työväenpuolue STP: NA	3 169	0.03	0	
Suomen Senioripuolue: NA	2 974	0.03	0	
Sum [Divisor]	1 664 831	[100 000]	13	

FR – French Republic

France allocates its 72 seats in eight constituencies. The national electoral provisions allot the seats as follows: *Nord-Ouest* 10, *Ouest* 9, *Est* 9, *Sud-Ouest* 10, *Sud-Est* 13, *Massif-Central/Centre* 5, *Ile-de-France* 13, and *Outre-Mer* 3. There is a threshold of five percent relative to valid votes (*voix exprimées*) calculated separately within each constituency. In all instances the divisor method with rounding down is used, DivDwn.

The divisors show that, in the seven mainland constituencies, representation is roughly in proportion to population. The smaller divisor in *Outre-Mer* leads to an over-representation of the non-European territories.

(1) In the *Nord-Ouest* constituency, there are 2 484 140 valid votes. Five percent thereof is 124 207. Seven parties pass the threshold and participate in the apportionment calculation. This leaves 350 201 ineffective votes, cast for another eleven parties. The divisor interval is $[150\,290; 150\,389]$, we use 150 300.

(2) In the *Ouest* constituency, there are 2 506 694 valid votes. Five percent thereof is 125 334.7. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 376 505 ineffective votes, cast for another fourteen parties. The divisor interval is $[170\,208; 208\,724]$, we use divisor 200 000.

(3) In the *Est* constituency, there are 2 174 901 valid votes. Five percent thereof is 108 745.1. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 361 599 ineffective votes, cast for 13 parties. The divisor interval is $[155\,310; 158\,754]$, we use divisor 157 000.

(4) In the *Sud-Ouest* constituency, there are 2 625 075 valid votes. Five percent thereof is 131 253.8. Seven parties pass the threshold, and participate in the apportionment calculation. This leaves 295 418 ineffective votes, cast for another seventeen parties. The divisor interval is $[155\,806; 176\,475]$, we use divisor 170 000.

(5) In the *Sud-Est* constituency, there are 2 939 639 valid votes. Five percent thereof is 146 982.0. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 473 988 ineffective votes, cast for another fifteen parties. The divisor interval is $[143\,760; 172\,511]$, we use divisor 160 000.

(6) In the *Massif-Central/Centre* constituency, there are 1 342 249 valid votes. Five percent thereof is 67 112.5. Seven parties pass the threshold, and participate in the apportionment calculation. This leaves

179 110 ineffective votes, cast for another thirteen parties. The divisor interval is $[119\,403; 127\,544]$, we use divisor 120 000.

(7) In the *Ile-de-France* constituency, there are 2 798 120 valid votes. Five percent thereof is 139 906. Five parties pass the threshold, and participate in the apportionment calculation. This leaves 591 147 ineffective votes, cast for another twenty-two parties. The divisor interval is $[138\,029; 145\,922]$, we use divisor 140 000.

(8) In the *Outre-Mer* constituency, there are 347 796 valid votes. Five percent thereof is 17 389.8. Five parties pass the threshold, and participate in the apportionment calculation. This leaves 12 101 ineffective votes, cast for another six parties. The divisor interval is $[56\,502; 70\,514]$, we use divisor 60 000. Furthermore, the constituency consists of three sections (Atlantique, océan Indien, Pacifique). Parties must include at least one candidate from each section. The seat(s) allocated to the strongest party is (are) allocated to the section(s) where the percentage of votes is highest. The seat allocated to the second strongest party is allocated to one of the remaining sections. In case the third strongest party is allocated a seat, it is allocated to the remaining section.

EP2009FR	Votes	Quotient	DivDwn
(1) *Nord-Ouest*			
LMAJ: EPP	601 556	4.00	4
LSOC: S & D	449 533	2.99	2
LVEC: GREENS/EFA	300 579	1.9999	1
LFN: NA	253 009	1.68	1
LCMD: ALDE	215 482	1.43	1
LCOP: GUE/NGL	169 813	1.13	1
LEXG: NA	143 967	0.96	0
Sum [Divisor]	2 133 939	[150 300]	10
(2) *Ouest*			
LMAJ: EPP	680 829	3.40	3
LSOC: S & D	433 309	2.17	2
LVEC: GREENS/EFA	417 449	2.09	2
LDVD: EFD	257 437	1.29	1
LCMD: ALDE	212 524	1.06	1
LEXG: NA	128 641	0.64	0
Sum [Divisor]	2 130 189	[200 000]	9
(3) *Est*			
LMAJ: EPP	635 016	4.04	4
LSOC: S & D	374 971	2.39	2
LVEC: GREENS/EFA	310 620	1.98	1
LCMD: ALDE	205 256	1.31	1
LFN: NA	164 672	1.05	1
LEXG: NA	122 767	0.78	0
Sum [Divisor]	1 813 302	[157 000]	9
(4) *Sud-Ouest*			
LMAJ: EPP	705 900	4.15	4
LSOC: S & D	465 076	2.74	2
LVEC: GREENS/EFA	415 457	2.44	2
LCMD: ALDE	225 917	1.33	1
LCOP: GUE/NGL	214 079	1.26	1
LFN: NA	155 806	0.92	0
LEXG: NA	147 422	0.87	0
Sum [Divisor]	2 329 657	[170 000]	10
(5) *Sud-Est*			
LMAJ: EPP	862 556	5.39	5
LVEC: GREENS/EFA	537 151	3.36	3
LSOC: S & D	426 043	2.66	2
LFN: NA	249 695	1.56	1
LCMD: ALDE	216 630	1.35	1
LCOP: GUE/NGL	173 576	1.08	1
Sum [Divisor]	2 465 651	[160 000]	13

EP2009FR (*continued*)	Votes	Quotient	DivDwn
(6) *Massif-Central/Centre*			
LMAJ: EPP	382 632	3.19	3
LSOC: S & D	238 806	1.99	1
LVEC: GREENS/EFA	182 311	1.52	1
LCMD: ALDE	109 369	0.91	0
LCOP: GUE/NGL	108 194	0.90	0
LEXG: NA	73 162	0.61	0
LFN: NA	68 665	0.57	0
Sum [Divisor]	1 163 139	[120 000]	5
(7) *Ile-de-France*			
LMAJ: EPP	828 172	5.92	5
LVEC: GREENS/EFA	583 690	4.17	4
LSOC: S & D	379 908	2.71	2
LCMD: ALDE	238 341	1.70	1
LCOP: GUE/NGL	176 862	1.26	1
Sum [Divisor]	2 206 973	[140 000]	13
(8) *Outre-Mer*			
LMAJ: EPP	103 247	1.72	1
LDVG: GUE/NGL	73 110	1.22	1
LSOC: S & D	70 514	1.18	1
LVEC: GREENS/EFA	56 502	0.94	0
LCMD: ALDE	32 322	0.54	0
Sum [Divisor]	335 695	[60 000]	3

HU – Republic of Hungary

Hungary allocates its 22 seats across the whole electoral area. There is a five percent threshold relative to valid votes. The divisor method with rounding down is used, DivDwn.

There are 2 896 179 valid votes. Five percent thereof is 144 808.95. Hence the threshold requires at least 144 809 votes, or more than 144 808 votes which is the number quoted by the electoral office website. Four parties pass the threshold, and participate in the apportionment calculation. This leaves 179 297 ineffective votes, cast for another four parties. The divisor interval is $[108\,821; 116\,593]$, we use divisor 110 000.

EP2009HU	Votes	Quotient	DivDwn
FIDESZ: EPP	1 632 309	14.84	14
MSZP: S & D	503 140	4.57	4
JOBBIK: NA	427 773	3.89	3
MDF: ECR	153 660	1.40	1
Sum [Divisor]	2 716 882	[110 000]	22

IE – Ireland

Ireland allocates its 12 seats in four constituencies. Proportionally to population, the national provisions allot three seats each to the four constituencies *Dublin*, *East*, *North-West*, and *South*. The single transferable vote (STV) system with random vote transfer is used throughout, STVran.

The Droop quotas DrQ are $\lfloor 406\,630/(3+1)\rfloor + 1 = 101\,658$ for the constituency of *Dublin*, $\lfloor 429\,249/(3+1)\rfloor + 1 = 107\,313$ for *East*, $\lfloor 495\,307/(3+1)\rfloor + 1 = 123\,827$ for *North-West*, and $\lfloor 498\,127/(3+1)\rfloor + 1 = 124\,532$ for *South*.

EP2009IE		1st Pref	STVran
(1) *Dublin*			
Gay Mitchell	Fine Gael: EPP	96 715	1
Proinsias de Rossa	Labour: S & D	83 471	1
Eoin Ryan Jnr	Fianna Fáil: ALDE	55 346	0
Joe Higgins	Socialist: GUE/NGL	50 510	1
Mary Lou McDonald	Sinn Féin: GUE/NGL	47 928	0
Deirdre de Burca	Green/Comhaontas Glas: GREENS/EFA	19 086	0
Eibhlin Byrne	Fianna Fáil: ALDE	18 956	0
Patricia McKenna	Independent: NA	17 521	0
Caroline Simons	Libertas: EFD	13 514	0
Emmanuel Sweeney	Independent: NA	3 583	0
Sum [Quota]	[101 658]	406 630	3
(2) *East*			
Mairead McGuinness	Fine Gael: EPP	110 366	1
Liam Aylward	Fianna Fáil: ALDE	74 666	1
Nessa Childers	Labour: S & D	78 338	1
John Paul Phelan	Fine Gael: EPP	61 851	0
Kathleen Funchion	Sinn Féin: GUE/NGL	26 567	0
Thomas Byrne	Fianna Fáil: ALDE	31 112	0
Tomas Sharkey	Sinn Féin: GUE/NGL	20 932	0
Ray O'Malley	Libertas: EFD	18 557	0
Paddy Garvey	Independent: NA	2 934	0
Jim Tallon	Independent: NA	2 412	0
Micheal E Grealy	Independent: NA	1 514	0
Sum [Quota]	[107 313]	429 249	3
(3) *North-West*			
Marian Harkin	Independent: ALDE	84 813	1
Pat Gallagher	Fianna Fáil: ALDE	82 643	1
Jim Higgins	Fine Gael: EPP	80 093	1
Declan Ganley	Libertas: EFD	67 638	0
Padraig MacLochlainn	Sinn Féin: GUE/NGL	45 515	0
Paschal Mooney	Fianna Fáil: ALDE	42 985	0
Joe O'Reilly	Fine Gael: EPP	37 564	0
Susan O'Keeffe	Labour: S & D	28 708	0
Michael McNamara	Independent: NA	12 744	0
Fiachra O Luain	Independent: NA	6 510	0
John Higgins	Independent: NA	3 030	0
Noel McCullagh	Independent: NA	1 940	0
Tom R King	Independent: NA	1 124	0
Sum [Quota]	[123 827]	495 307	3
(4) *South*			
Brian Crowley	Fianna Fáil: ALDE	118 258	1
Sean Kelly	Fine Gael: EPP	92 579	1
Alan Kelly	Labour: S & D	64 152	1
Kathy Sinnott	Independent: NA	58 485	0
Toireasa Ferris	Sinn Féin: GUE/NGL	64 671	0
Colm Burke	Fine Gael: EPP	53 721	0
Ned O'Keeffe	Fianna Fáil: ALDE	16 596	0
Dan Boyle	Green/Comhaontas Glas: GREENS/EFA	15 499	0
Alexander Stafford	Independent: NA	11 692	0
Maurice Sexton	Independent: NA	2 474	0
Sum [Quota]	[124 532]	498 127	3

IT – Italian Republic

Italy allocates its 72 seats across the whole electoral area, subdivided into five electoral districts. There is a four percent threshold relative to valid votes. All apportionment calculations use the Hare quota variant HQ1 with residual fit by greatest remainders, HQ1grR.

Minority parties may register an electoral alliance with parties that campaign in all districts. In 2009, the *Südtiroler Volkspartei* (SVP) is allied with the *Partito democratico*, the *Vallee d'Aoste* with *Il Popolo della liberta*, and *Autonomie liberté et démocratie* with *Di Pietro Italia dei Valori*. A minority party is guaranteed

a seat provided its top candidate wins at least 50 000 votes. In 2009 this clause applies to Herbert Dorfmann (SVP) only, with 84 361 of the 142 996 votes cast for the SVP.

The valid votes of the five districts total 30 615 364. The website of the Ministry of the Interior quotes 30 623 840 valid votes. Four percent of 30 615 364 is 1 224 614.5. Five parties pass the threshold. Together with the three allied minority parties, eight parties participate in the apportionment calculation. This leaves 4 049 147 ineffective votes, cast for another eight parties.

The HQ1 quota for the super-apportionment is $\lfloor 26\,566\,217/72 \rfloor = 368\,975$. The HQ1 quotas for the sub-apportionments are $\lfloor 10\,828\,525/29 \rfloor = 373\,397$ for *Il Popolo della liberta*, $\lfloor 8\,140\,766/22 \rfloor = 370\,034$ for *Partito democratico*, $\lfloor 3\,125\,418/9 \rfloor = 347\,268$ for *Lega Nord*, $\lfloor 2\,476\,695/7 \rfloor = 353\,813$ for *Di Pietro Italia dei Valori*, and $\lfloor 1\,994\,813/5 \rfloor = 398\,962$ for *Unione di Centro*.

There is a severe bug in the Italian electoral provisions (Pennisi, Ricca and Simeone, 2006). Art. 2 of the Italian electoral provisions assigns a fixed number of seats to each district, based on the 2001 population census: Nord-Occidentale 19, Nord-Orientale 13, Italia Centrale 14, Italia Meridionale 18, Italia Insulare 8. These numbers are not realized, but sum up to: Nord-Occidentale 21, Nord Orientale 15, Italia Centrale 15, Italia Meridionale 15, Italia Insulare 6.

EP2009IT	Votes	Quotient	HQ1grR	Quotient	HQ1grR
Il Popolo della liberta: EPP [*Quota*]	10 828 525	29.35	29	[*373 397*]	
= *Nord-Occidentale+Vallee d'Aoste*	*2 935 126*			7.**77**	8
+ *Italia Meridionale*	*2 869 765*			7.**69**	8
+ *Italia Centrale*	*2 344 306*			6.28	6
+ *Nord-Orientale*	*1 777 869*			4.**76**	5
+ *Italia Insulare*	*901 459*			2.41	2
Partito democratico: S & D [*Quota*]	8 140 766	22.06	22	[*370 034*]	
= *Italia Centrale*	*2 030 062*			5.**49**	6
+ *Nord-Occidentale*	*2 002 790*			5.41	5
+ *Nord-Orientale+SVP: EPP*	*1 915 846*			5.18	5
+ *Italia Meridionale*	*1 575 928*			4.26	4
+ *Italia Insulare*	*616 140*			1.**67**	2
Lega Nord: EFD [*Quota*]	3 125 418	8.**47**	9	[*347 268*]	
= *Nord-Occidentale*	*1 684 842*			4.**85**	5
+ *Nord-Orientale*	*1 204 785*			3.47	3
+ *Italia Centrale*	*186 988*			0.**54**	1
+ *Italia Meridionale*	*39 521*			0.11	0
+ *Italia Insulare*	*9 282*			0.03	0
Di Pietro Italia dei Valori: ALDE [*Quota*]	2 476 695	6.**71**	7	[*353 813*]	
= *Italia Meridionale*	*688 368*			1.**95**	2
+ *Nord-Occidentale+Aut. lib. et démo.*	*663 495*			1.**88**	2
+ *Italia Centrale*	*483 471*			1.37	1
+ *Nord-Orientale*	*454 801*			1.29	1
+ *Italia Insulare*	*186 560*			0.**53**	1
Unione di Centro: EPP [*Quota*]	1 994 813	5.41	5	[*398 962*]	
= *Italia Meridionale*	*582 421*			1.46	1
+ *Nord-Occidentale*	*460 487*			1.15	1
+ *Nord-Orientale*	*353 714*			0.**89**	1
+ *Italia Centrale*	*341 612*			0.**86**	1
+ *Italia Insulare*	*256 579*			0.**64**	1
Sum [Quota]	26 566 217	[368 975]	72		

LT – Republic of Lithuania

Lithuania allocates its 12 seats across the whole electoral area. There is a five percent threshold relative to votes cast. The Hare quota variant HQ2 together with the full-seat restricted residual apportionment gR2 is used, HQ2gR2.

The number of votes cast is 564 803, with 550 017 valid votes. Five percent of the votes cast is 28 240.2. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 97 514 ineffective votes, cast for another nine parties. The HQ2 quota is $= \lceil 452\,503/12 \rceil = 37\,709$.

The electoral provisions include a clause that, if necessary, the threshold is lowered such that at least 60 percent of valid votes are effective. In 2009 the clause does not apply as 452 503 equals 82.3 percent.

No party passing the threshold is affected by the full-seat restriction in the residual apportionment. Otherwise a violation of Art. 3, *European Electoral Act as amended in 2002*, would have emerged. The full-seat restriction implies a threshold of HQ2 = 37 709 votes, that is, 6.7 percent of the 564 803 votes cast.

EP2009LT	Votes	Quotient	HQ2gR2
Tevynes sajunga – Lietuvos krikščionys demokratai: EPP	147 756	3.**92**	4
Lietuvos socialdemokratu partija: S & D	102 347	2.**71**	3
Partija Tvarka ir teisingumas: EFD	67 237	1.**78**	2
Darbo partija: ALDE	48 368	1.28	1
Lietuvos lenku rinkimu akcija: ECR	46 293	1.23	1
Lietuvos Respublikos liberalu sąjudis: ALDE	40 502	1.07	1
Sum [Quota]	452 503	[37 709]	12

LU – Grand Duchy of Luxembourg

Luxembourg allocates its 6 seats across the whole electoral area. Voters have up to six votes that can be distributed across party lines, with a maximum of two votes for any candidate. There is no electoral threshold. The divisor method with rounding down is used, DivDwn.

There are 1 121 305 valid votes on 198 364 valid ballot sheets. On the average, about 5.7 votes are expressed on each ballot sheet. The divisor interval is $[109\,266; 117\,074]$, we use divisor 110 000.

EP2009LU	Votes	Quotient	DivDwn
CSV-Chrëschtlech Sozial Vollekspartei: EPP	351 223	3.19	3
LSAP-D'SOZIALISTEN: S & D	218 532	1.99	1
DP: ALDE	209 123	1.90	1
déi gréng: GREENS/EFA	188 637	1.71	1
ADR-Alternativ Demokratesch Reformpartei: NA	82 719	0.75	0
Lénk: NA	38 289	0.35	0
KPL-d'KOMMUNISTEN: NA	17 299	0.16	0
BIERGERLESCHT: NA	15 483	0.14	0
Sum [Divisor]	1 121 305	[110 000]	6

LV – Republic of Latvia

Latvia allocates its 8 seats across the whole electoral area. There is a five percent threshold relative to votes cast. The divisor method with standard rounding is used, DivStd.

The number of votes cast is 791 597, with 777 084 valid votes. Five percent of the votes cast is 39 579.9. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 182 144 ineffective votes, cast for another eleven parties. The divisor interval is $[77\,014.8; 103\,262]$, we use divisor 100 000.

EP2009LV	Votes	Quotient	DivStd
Pilsoniska savieniba: EPP	192 537	1.93	2
Saskanas Centrs: S & D, GUE/NGL	154 894	1.55	2
Par cilveka tiesibam vienota Latvija: GREENS/EFA	76 436	0.76	1
Partija LPP/LC: ALDE	59 326	0.59	1
Apvieniba Tevzemei un Brivibai/LNNK: ECR	58 991	0.59	1
Jaunais laiks: EPP	52 751	0.53	1
Sum [Divisor]	594 935	[100 000]	8

MT – Republic of Malta

Malta allocates its 5 seats across the whole electoral area. The single transferable vote (STV) system with random vote transfer is used, STVran.

The Droop quota DrQ is $\lfloor 248\,169/(5+1)\rfloor + 1 = 41\,362$.

EP2009MT		1st Pref	STVran
Simon Busuttil	Partit Nazzjonalista: EPP	68 782	1
Louis Grech	Partit Laburista: S & D	27 753	1
Edward Scicluna	Partit Laburista: S & D	24 574	1
Joseph Cuschieri	Partit Laburista: S & D	19 672	0
Marlene Mizzi	Partit Laburista: S & D	17 724	0
John Montalto Attard	Partit Laburista: S & D	12 880	1
Baldacchino Abela	Partit Laburista: S & D	12 309	0
David Casa	Partit Nazzjonalista: EPP	6 539	1
26 further nominees		57 936	—
Sum [Quota]	[41 362]	248 169	5

NL – Kingdom of the Netherlands

The Netherlands allocate their 25 seats across the whole electoral area, without an electoral threshold. There are three electoral alliances. The main apportionment uses the divisor method with rounding down, DivDwn. The three sub-apportionments apply the Hare quota HaQ with residual fit by greatest remainders, HaQgrR.

The super-apportionment has divisor interval $[157\,735; 158\,785]$, we use divisor 158 000. The HaQ quotas for the sub-apportionments are $1\,223\,773/7 = 174\,824.7$ for *Alliance 1*, $1\,034\,065/6 = 172\,344.2$ for *Alliance 2*, and $952\,711/6 = 158\,785.2$ for *Alliance 3*.

EP2009NL	Votes	Quotient	DivDwn	Quotient	HaQgrR
Alliance 1 [*Quota*]	1 223 773	7.75	7	[*174 824.7*]	
= *CDA: EPP*	*913 233*			5.22	5
+ *ChristenUnie-SGP: ECR,EFD*	*310 540*			1.78	2
Alliance 2 [*Quota*]	1 034 065	6.55	6	[*172 344.2*]	
= *VVD: ALDE*	*518 643*			3.01	3
+ *D66: ALDE*	*515 422*			2.99	3
Alliance 3 [*Quota*]	952 711	6.03	6	[*158 785.2*]	
= *P.v.d.A.: S & D*	*548 691*			3.46	3
+ *GROENLINKS: GREENS/EFA*	*404 020*			2.54	3
Partij voor de Vrijheid: NA	772 746	4.89	4		
Socialistische Partij: GUE/NGL	323 269	2.05	2		
Partij voor de Dieren: NA	157 735	0.998	0		
EKP: NA	21 448	0.14	0		
Newropeans: NA	19 840	0.13	0		
Libertas: EFD	14 612	0.09	0		
Liberaal Democratische Partij: NA	10 757	0.07	0		
De Groenen: GREENS/EFA	8 517	0.05	0		
Solidara: NA	7 533	0.05	0		
Europa Voordelig! & Duurzaam: NA	4 431	0.03	0		
Partij voor Europese Politiek: NA	2 427	0.02	0		
Sum [Divisor]	4 553 864	[158 000]	25		

PL – Republic of Poland

Poland allocates its 50 seats across the whole electoral area, subdivided into thirteen districts. There is a five percent threshold relative to valid votes. The super-apportionment uses the divisor method with rounding down, DivDwn. The four sub-apportionments apply the Hare quota HaQ with residual fit by greatest remainders, HaQgrR.

There are 7 364 763 valid votes. Five percent thereof is 368 238.2. Four parties pass the threshold, and participate in the apportionment calculation. This leaves 650 393 ineffective votes, cast for another

eight parties. The super-apportionment has divisor interval $[129\,037; 129\,823]$, we use divisor 129 400. In the sub-apportionments, the HaQ quotas are $3\,271\,852/25 = 130\,874.1$ for *Platforma Obywatelska RP*, $2\,017\,607/15 = 134\,507.1$ for *Prawo i Sprawiedliwość*, $908\,765/7 = 129\,823.6$ for *Wyborczy Sojusz Lewicy Demokratycznej - Unia Pracy*, and $516\,146/3 = 172\,048.7$ for *Polskie Stronnictwo Ludowe*.

EP2009PL	Votes	Quotient	DivDwn	Quotient	HaQgrR
Platforma Obywatelska RP: EPP [*Quota*]	3 271 852	25.28	25	[*130 874.1*]	
= *Katowice, okr. 11*	*523 602*			4.00	4
+ *Warszawa 1, okr. 4*	*434 421*			3.32	3
+ *Wrocław, okr. 12*	*347 617*			**2.66**	3
+ *Kraków, okr. 10*	*327 854*			2.51	2
+ *Poznań, okr. 7*	*289 442*			2.21	2
+ *Gdańsk, okr. 1*	*285 268*			2.18	2
+ *Łódź, okr. 6*	*204 798*			**1.56**	2
+ *Gorzów Wielkopolski, okr. 13*	*203 038*			**1.55**	2
+ *Bydgoszcz, okr. 2*	*162 556*			1.24	1
+ *Olsztyn, okr. 3*	*159 943*			1.22	1
+ *Warszawa 2, okr. 5*	*114 000*			**0.87**	1
+ *Lublin, okr. 8*	*112 221*			**0.86**	1
+ *Rzeszów, okr. 9*	*107 092*			**0.82**	1
Prawo i Sprawiedliwość: ECR [*Quota*]	2 017 607	15.59	15	[*134 507.1*]	
= *Kraków, okr. 10*	*383 631*			**2.852**	3
+ *Katowice, okr. 11*	*207 429*			1.542	1
+ *Warszawa 1, okr. 4*	*196 720*			1.463	1
+ *Wrocław, okr. 12*	*163 197*			1.213	1
+ *Rzeszów, okr. 9*	*153 661*			1.142	1
+ *Lublin, okr. 8*	*136 986*			1.018	1
+ *Łódź, okr. 6*	*134 947*			1.003	1
+ *Warszawa 2, okr. 5*	*129 165*			**0.960**	1
+ *Olsztyn, okr. 3*	*121 921*			**0.906**	1
+ *Poznań, okr. 7*	*121 216*			**0.901**	1
+ *Gdańsk, okr. 1*	*105 946*			**0.788**	1
+ *Gorzów Wielkopolski, okr. 13*	*89 605*			**0.666**	1
+ *Bydgoszcz, okr. 2*	*73 183*			**0.544**	1
Wyborczy Sojusz Lewicy Dem.: S & D [*Quota*]	908 765	7.02	7	[*129 823.6*]	
= *Katowice, okr. 11*	*117 884*			**0.91**	1
+ *Kraków, okr. 10*	*95 277*			**0.73**	1
+ *Poznań, okr. 7*	*94 180*			**0.73**	1
+ *Wrocław, okr. 12*	*93 172*			**0.72**	1
+ *Gorzów Wielkopolski, okr. 13*	*89 471*			**0.69**	1
+ *Warszawa 1, okr. 4*	*84 740*			**0.65**	1
+ *Bydgoszcz, okr. 2*	*79 400*			**0.61**	1
+ *Łódź, okr. 6*	*62 923*			0.48	0
+ *Olsztyn, okr. 3*	*59 194*			0.46	0
+ *Gdańsk, okr. 1*	*50 427*			0.39	0
+ *Warszawa 2, okr. 5*	*30 225*			0.23	0
+ *Rzeszów, okr. 9*	*27 147*			0.21	0
+ *Lublin, okr. 8*	*24 725*			0.19	0
Polskie Stronnictwo Ludowe: EPP [*Quota*]	516 146	3.99	3	[*172 048.7*]	
= *Warszawa 2, okr. 5*	*72 551*			**0.42**	1
+ *Kraków, okr. 10*	*60 846*			**0.35**	1
+ *Poznań, okr. 7*	*52 716*			**0.31**	1
+ *Lublin, okr. 8*	*51 954*			0.30	0
+ *Rzeszów, okr. 9*	*45 685*			0.27	0
+ *Wrocław, okr. 12*	*41 975*			0.24	0
+ *Bydgoszcz, okr. 2*	*38 092*			0.22	0
+ *Olsztyn, okr. 3*	*38 012*			0.22	0
+ *Łódź, okr. 6*	*32 390*			0.19	0
+ *Katowice, okr. 11*	*23 566*			0.14	0
+ *Warszawa 1, okr. 4*	*22 899*			0.13	0
+ *Gorzów Wielkopolski, okr. 13*	*22 290*			0.13	0
+ *Gdańsk, okr. 1*	*13 170*			0.08	0
Sum [Divisor]	6 714 370	[129 400]	50		

PT – Portuguese Republic

Portugal allocates its 22 seats across the whole electoral area. There is no electoral threshold. The divisor method with rounding down is used, DivDwn.

The divisor interval is $[126\,569; 127\,337]$, we use divisor 127 000.

EP2009PT	Votes	Quotient	DivDwn
PPD/PSD: EPP	1 129 243	8.89	8
PS: S & D	946 475	7.45	7
B.E.: GUE/NGL	382 011	3.01	3
PCP-PEV: GUE/NGL	379 707	2.99	2
CDS-PP: EPP	298 057	2.35	2
MEP: NA	52 828	0.42	0
PCTP/MRPP: NA	43 141	0.34	0
MPT: NA	23 415	0.18	0
MMS: NA	21 636	0.17	0
P.H.: NA	16 980	0.13	0
PPM: NA	13 794	0.11	0
P.N.R.: NA	13 039	0.10	0
POUS: NA	5 101	0.04	0
Sum [Divisor]	3 325 427	[127 000]	22

RO – Romania

Romania allocates its 33 seats across the whole electoral area. There are two electoral thresholds. One threshold applies to parties, and is five percent of valid votes. The other, implicit threshold applies to independent candidates, and is determined by variant 4 of the Hare quota, HQ4 = $\lceil \text{valid votes}/h \rceil$. The divisor method with rounding down is used, DivDwn.

There are 4 840 033 valid votes. The five percent party threshold is 242 001.7, and the implicit independent candidate threshold is $\lceil 4\,840\,033/33 \rceil = \lceil 146\,667.7 \rceil = 146\,668$. Five parties and one independent candidate pass the thresholds, and participate in the apportionment calculation. This leaves 139 728 ineffective votes, cast for another four parties and five independent candidates. The divisor interval is $[130\,728; 136\,747]$, we use divisor 134 000.

EP2009RO	Votes	Quotient	DivDwn
Alianța Politică PSD+PC: S & D	1 504 218	11.23	11
Partidul Democrat Liberal: EPP	1 438 000	10.73	10
Partidul Național Liberal: ALDE	702 974	5.25	5
Uniunea Democrată a Maghiarilor din România: EPP	431 739	3.22	3
Partidul România Mare: NA	419 094	3.13	3
Elena Băsescu: EPP	204 280	1.52	1
Sum [Divisor]	4 700 305	[134 000]	33

SE – Kingdom of Sweden

Sweden allocates its 18 seats across the whole electoral area. There is a four percent threshold relative to valid votes. The divisor method with modified standard rounding is used, Div0.7.

There are 3 168 546 valid votes. Four percent thereof is 126 741.8. Eight parties pass the threshold and participate in the apportionment calculation. This leaves 292 172 ineffective votes, cast for another six parties. The divisor interval is $[150\,610; 170\,488]$, we use divisor 160 000. Since all quotients stay above 0.7, the modification is not called upon.

EP2009SE	Votes	Quotient	Div0.7
Arbetarepartiet-Socialdemokraterna: S & D	773 513	4.83	5
Moderata Samlingspartiet: EPP	596 710	3.73	4
Folkpartiet liberalerna: ALDE	430 385	2.69	3
Miljöpartiet de gröna: GREENS/EFA	349 114	2.18	2
Piratpartiet: GREENS/EFA	225 915	1.41	1
Vänsterpartiet: GUE/NGL	179 182	1.12	1
Centerpartiet: ALDE	173 414	1.08	1
Kristdemokraterna: EPP	148 141	0.93	1
Sum [Divisor]	2 876 374	[160 000]	18

SI – Republic of Slovenia

Slovenia allocates its 7 seats across the whole electoral area. There is a four percent electoral threshold, but it is not clear to us whether the percentage refers to votes cast, or to valid votes. For the 2009 election both thresholds leave 45 894 ineffective votes, cast for another six parties. The divisor method with rounding down is used, DivDwn.

The divisor interval is $[41\,187.7; 42\,703.5]$, we use divisor 42 000.

EP2009SI	Votes	Quotient	DivDwn
Slovenska demokratska stranka-sds: EPP	123 563	2.94	2
Socialni demokrati: S & D	85 407	2.03	2
Nova slovenija-krščanska ljudska stranka: EPP	76 866	1.83	1
LDS Liberalna Demokracija Slovenije: ALDE	53 212	1.27	1
ZARES-nova politika: ALDE	45 238	1.08	1
DeSUS-demokratična stranka upokojencev slovenije: NA	33 292	0.79	0
Sum [Divisor]	417 578	[42 000]	7

SK – Slovak Republic

The Slovak Republic allocates its 13 seats across the whole electoral area. There is a five percent threshold relative to valid votes. The apportionment method uses the Droop quota variant DQ3 with residual fit by greatest remainders, DQ3grR.

There are 826 782 valid votes. Five percent thereof is 41 339.1. Six parties pass the threshold, and participate in the apportionment calculation. This leaves 117 778 ineffective votes, cast for another eleven parties. The quota is DQ3 = $\langle 709\,004/(13+1)\rangle = 50\,643$.

EP2009SK	Votes	Quotient	DQ3grR
SMER-sociálna demokracia: S & D	264 722	5.23	5
Slov. demokr. a kresťanská únia-Demokr. strana: EPP	140 426	2.77	2
Strana maďarskej koalície-Magyar Koalíció Pártja: EPP	93 750	1.85	2
Kresťanskodemokratické hnutie: EPP	89 905	1.78	2
Ľudová strana-Hnutie za demokratické Slovensko: ALDE	74 241	1.47	1
Slovenská národná strana: EFD	45 960	0.91	1
Sum [Quota]	709 004	[50 643]	13

UK – United Kingdom of Great Britain and Northern Ireland

The United Kingdom allocates its 72 seats in 12 constituencies. There is no electoral threshold. The British electoral provisions allot seats to constituencies in proportion to population. In eleven constituencies the divisor method with rounding down is used, DivDwn.

Constituency	Seats	Divisor interval	Divisor	Constituency	Seats	Divisor interval	Divisor
(1) *Eastern*	7	[141 016; 156 960]	150 000	(7) *South West*	6	[144 179; 156 247]	150 000
(2) *East Midland*	5	[123 425; 151 428]	140 000	(8) *West Midlands*	6	[132 283; 150 235]	140 000
(3) *London*	8	[124 197; 159 679]	140 000	(9) *Yorkshire/Humber*	6	[115 005; 120 139]	120 000
(4) *North East*	3	[90 700; 103 644]	100 000	(10) *Scotland*	6	[107 003; 114 926]	110 000
(5) *North West*	8	[130 870; 132 094]	131 000	(11) *Wales*	4	[73 082; 87 585]	80 000
(6) *South East*	10	[162 458; 165 170]	164 000	(12) *Northern Ireland*	3	STVfra, see below	

EP2009UK	Votes	Quotient	DivDwn
(1) *Eastern*			
CP: ECR	500 331	3.34	3
UKIP: EFD	313 921	2.09	2
LD: ALDE	221 235	1.47	1
LP: S & D	167 833	1.12	1
Green: GREENS/EFA	141 016	0.94	0
BNP: NA	97 013	0.65	0
UKF: NA	38 185	0.25	0
EDP: NA	32 211	0.21	0
CPPCL: NA	24 646	0.16	0
No2EU: NA	13 939	0.09	0
SLP: NA	13 599	0.09	0
AC: NA	13 201	0.09	0
PD: NA	9 940	0.07	0
Independent: NA	9 916	0.07	0
JT: NA	6 354	0.04	0
Sum [Divisor]	1 603 340	[150 000]	7
(2) *East Midland*			
CP: ECR	370 275	2.64	2
LP: S & D	206 945	1.48	1
UKIP: EFD	201 984	1.44	1
LD: ALDE	151 428	1.08	1
BNP: NA	106 319	0.76	0
EDP: NA	28 498	0.20	0
CPPCL: NA	17 907	0.13	0
SLP: NA	13 590	0.10	0
No2EU: NA	11 375	0.08	0
Green: GREENS/EFA	83 939	0.60	0
UKF: NA	20 561	0.15	0
PD: NA	7 882	0.06	0
JT: NA	7 362	0.05	0
Sum [Divisor]	1 228 065	[140 000]	5
(3) *London*			
CP: ECR	479 037	3.42	3
LP: S & D	372 590	2.66	2
LD: ALDE	240 156	1.72	1
Green: GREENS/EFA	190 589	1.36	1
UKIP: EFD	188 440	1.35	1
BNP: NA	86 420	0.62	0
CPPCL: NA	51 336	0.37	0
Jan Jananayagam: NA	50 014	0.36	0
EDP: NA	24 477	0.17	0
No2EU: NA	17 758	0.13	0
SLP: NA	15 306	0.11	0
PD: NA	8 444	0.06	0
JT: NA	7 284	0.05	0
SP: NA	4 050	0.03	0
Steven Cheung: NA	4 918	0.04	0
Yes2Europe: NA	3 384	0.02	0
Sohale Rahman: NA	3 248	0.02	0
Gene Alcantara: NA	1 972	0.01	0
Haroon Saad: NA	1 603	0.01	0
Sum [Divisor]	1 751 026	[140 000]	8

EP2009UK (*continued*)	Votes	Quotient	DivDwn
(4) *North East*			
LP: S & D	147 338	1.47	1
CP: ECR	116 911	1.17	1
LD: ALDE	103 644	1.04	1
UKIP: EFD	90 700	0.91	0
BNP: NA	52 700	0.53	0
Green: GREENS/EFA	34 081	0.34	0
EDP: NA	13 007	0.13	0
SLP: NA	10 238	0.10	0
No2EU: NA	8 066	0.08	0
CPPCL: NA	7 263	0.07	0
PD: NA	3 010	0.03	0
JT: NA	2 904	0.03	0
Sum [Divisor]	589 862	[100 000]	3
(5) *North West*			
CP: ECR	423 174	3.23	3
LP: S & D	336 831	2.57	2
UKIP: EFD	261 740	1.998	1
LD: ALDE	235 639	1.80	1
BNP: NA	132 094	1.01	1
Green: GREENS/EFA	127 133	0.97	0
EDP: NA	40 027	0.31	0
SLP: NA	26 224	0.20	0
CPPCL: NA	25 999	0.20	0
No2EU: NA	23 580	0.18	0
JT: NA	8 783	0.07	0
PD: NA	6 980	0.05	0
Francis Apaloo: NA	3 621	0.03	0
Sum [Divisor]	1 651 825	[131 000]	8
(6) *South East*			
CP: ECR	812 288	4.95	4
UKIP: EFD	440 002	2.68	2
LD: ALDE	330 340	2.01	2
Green: GREENS/EFA	271 506	1.66	1
LP: S & D	192 592	1.17	1
BNP: NA	101 769	0.62	0
EDP: NA	52 526	0.32	0
CPPCL: NA	35 712	0.22	0
No2EU: NA	21 455	0.13	0
PD: NA	16 767	0.10	0
SLP: NA	15 484	0.09	0
UKF: NA	15 261	0.09	0
JT: NA	14 172	0.09	0
PPNVJE: NA	9 534	0.06	0
RPA: NA	5 450	0.03	0
Sum [Divisor]	2 334 858	[164 000]	10
(7) *South West*			
CP: ECR	468 742	3.12	3
UKIP: EFD	341 845	2.28	2
LD: ALDE	266 253	1.78	1
Green: GREENS/EFA	144 179	0.96	0
LP: S & D	118 716	0.79	0
BNP: NA	60 889	0.41	0
PP: NA	37 785	0.25	0
EDP: NA	25 313	0.17	0
CPPCL: NA	21 329	0.14	0
M. Kernow/Cornwall: NA	14 922	0.10	0
SLP: NA	10 033	0.07	0
No2EU: NA	9 741	0.06	0
Katie O.Hopkins: NA	8 971	0.06	0
PD: NA	7 292	0.05	0
FPFTP: NA	7 151	0.05	0
JT: NA	5 758	0.04	0
WAI D: NA	789	0.01	0
Sum [Divisor]	1 549 708	[150 000]	6

EP2009UK (*continued*)	Votes	Quotient	DivDwn
(8) *West Midlands*			
CP: ECR	396 847	2.83	2
UKIP: EFD	300 471	2.15	2
LP: S & D	240 201	1.72	1
LD: ALDE	170 246	1.22	1
BNP: NA	121 967	0.87	0
EDP: NA	32 455	0.23	0
CPPCL: NA	18 784	0.13	0
No2EU: NA	13 415	0.10	0
SLP: NA	14 724	0.11	0
Green: GREENS/EFA	88 244	0.63	0
JT: NA	8 721	0.06	0
PD: NA	6 961	0.05	0
Sum [Divisor]	1 413 036	[140 000]	6
(9) *Yorkshire and Humber*			
CP: ECR, NA	299 802	2.50	2
LP: S & D	230 009	1.92	1
UKIP: EFD	213 750	1.78	1
BNP: NA	120 139	1.00	1
LD: ALDE	161 552	1.35	1
Green: GREENS/EFA	104 456	0.87	0
EDP: NA	31 287	0.26	0
SLP: NA	19 380	0.16	0
CPPCL: NA	16 742	0.14	0
No2EU: NA	15 614	0.13	0
JT: NA	7 181	0.06	0
PD: NA	6 268	0.05	0
Sum [Divisor]	1 226 180	[120 000]	6
(10) *Scotland*			
SNP: GREENS/EFA	321 007	2.92	2
LP: S & D	229 853	2.09	2
CP: ECR	185 794	1.69	1
LD: ALDE	127 038	1.15	1
Green: GREENS/EFA	80 442	0.73	0
BNP: NA	27 174	0.25	0
UKIP: EFD	57 788	0.53	0
SLP: NA	22 135	0.20	0
CPPCL: NA	16 738	0.15	0
SSP: NA	10 404	0.09	0
D. Robertson: NA	10 189	0.09	0
No2EU: NA	9 693	0.09	0
JT: NA	6 257	0.06	0
Sum [Divisor]	1 104 512	[110 000]	6
(11) *Wales*			
CP: ECR	145 193	1.81	1
LP: S & D	138 852	1.74	1
PC: GREENS/EFA	126 702	1.58	1
UKIP: EFD	87 585	1.09	1
LD: ALDE	73 082	0.91	0
BNP: NA	37 114	0.46	0
CPPCL: NA	13 037	0.16	0
Green: GREENS/EFA	38 160	0.48	0
SLP: NA	12 402	0.16	0
No2EU: NA	8 600	0.11	0
JT: NA	3 793	0.05	0
Sum [Divisor]	684 520	[80 000]	4

(12) The *Northern Ireland* constituency apportions its 3 seats using the single transferable vote (STV) system with fractional vote transfer, STVfra. The Droop quota DrQ is $\lfloor 484\,572/(3+1) \rfloor + 1 = 121\,144$.

EP2009UK (*continued*)		1st Pref	STVfra
(12) *Northern Ireland*			
Bairbre de Brún	Sinn Féin: GUE/NGL	126 184	1
Diane Dodds	Democratic Unionist Party: NA	88 346	1
Jim Nicholson	Ulster Conservatives and Unionists: ECR	82 893	1
Alban Maginness	Social Democratic & Labour Party: S & D	78 489	0
Jim Allister	Traditional Unionist Voice: NA	66 197	0
Ian James Parsley	Alliance Party: NA	26 699	0
Steven Agnew	Green Party: EG/EFA	15 764	0
Sum [Quota]	[121 144]	484 572	3

Conclusion

Since 1951, there has been a perennial call for a uniform electoral procedure for the European parliamentary body. The present paper records the 2009 elections, and shows that the 27 Member States follow eleven distinct ways to translate votes into seats. There are even more differences within the electoral procedures, such as the handling of electoral thresholds, constituencies, districts, electoral alliances, and the like.

Our account of the *status quo* hopefully offers a helpful starting point to further move towards a uniform electoral procedure. In our companion paper (Oelbermann and Pukelsheim, 2010), we rely on the present aggregate data to propose ten steps in this direction.

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