UNIVERSITÄT AUGSBURG

SCIENTIA ET CONSCIENTIA

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Composition of the European Parliament
Mathematics of Voting and Representation
ICMS Edinburgh Workshop, 11 June 2024

Prof. (em.) Dr. Friedrich Pukelsheim
Institut für Mathematik
Universität Augsburg

Composition of the European Parliament

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I n s t i t u t   f ü r   M a t h e m a t i k
U n i v e r s i t ä t   A u g s b u r g

The term *composition of the EP* (2024-2029) signifies the

distribution of the EP seats (720) between the Member States (27)

In the past: by *ad hoc* negotiation

Future vision: a mathematical formula

Andrew Duff, MEP 1999–2014

2011

Mathematics

Prof. Geoffrey Grimmett (University of Cambridge)

Prof. Friedrich Pukelsheim (University of Augsburg)

Prof. Jean-François Laslier (École Polytechnique, Paris)

Prof. Victoriano Ramírez González (University of Granada)

Prof. Wojciech Słomczyński (Jagiellonian University, Cracow)

Prof. Martin Zachariasen (University of Copenhagen)

Prof. Karol Życzkowski (Jagiellonian University, Cracow)

Public Policy

Prof. Richard Rose (University of Aberdeen)

WORKSHOP

COMMITTEE ON CONSTITUTIONAL AFFAIRS
POLICY DEPARTMENT ON CITIZENS' RIGHT
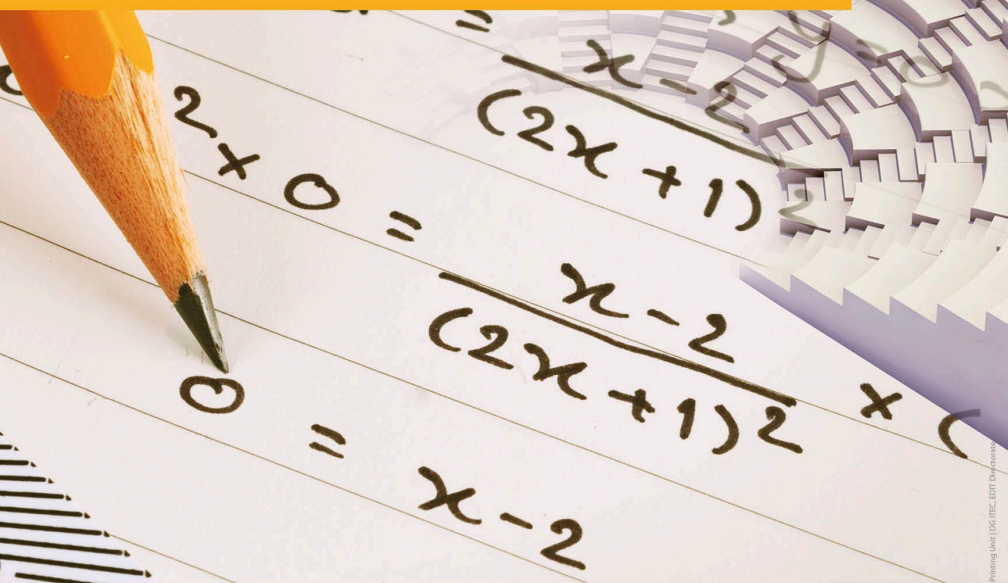### CONSTITUTIONAL AFFAIRS

2017

Monday, 30 January 2017 – **15:0**
EUROPEAN PARLIAMENT, BRUSSELS,
ALTIERO SPINELLI BUILDING – ROOM **A1G-3**

THE COMPOSITION OF THE EUROPEAN PARLIAMENT

RAPPORTEURS:
Danuta Maria HÜBNER , MEP
Pedro Silva PEREIRA, MEP

WORKSHOP

POLICY DEPARTMENT FOR CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS

2024

European Parliament

Wednesday 14.02.2024 – **10:00-12:00**
ALTIERO SPINELLI BUILDING – ROOM 3 G3

CONTACT & REGISTRATION: poldep-citizens@europarl.europa.eu

PERMANENT SYSTEM FOR THE ALLOCATION OF SEATS IN THE EUROPEAN PARLIAMENT

Committee on Constitutional Affairs

Chaired by:
Salvatore DE MEO

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Treaty of Lisbon, Article 14(2) TEU:

Representation of citizens shall be degressively proportional,

with a minimum threshold of 6 members per Member State.

No Member State shall be allocated more than 96 seats.

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regressive – degressive
(R. Bocklet MEP 1979–1993)

progressive taxation
proportionale taxation
degressive taxation

progressive representation
proportionale representation
degressive representation

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The notion of *degressive representation* is taken to be a manifestation of solidarity:

The more populous states agree to be underrepresented in order to allow the less populous states to be represented better.

EP resolution, 11 October 2007, Item 5

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I.e., the representation rate

$$RR = \frac{\text{population of a MS}}{\text{no. of MEPs of the MS unrounded}}$$

is increasing for increasing populations

Natolin workshop Warsaw 2007:
unrounded seat nos.!, not: rounded

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International workshop 2007

Distribution of power and voting procedures in the European Union

Warsaw, October 12-13, 2007

European Centre Natolin, Nowoursynowska str. 84, 02-797 Warszawa

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Digression: Who counts people and how?

EuroStat, Statistical Offices of MS, etc.

Regulation of 20 November 2013 on European demographic statistics

EU: "QMV population"
USA: "apportionment population"

COUNCIL DECISION

of 1 January 2007

amending the Council's Rules of Procedure

2004−14

Member State	Population (× 1 000)
Germany	82 438,0
France	62 886,2

For the Council

The President

F.-W. STEINMEIER

COUNCIL DECISION

of 9 December 2014

amending the Council's Rules of Procedure

2015

Member State	Population (× 1 000)
Germany	80 704,691
France	66 076,909

For the Council

The President

C. DE VINCENTI

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COUNCIL DECISION (EU, Euratom) 2015/2393

of 8 December 2015

amending the Council's Rules of Procedure

2016*ff*

Member State	Population
Germany	81 089 331
France	66 352 469

For the Council

The President

P. GRAMEGNA

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2011 Cambridge Apportionment Meeting

Andrew Duff MEP (AFCO rapporteur):
"*durable and transparent formula
that is impartial to politics*"

AFCO jargon: a method that is
"*objective, fair, durable and transparent*"

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Cambridge Compromise

Diplomatic equality: One State One Vote
Democratic equality: One Person One Vote

6 seats per MS (162), plus remaining
558 seats proportional to population
figures, subject to capping at 96 seats.

CamCom obeys degressive representation.

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Limited loss variant of CamCom

Cambridge compromise restricted by the imposed limitation that

no MS loses more than 2 seats compared to status-quo-seats.

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1. Power Compromise (G.G. & F.P.)

Apply CamCom methodology
to "adjusted population units",
by deflating raw population figures
through raising them to a power ≤ 1.

The power parameter provides for
the largest MS getting just 96 seats.

Member State	2023 QMV Population	Adjusted	Unrounded	Represen-tation Rate	PowCom Seats	Ad hoc Seats	Trans-fers
Germany	83,203,320	2,578,421	4 + 91.04	875,431	96	96	0
France	67,842,582	2,185,753	4 + 77.2	835,728	82	81	+1
Italy	59,607,184	1,968,359	4 + 69.5	810,963	74	76	−2
Spain	47,432,805	1,636,009	4 + 57.8	767,935	62	61	+1
Poland	37,654,247	1,357,130	4 + 47.9	725,242	52	53	−1
Romania	19,038,098	781,367	4 + 27.6	602,668	32	33	−1
Netherlands	17,734,036	737,751	4 + 26.05	590,159	31	31	0
Belgium	11,631,136	524,350	4 + 18.5	516,606	23	22	+1
Greece	10,603,810	486,532	4 + 17.2	500,671	22	21	+1
Czechia	10,545,457	484,364	4 + 17.1	499,722	22	21	+1
Sweden	10,440,000	480,439	4 + 16.96	497,995	21	21	0
Portugal	10,352,042	477,159	4 + 16.8	496,542	21	21	0
Hungary	9,689,010	452,265	4 + 15.97	485,196	20	21	−1
Austria	8,967,500	424,803	4 + 14.9996	471,984	19	20	−1
Bulgaria	6,838,937	341,133	4 + 12.05	426,229	17	17	0
Denmark	5,864,667	301,226	4 + 10.6	400,697	15	15	0
Finland	5,541,241	287,707	4 + 10.2	391,364	15	15	0
Slovakia	5,434,712	283,221	4 + 10.0004	388,183	15	15	0
Ireland	5,060,004	267,307	4 + 9.4	376,531	14	14	0
Croatia	3,862,305	214,809	4 + 7.6	333,394	12	12	0
Lithuania	2,805,998	165,854	4 + 5.9	284,693	10	11	−1
Slovenia	2,107,180	131,534	4 + 4.6	243,763	9	9	0
Latvia	1,875,757	119,712	4 + 4.2	228,001	9	9	0
Estonia	1,331,796	90,726	4 + 3.2	184,882	8	7	+1
Cyprus	904,700	66,342	4 + 2.3	142,641	7	6	+1
Luxembourg	643,648	50,362	4 + 1.8	111,392	6	6	0
Malta	520,971	42,439	4 + 1.5	94,748	6	6	0
Sum (Keys)	447,533,143	(0.8095)	(28,321)	–	720	720	7–7

Member State	2023 QMV Population	Adjusted	Unrounded	PowCom Seats
Germany	83,203,320	2,578,421	4 + 91.04	96
France	67,842,582	2,185,753	4 + 77.2	82
Italy	59,607,184	1,968,359	4 + 69.5	74
Spain	47,432,805	1,636,009	4 + 57.8	62
:	:	:	:	:
Estonia	1,331,796	90,726	4 + 3.2	7
Cyprus	904,700	66,342	4 + 2.3	6
Luxembourg	643,648	50,362	4 + 1.8	6
Malta	520,971	42,439	4 + 1.5	6
Sum (Keys)	447,533,143	(0.8095)	(28,321)	720

Member State	Representation Rate	PowCom Seats	Ad hoc Seats	Transfers
Germany	875,431	96	96	0
France	835,728	82	81	+1
Italy	810,963	74	76	−2
Spain	767,935	62	61	+1
:	:	:	:	:
Estonia	184,882	8	7	+1
Cyprus	142,641	7	6	+1
Luxembourg	111,392	6	6	0
Malta	94,748	6	6	0
Sum	–	720	720	7−7

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2. FPS Technique (V. Ramírez Gonzales)

Use "adjusted seat quotas"

$$10\% \cdot \frac{1}{27} \cdot 720 + 50\% \cdot \frac{pop}{447{,}533{,}143} \cdot 720 + 40\% \cdot \frac{\sqrt[2]{pop}}{91{,}209} \cdot 720$$

F = Fixed part
P = proportional to Population figures
S = proportional to Square root of pop.

and enforce minimum 6 and maximum 96.

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3. Proportional Completion (M. Müller)

Partition the 751 seats into 75 + 676.

Assign 75 seats via transnational lists.

Allocate 676 seats between MS proportional to square root of pop. of MS.

Needs amendment of primary EU law.

Friedrich Pukelsheim

Proportional Representation

Apportionment Methods
and Their Applications

With a Foreword by Andrew Duff MEP

Second Edition

Springer

2017: xxvii+342 pp.