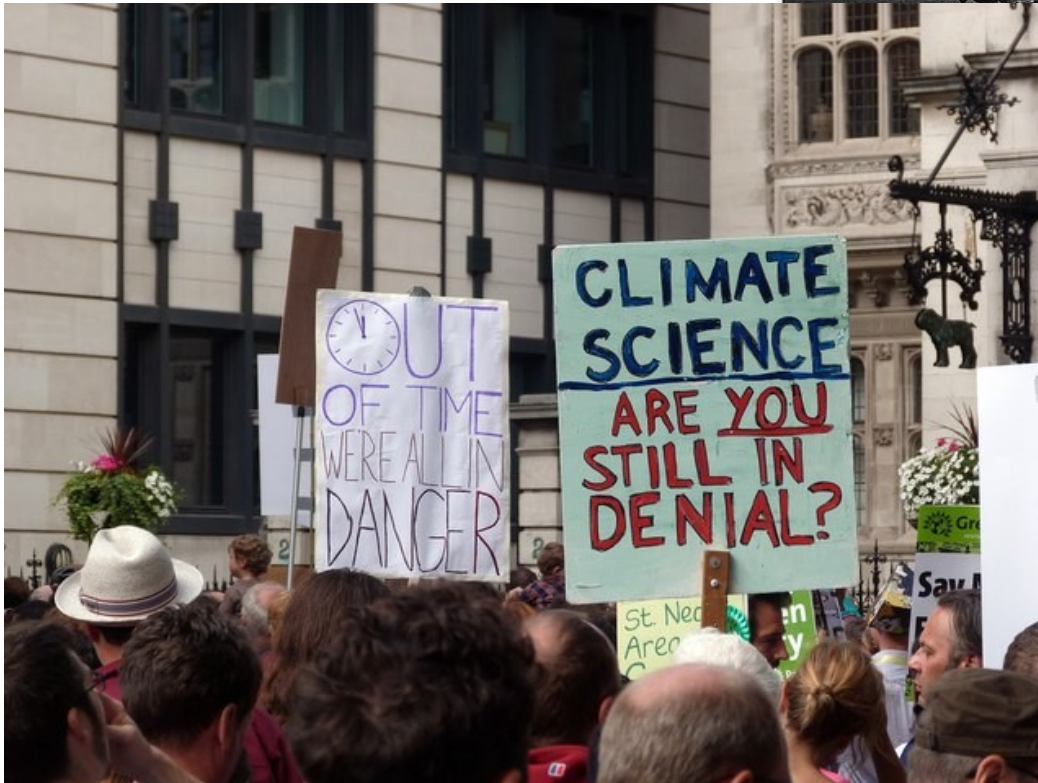


A primer on voting systems

Julien Lamarche
President, NCR Chapter
Fair Vote Canada
<http://www.fairvote.ca>
NCR@fairvote.ca

Why proportional representation?

It's the critical
issue....



.... to the urgent ones
we care about.

Fair Voting

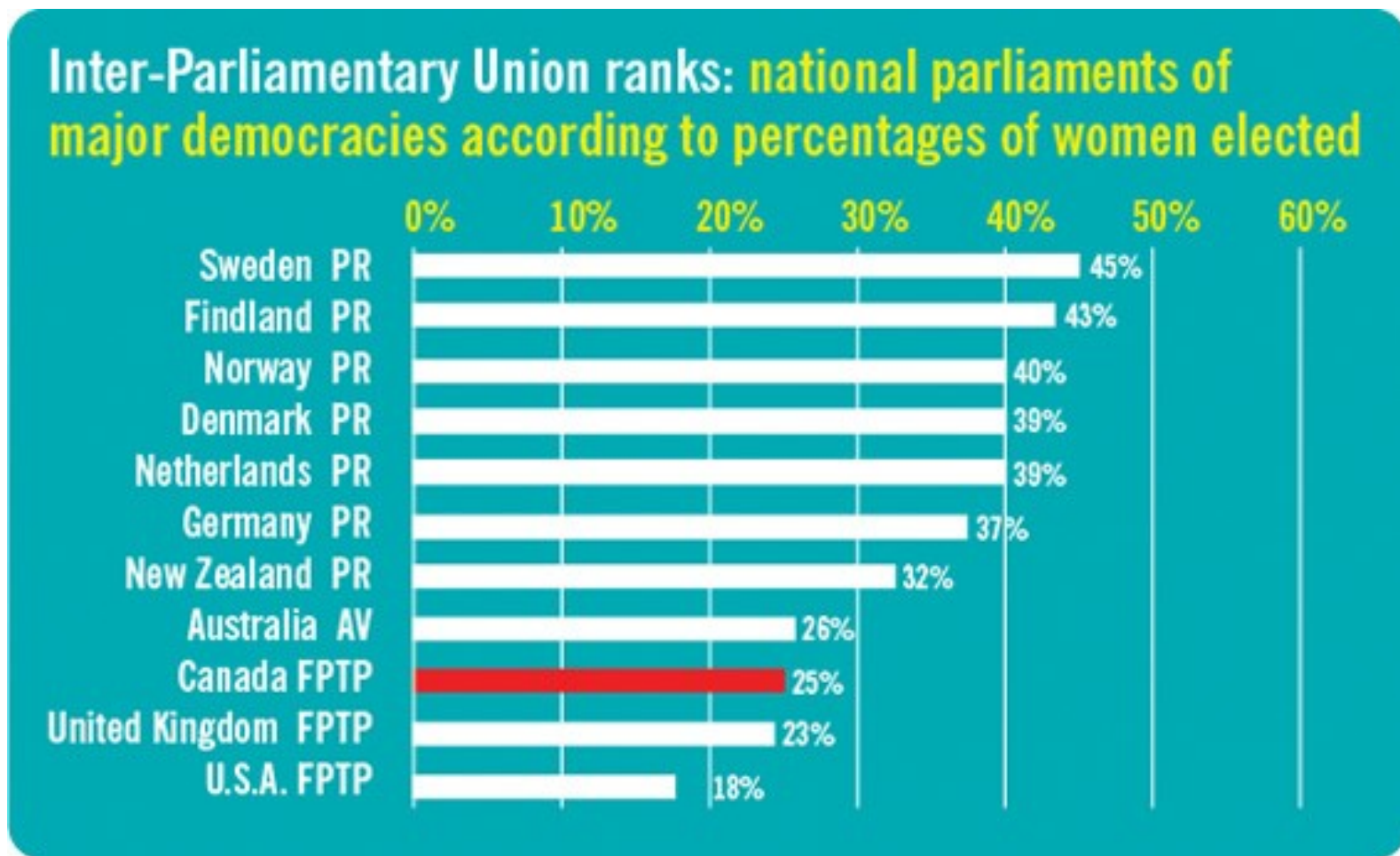
- 1) Why FPTP doesn't serve voters
- 2) History of the mouvement
- 3) Voting system concepts
- 4) Different voting systems
- 5) Where to go from here?

FPTP doesn't serve voters

- Phony majorities
 - Ontario (since 1937)
 - Canada (since 1984)
 - Quebec (since 1985)
- How can institutions be accountable?

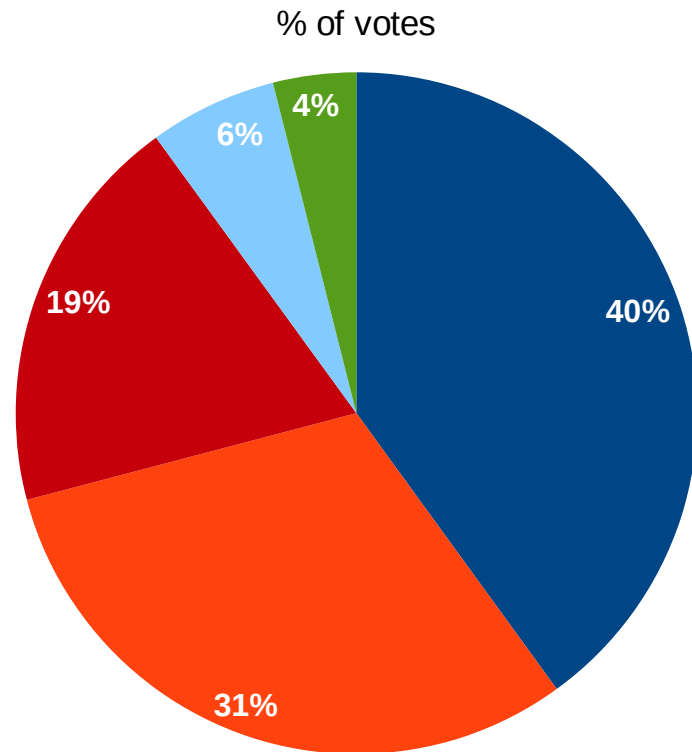
~50%

Proportion of women elected in legislatures of OECD* countries

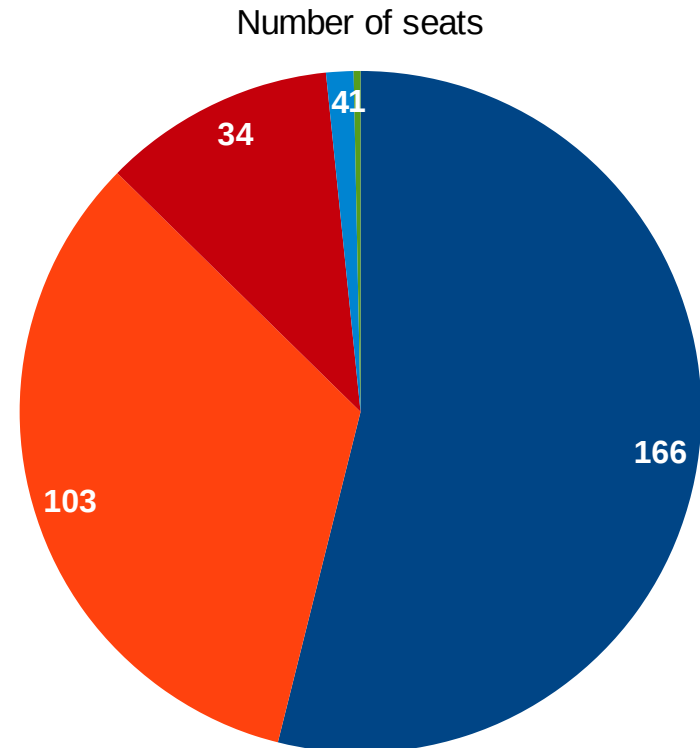


*Organization for Economic Cooperation and Development

Distortion of representation (2011)

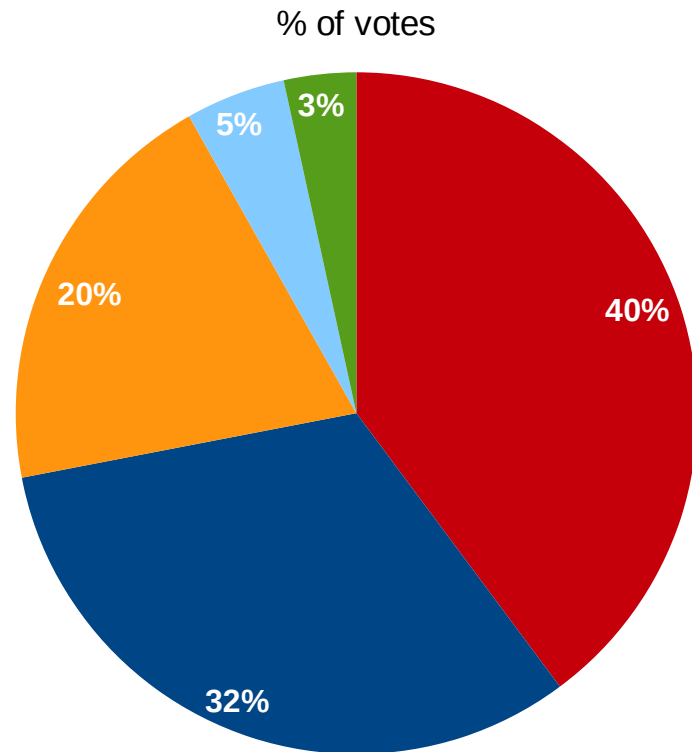


■ Conservative ■ NDP ■ Liberal
■ Bloc québécois ■ Greens

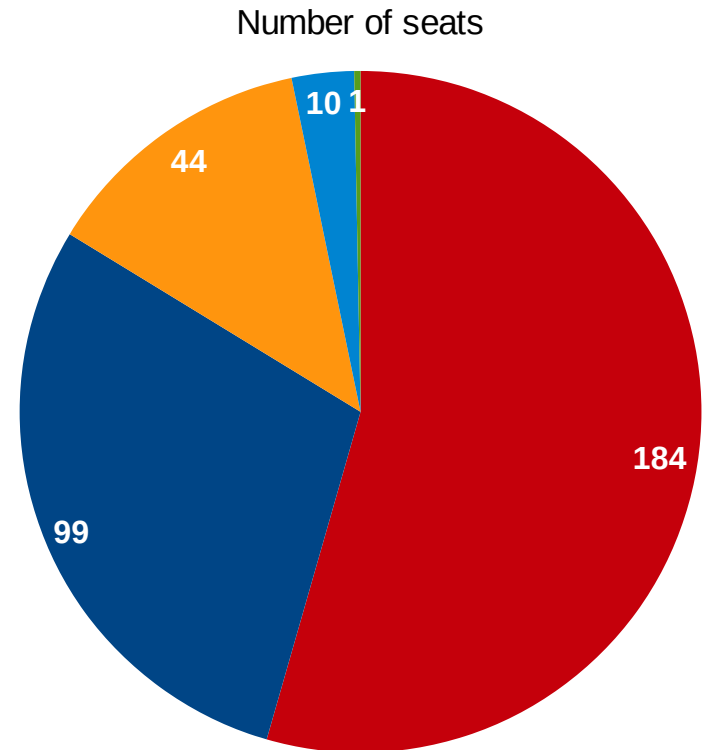


■ Conservative ■ NDP ■ Liberal
■ Bloc ■ Greens

Distortion of representation (2015)



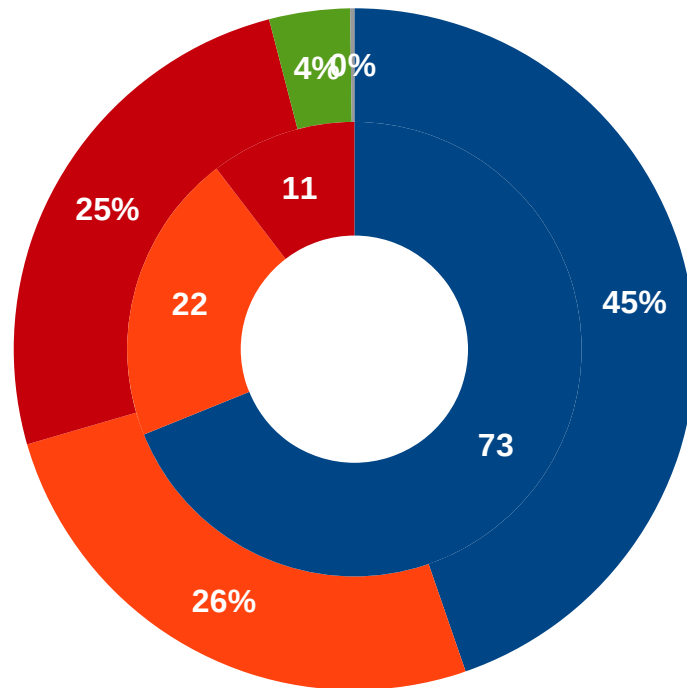
■ Liberal ■ Conservative ■ NDP
■ Bloc québécois ■ Greens



■ Liberal ■ Conservative ■ NDP
■ Bloc ■ Greens

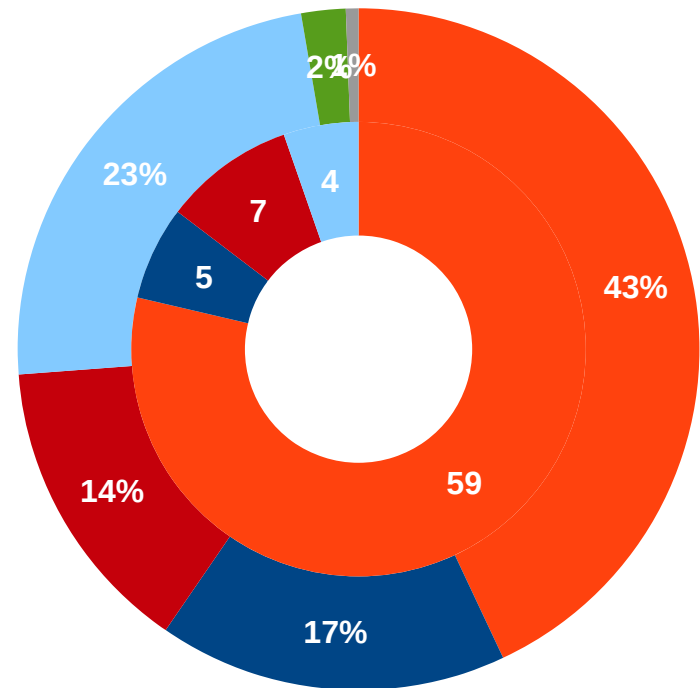
Distortion of representation (2011)

Ontario (federal 2011 election)



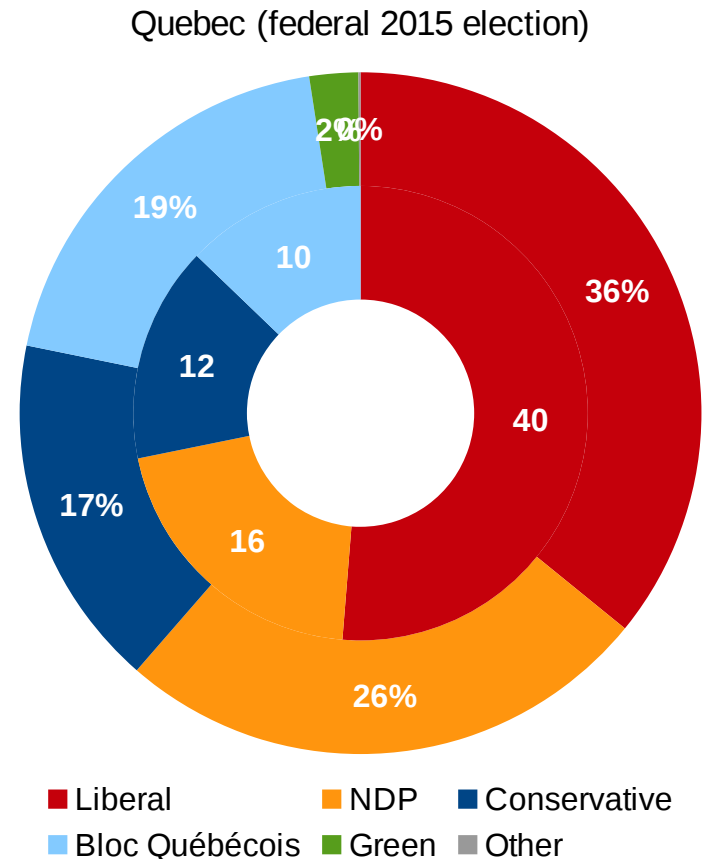
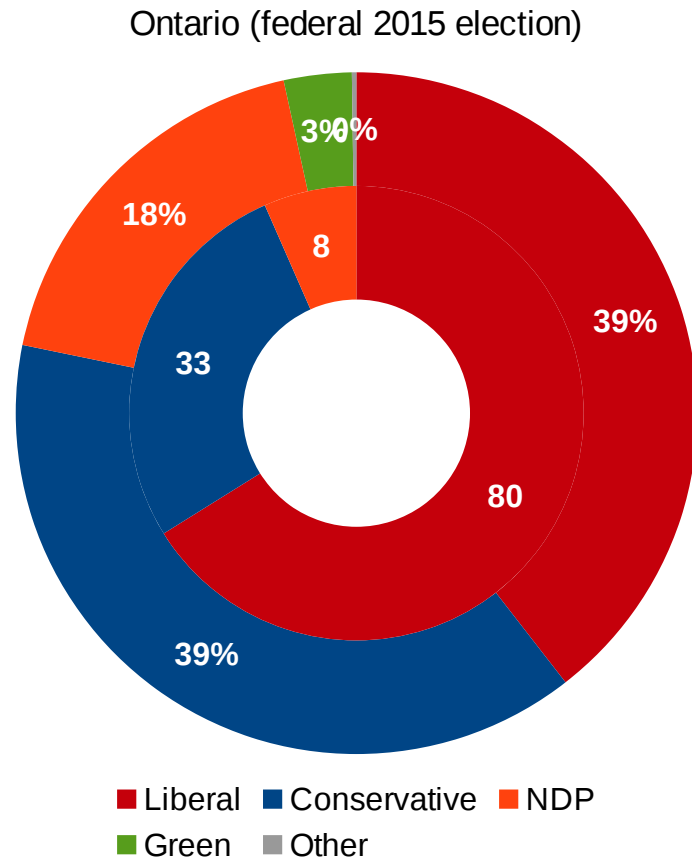
Conservative NDP Liberal
Green Other

Quebec (federal 2011 election)

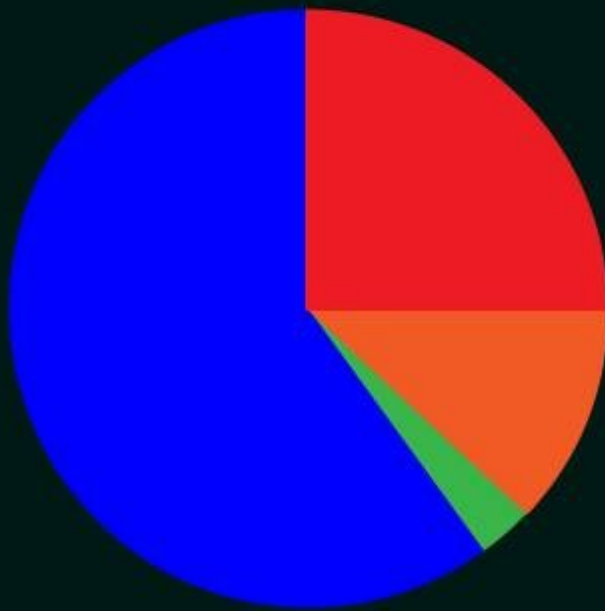


NDP Conservative Liberal
Bloc Québécois Green Other

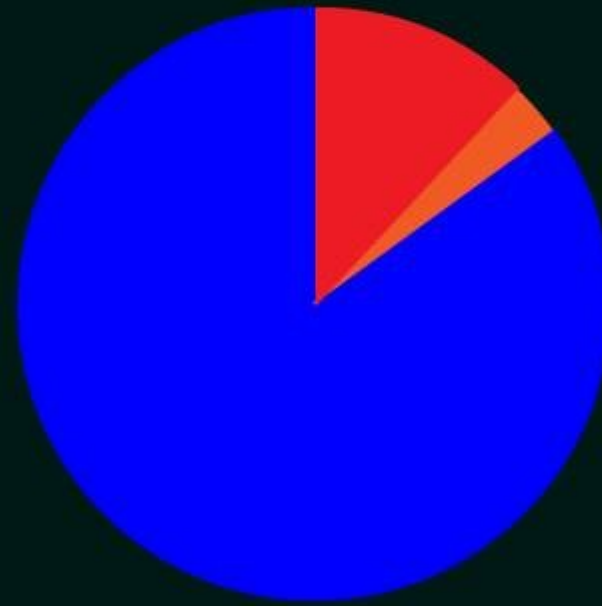
Distortion of representation (2015)



How Alberta voted



What they got

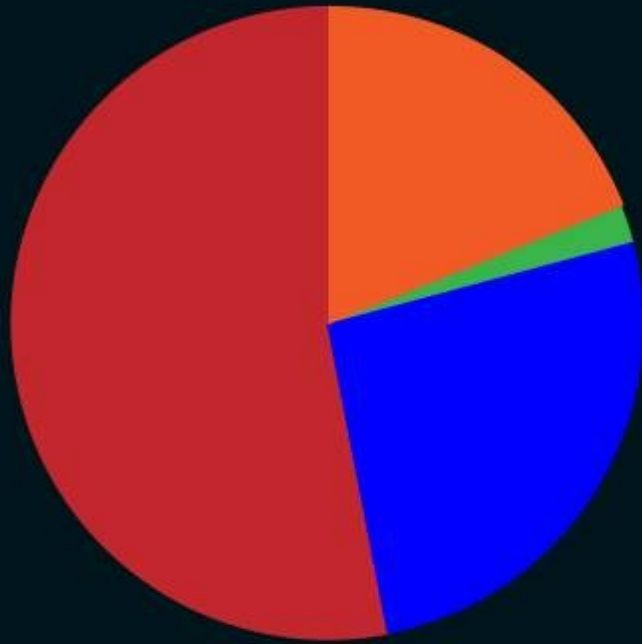


Time for a voting system which represents everyone fairly

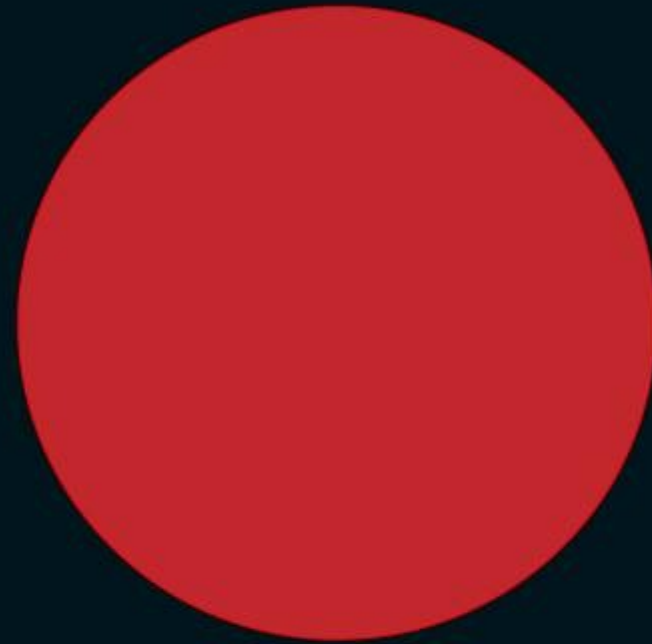
Sign the Declaration of Voters' Rights.
Make Your Vote Count! www.fairvote.ca



A diverse city meets an 800 year old voting system



How Toronto voted

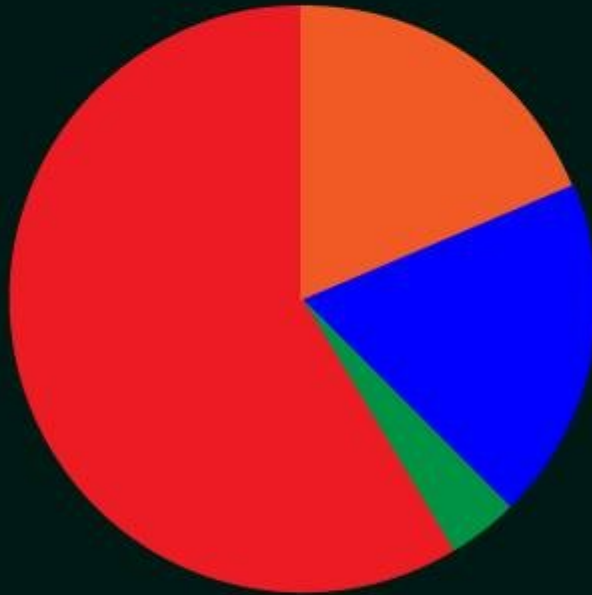


What Toronto got

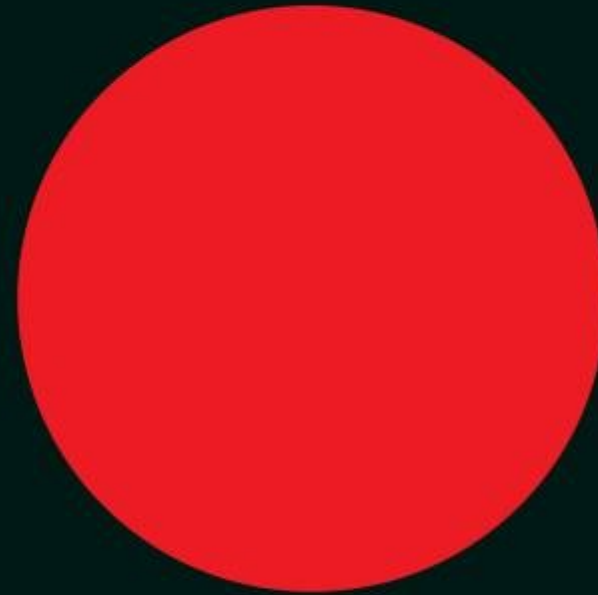
Sign the Declaration of Voters' Rights.
Make Your Vote Count! www.fairvote.ca



How Atlantic Canada voted



What they got

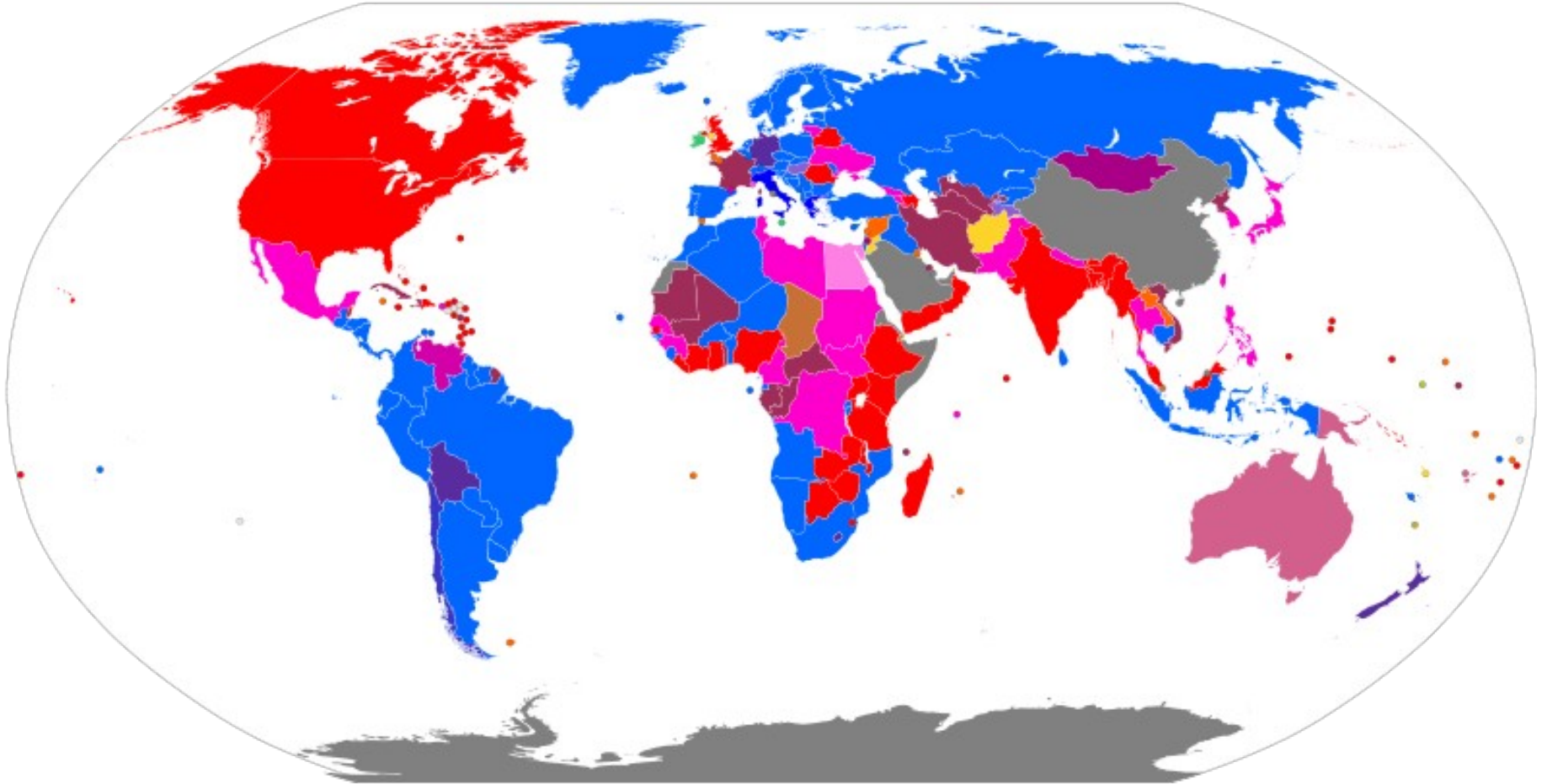


Time for a voting system which gives everyone a voice

Sign the Declaration of Voters' Rights.
Make Your Vote Count! www.fairvote.ca



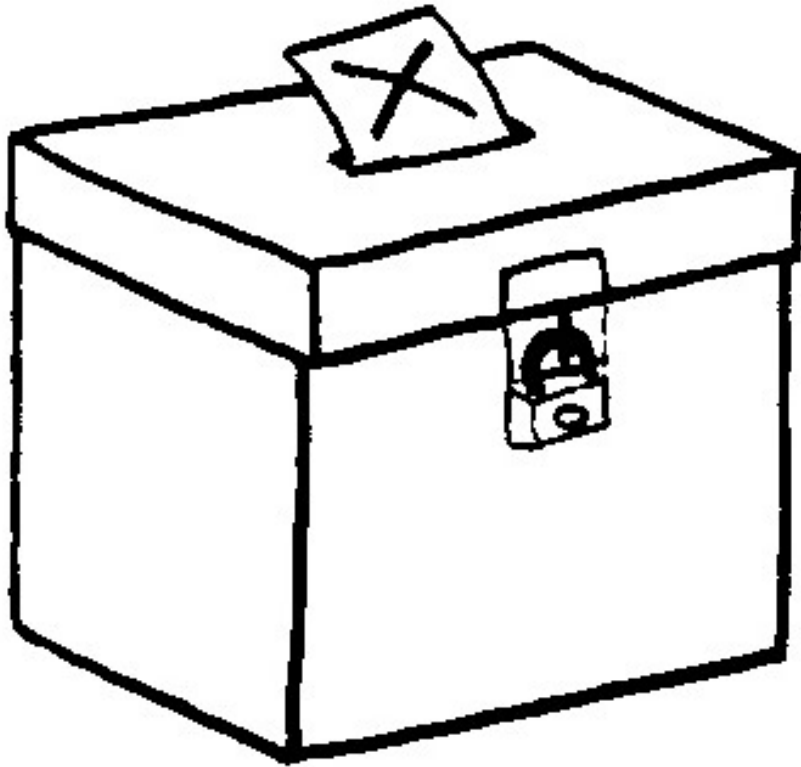
Who uses FPTP?



www.fairvote.ca - NCR@fairvote.ca

Legend : http://en.wikipedia.org/wiki/File:Electoral_systems_map.svg

Voting systems



- The ballot
- Seats per electoral districts
- The algorithm
(votes \rightarrow seats)

Single member plurality (First past the post)

The ballot:

One X per vote

Seats per electoral district:

308 ridings of one seat

The algorithm:

The seat is given to the candidate with at least 1 more vote than everyone else.

What is an electoral district?

- A bounded geographical area who's voters are represented by one ***or more*** legislators
- **Canada** : 308 electoral districts represented by 308 MPs
- **Australian senate** : 6 staes, each represented by 12 elected senators
- **Norway legislature** : 19 counties, each represented by 4 to 17 legislators

History of voting reform in the world

- 1924-1957 : Alberta uses STV (Edmonton & Calgary) & AV (rest of province) to elect MLAs
- 1993 : New Zealand switches to Mixed Member Proportional (MMP) with 54% support
- 2011 : UK votes against AV (68% against)
- 2011 : New Zealand votes to keep MMP with 58% support

Recent history of voting reform in Canada

- [1984 : Electoral Representation Commission \(Québec\)](#)
- 1997 : Federal Majority government with lowest support
- 2001 : Fair Vote Canada is founded
- [2002 : Quebec's Estates-General on the Reform of Democratic Institutions](#)
- [2004 : Quebec government study \(Charest\)](#)
- 2004 : Law Commission of Canada report on ER
- 2005 : NB Commission on Legislative Democracy
- 2005 : PEI Plebiscite on voting reform
- 2005 : BC Citizens Assembly recommends Single Transferable Vote
- 2005 : In a referendum, BC-STV receives 58% support
- [2006 : Quebec Citizens Committee Report](#)
- 2007 : Ontario Citizens Assembly recommends Mixed Member proportional
- [2007 : Quebec's Chief Electoral Officer's Report](#)
- 2009 : Second referendum on BC-STV

Voting systems considered in Canada

- Single Member Plurality (First past the post) (FPTP)
- Mixed member proportional (MMP)
- Jenkins-Day (like MMP)
- Single Transferable Vote (STV)
- Dual Member Plurality (DMP)
- P3
- Alternative Vote (Preferential Voting) (AV)

Not a voting system

- Ranked ballot
- Preferential ballot

Mixed Member Proportional

OFFICIAL MARK

[Consecutive Number]

YOU HAVE 2 VOTES

PARTY VOTE

Explanation
This vote decides the share of seats which each of the parties listed below will have in Parliament. Vote by putting a tick in the circle immediately after the party you choose.

Vote for only one party

LABOUR	<input type="radio"/>
ACT NEW ZEALAND	<input type="radio"/>
NATIONAL	<input type="radio"/>
ALLIANCE	<input type="radio"/>
THE GREENS, THE GREEN PARTY OF AOTEAROA/NEW ZEALAND	<input type="radio"/>
NZ FIRST	<input type="radio"/>
ROC	<input type="radio"/>
CHRISTIAN DEMOCRATS	<input type="radio"/>
UNITED NZ	<input type="radio"/>
CHRISTIAN HERITAGE PARTY OF NEW ZEALAND	<input type="radio"/>
McGILLICUDDY SERIOUS	<input type="radio"/>
TE TAWHARAU	<input type="radio"/>
REPUBLICAN PARTY	<input type="radio"/>
DEMOCRATS	<input type="radio"/>
	<input type="radio"/>
ADVANCE NZ	<input type="radio"/>
CONSERVATIVE	<input type="radio"/>
SOCIAL DEMOCRATS	<input type="radio"/>
SUPERANNUITANTS PARTY	<input type="radio"/>
	<input type="radio"/>
	<input type="radio"/>
	<input type="radio"/>

[Insert party logo (if registered) to the left of the name of the party.]

☒
Vote here
 ☒
Vote here

ELECTORATE VOTE

Explanation
This vote decides the candidate who will be elected Member of Parliament for the [insert name] ELECTORATE. Vote by putting a tick in the circle immediately before the candidate you choose.

Vote for only one candidate

ALLEN, Fred LABOUR	<input type="radio"/>
BARKER, Mary ACT NEW ZEALAND	<input type="radio"/>
DENIS, Alistair NATIONAL	<input type="radio"/>
ELLIS, John ALLIANCE	<input type="radio"/>
GREIG, Tony THE GREENS, THE GREEN PARTY OF AOTEAROA/NEW ZEALAND	<input type="radio"/>
ILLOTT, Anne NZ FIRST	<input type="radio"/>
MARTIN, Hamish ROC	<input type="radio"/>
NEMETH, Elizabeth CHRISTIAN DEMOCRATS	<input type="radio"/>
OSBERT, Sebastian UNITED NZ	<input type="radio"/>
PEOPLES, Wendy CHRISTIAN HERITAGE PARTY OF NEW ZEALAND	<input type="radio"/>
QUENTIN, Oliver McGILLICUDDY SERIOUS	<input type="radio"/>
RAWIRI, Whare TE TAWHARAU	<input type="radio"/>
ROSS, Arthur REPUBLICAN PARTY	<input type="radio"/>
RUSCOE, Noel DEMOCRATS	<input type="radio"/>
SMITH, Eugene INDEPENDENT	<input type="radio"/>
TULIP, Belinda ADVANCE NZ	<input type="radio"/>
	<input type="radio"/>
	<input type="radio"/>
	<input type="radio"/>

[Insert party logo (if registered) to the right of the name of the candidate.]

Final Directions
 1. If you spoil this ballot paper, return it to the officer who issued it and apply for a new ballot paper.
 2. After voting, fold this ballot paper so that its contents cannot be seen and place it in the ballot box.
 3. You must not take this ballot paper out of the polling booth.

Mixed Member Proportional : The ballot

- Two votes :
 - One for local candidate
 - One for party

Mixed Member Proportional

The algorithm

- Winner of geographic seats are determined first
- List seats compensate for lack of proportionality

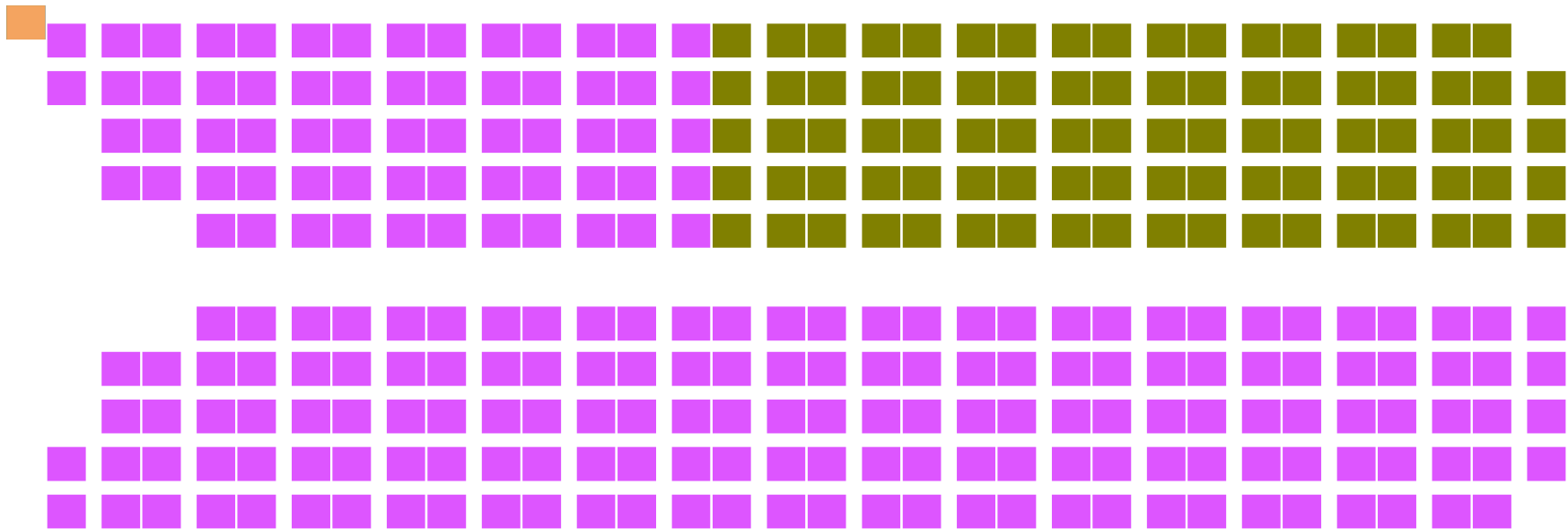
MMP : The algorithm

<i>Fictional legislature of <u>100</u> seats</i>			
	Geographic seats	% of vote	List seats
Party A	38	40%	2
Party B	23	31%	8
Party C	8	19%	11
Party D	1	6%	5
Party E	0	4%	4
Total	70	100%	30

Mixed Member Proportional

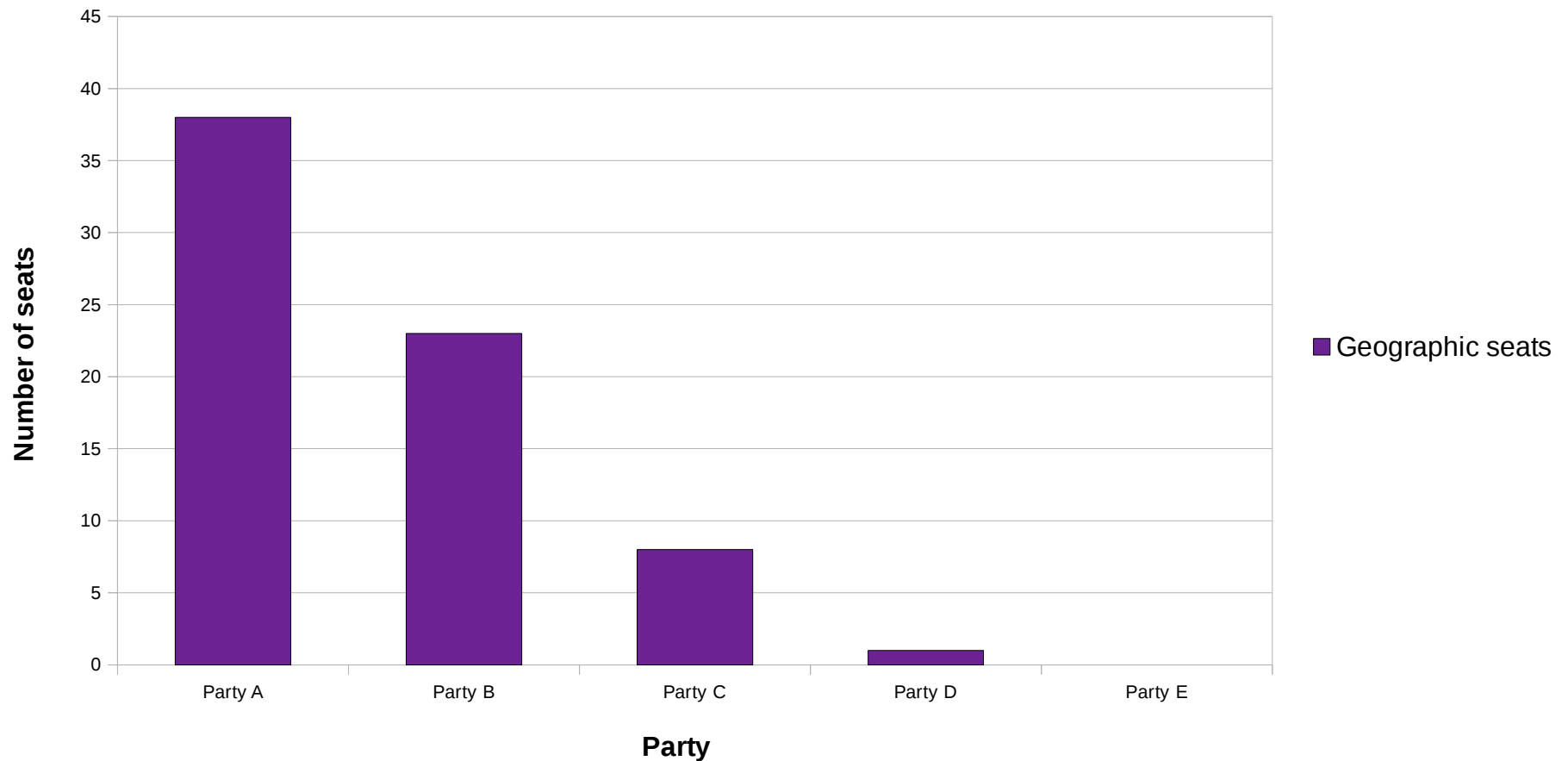
The seats & riding

- One seat per geographic ridings;
- List seats for ridings that span the entirety or parts of the jurisdiction;



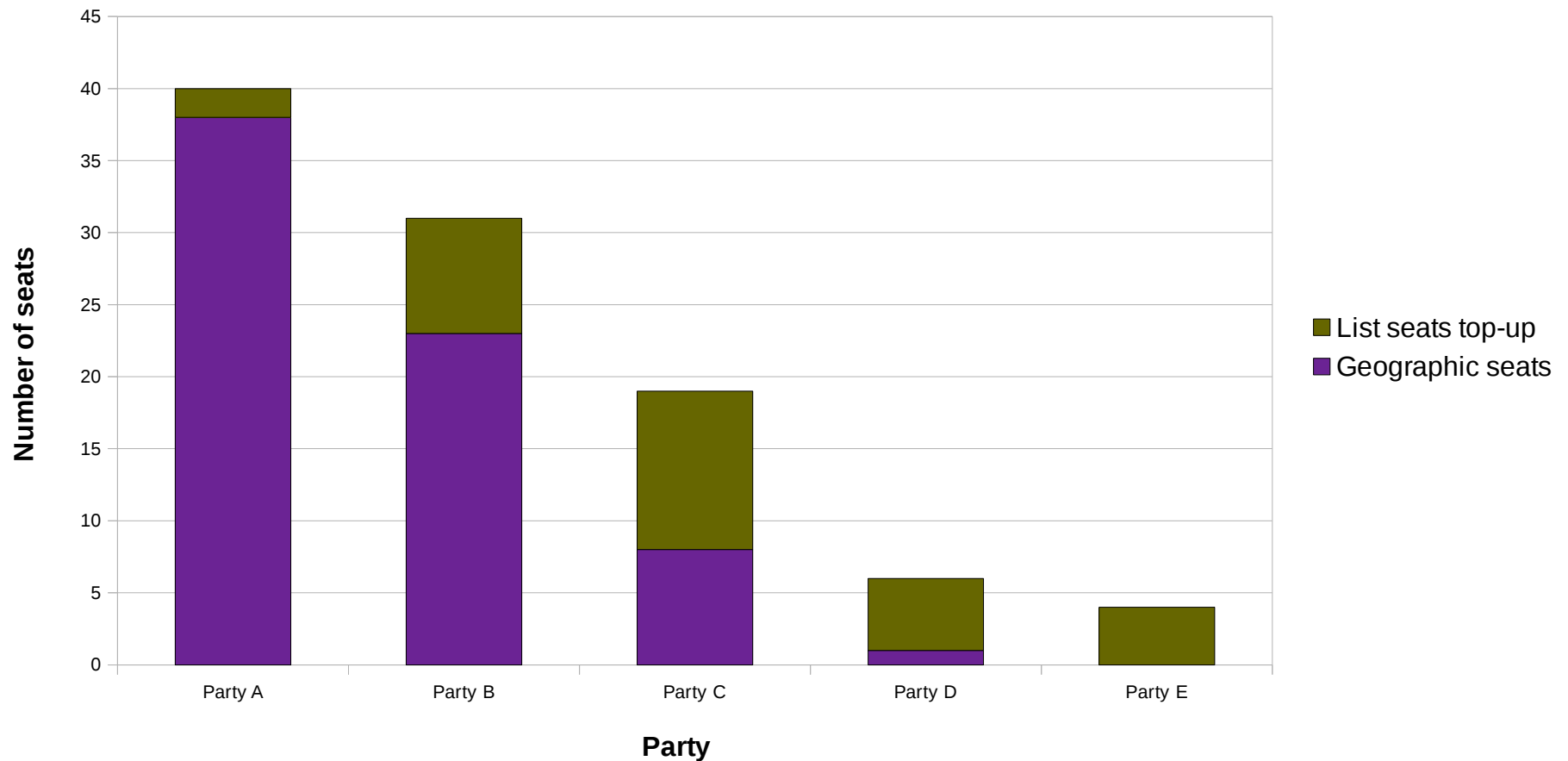
MMP : The algorithm

Fictional 100 seat legislature



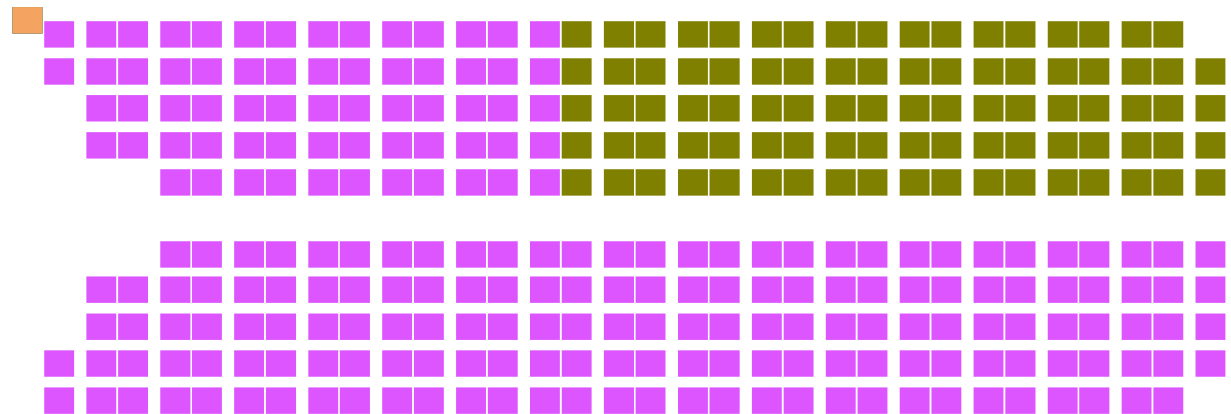
MMP : The algorithm

Fictional 100 seat legislature



List seats

- **Closed list**
(Ontario MMP 2007)
- **Open lists**
(Voting Counts: Electoral Reform for Canada, Law Commission of Canada, 2004, p. 106)
- **Best losers**
(Germany)



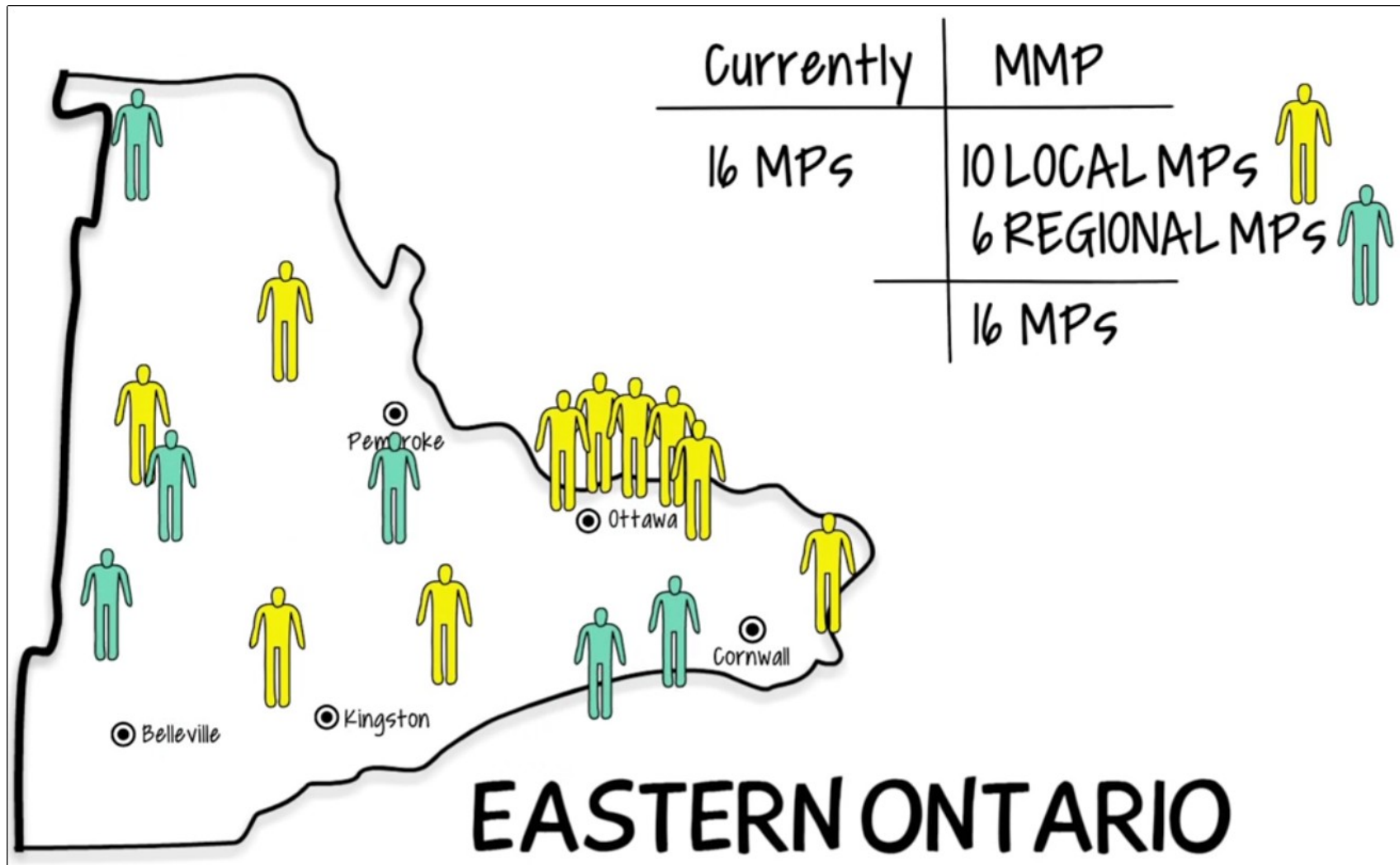
Law Commission 2004 MMP

Ballot

2015 FEDERAL ELECTION		Riding: OTTAWA SOUTH Region: EASTERN ONTARIO	
You have <u>two</u> votes:			Paper Ballot
1 Please mark an "X" beside one candidate for LOCAL MEMBER OF PARLIAMENT			
<input type="checkbox"/> Elie Salibi Conservative	<input type="checkbox"/> David McGuinly Liberal	<input type="checkbox"/> James McLaren NDP	<input type="checkbox"/> Mick Kitor Green
<input type="checkbox"/> Romeo Bellai Independent			
2 Please mark an "X" beside EITHER one party OR one candidate for REGIONAL MEMBER OF PARLIAMENT. <small>A vote for a candidate counts as a vote for that candidate's party. This vote helps elect regional MPs, topping-up the numbers of MPs from your region so the total is proportional to the votes for each party.</small>			
<input type="checkbox"/> Conservative	<input type="checkbox"/> Liberal	<input type="checkbox"/> NDP	<input type="checkbox"/> Green
<input type="checkbox"/> John Baird Conservative	<input type="checkbox"/> Maunil Bélanger Liberal	<input type="checkbox"/> Paul Dewar NDP	<input type="checkbox"/> Jen Hunter Green
<input type="checkbox"/> Scott Reid Conservative	<input type="checkbox"/> David McGuinly Liberal	<input type="checkbox"/> Marlene Rivier NDP	<input type="checkbox"/> Jean-Luc Cooke Green
<input type="checkbox"/> Pierre Lemieux Conservative	<input type="checkbox"/> Ted Hsu Liberal	<input type="checkbox"/> Daniel Beals NDP	<input type="checkbox"/> Mary Slade Green
<input type="checkbox"/> Pierre Poilievre Conservative	<input type="checkbox"/> Anita Vandembeld Liberal	<input type="checkbox"/> Elaine MacDonald NDP	<input type="checkbox"/> Eric Walton Green
<input type="checkbox"/> Gordon O'Connor Conservative	<input type="checkbox"/> Julie Bourgoin Liberal	<input type="checkbox"/> Trevor Haché NDP	<input type="checkbox"/> Caroline Rioux Green
<input type="checkbox"/> Gord Brown Conservative	<input type="checkbox"/> Karen McCrimmon Liberal	<input type="checkbox"/> Erin Peters NDP	<input type="checkbox"/> John Hogg Green
<input type="checkbox"/> Daryl Kramp Conservative	<input type="checkbox"/> Peter Tinsley Liberal	<input type="checkbox"/> Michael McMahon NDP	<input type="checkbox"/> Sylvie Lemieux Green
<input type="checkbox"/> Royal Galipeau Conservative	<input type="checkbox"/> David Bertschi Liberal	<input type="checkbox"/> Bonnie Jean-Louis NDP	<input type="checkbox"/> John Baranyi Green
<input type="checkbox"/> Cheryl Gallant Conservative	<input type="checkbox"/> Marjory Loveys Liberal	<input type="checkbox"/> James McLaren NDP	<input type="checkbox"/> Mick Kitor Green
<input type="checkbox"/> Guy Lauzon Conservative	<input type="checkbox"/> Ryan Keon Liberal	<input type="checkbox"/> Martine Cénatus NDP	<input type="checkbox"/> Roseanne Van Schie Green
<input type="checkbox"/> Alicia Gordon Conservative	<input type="checkbox"/> David Remington Liberal	<input type="checkbox"/> Doug Smyth NDP	
<input type="checkbox"/> Elie Salibi Conservative	<input type="checkbox"/> Bernadette Clément Liberal	<input type="checkbox"/> Mary Rita Holland NDP	

Law Commission 2004 MMP

Eastern Ontario



Mixed Member Proportional

The ballot:

- One vote for a party
- One vote for a candidate

Seats per electoral district:

- 50%-70% are local electoral district
- Remainder are list seats

The algorithm:

- Geographic seats first determined
- List seats compensate for lack of proportionality

Jenkins-Day

The ballot:

- One vote for a party
- A ranked ballot for a candidate

Seats per electoral district:

- 50%-70% are local electoral district
- Remainder are list seats

The algorithm:

- Geographic seats first determined
- List seats compensate for lack of proportionality

Single Transferable Vote

Single Transferable Vote: The ballot

**Rank any number of
options in your order
of preference.**

☐

Joe Smith

☐

1

John Citizen

☐

3

Jane Doe

☐

Fred Rubble

☐

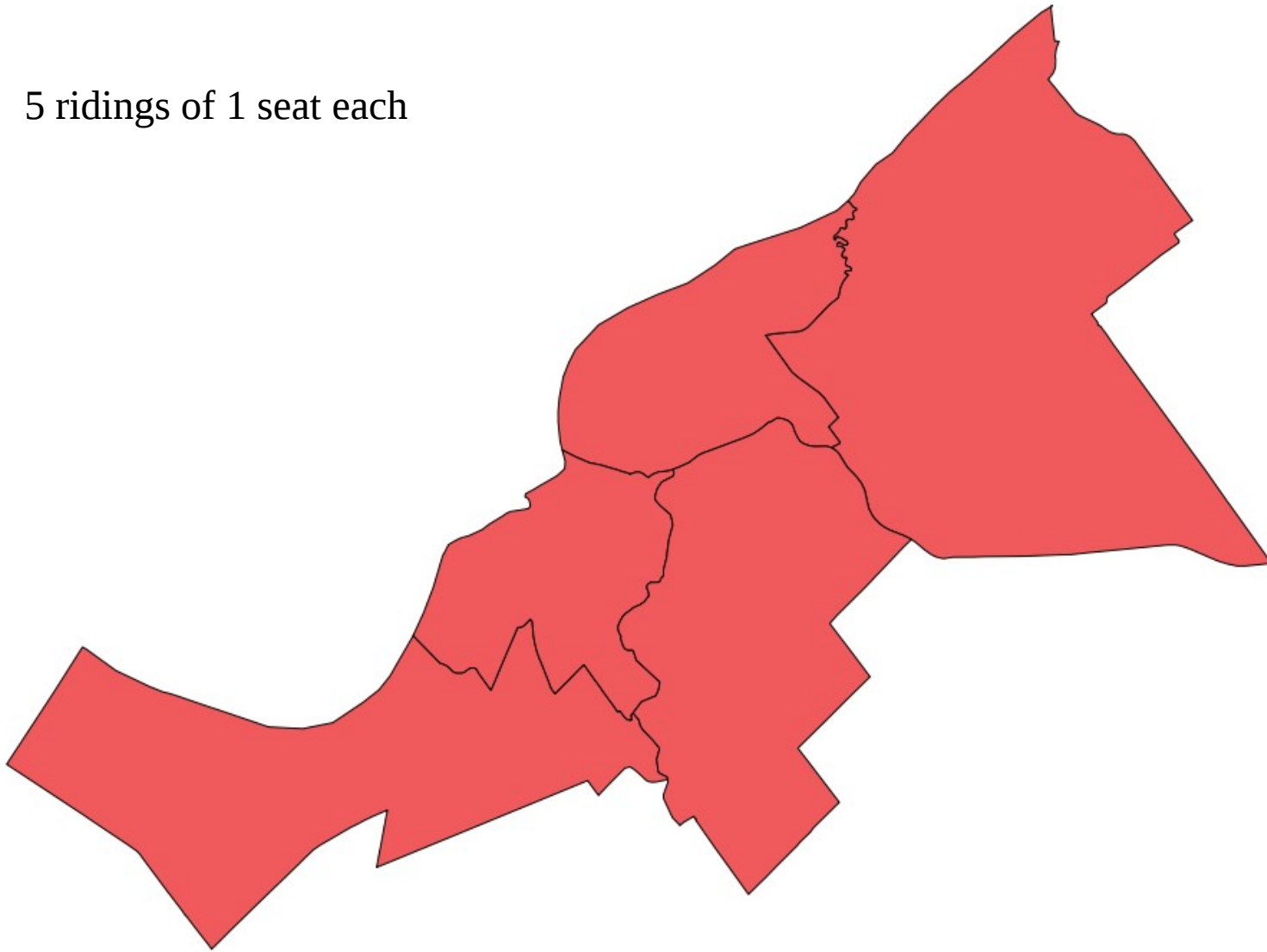
2

Mary Hill

- Ranked vote
- No party list

Single Transferable Vote : The district & seats

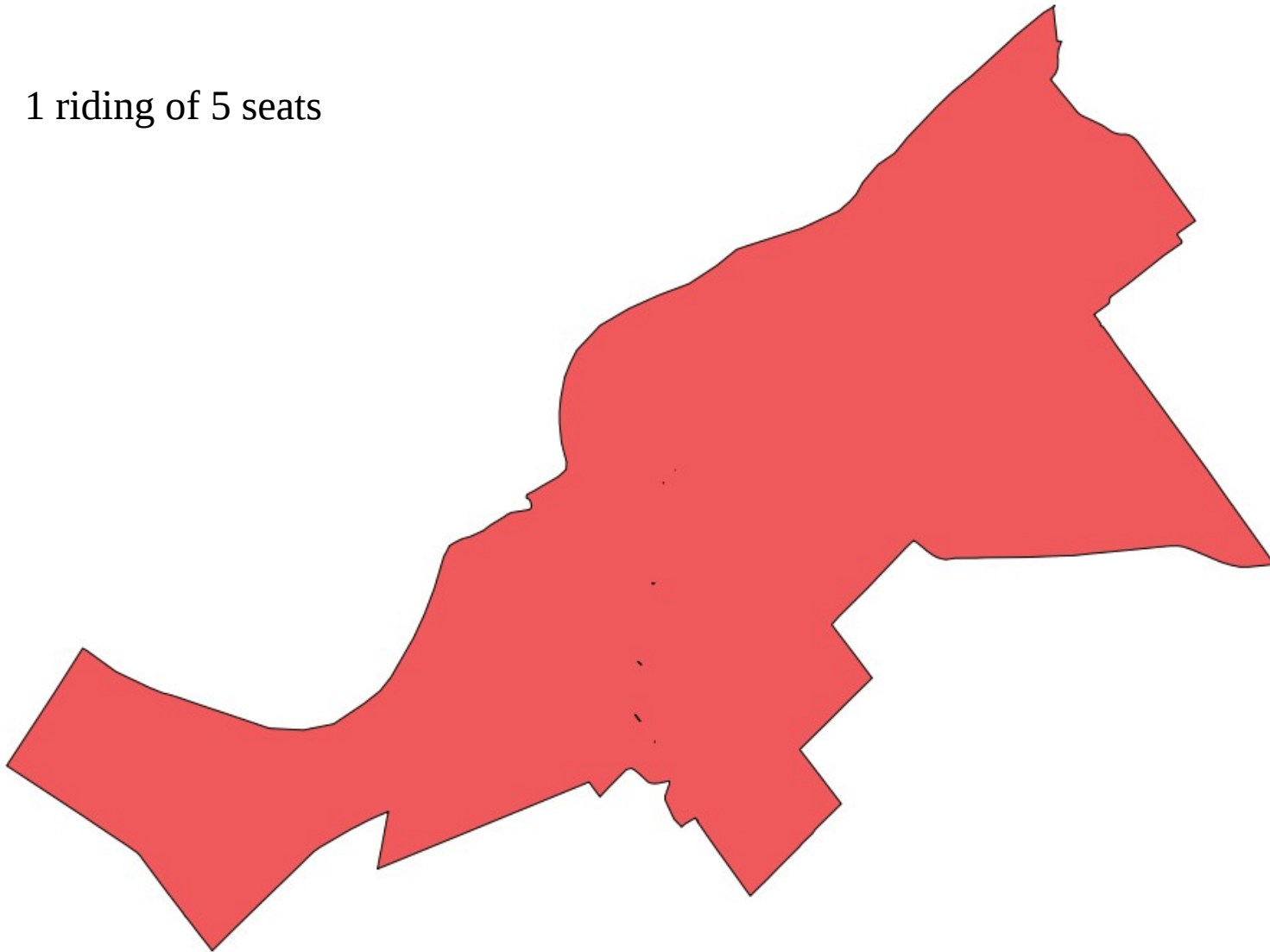
5 ridings of 1 seat each



Single Transferable Vote :

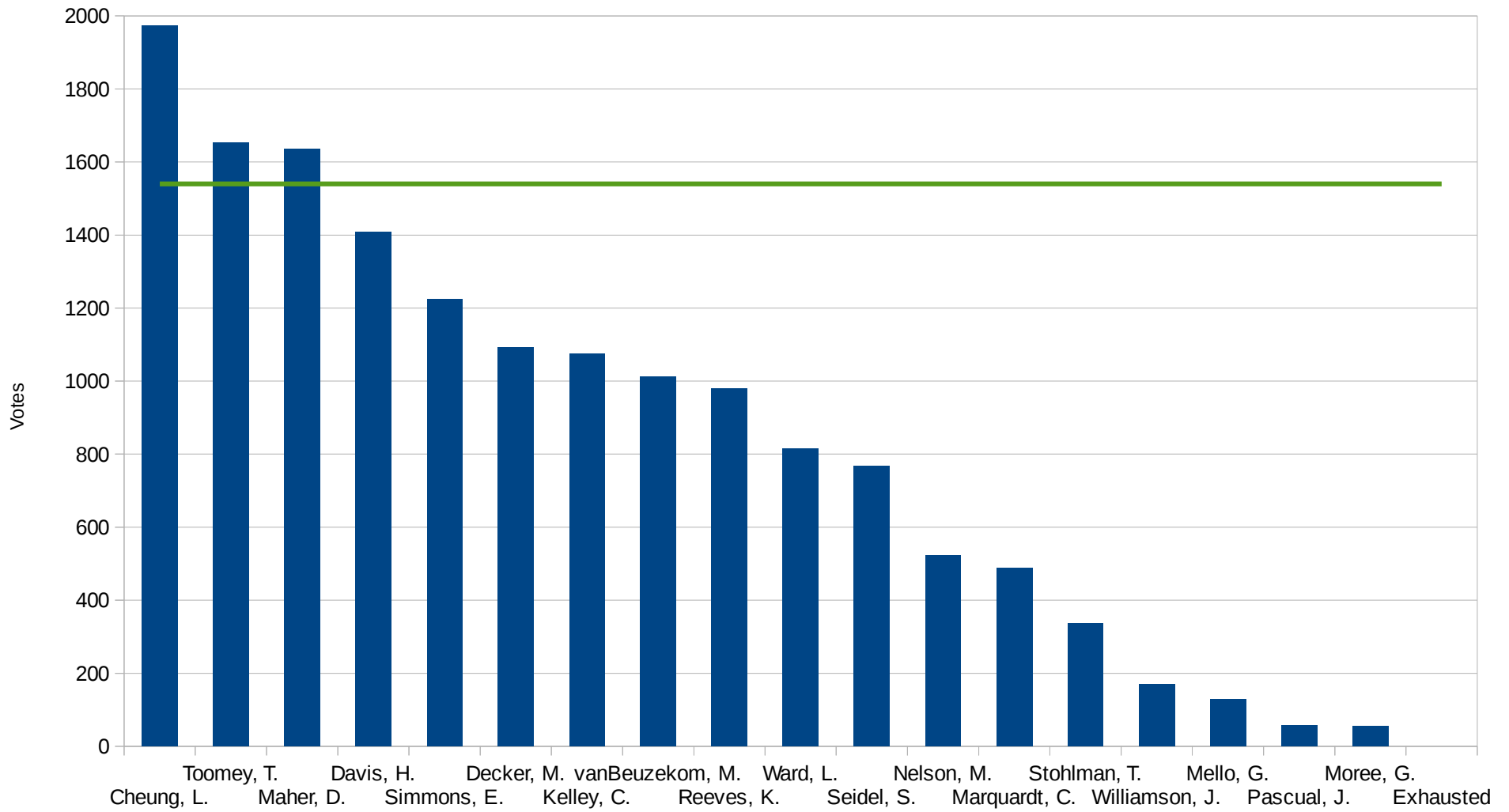
The district & seats

1 riding of 5 seats



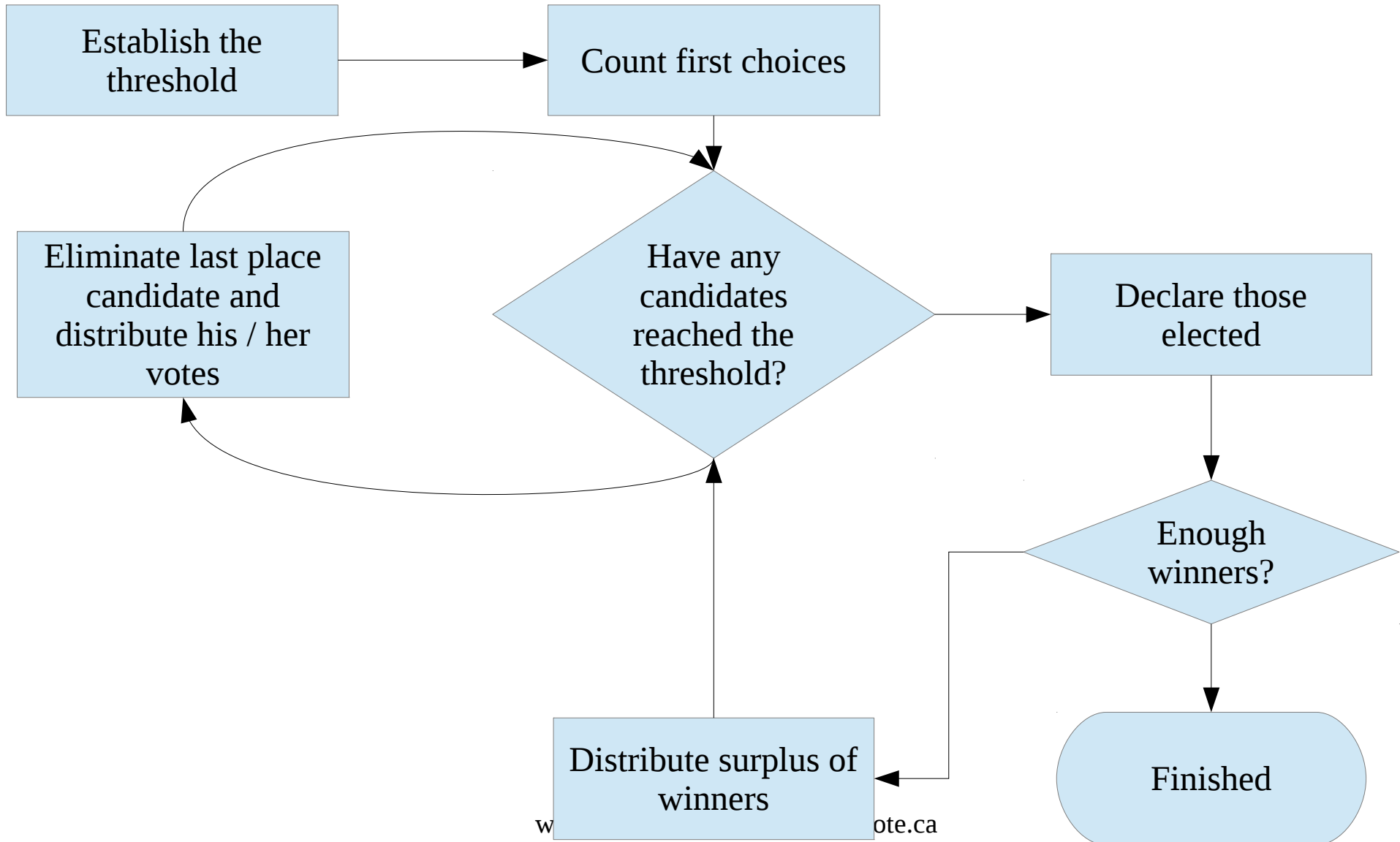
Cambridge, Massachussetts

City Council Elections, November 8th, 2011



Single Transferable Vote

The algorithm



Single Transferable Vote

The algorithm

Formula:

$$\text{threshold} = \left(\frac{\text{valid votes}}{\text{seats} + 1} \right) + 1$$

Example of 1 seat :

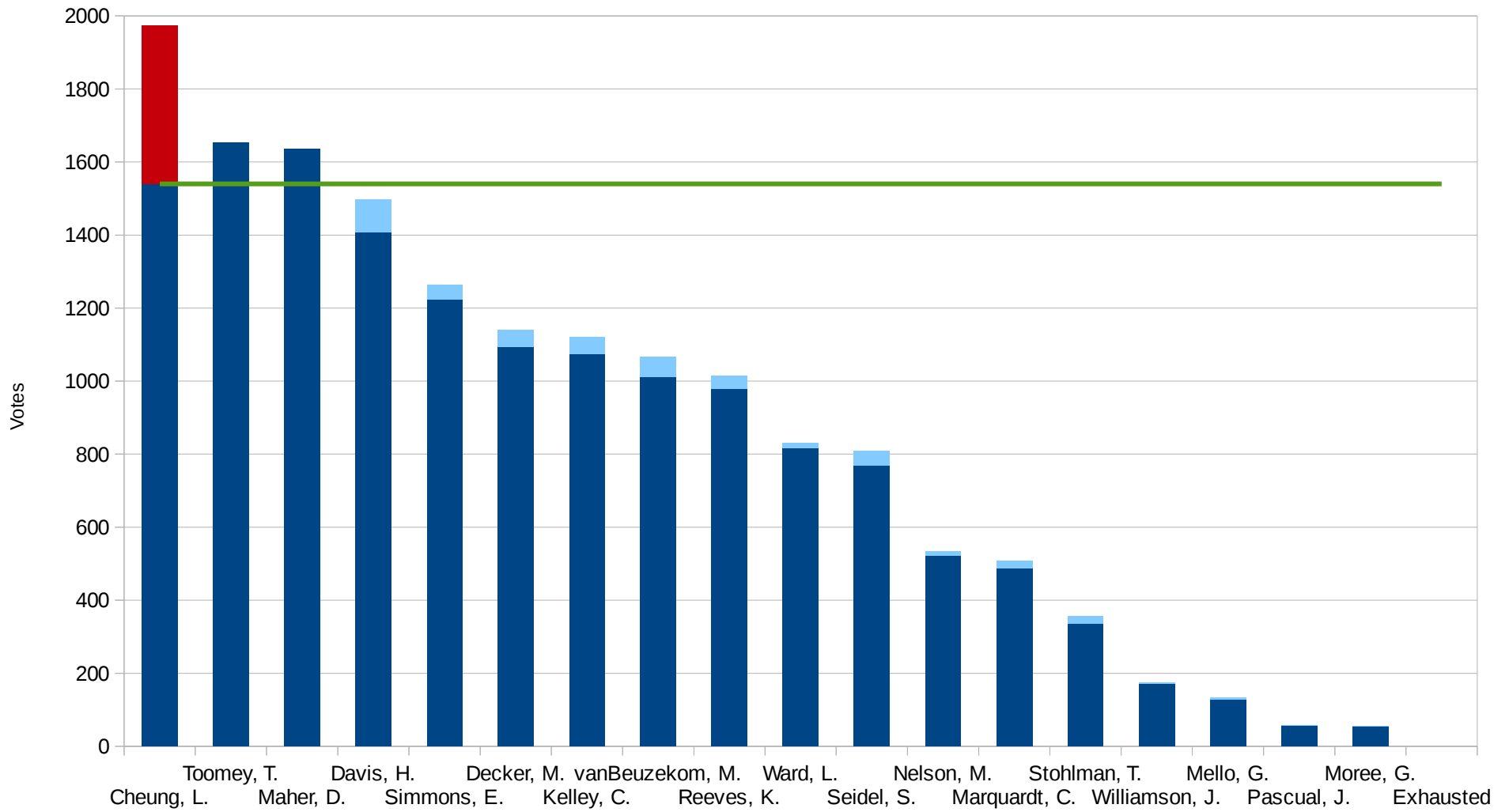
$$50\% + 1 = \left(\frac{100\% \text{ of votes}}{1 \text{ seat} + 1} \right) + 1$$

Example of Cambridge Massachussetts :

$$1540 = \left(\frac{15393 \text{ votes}}{9 \text{ seats} + 1} \right) + 1$$

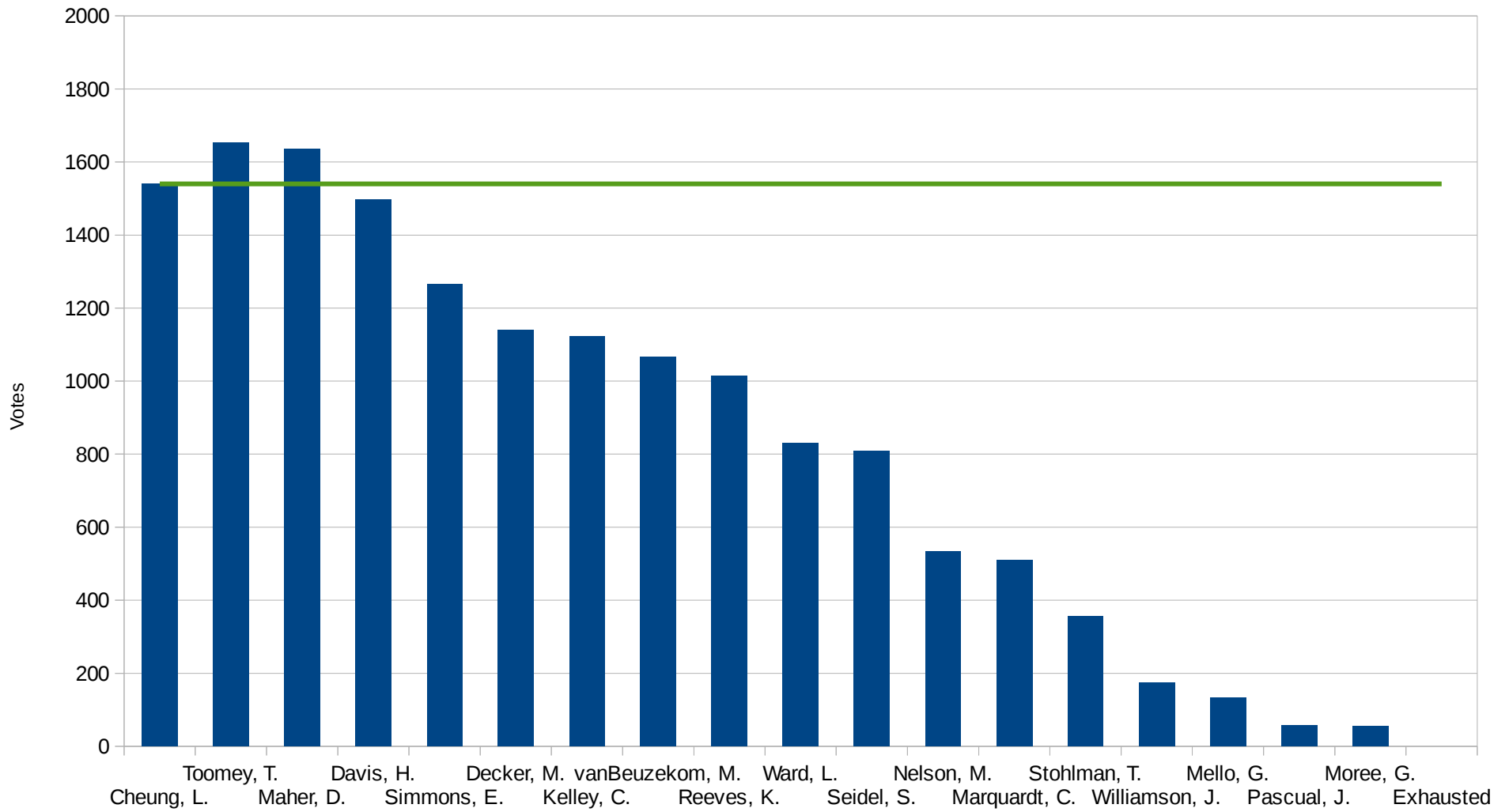
Cambridge, Massachussetts

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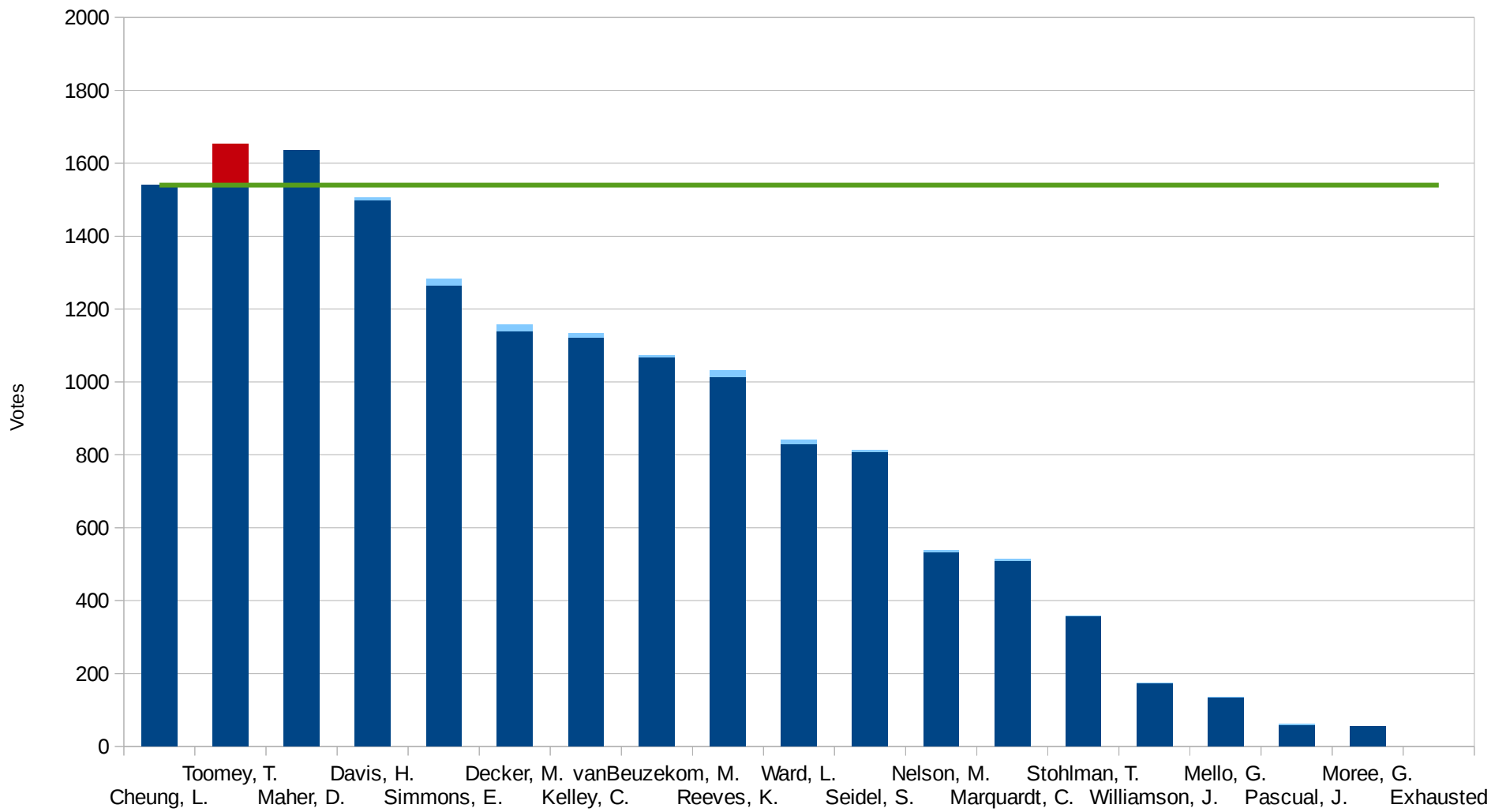
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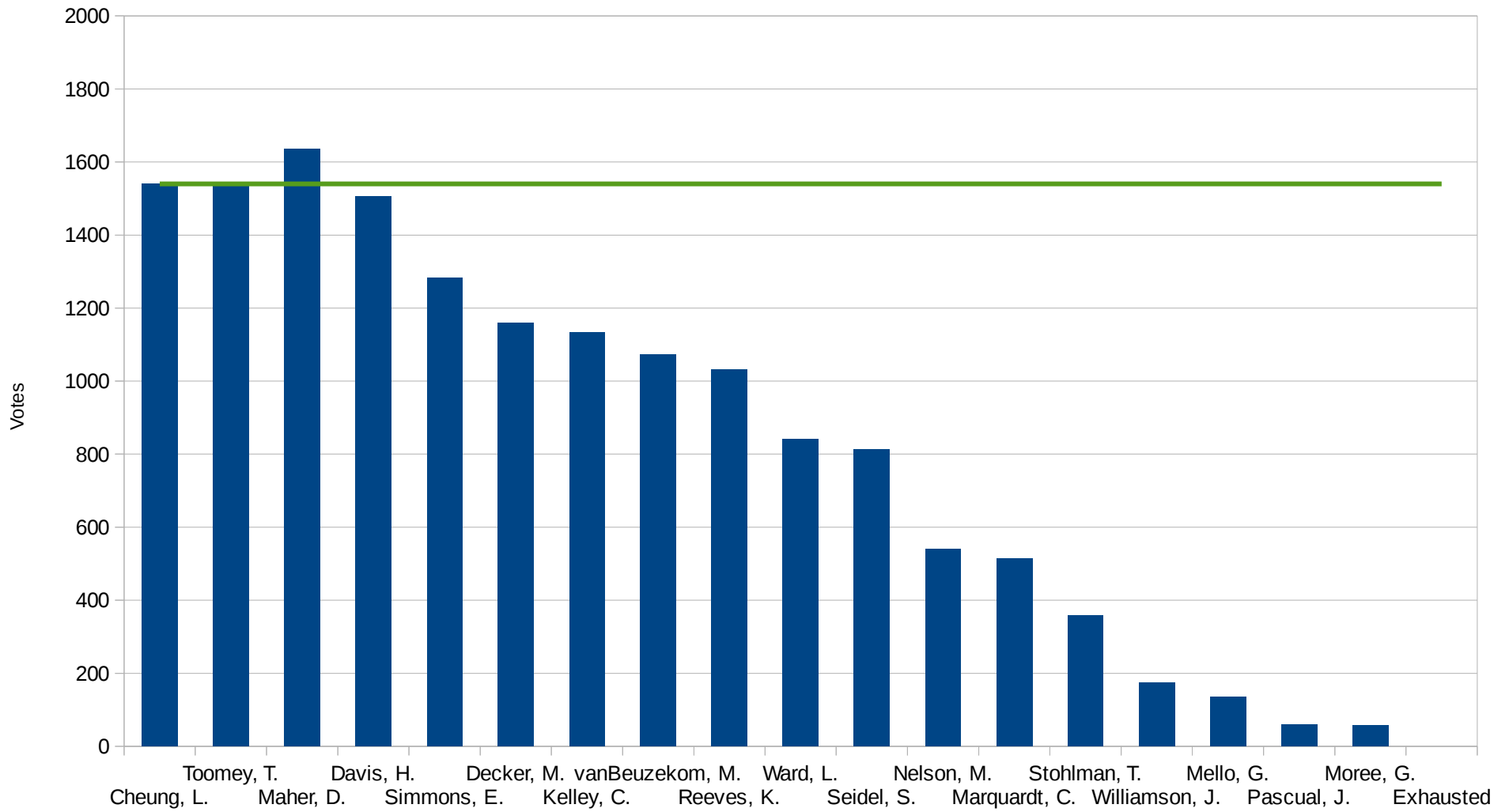
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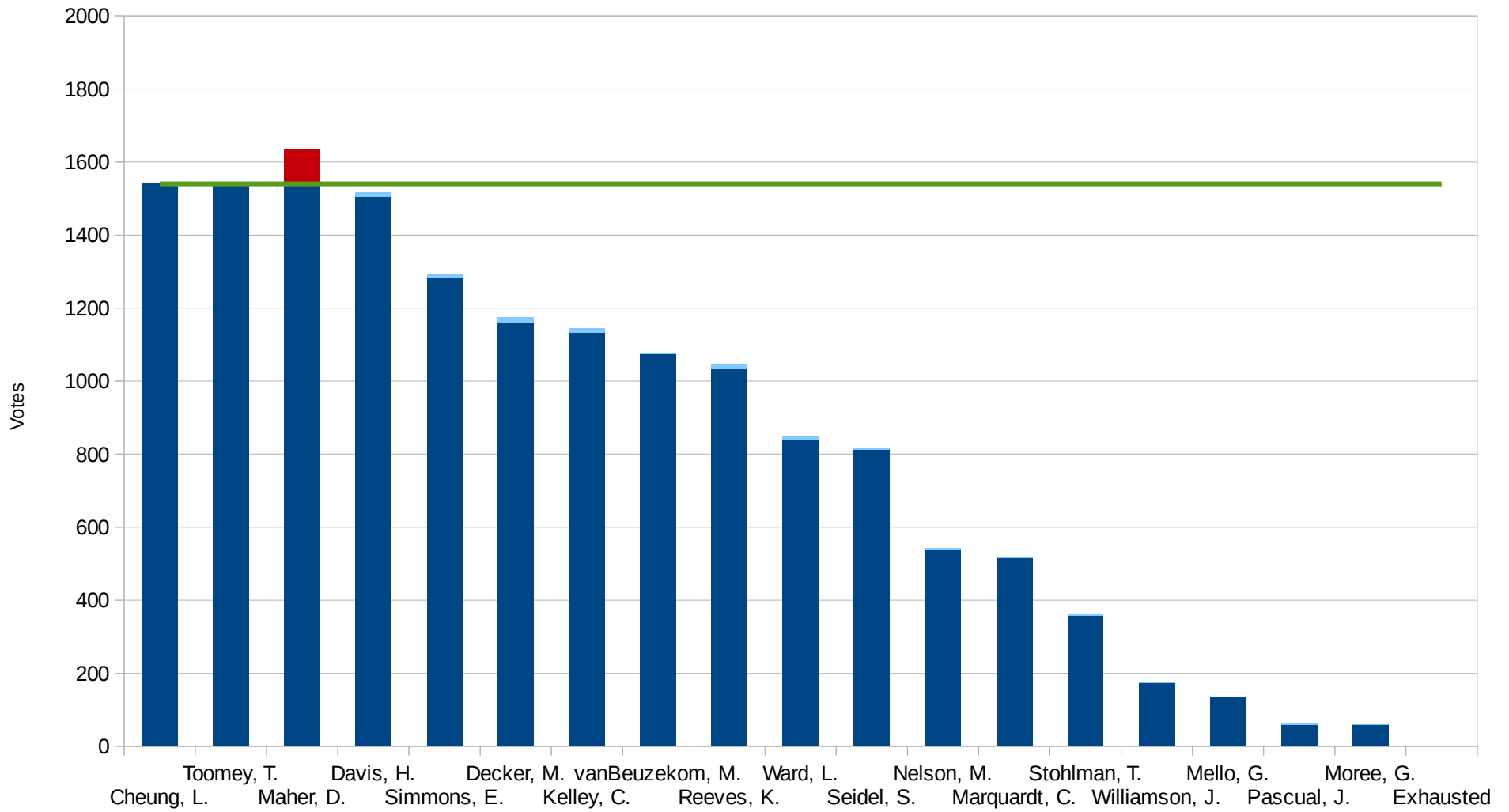
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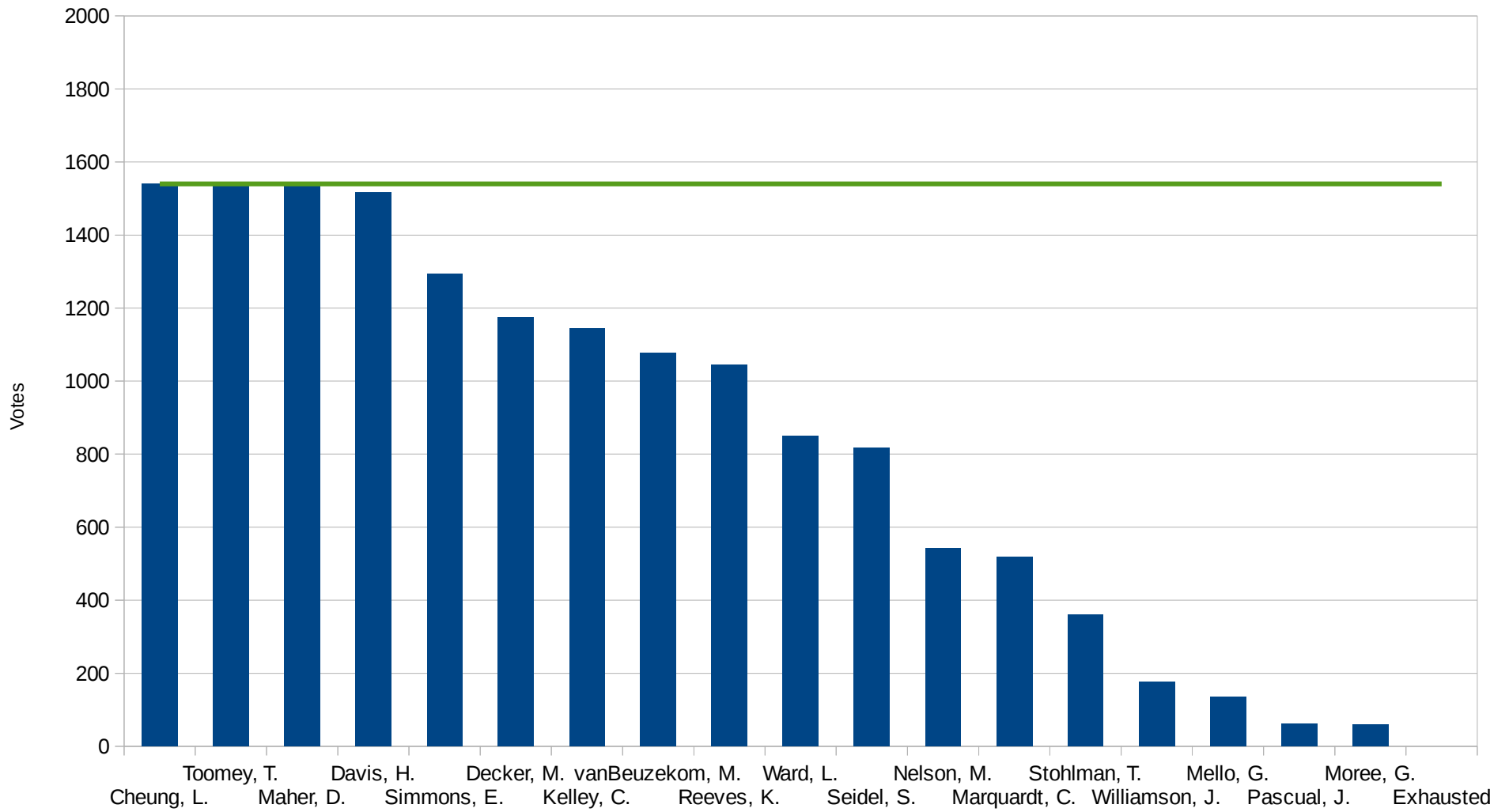
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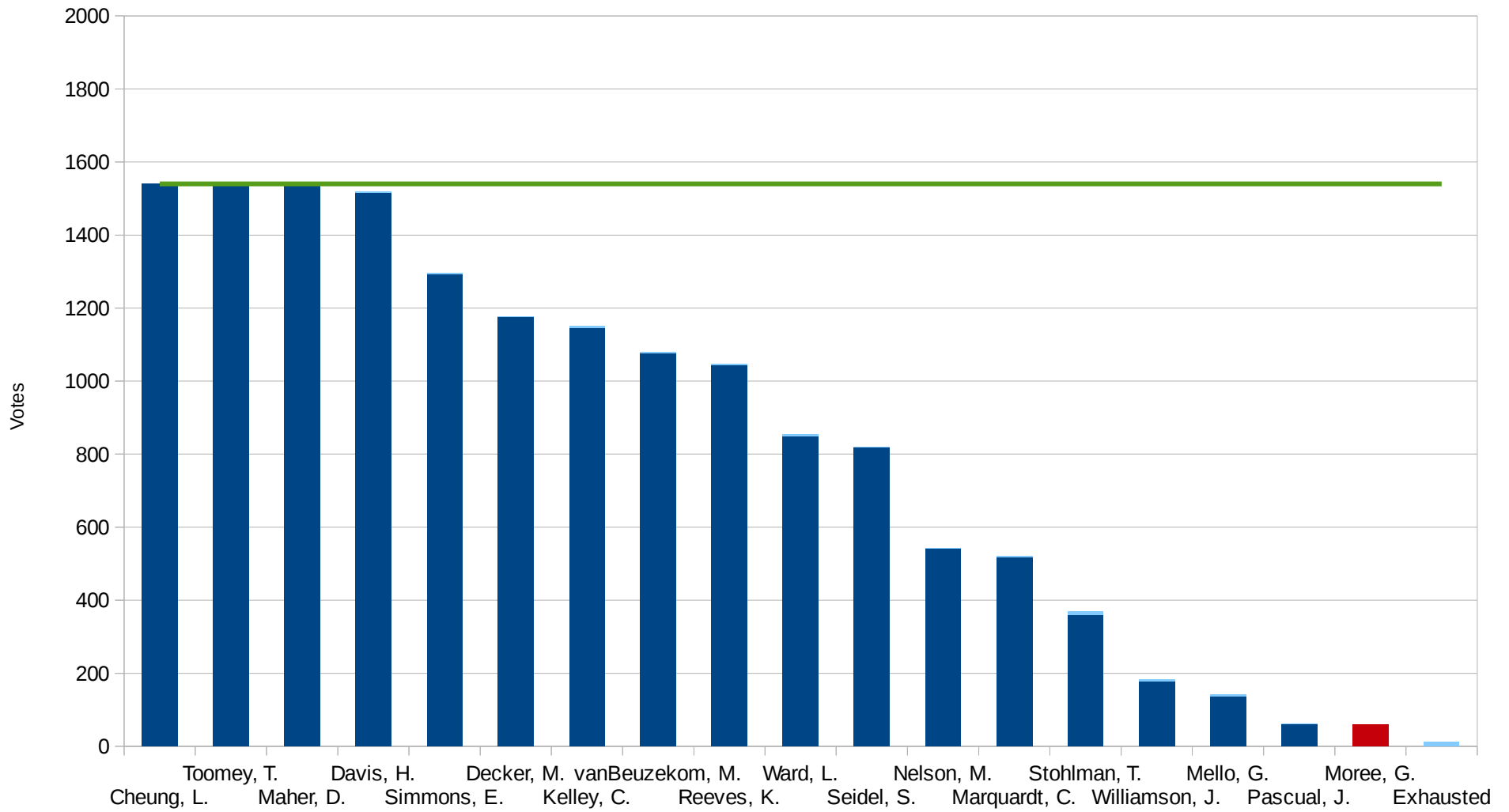
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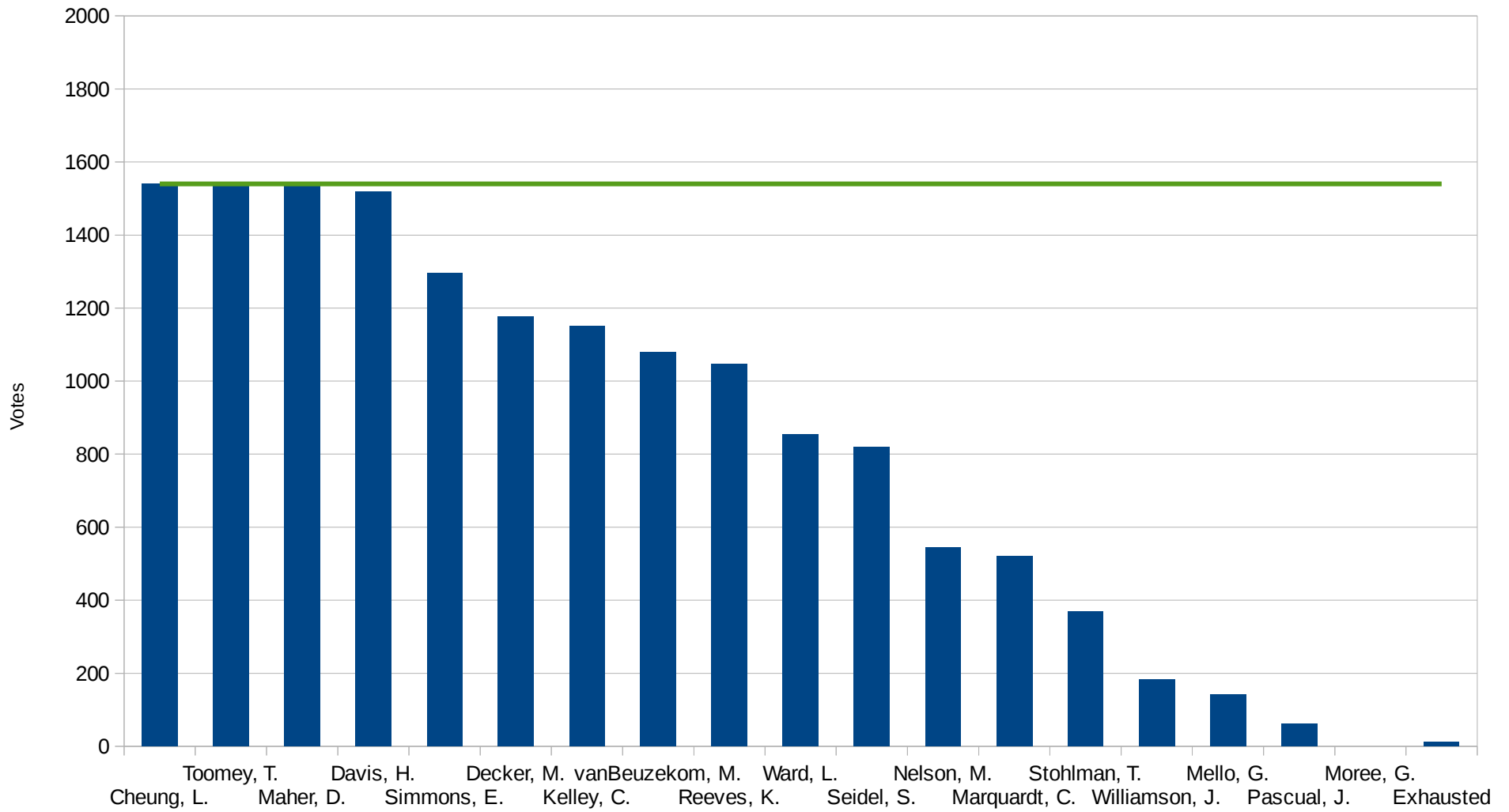
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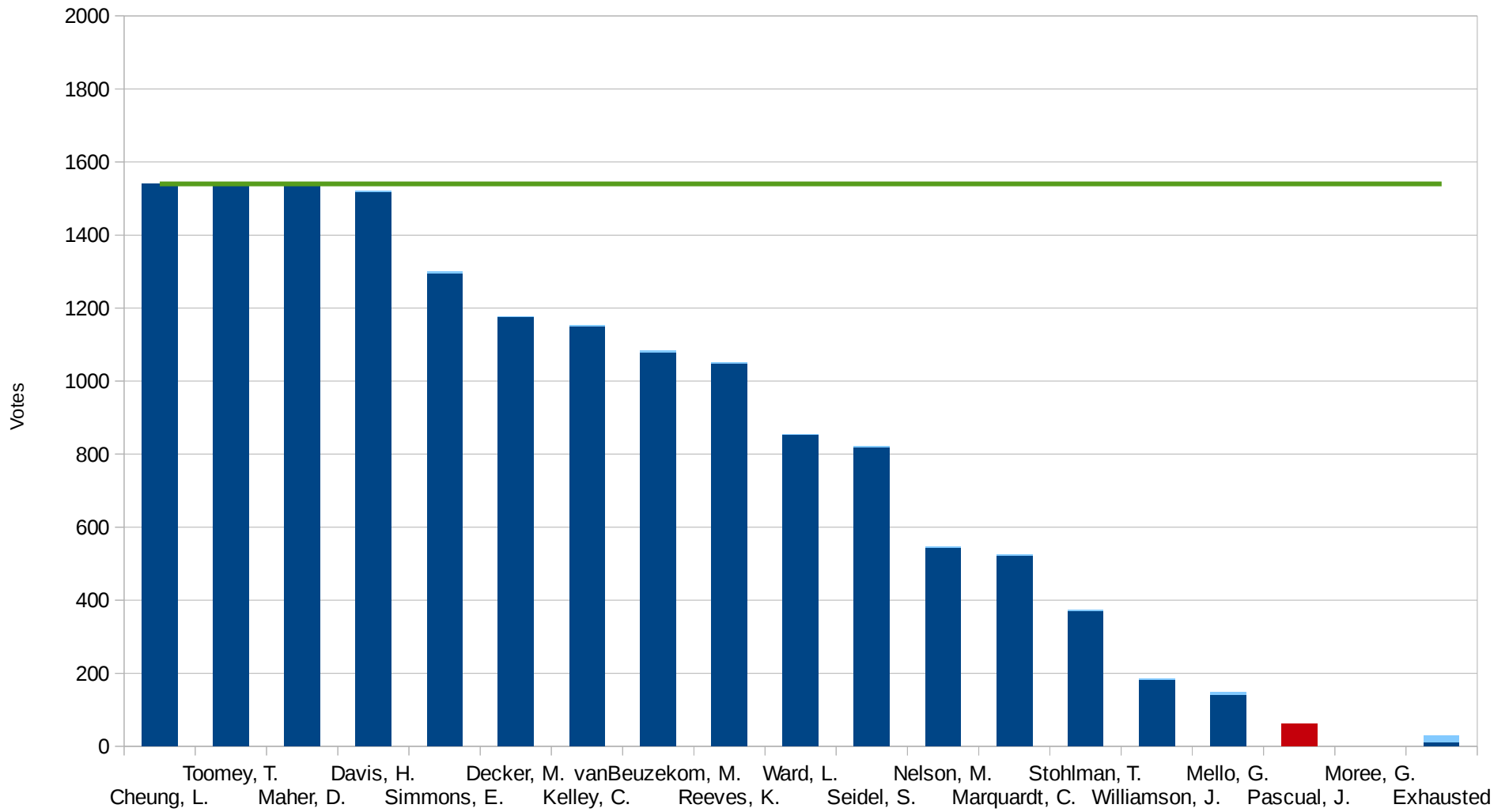
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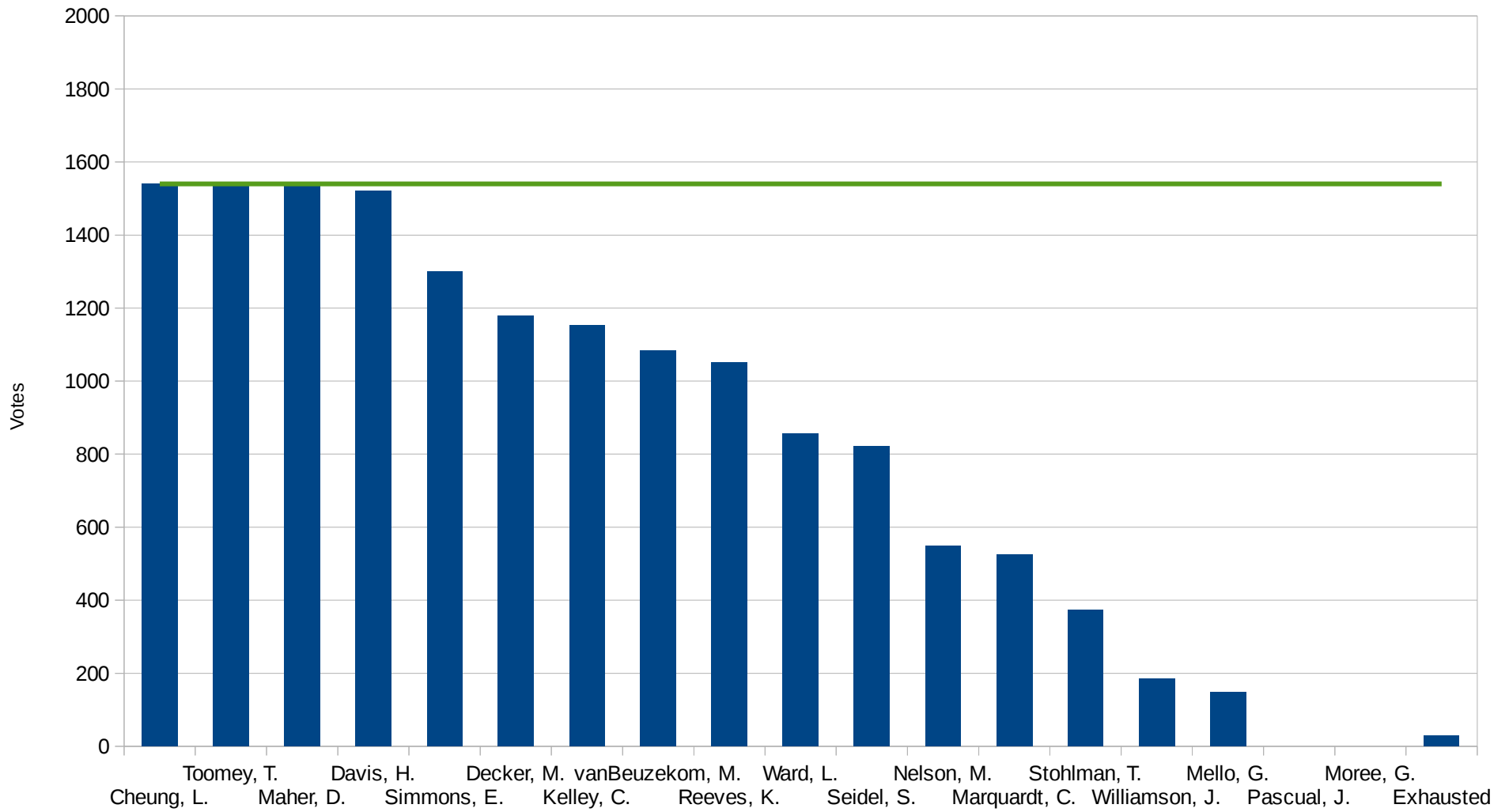
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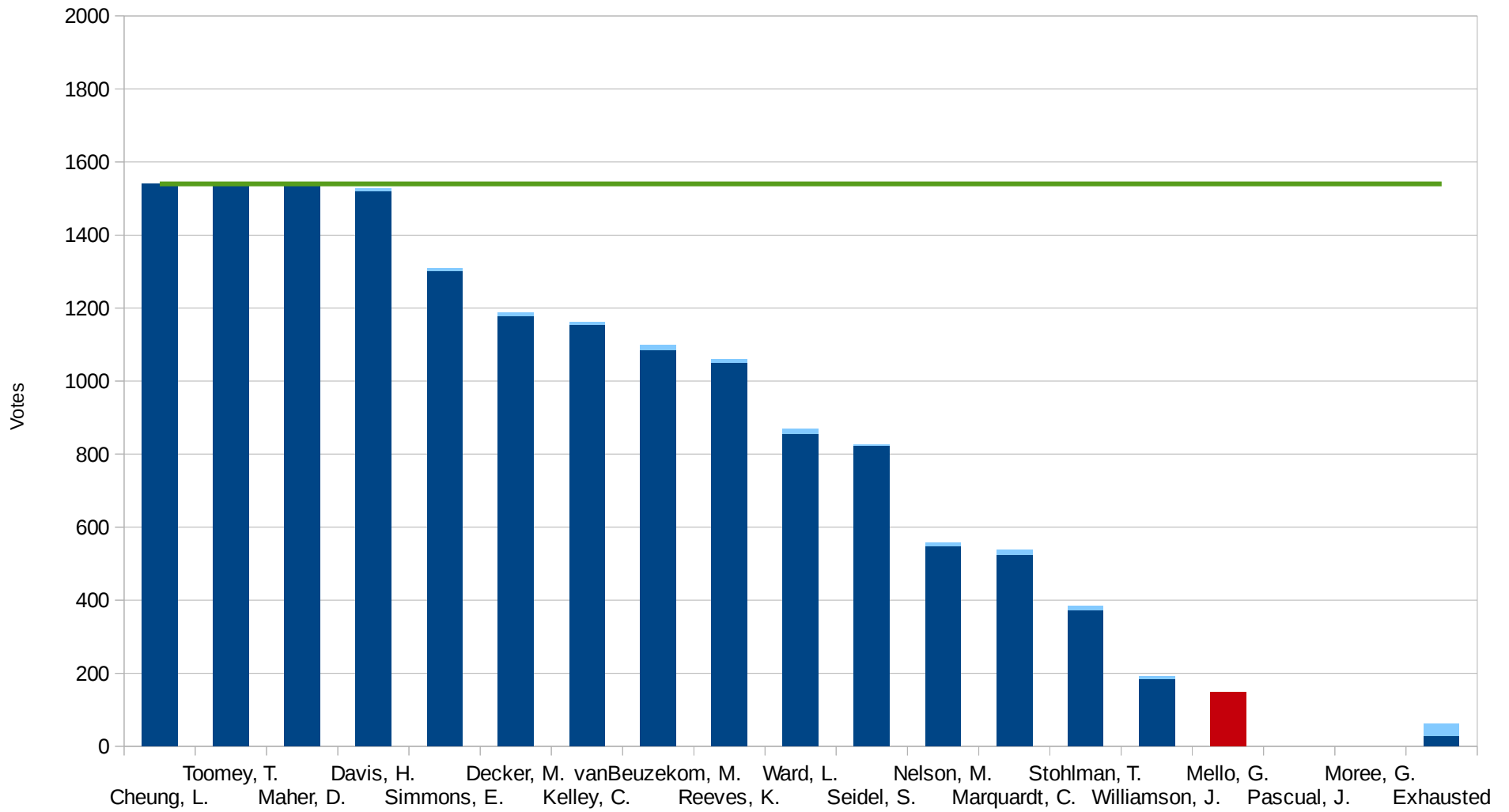
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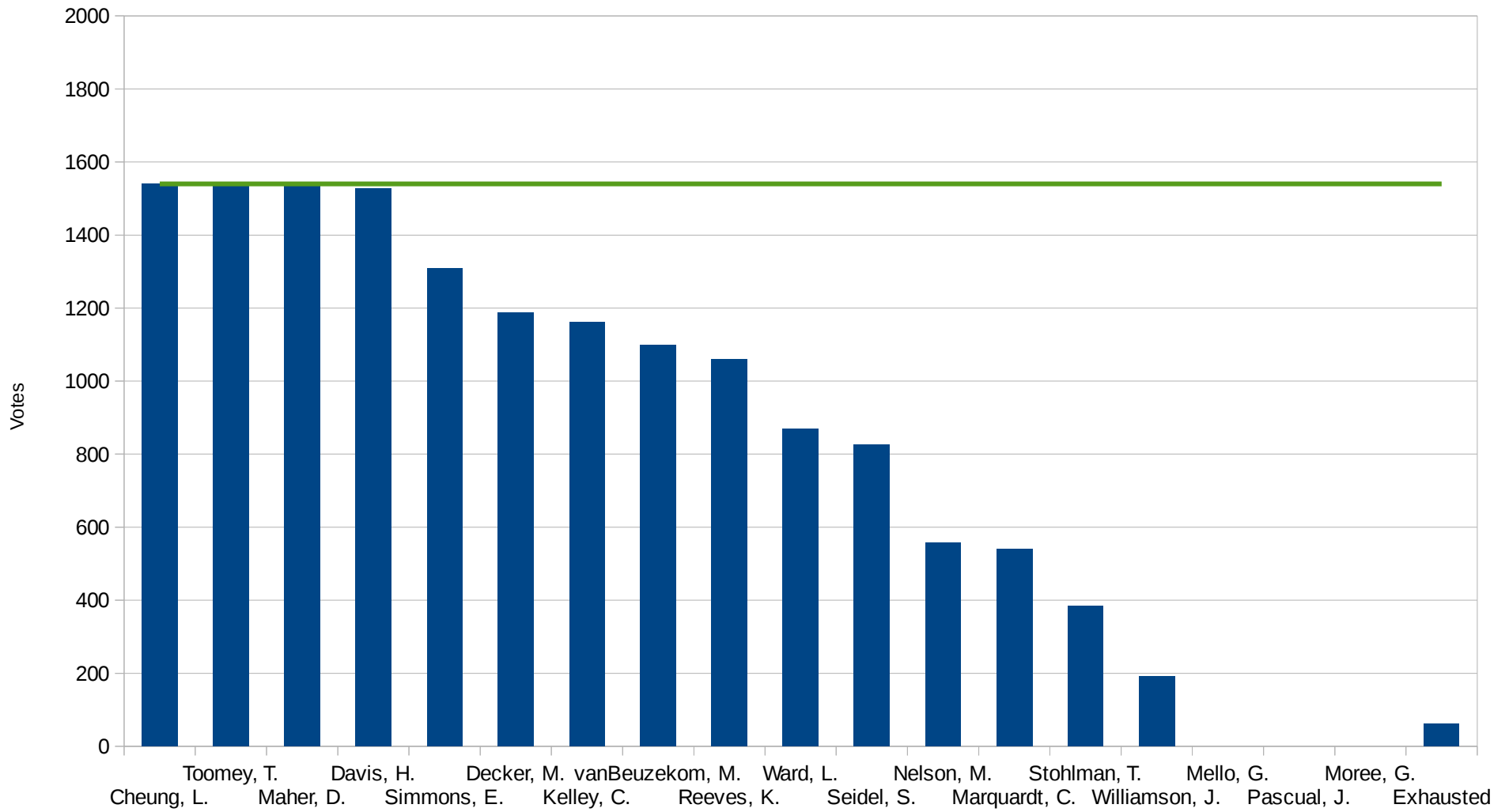
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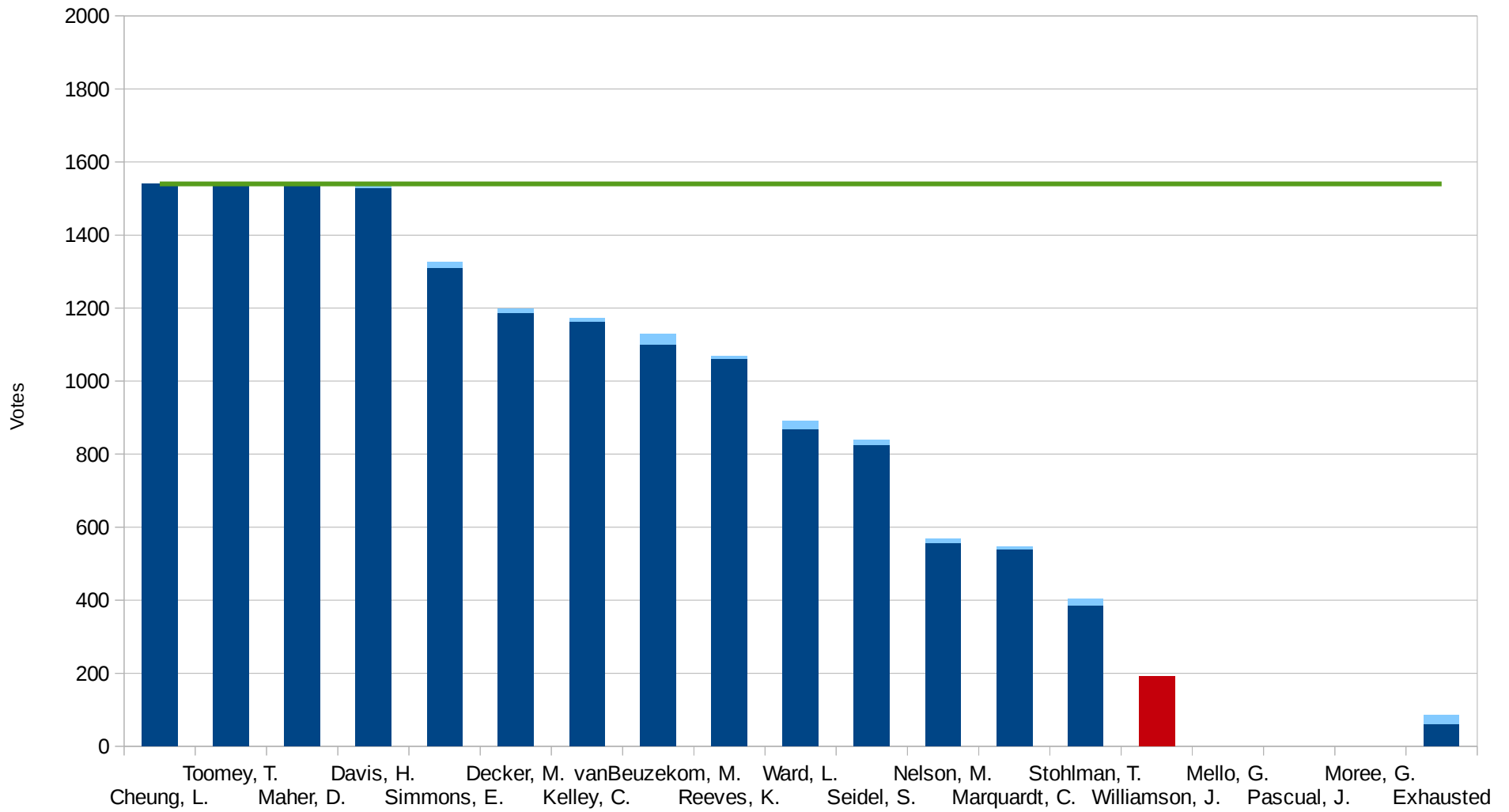
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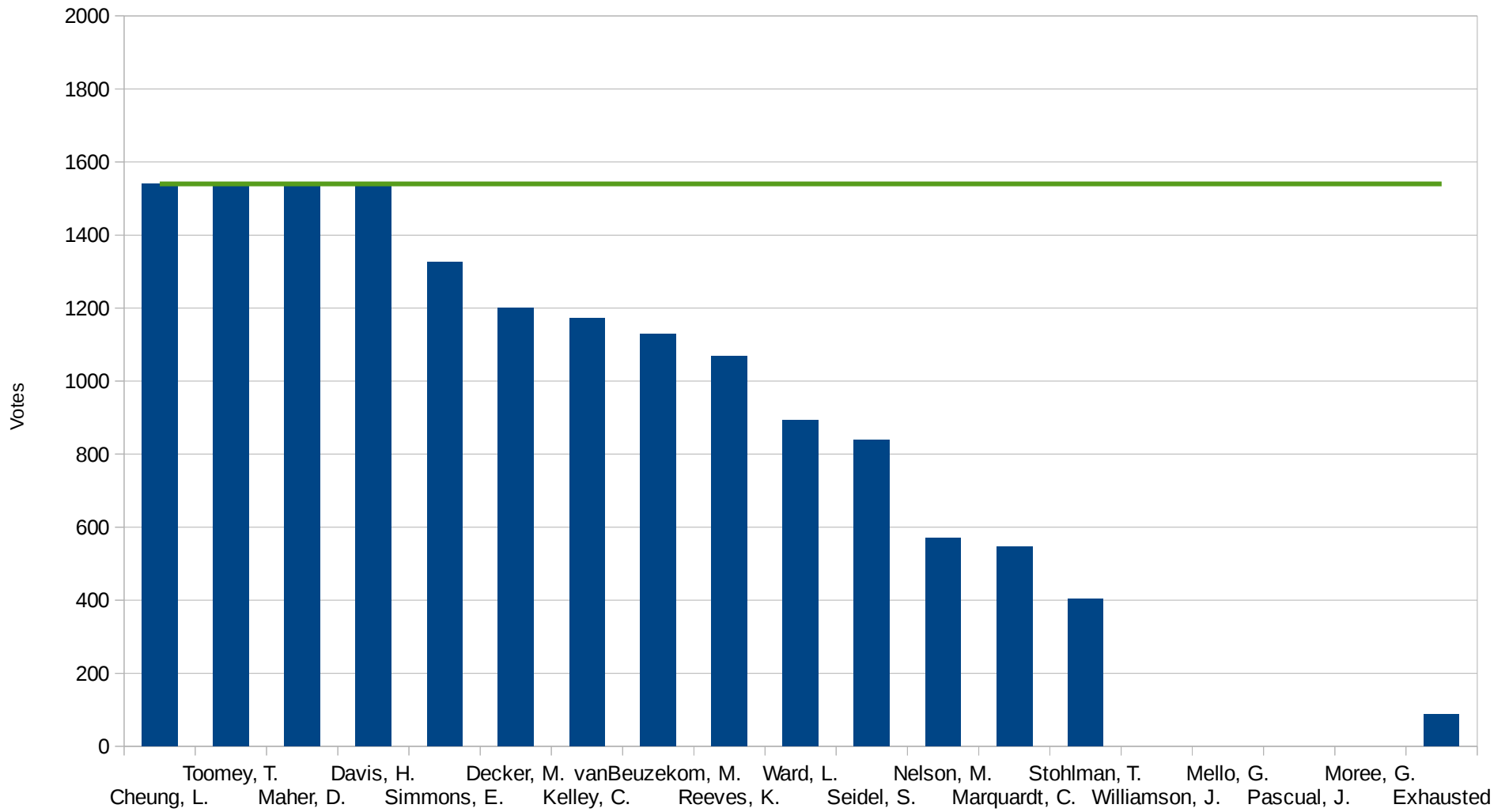
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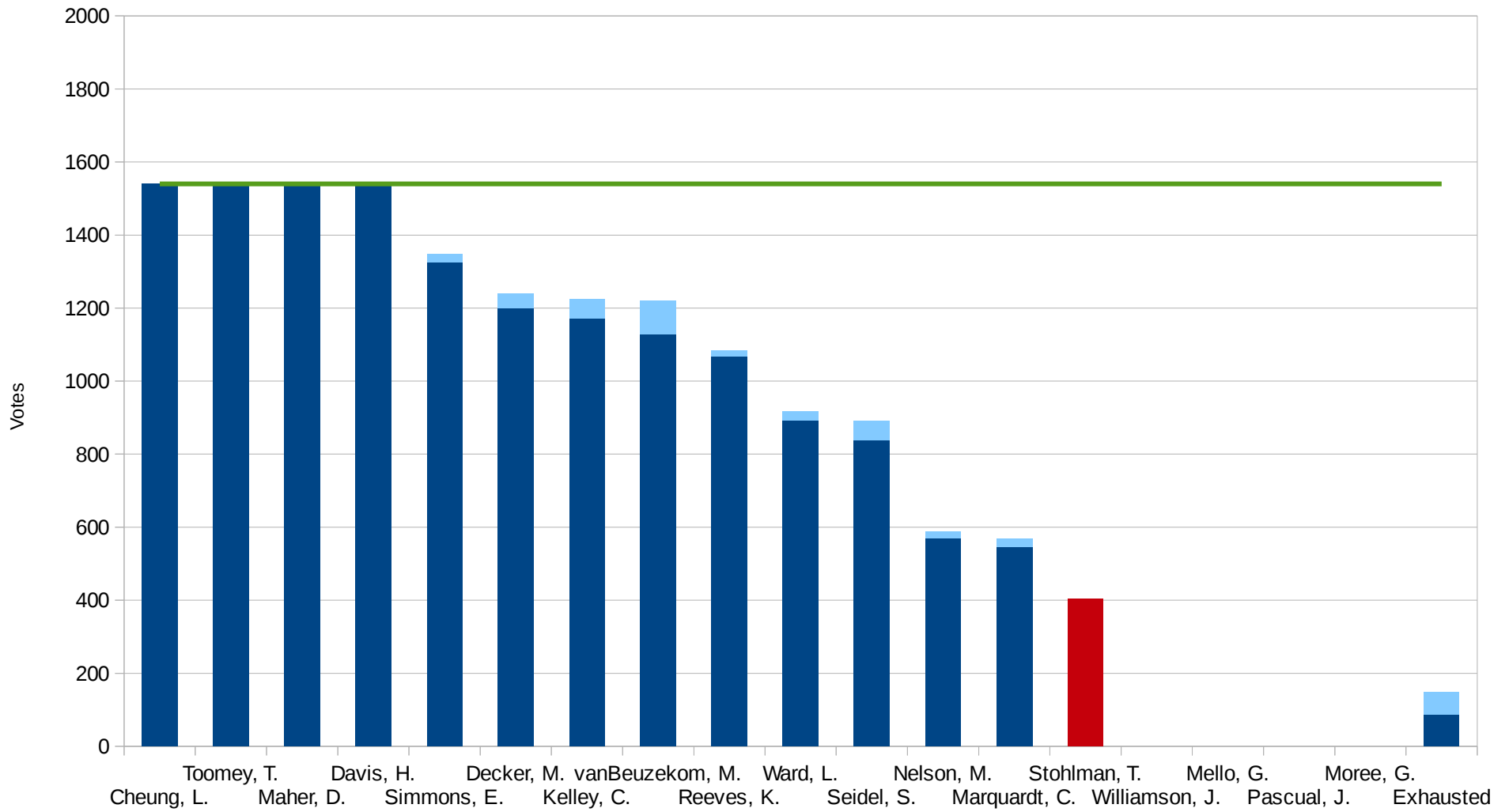
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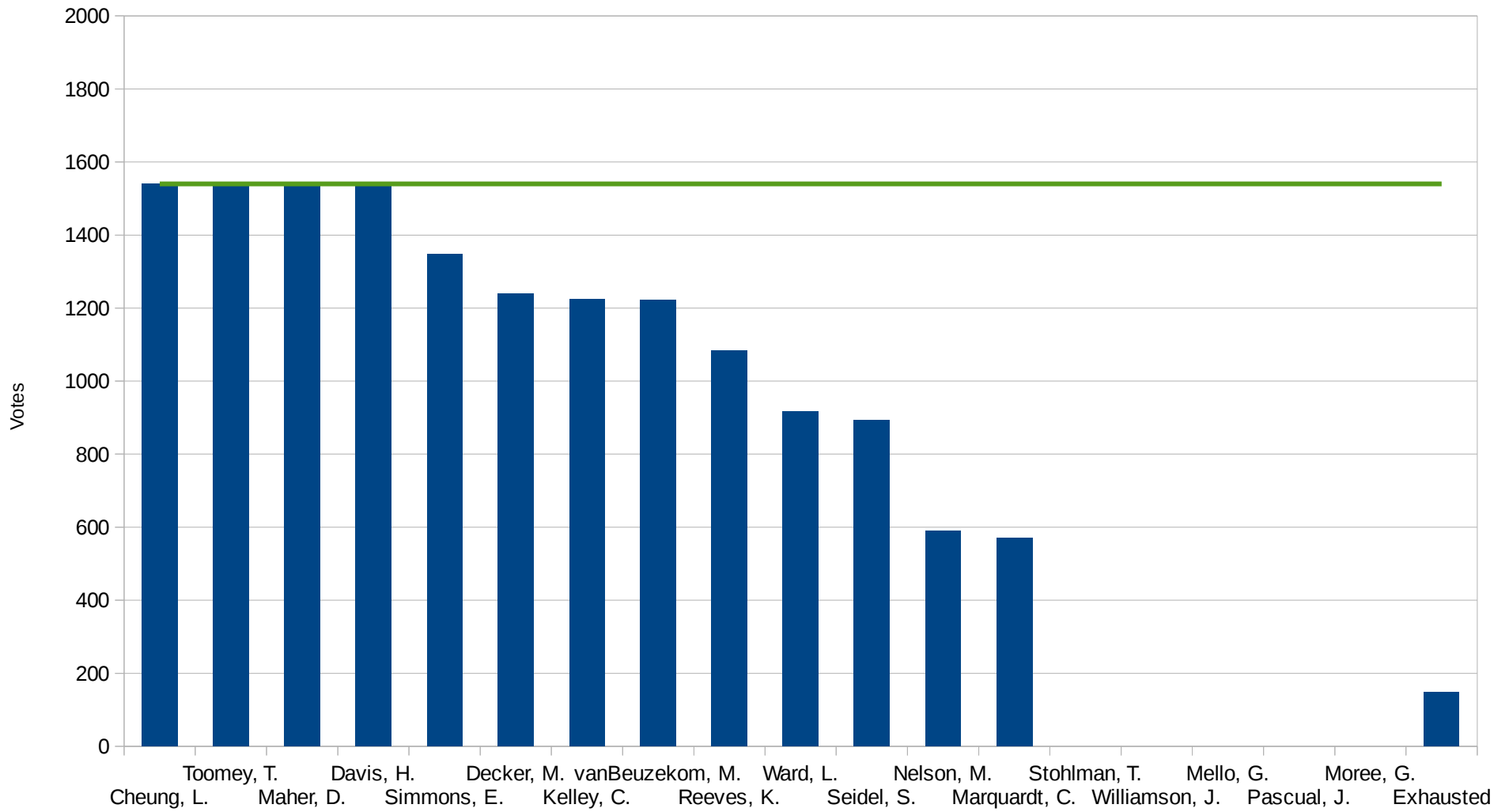
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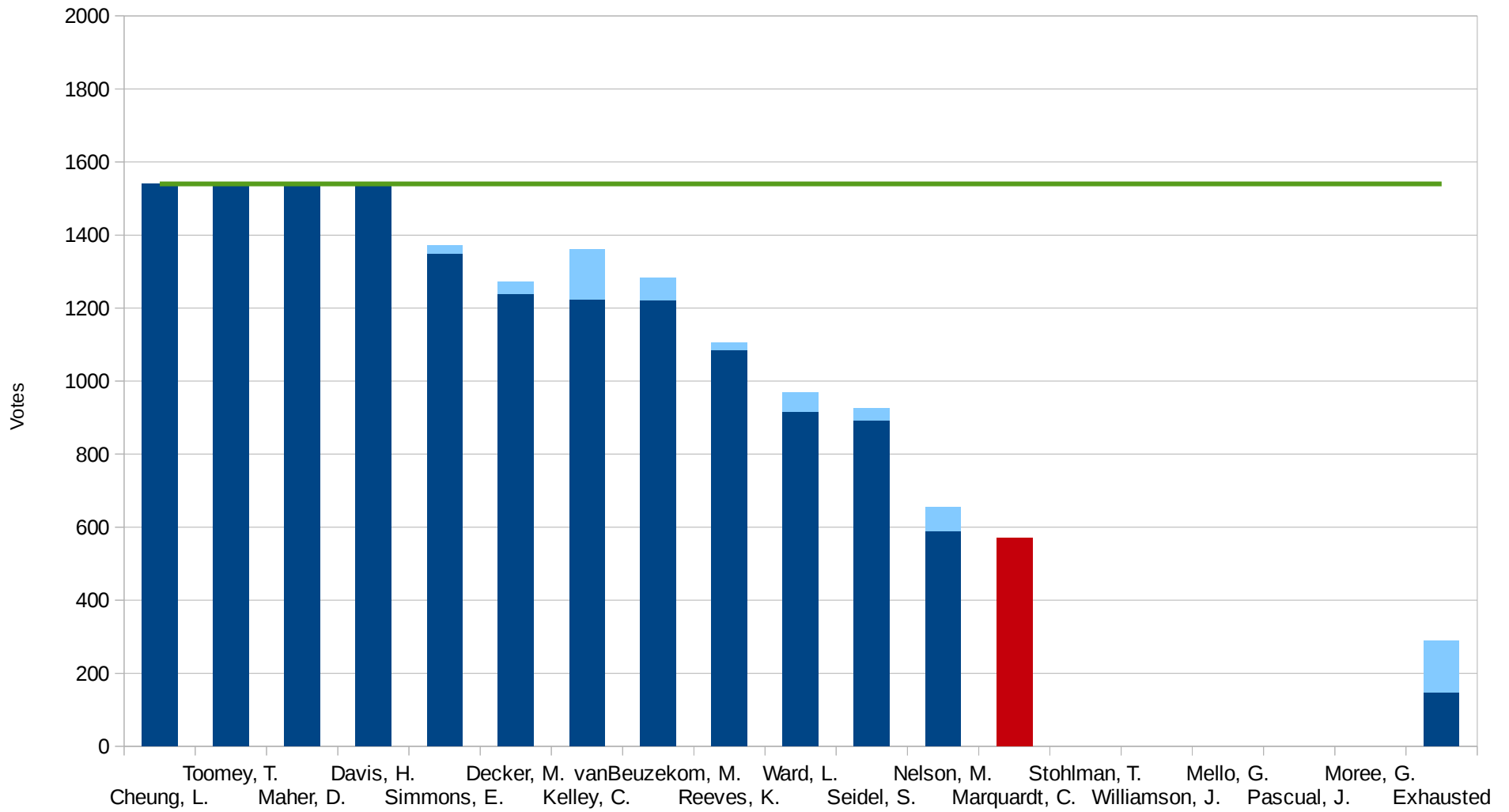
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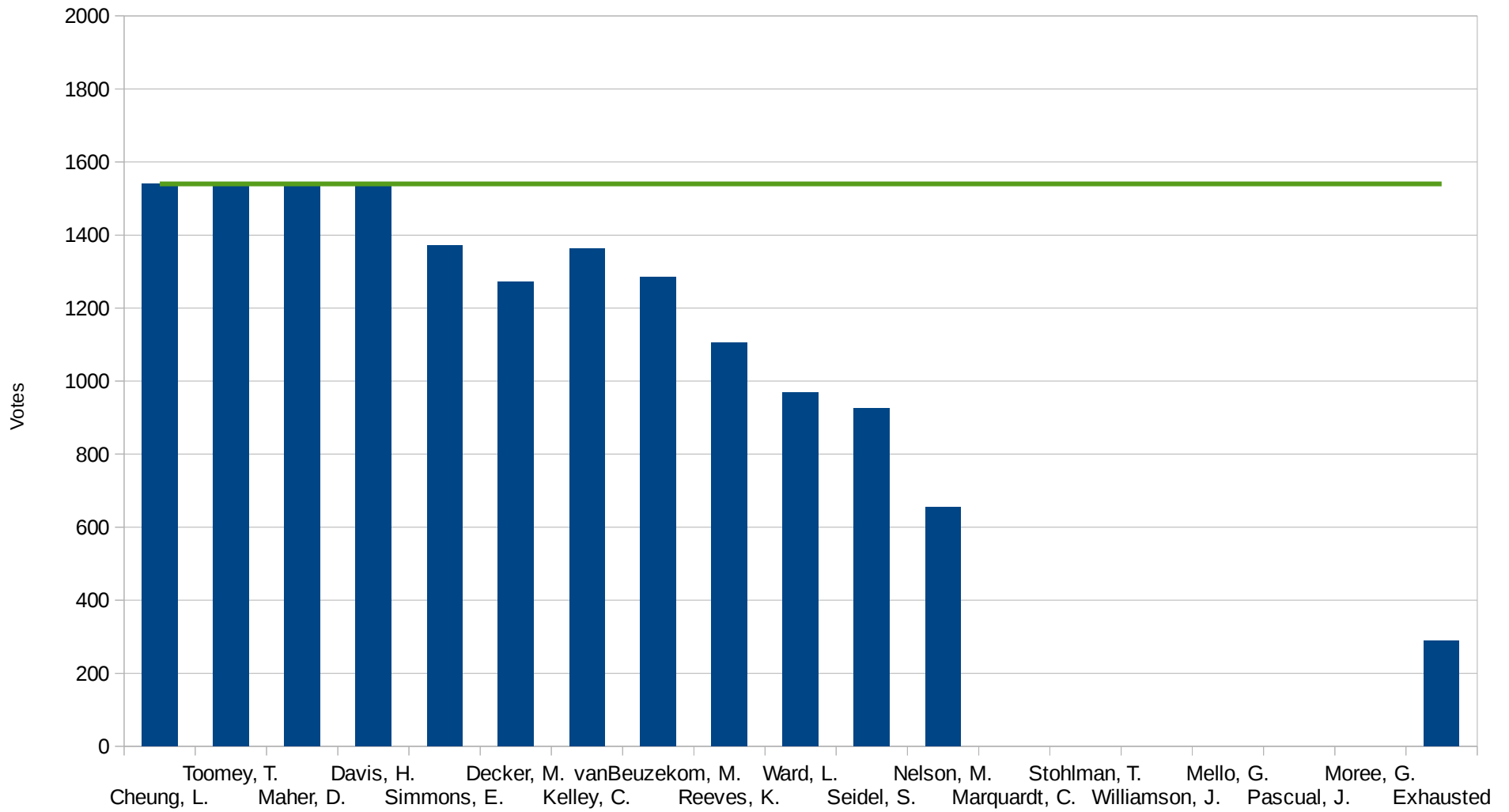
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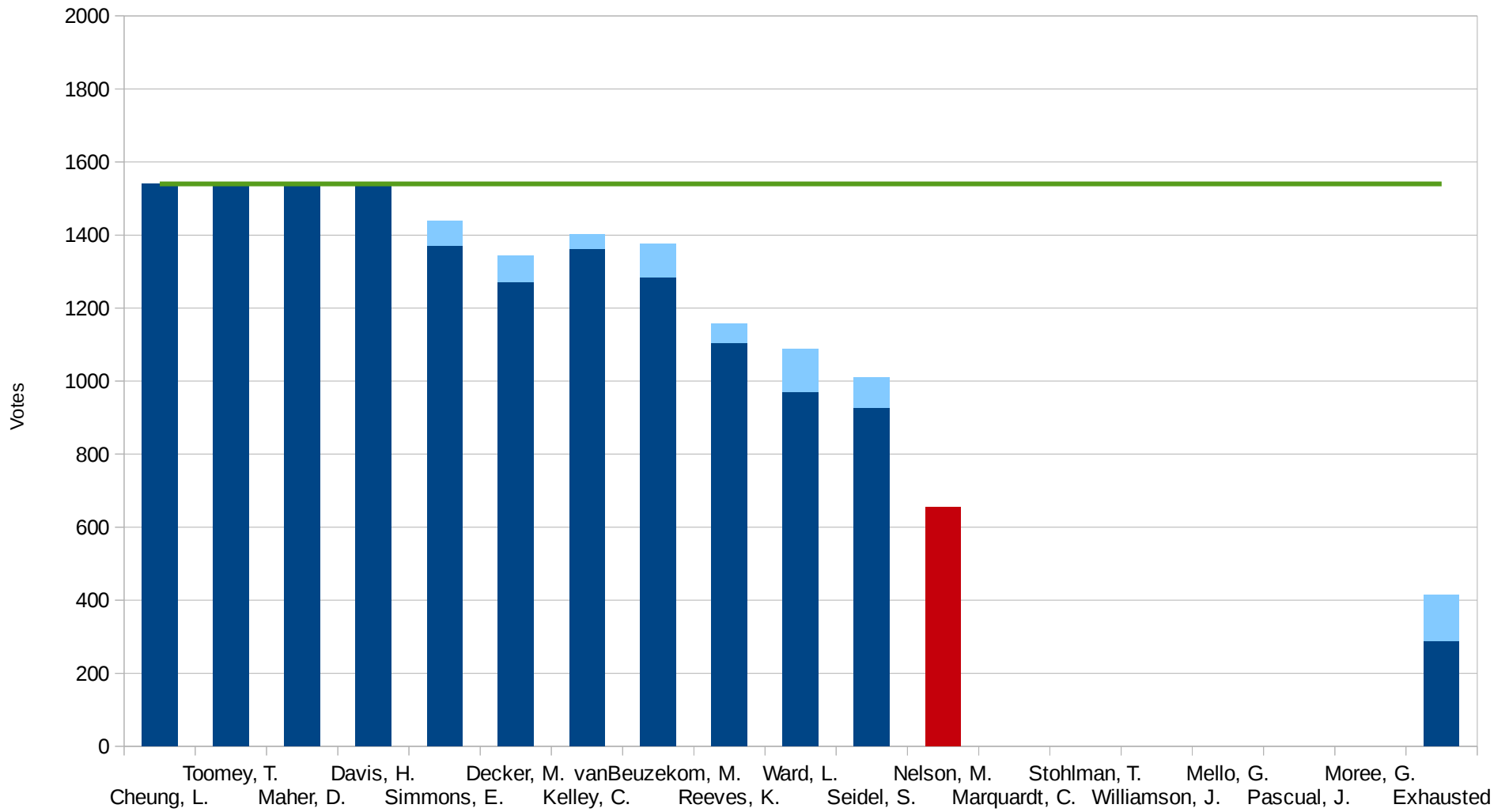
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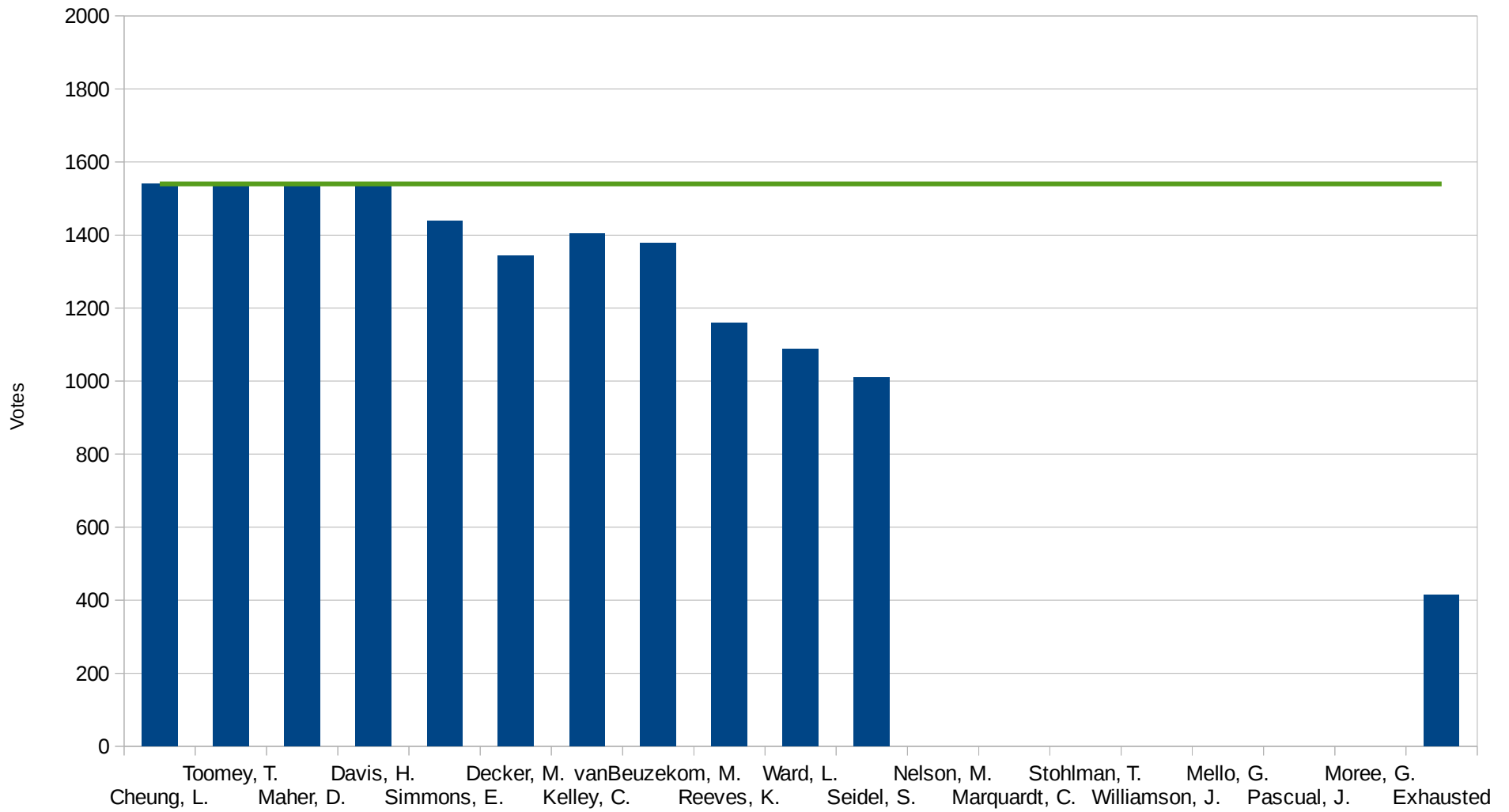
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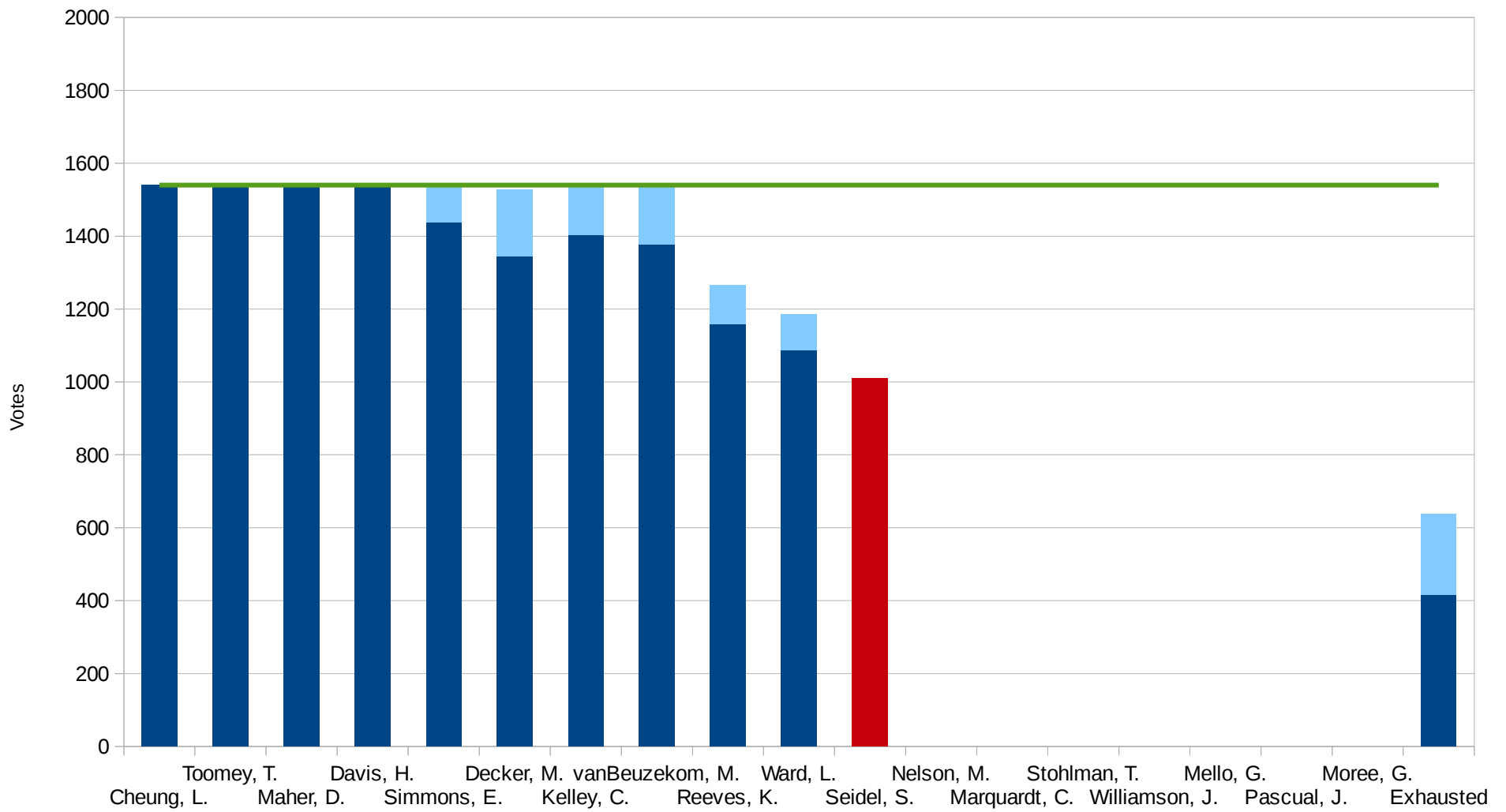
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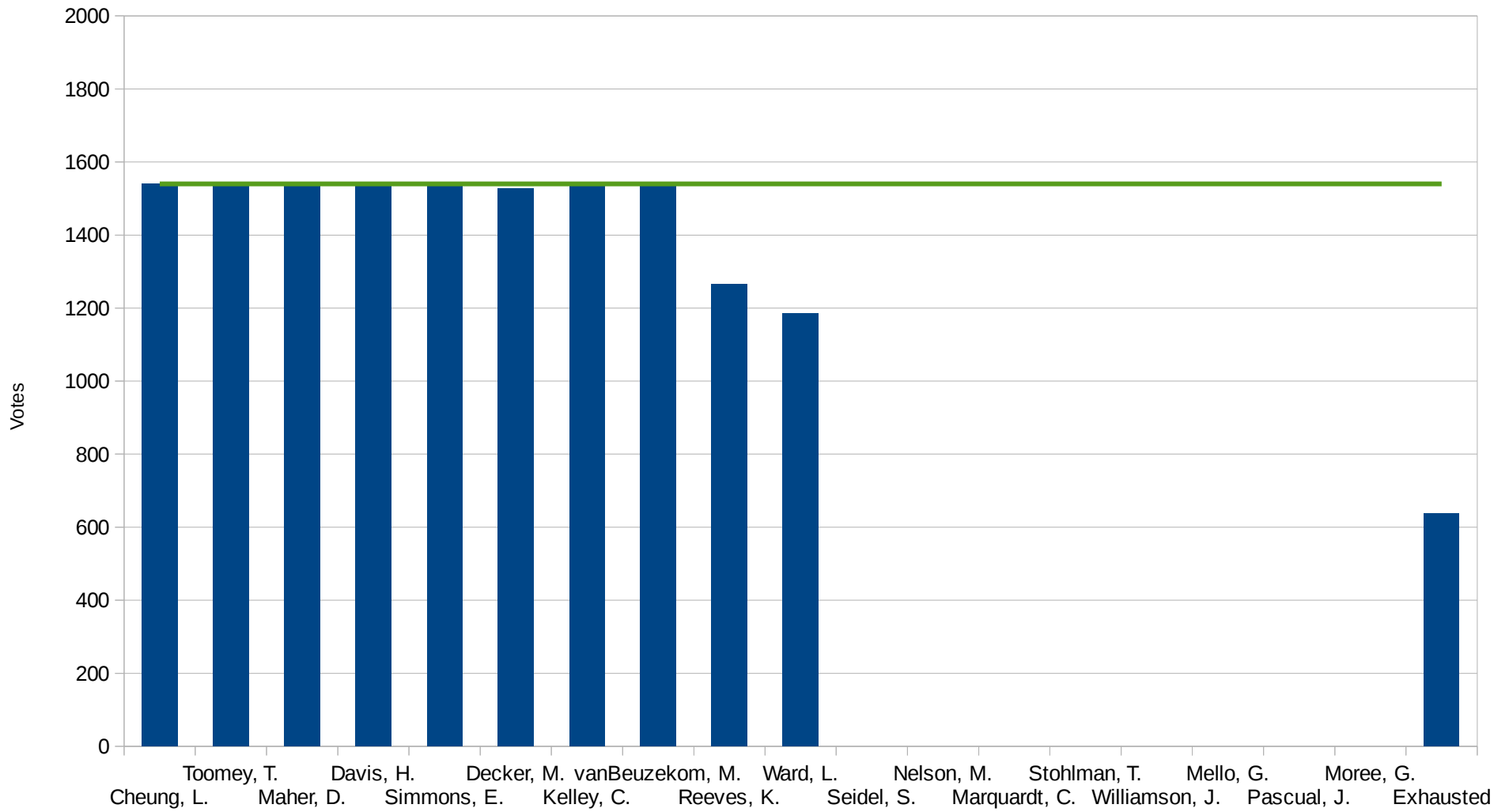
Cambridge, Massachussetts

City Council Elections, November 8th, 2011



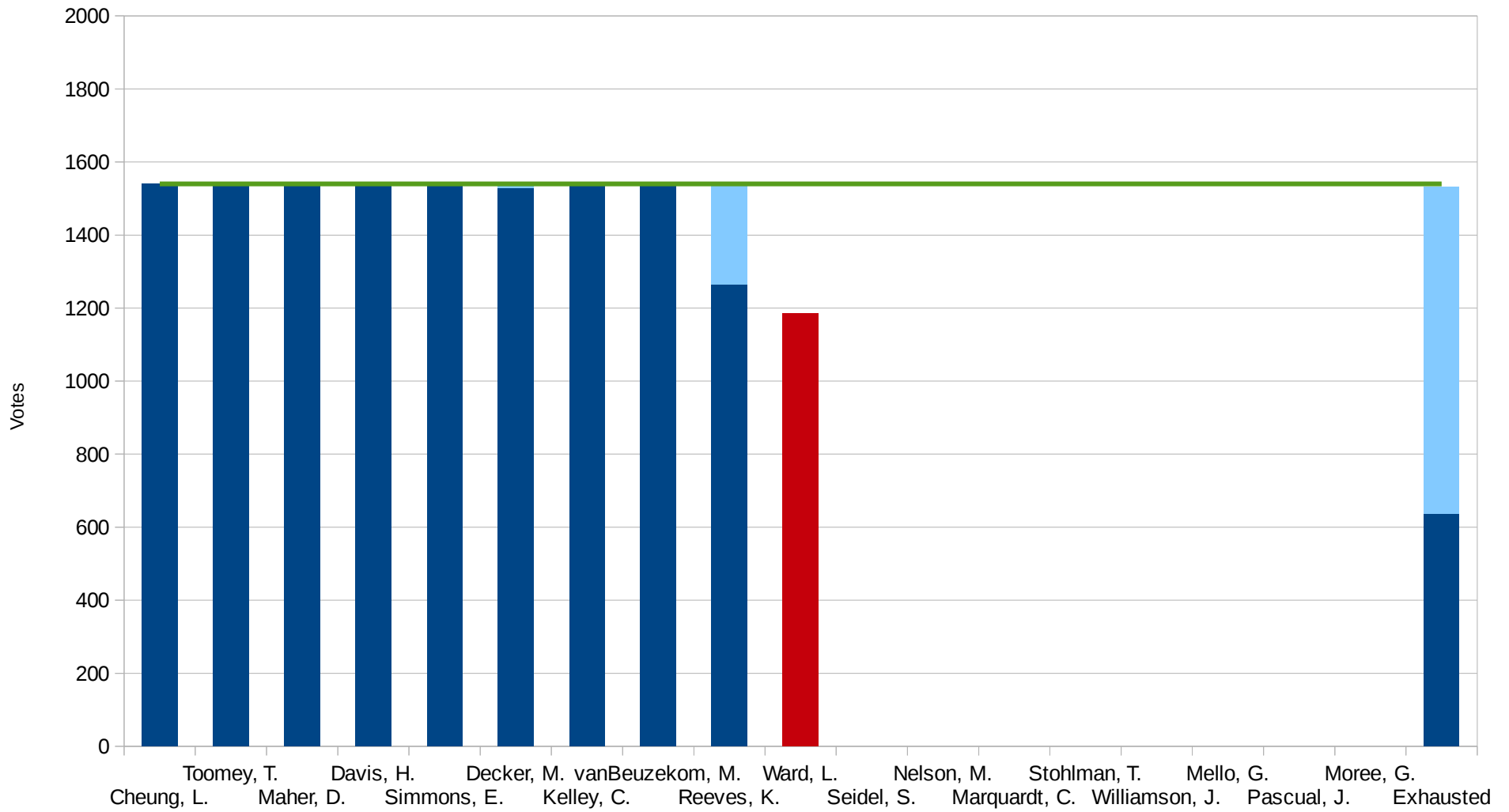
Cambridge, Massachussetts

City Council Elections, November 8th, 2011



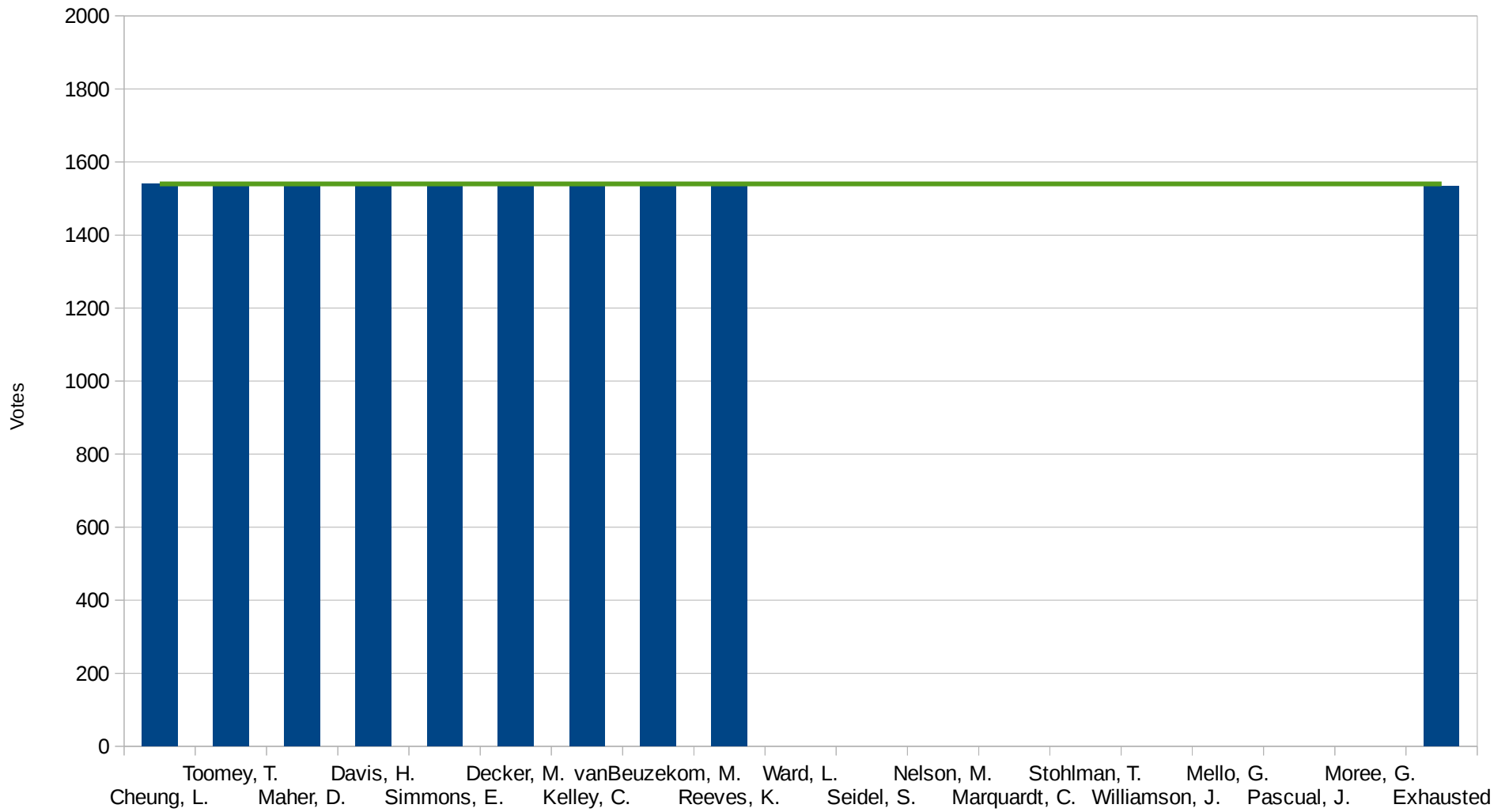
Cambridge, Massachussetts

City Council Elections, November 8th, 2011



Cambridge, Massachussetts

City Council Elections, November 8th, 2011



Single Transferable Vote

The ballot:

- A ranked ballot for candidates of different parties, one to many candidates per party

Seats per electoral district:

- 2-7 in BC-STV

The algorithm:

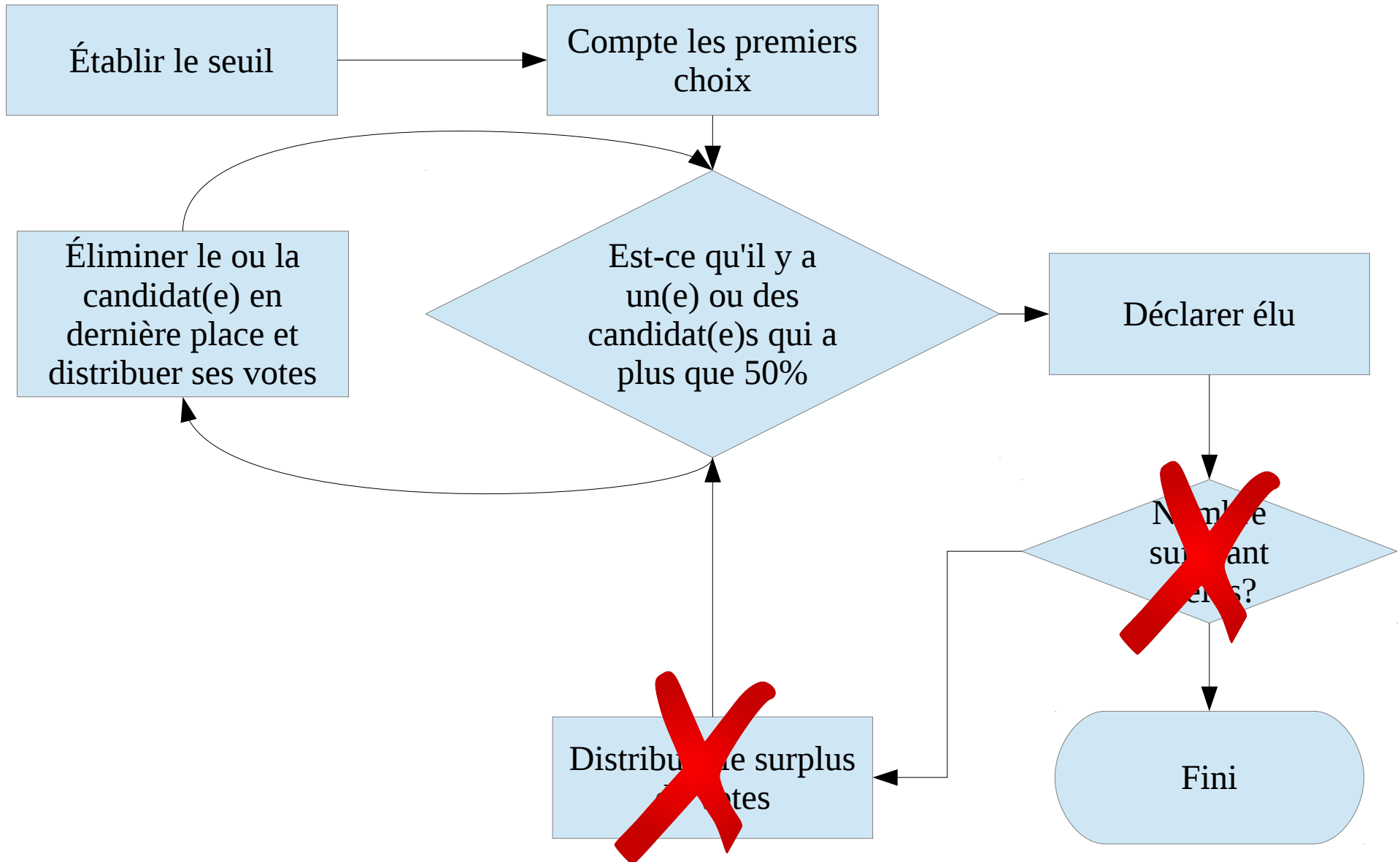
- 1) Quota determined first
- 2) Count the one
- 3) Transfer votes of surplus or losing candidate
- 4) Repeat until all seats are filled

Alternative Vote (**not** proportional)

- Also called Instant Runoff Voting or preferential voting
- Like STV, has a ranked ballot
- Only one seat per district
- Threshold is set to 50%

Vote alternatif

L'algorithme



Alternative Vote Preferential Voting

The ballot:

- A ranked ballot for candidates of different parties, one per party

Seats per electoral district:

- One seat per district

The algorithm:

- 1) Quota determined first
- 2) Count the number one
- 3) Transfer votes of losing candidate
- 4) Repeat until one candidate has $>50\%$

2015 according to Éric Grenier

	Election	Proportional	Preferential
Liberal	184	134	224
Conservative	99	109	61
NDP	44	67	50
Bloc	10	16	2
Green	1	12	1

Dual Member Proportional

The ballot paper would look something like this...

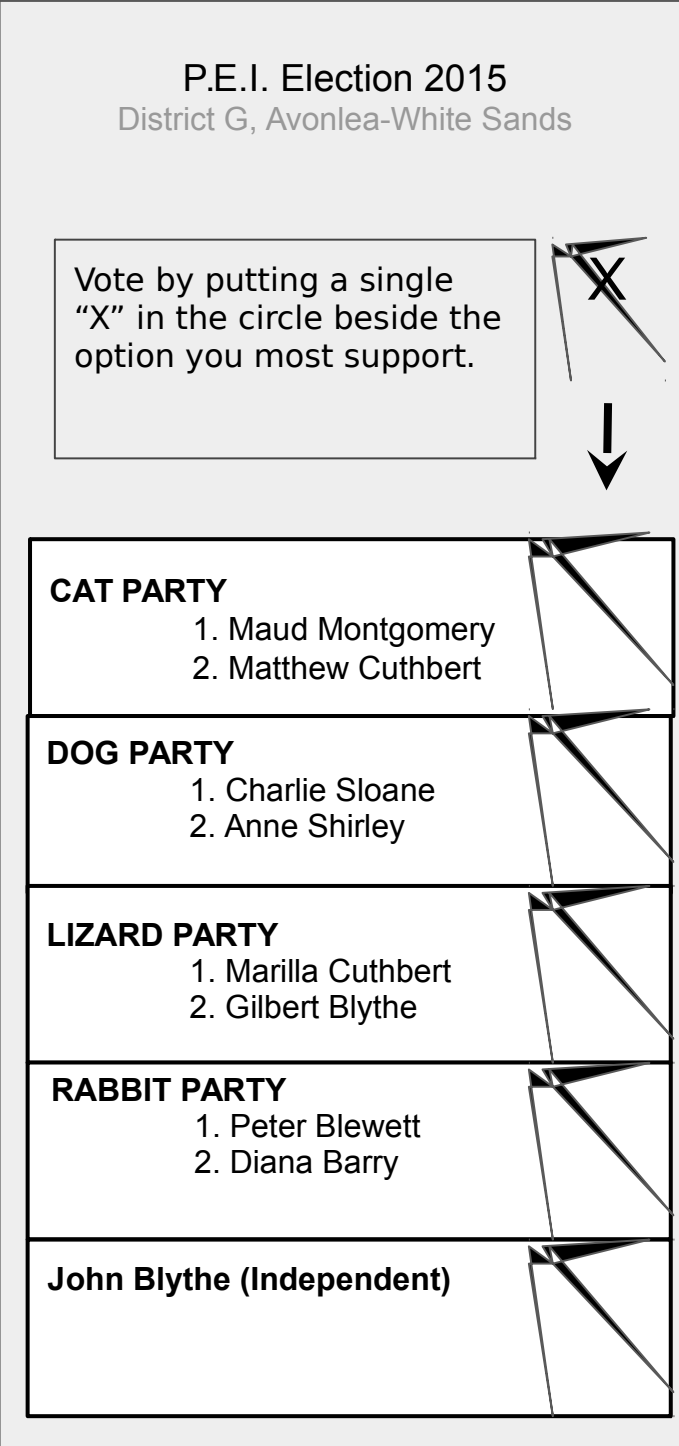
Parties may nominate **up to 2 candidates** per district.

Independent candidates may also run.

When a party wins 1 of the 2 seats for this district, only their **first-listed candidate** is selected.

P.E.I. Election 2015
District G, Avonlea-White Sands

Vote by putting a single "X" in the circle beside the option you most support.



CAT PARTY 1. Maud Montgomery 2. Matthew Cuthbert
DOG PARTY 1. Charlie Sloane 2. Anne Shirley
LIZARD PARTY 1. Marilla Cuthbert 2. Gilbert Blythe
RABBIT PARTY 1. Peter Blewett 2. Diana Barry
John Blythe (Independent)

Dual Member Proportional

The ballot:

- Single X for a pair of candidates. The X also counts as a party vote.

Seats per electoral district:

- 2 seats per district

The algorithm:

- 1) First listed candidate with a plurality of votes is selected
- 2) Determine the number of compensatory seats per party
- 3) Candidates with the strongest relative support among their party are given the compensatory seats

Winner take all

- **Single Member Plurality (SMP)**
aka First Past The Post

- **Alternative Vote (AV)**
aka Preferential Voting, Instant runoff

Less proportional*

More proportional*

- **Single Transferable Vote (STV)**
@ 2-4 seats / district

- **Single Transferable Vote (STV)**
@ 5+ seats / district

Dion P3 ●

- **Jenkins-Day** MMP**

- **Law Commission 2004 model (LC2004)**

Netherlands ●

Israël ●

- **Ontario 2007 (On2007)**
- has closed list, not open

*Placement of systems on this scale is approximate and subject to considerable ad nauseum debate :-)
**Not an official name. See <http://is.gd/bhSsaZ>. The model was inspired by the UK Jenkins model and, I believe, authored by Wilfred Day

Author : Julien Lamarche
NCR@fairvote.ca

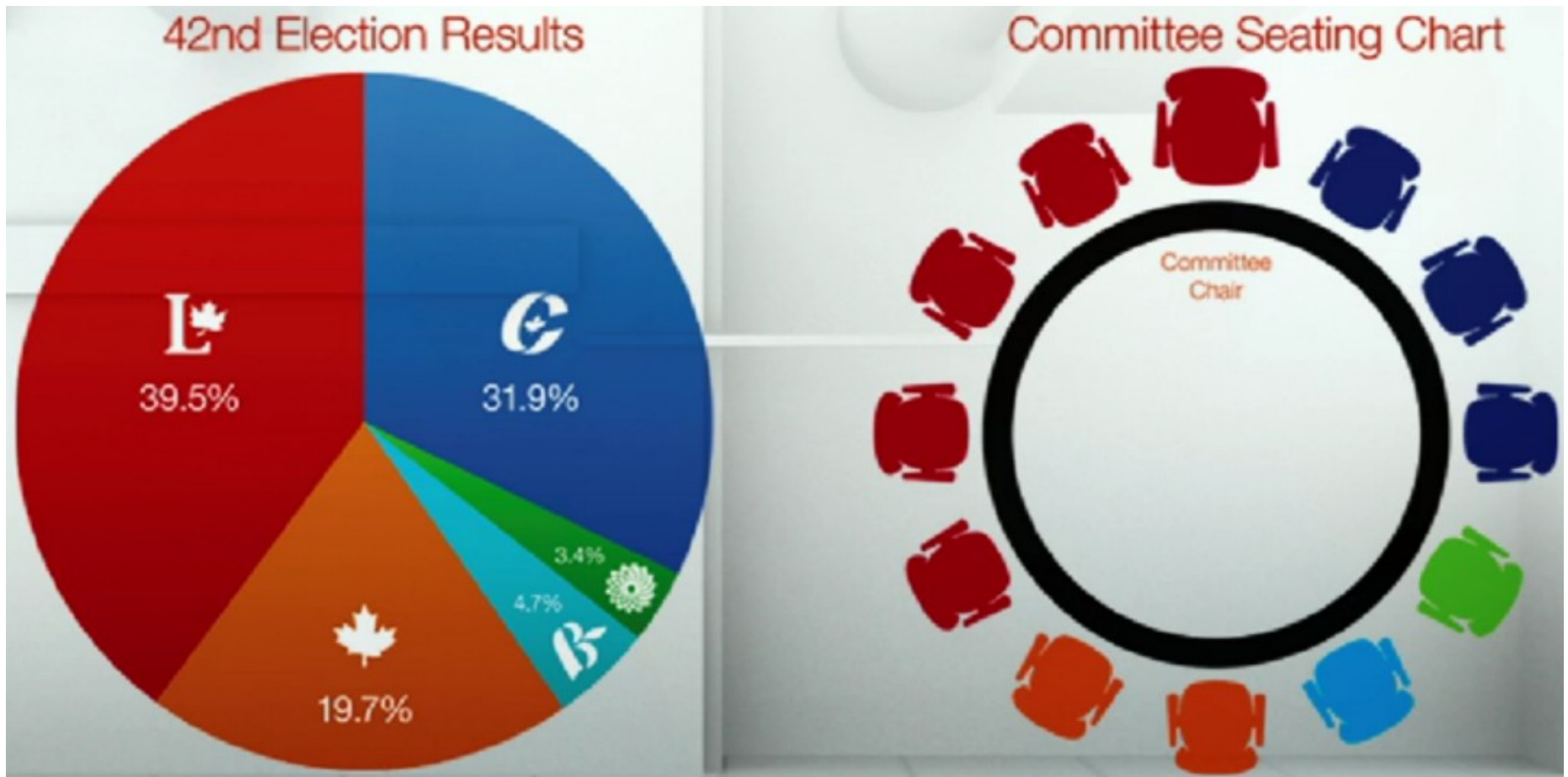
See <http://www.fairvotecanadancr.ca/?q=node/103> for updates



Where to go from here?

- Sign Declaration
- Update your information with FVC (postal code)
- Get candidates to sign the pledge
- Get a presentation in your community
- Get your organization to support the cause
- Get on our volunteers list : NCR@fairvote.ca
- Donate : <http://www.fairvote.ca/donate/>
- Write a letter : letters@ottawacitizen.com,
editor@theequity.ca, editor@journalpontiac.com

What's next?



Where to go from here?

170 MPs

A primer on voting systems

Questions?

Somes images provided by New Zealand government and Wikipedia users
Altes, Rspeer, Mark Ryan, Dariusofthedark, Jhayman and Earl Andrew.

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