Majority Judgment: Why use it to rank and elect

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Keynote Speech

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(*Joint work with Michel Balinski*)

2017 French presidential election

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	1st Round			2nd Round		
	Number	% Regis.	% Voters	Number	% Regis.	% Voters
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Voters	37 003 728	77.77%		35 467 327	74.56%	
Blank	659 997	1.39%	1.78%	3 021 499	6.35%	8.52%
Inval.	289 337	0.61%	0.78%	1 064 225	2.24%	3.00%
Votes	36 054 394	75.77%	97.43%	31 381 603	65.97%	88.48%

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- Yet they may see a difference between Macron and Le Pen.

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As Walter Lippmann observed in 1925, actual methods measure badly:

> *"But what in fact is an election? We call it an expression of the popular will. But is it? We go into a polling booth and mark a cross on a piece of paper for one of two, or perhaps three or four names. Have we expressed our thoughts . . . ? Presumably we have a number of thoughts on this and that with many buts and ifs and ors. Surely the cross on a piece of paper does not express them. . . . [C]alling a vote the expression of our mind is an empty fiction."*

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Main messages of this presentation:

1) A bad measure of opinions induce paradoxical results in theory and practice.

2) By allowing better expressions of opinions, we can solve the problems.

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Borda's Method

In 1433, Nicolas Cusanus proposed what is known today as Borda's method (1780):

Points	30%	32%	38%
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The Borda-ranking: $C \succ A \succ B$.

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2000 Election	Votes	Electoral votes	Florida votes
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19,88%	16,86%	16,18%	6,84%	5,72%	5,33%

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Jospin	Le Pen
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- A1 [Universal domain] All opinions are admissible.

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- A6 [Transitive] If $A \succeq B$ and $B \succeq C$ then $A \succeq C$.
- A7 [Independence of irrelevant alternatives (IIA)] If $A \succeq B$ then whatever candidates are dropped or adjoined $A \succeq B$.

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Theorem (Gibbard/Satterthwaite's impossibility)

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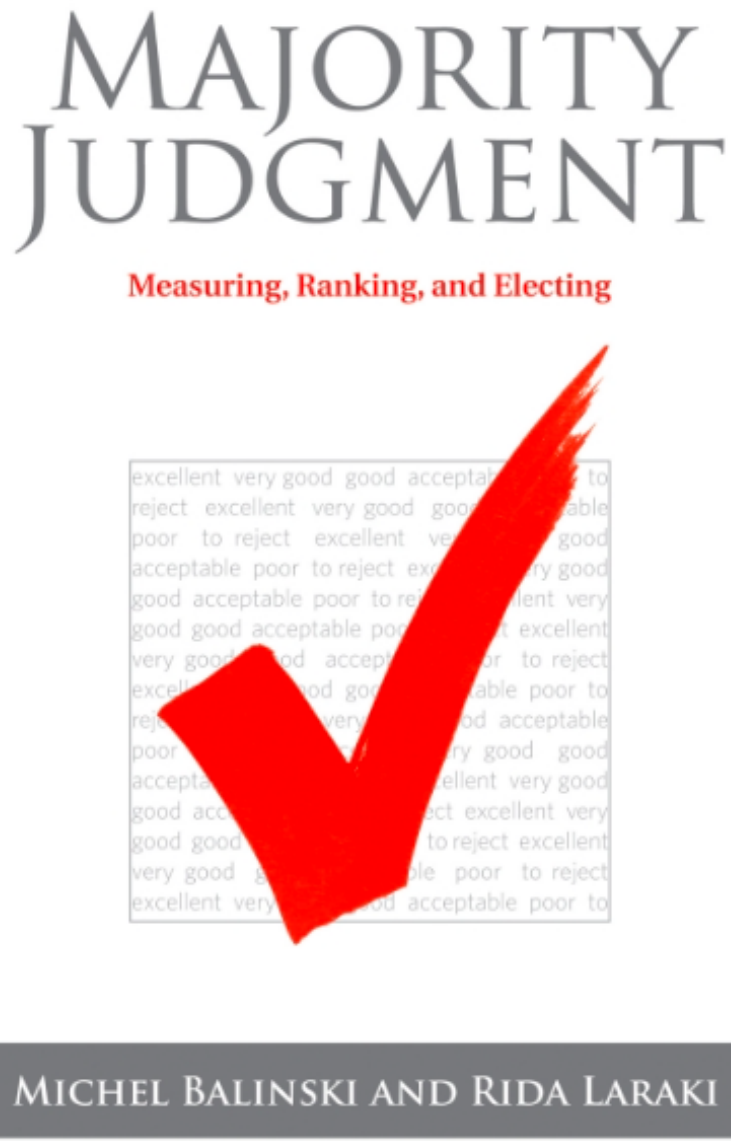
MIT Press 2011



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Before the performance of Vlascenko, the order was:
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Urmanov	1	1	1	1	1	2	1	1	1	1/8	1^{st}
Candeloro	3	2	5	2	3	3	5	6	6	3/5	2^{nd}
Zagorodniuk	5	5	4	4	2	4	2	2	3	4/7	3^{rd}
Yagudin	4	3	3	6	4	6	4	3	2	4/7	4^{th}
Kulik	2	4	2	3	6	5	3	4	5	4/6	5^{th}
Vlascenko	6	6	6	5	5	**1**	6	5	4	5/5	6^{th}

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This flip-flop was so strident that the rules used for a half-century were changed to a method based on measure, as in gymnastic, diving, music competition.

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  - $2\frac{1}{2}$ to $4\frac{1}{2}$ "deficient"
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- There are either 5 or 7 judges. To minimize manipulability:
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- The sum of the 3 remaining scores is multiplied by the degree of difficulty to obtain the score of the dive.
- There are many other instances that use well defined scales of grades, to rank and or to designate winners: guide Michelin, figure skating, gymnastics, concours Chopin, wine competitions, etc.

A Use of Majority Judgment: Small Jury

Opinion profile: LAMSADE Jury ranking PhD candidates for a grant, 2015

	J_1	J_2	J_3	J_4	J_5	J_6
A:	*Excellent*	*Excellent*	*V. Good*	*Excellent*	*Excellent*	*Excellent*
B:	*Excellent*	*V. Good*	*V. Good*	*V. Good*	*Good*	*V. Good*
C:	*Passable*	*Excellent*	*Good*	*V. Good*	*V. Good*	*Excellent*
D:	*V. Good*	*Good*	*Passable*	*Good*	*Good*	*Good*
E:	*Good*	*Passable*	*V. Good*	*Good*	*Good*	*Good*
F:	*V. Good*	*Passable*	*Insufficient*	*Passable*	*Passable*	*Good*

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Compact Description of MJ

	Excellent	*Very Good*	*Good*	*Passable*	*Insufficient*
A:	5	1			
B:	1	4	1		
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Merit profile (counts), LAMSADE Jury.

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Majority Judgement Ballot (Large Electorate)

Ballot: Election of the President of France 2012

To be president of France,
having taken into account all considerations,
I judge, in conscience, that this candidate would be:

	Outs-tanding	*Excel-lent*	*Very Good*	*Good*	*Accep-able*	*Insuf-ficient*	*Reject*
François Hollande							
François Bayrou							
Nicolas Sarkozy							
Jean-Luc Mélenchon							
Nicolas Dupont-Aignan							
Eva Joly							
Philippe Poutou							
Marine Le Pen							
Nathalie Arthaud							
Jacques Cheminade							

Pool OpinionWay-Terra Nova, April 12-16 2012

	Outs-tanding	*Excel-lent*	*Very Good*	*Good*	*Accep-able*	*Insuf-ficient*	*Reject*
Hollande	12.48%	16.15%	16.42%	11.67%	14.79%	14.25%	14.24%
Bayrou	2.58%	9.77%	21.71%	25.24%	20.08%	11.94%	8.69%
Sarkozy	9.63%	12.35%	16.28%	10.99%	11.13%	7.87%	31.75%
Mélenchon	5.43%	9.50%	12.89%	14.65%	17.10%	15.06%	25.37%
Dupont-Aignan	0.54%	2.58%	5.97%	11.26%	20.22%	25.51%	33.92%
Joly	0.81%	2.99%	6.51%	11.80%	14.65%	24.69%	38.53%
Poutou	0.14%	1.36%	4.48%	7.73%	12.48%	28.09%	45.73%
Le Pen	5.97%	7.33%	9.50%	9.36%	13.98%	6.24%	47.63%
Arthaud	0.00%	1.36%	3.80%	6.51%	13.16%	25.24%	49.93%
Cheminade	0.41%	0.81%	2.44%	5.83%	11.67%	26.87%	51.97%

Majority Grade et Gauge

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Majority Grade et Gauge

	Outs-tanding	*Excel-lent*	*Very Good*	*Good*	*Accep-able*	*Insuf-ficient*	*Reject*
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The Majority Grade=median grade of Hollande is α=*Good* because:

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MJ: National poll, French presidential election 2012

	p	$\alpha\pm$	q	FPP	
(1) F. Hollande	45.05%	*Good*+45.05	43.28%	(1)	28.7%
(2) F. Bayrou	34.06%	*Good*−40.71	40.71%	(5)	9.1%
(3) N. Sarkozy	49.25%	*Fair*+49.25	39.62%	(2)	27.3%
(4) J.-L. Mélenchon	42.47%	*Fair*+42.47	40.43%	(4)	11.0%
(5) N. Dupont-Aignan	40.57%	*Poor*+40.57	33.92%	(7)	1.5%
(6) E. Joly	36.77%	*Poor*−38.53	38.53%	(6)	2.3%
(7) P. Poutou	26.19%	*Poor*−45.73	45.73%	(8)	1.2%
(8) M. Le Pen	46.13%	*Poor*−47,63	47.63%	(3)	17.9%
(9) N. Arthaud	24.83%	*Poor*−49.93	49.93%	(9)	0.7%
(10) J. Cheminade	48.03%	*To Reject*+48.03	–	(10)	0.4%

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John Kasich	5%	28%	39%	13%	7%	9%
Bernie Sanders	10%	26%	26%	15%	21%	3%
Ted Cruz	7%	22%	21%	17%	19%	4%
Hillary Clinton	11%	22%	20%	16%	30%	1%
Donald Trump	10%	16%	12%	15%	44%	3%

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	p	$\alpha \pm \max\{p, q\}$	q
John Kasich	33%	*Average*+	29%
Bernie Sanders	36%	*Average*−	39%
Ted Cruz	29%	*Average*−	40%
Hillary Clinton	33%	*Average*−	47%
Donald Trump	38%	*Poor*−	47%

Pew Research center poll 2016, Presidential Election, USA

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Clinton:

	Great	*Good*	*Average*	*Poor*	*Terrible*
January	11%	24%	18%	16%	31%
Marsh	11%	22%	20%	16%	31%
August	11%	20%	22%	12%	35%
October	8%	27%	20%	11%	34%

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Possible opinion profile:

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Hollande:	*Exc.*	*V.Good*	*Good*	*Accept.*	*Accept.*	*Poor*	*Rej.*
Sarkozy:	*Outs.*	*Exc.*	*V.Good*	*V.Good*	*Good*	*Accept.*	*Rej.*

	0.8%	5.2%	6.5%	1.4%	5.2%	4.1%	8.3%
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Majority Rule: Sarkozy: 54.3% Hollande: 31.5% Indifferent: 14.2%

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- "If there is any case that might be considered the modern analogue to Madison's implicit concept of tyranny, I suppose it is this one."
- To solve the problem, Dahl proposes using "an ordinal intensity scale" obtained "simply by reference to some observable response, such as a statement of one's feelings."

May + Arrow's IIA + Condorcet's Transitivity + Dahl's Intensity Scale

A method of ranking $\succeq$ is a binary relation that compares any two candidates. It must satisfy the following axioms:

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majority-gauge is partially strategy proof,
and is the unique strategy proof on the domain of polarized pairs.

How could voters that prefer Sarkozy to Holland manipulate ?

	Outs.	*Exc.*	*V.Good*	*Good*	*Fair*	*Poor*	*Rej.*
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If a voter can manipulate MJ, he can only in one direction:
(1) or he can increase the majority-gauge of a candidate he prefers to the other,
(2) or he can decrease the majority-gauge of the other candidate.

What if some motivated voters indeed manipulate ?

Suppose:

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$\Rightarrow$ 86.21% manipulate among those who prefer Sarkozy to Hollande.

Manipulation fails, Hollande still leads Sarkozy:

$\star$ Hollande's gauge $(45.05\%, \mathit{Good}+, 43.28\%) \searrow (44.64\%, \mathit{Good}-, 46.95\%)$

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Manifeste Découvrir Participer L'Association Forum S'inscrire

Mieux Voter

Choisir · Élire · Décider

Avec le Jugement Majoritaire

Notre Constat

Chaque jour, nous prenons des **décisions en commun**. Mais les **méthodes** que nous utilisons sont souvent **inadaptées** et ne permettent pas de traduire fidèlement la volonté de la majorité.

Notre Action

Agir pour faire connaître le **Jugement Majoritaire** et **accompagner** les collectivités publiques, les entreprises, les associations et les particuliers dans son utilisation.

www.jugementmajoritaire2017.com

UNE EXPÉRIMENTATION SCIENTIFIQUE MENÉE ET SOUTENUE PAR

cnrs DAUPHINE UNIVERSITÉ PARIS ÉCOLE POLYTECHNIQUE UNIVERSITÉ PARIS-SACLAY La Primaire .org

ET SI ON CONTINUAIT À EXPÉRIMENTER UN NOUVEAU MODE DE SCRUTIN ?

Le deuxième tour de l'élection présidentielle au **Jugement Majoritaire**

Les votes sont clos, cliquez-ici pour voir les résultats.

52809 votes ont été comptabilisés au 1er tour et 15251 au 2nd tour.

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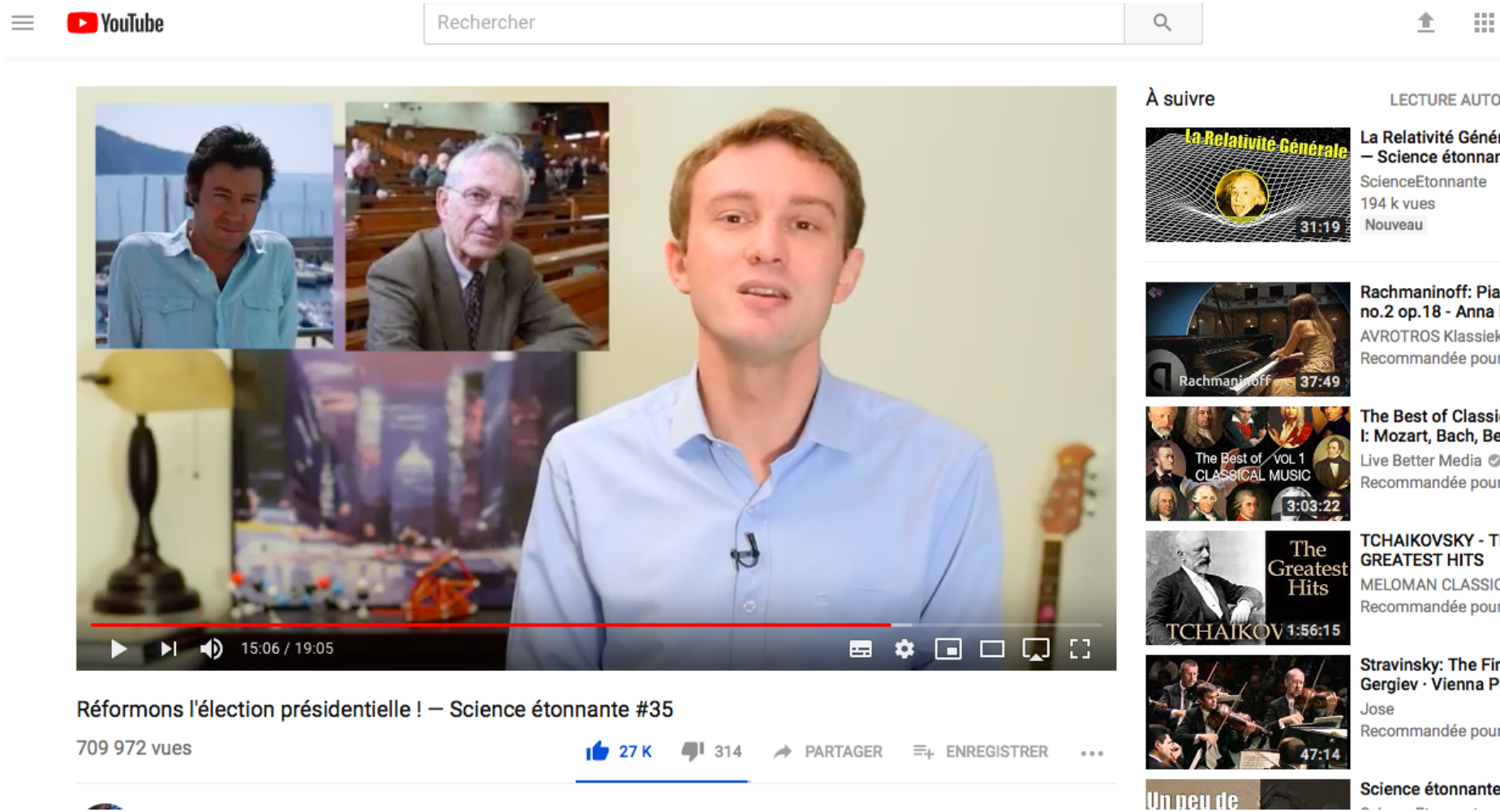
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no.2 op.18 - Anna
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Recommandée pour
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Live Better Media
Recommandée pour
The Greatest Hits
TCHAIKOV 1:56:15
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MELOMAN CLASSIC
Recommandée pour
47:14
Stravinsky: The Fir
Gergiev · Vienna P
Jose
Recommandée pour
Un peu de
Science étonnante

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