



# A LITTLE MORE DEMOCRACY?

Cartoons by Marjolaine Leray  
on the topic of Majority Judgment

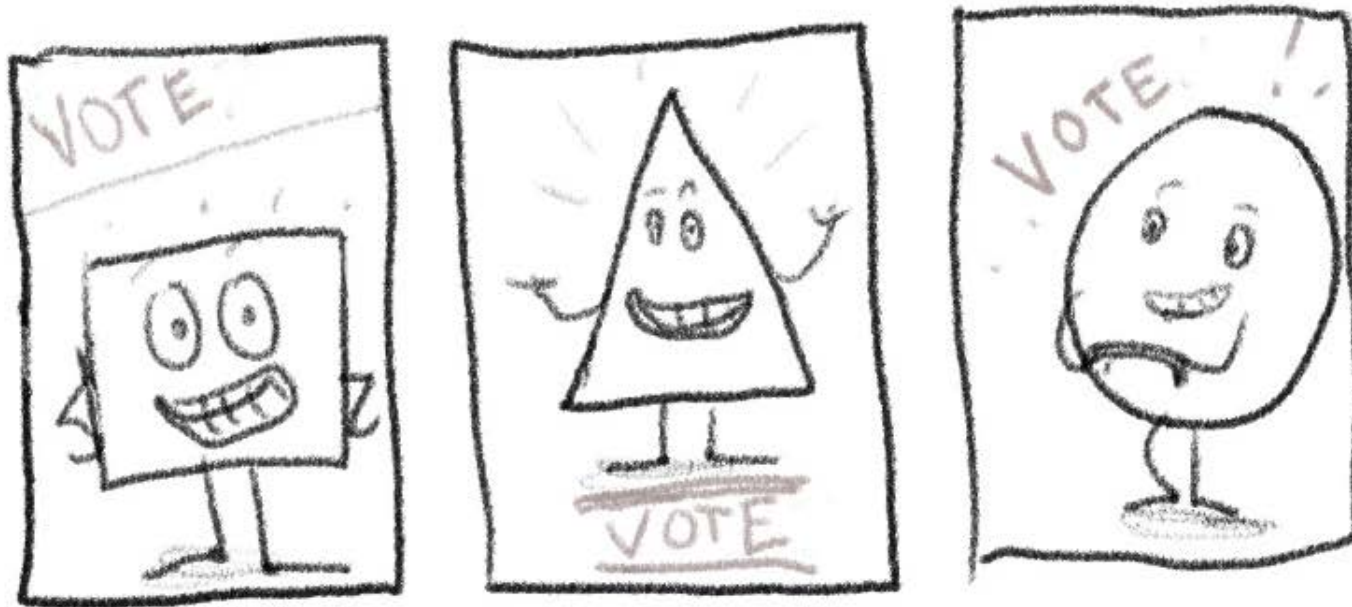


**This work is licensed under a Creative Commons Attribution  
NonCommercial-NoDerivatives 4.0 International License.**

You can see my website at  
<http://marjolaineleray.com>

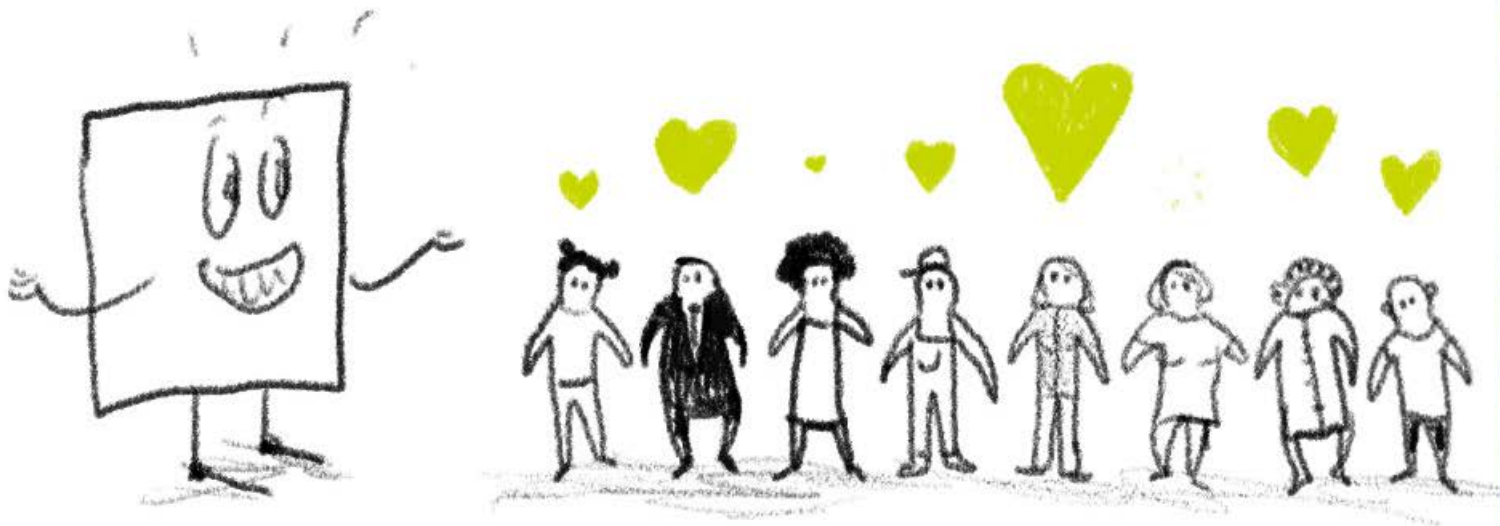
Translated from French by Carol Hogg

# BUT WHAT IN FACT IS AN ELECTION?



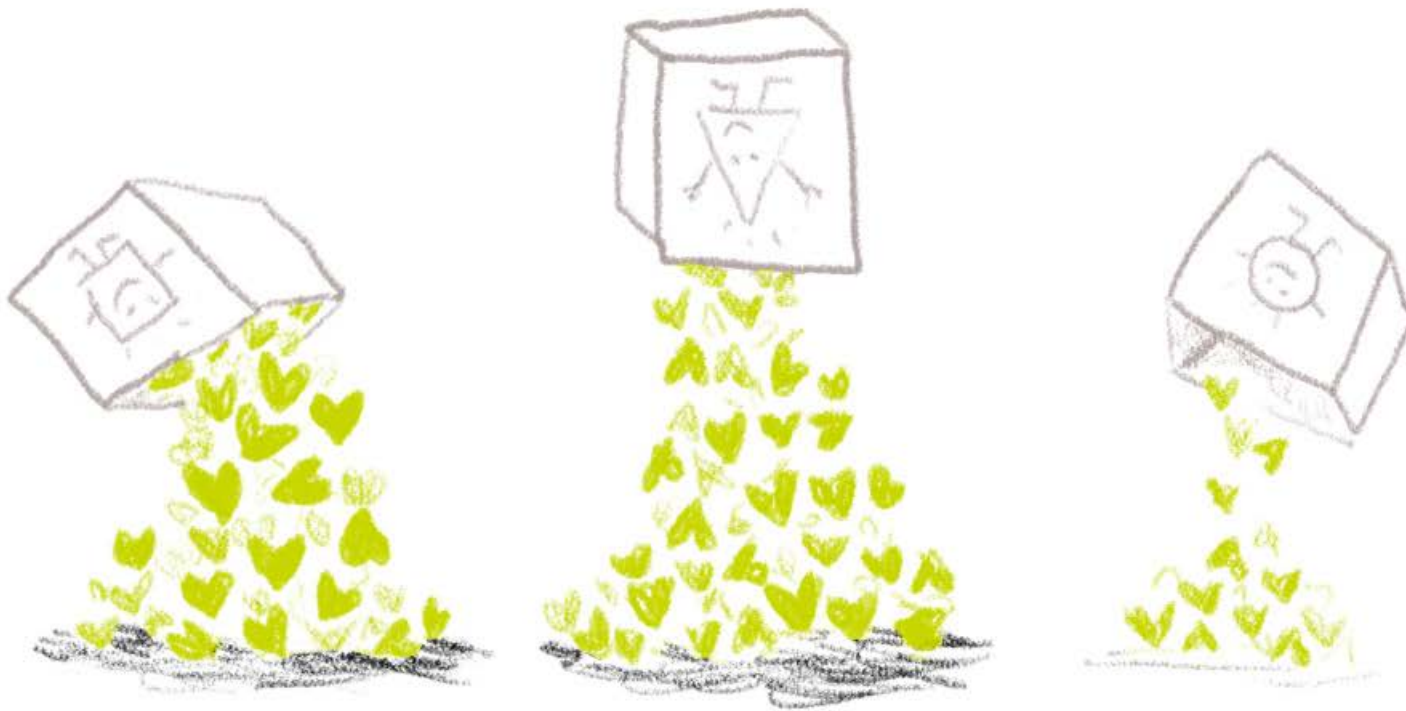
1

The aim of an election is to  
**MEASURE** voters' support  
for the candidates,



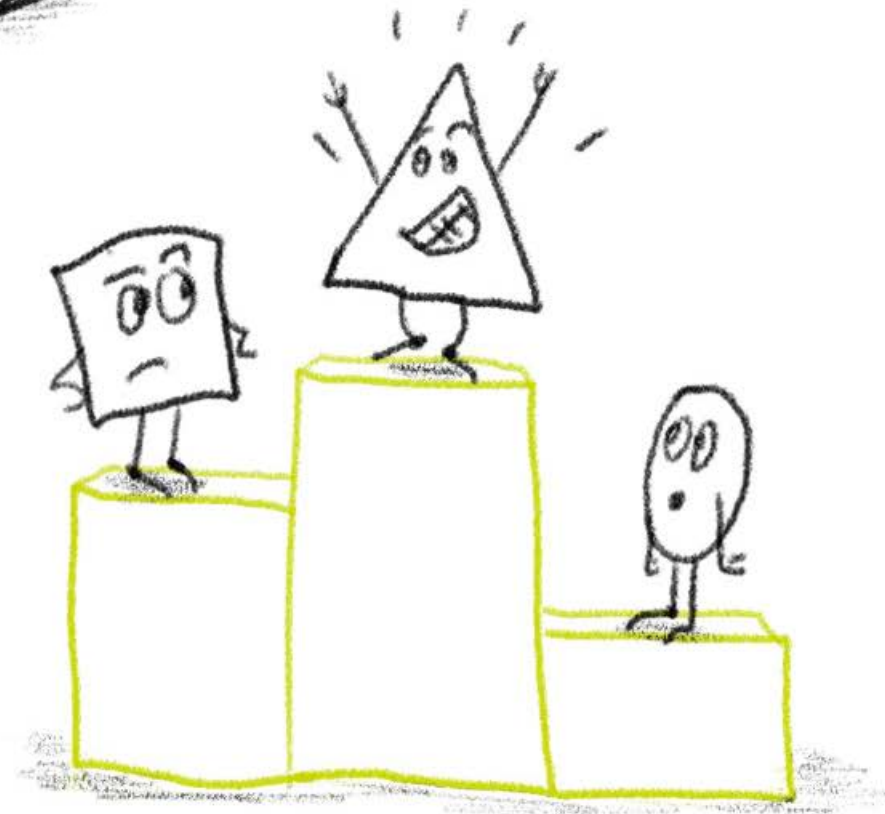
2

and subsequently  
to **AGGREGATE**  
all the opinions collected

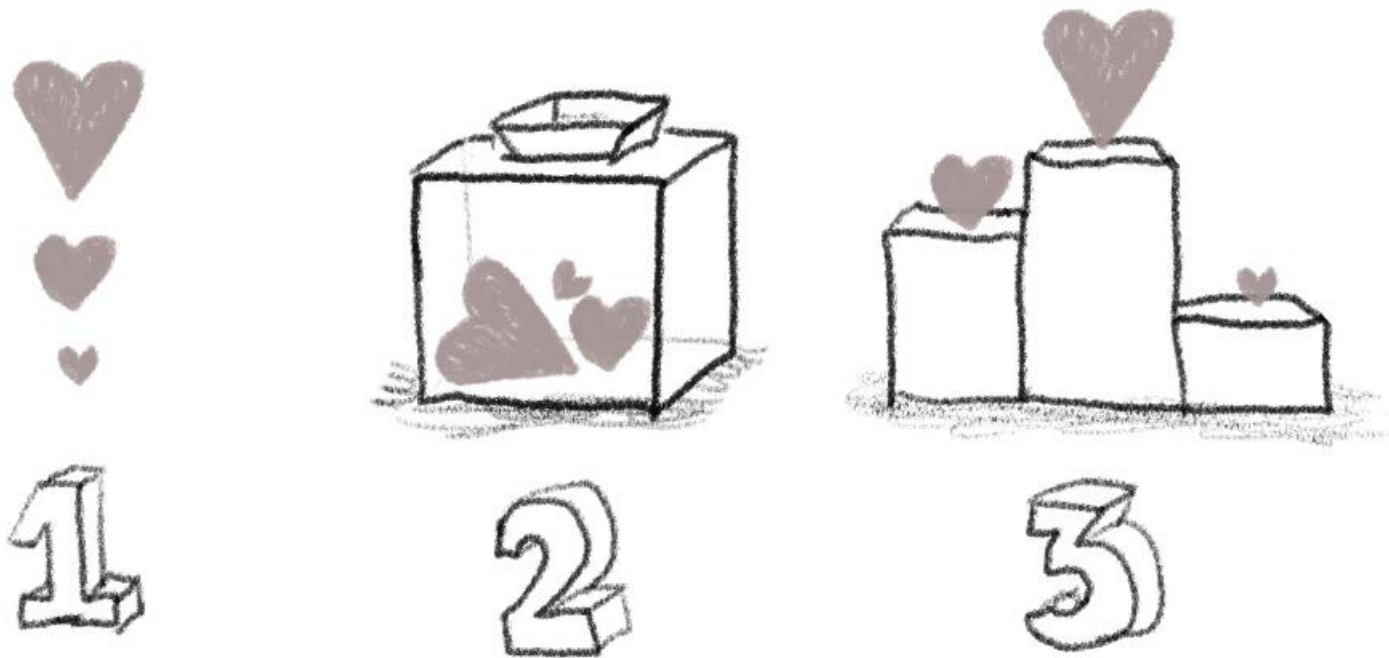


3

so as to make a  
**COLLECTIVE DECISION.**



If this is to work correctly, the result of stage 3 must correspond to the wish expressed by the voters in stage 1.





These three stages form a process which defines the **VOTING SYSTEM OF THE ELECTION.**

There are, however, a number of very different voting systems.



1



2



3

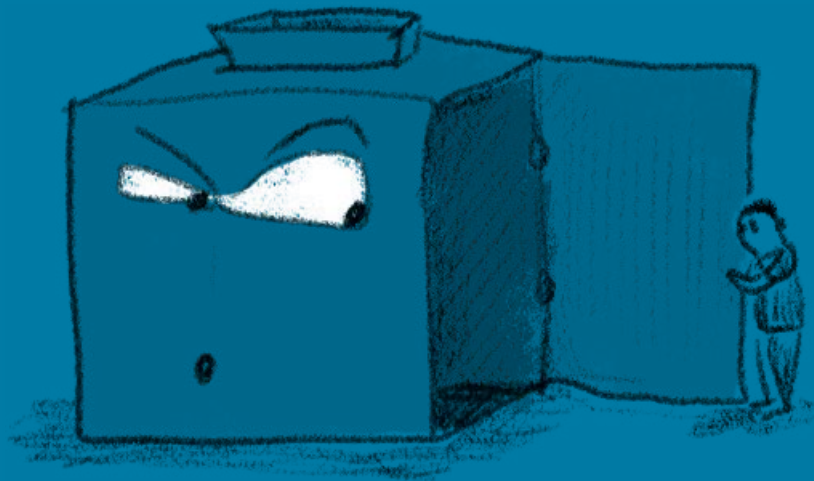


IN FRANCE,  
FOR THE PRESIDENTIAL ELECTIONS,  
WE USE THE



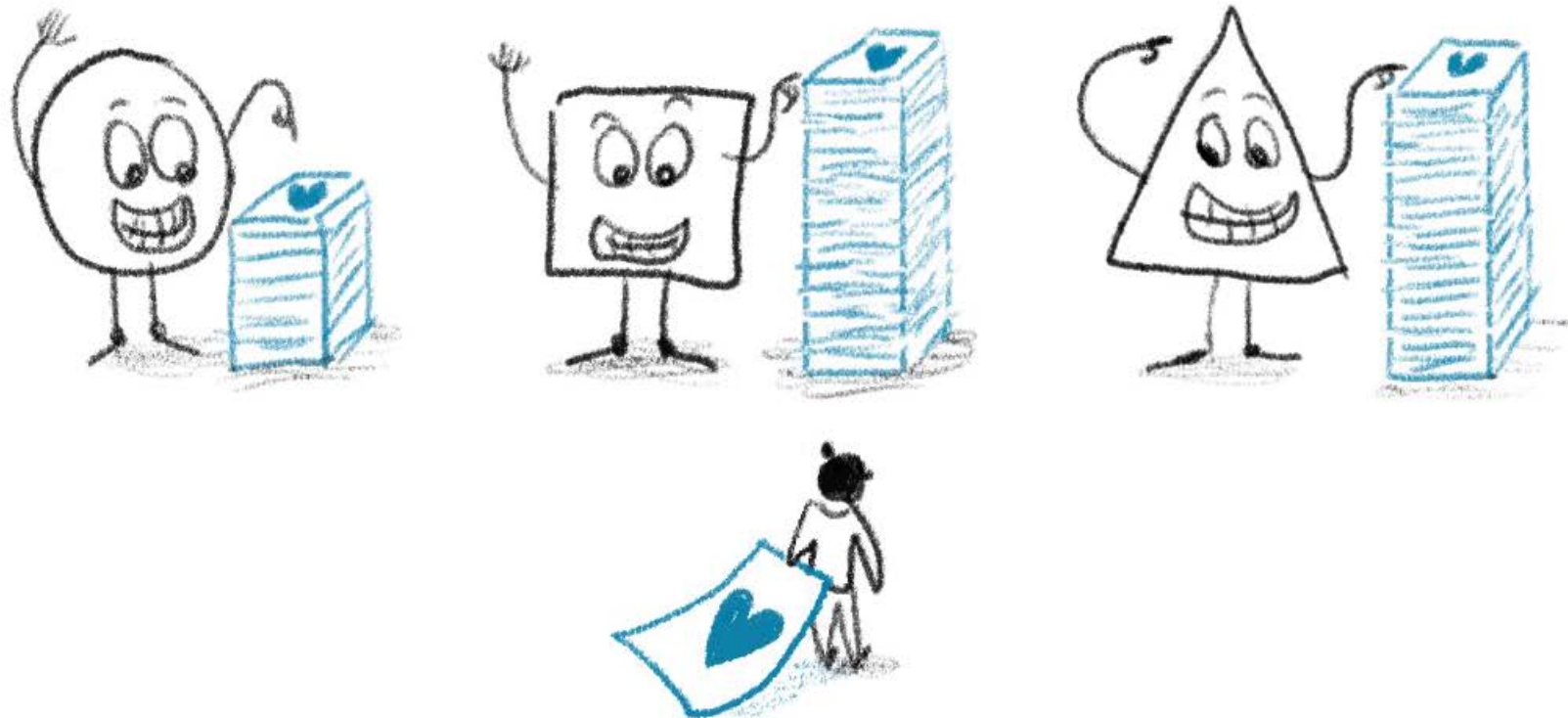
# FIRST-PAST-THE-POST SYSTEM

## WITH RUN-OFF

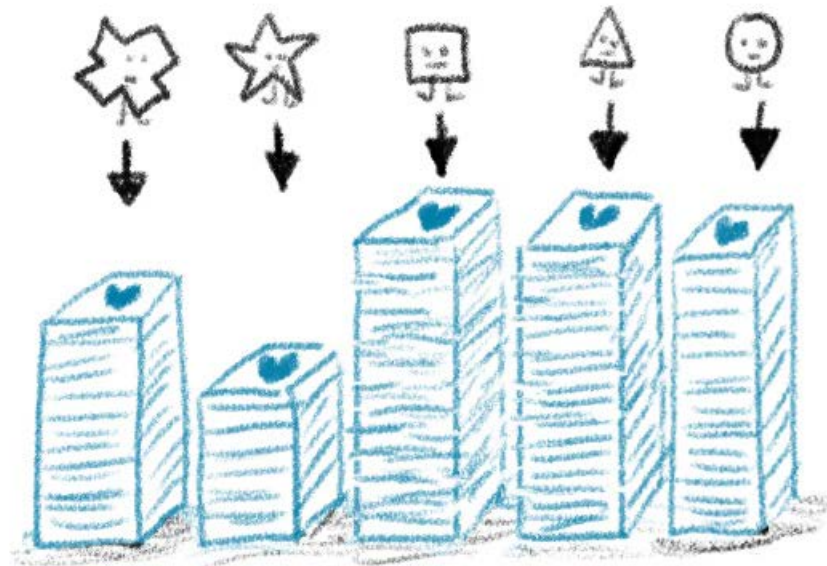


ACCORDING TO THIS SYSTEM, THE ELECTED CANDIDATE IS THE ONE WHO OBTAINS THE MAJORITY, I.E. MORE THAN 50% OF THE BALLOT.

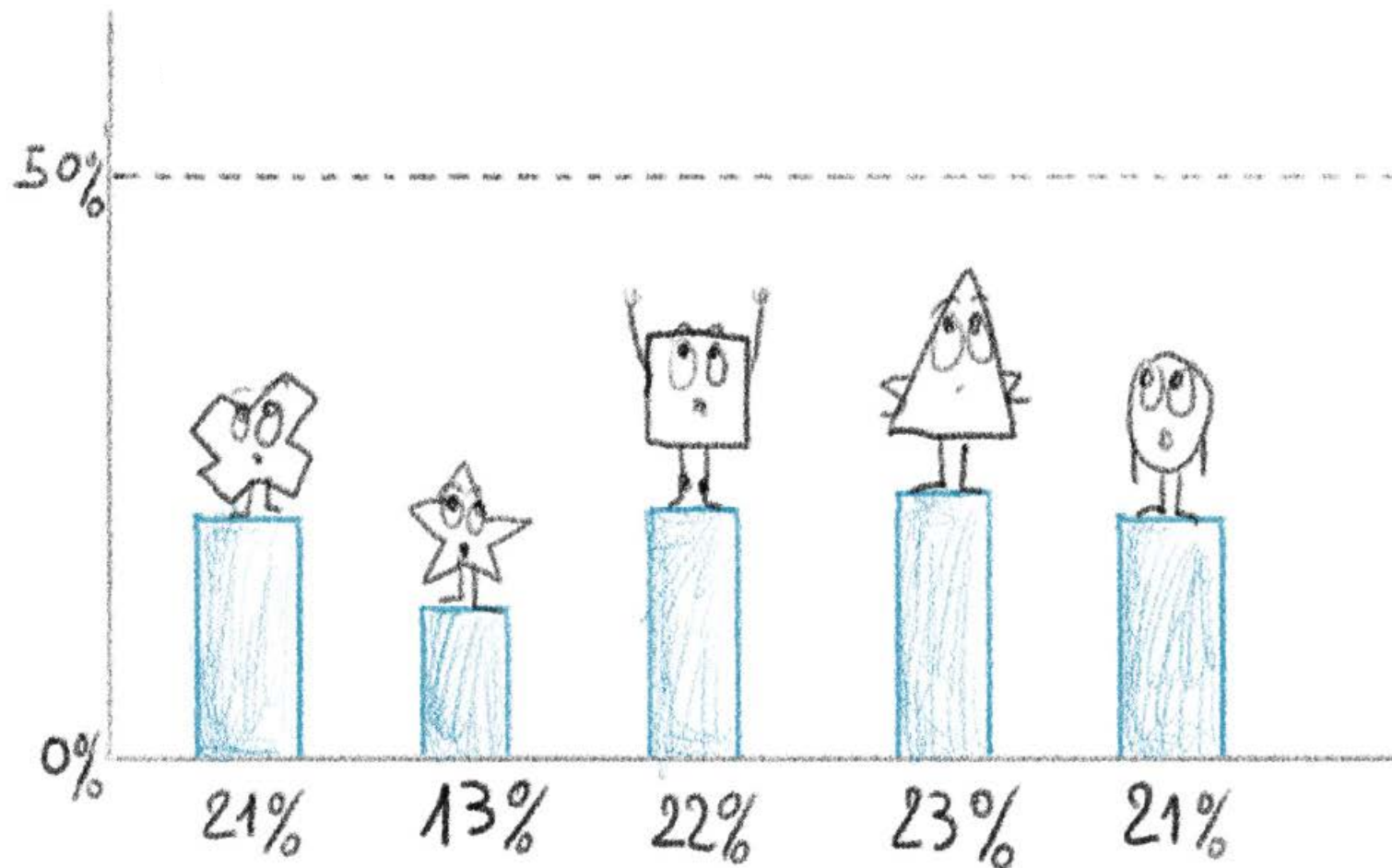
In this system each voter has to select **ONE CANDIDATE ONLY** to whom he gives his vote.



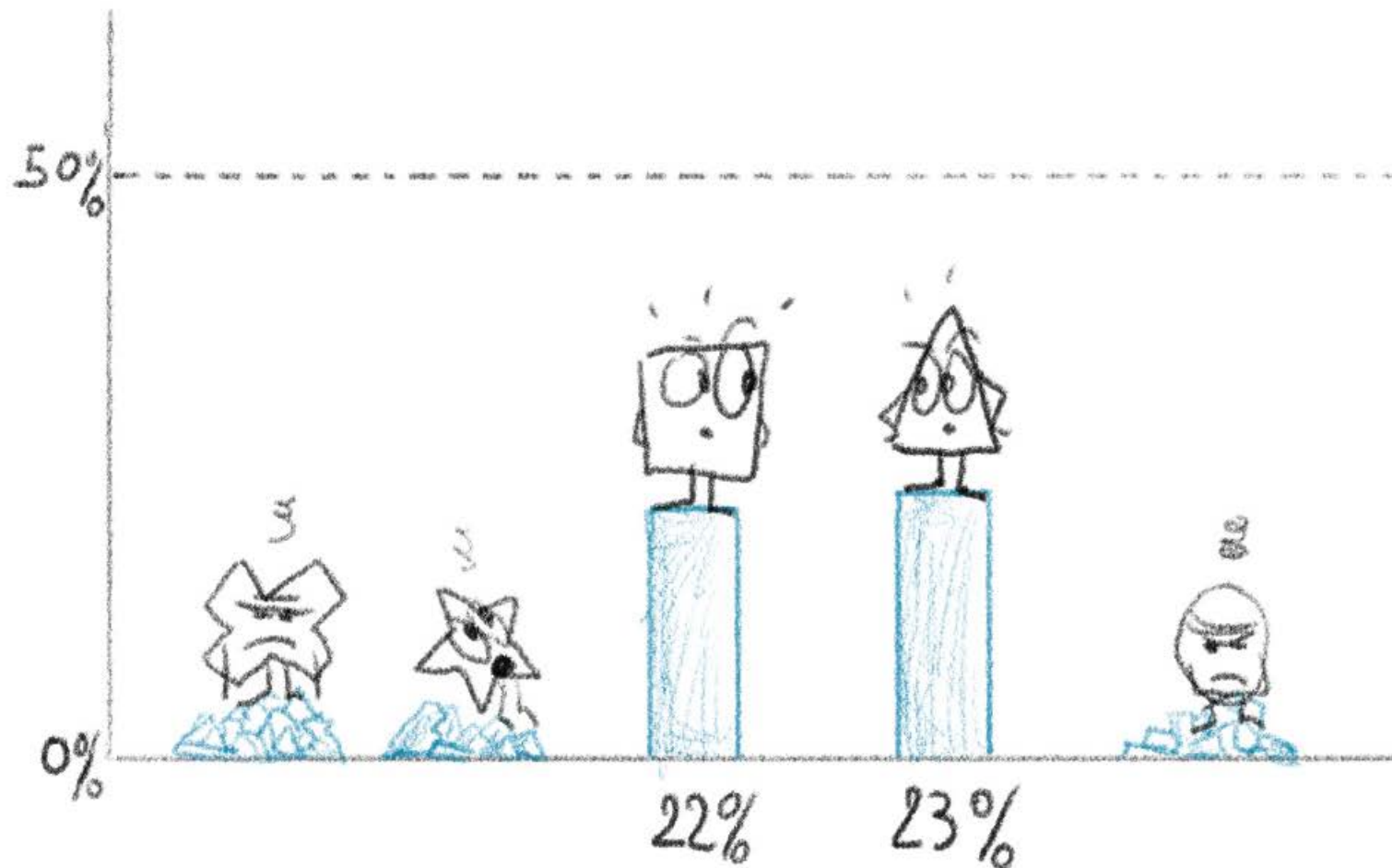
Subsequently the number of votes per candidate is counted.



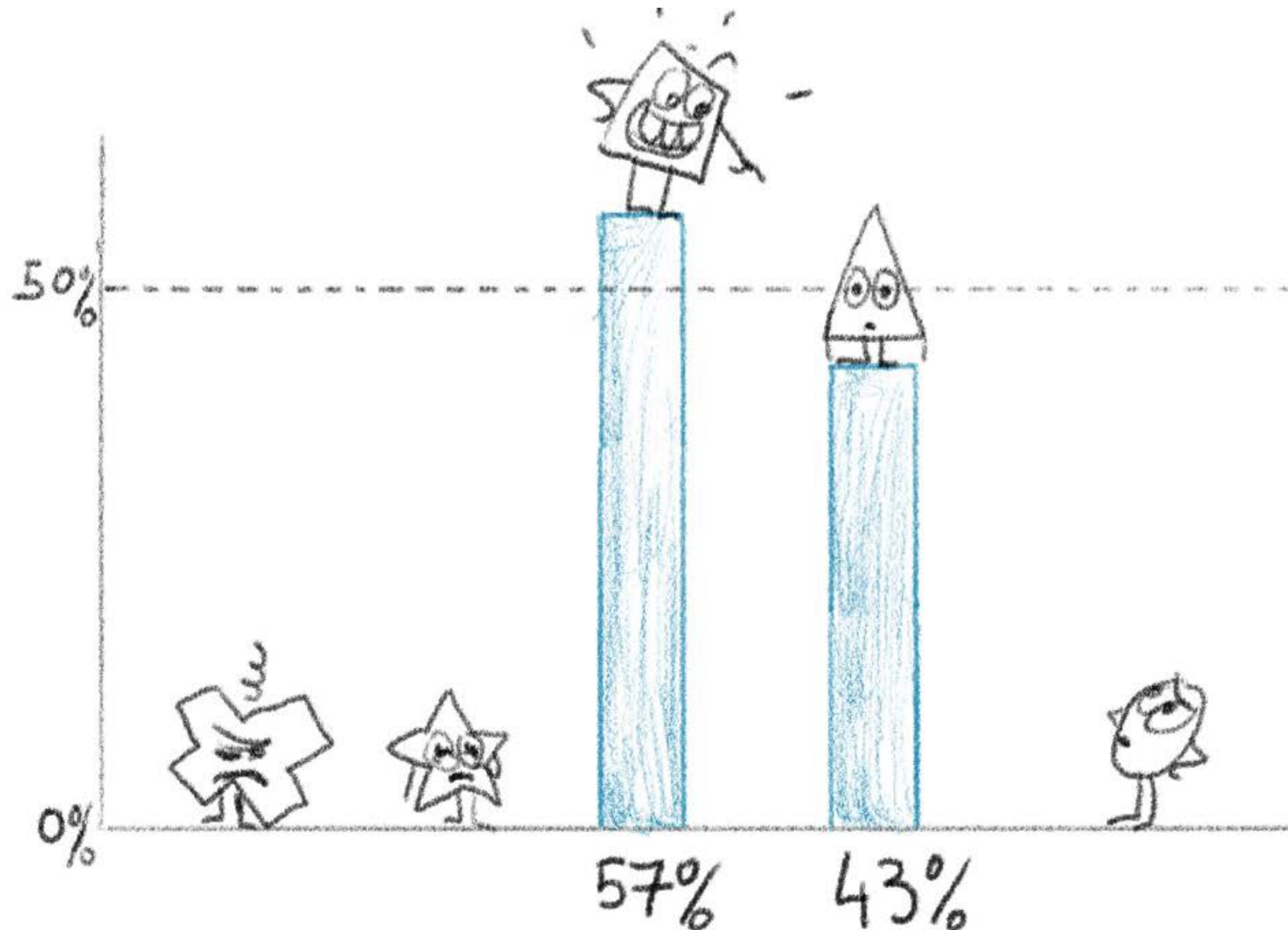
If none of the candidates obtains more than  
**50% OF THE VOTES CAST...**



...then a **RUN-OFF** takes place between the two candidates who achieved most votes in the first round.

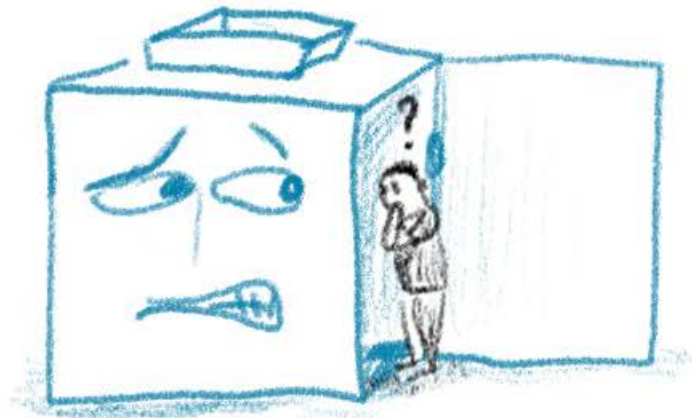


And, with only two candidates competing, it is inevitable that one of them will obtain at least 50% of the votes.





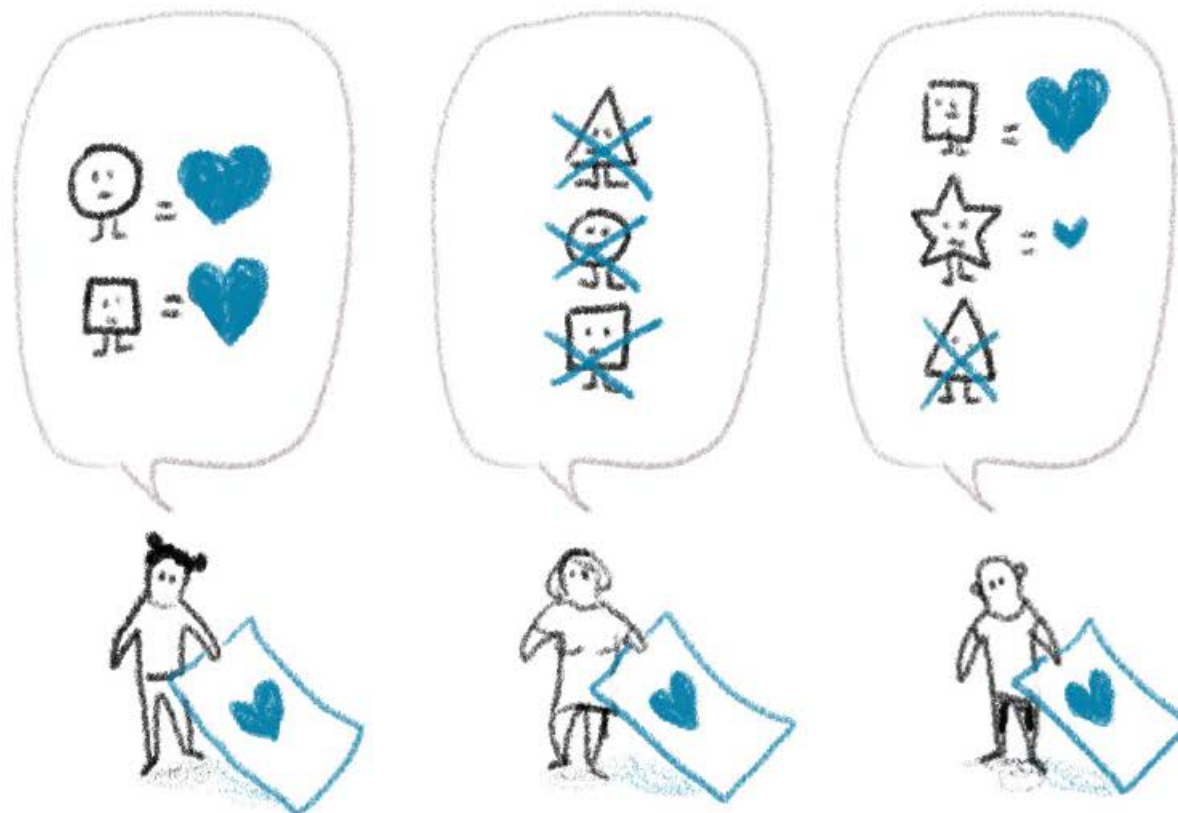
AND, THERE WE ARE.  
WE HAVE AN ELECTION RESULT!



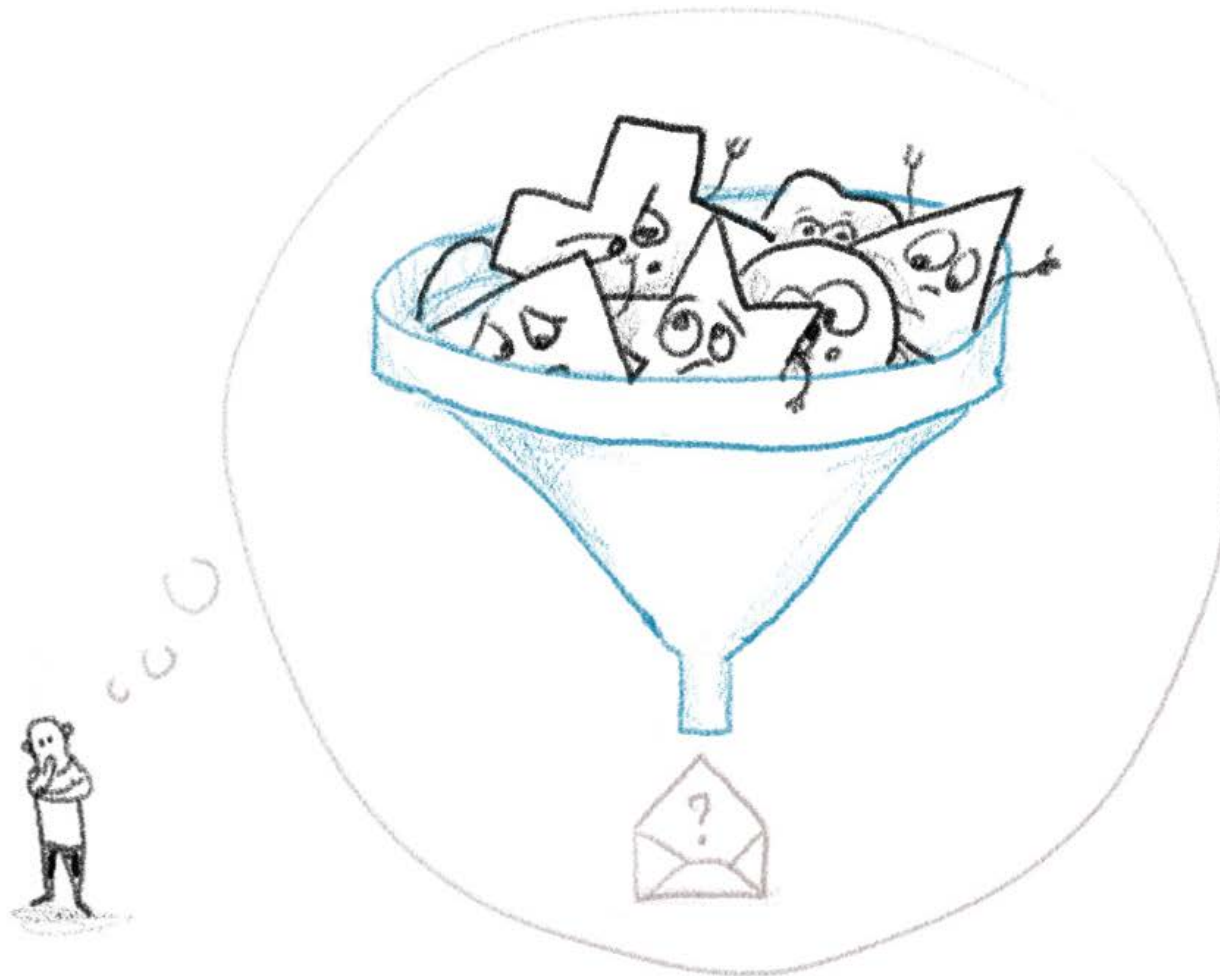
# DO WE REALLY?

COULDN'T THERE BE SOME OBSCURE  
ELECTORAL TRICKERY INVOLVED HERE?

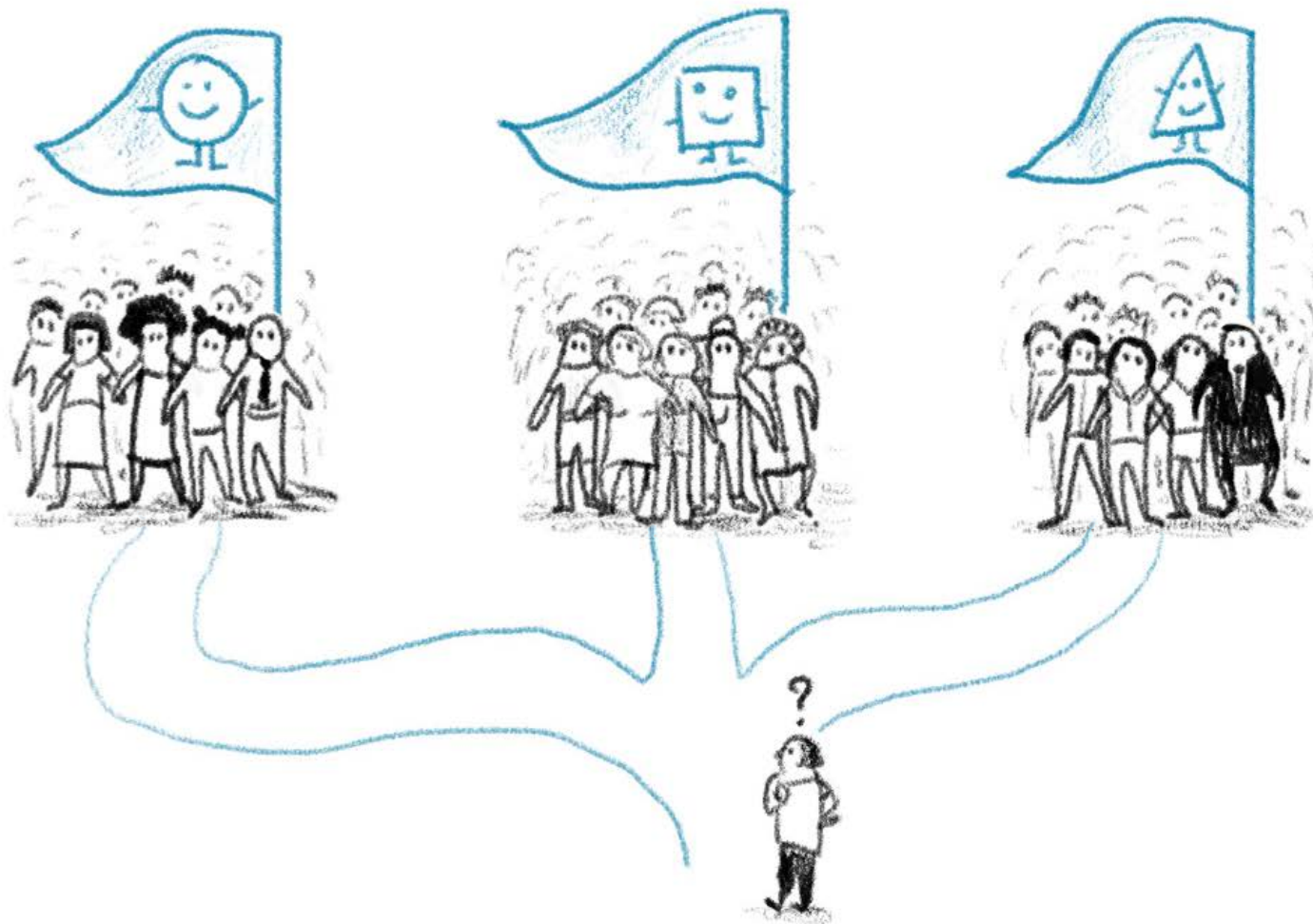
For example, the fact that the first-past-the-post system counts **VOTES AS SUPPORT** which, in reality, are much more nuanced.



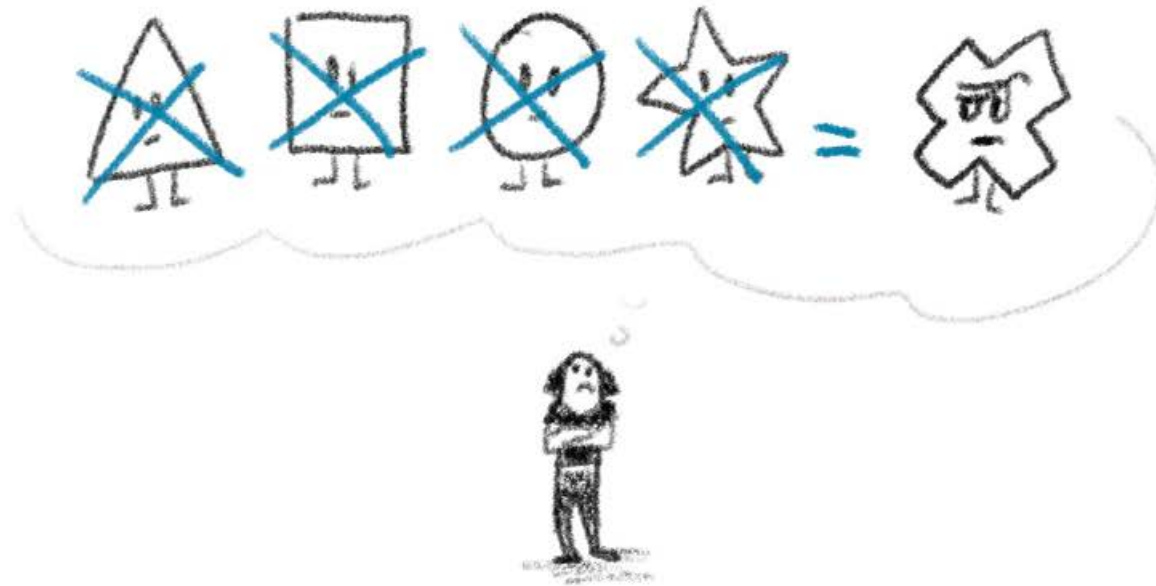
In actual fact, the voter has to select one candidate only. Although he may well have an opinion on **EACH OF THEM.**



Even if we consider two candidates to be of equal standing,  
we have to decide in favour of one of them because it is  
not possible to **SUPPORT MORE THAN ONE CANDIDATE.**

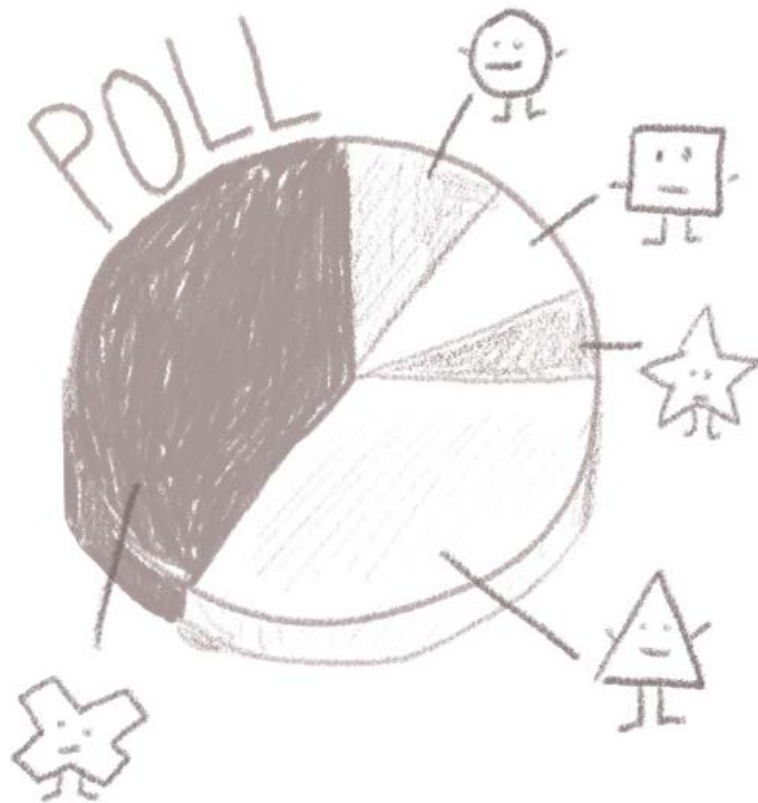


**PROTEST VOTES** against one candidate count  
as accession votes in favour of another.



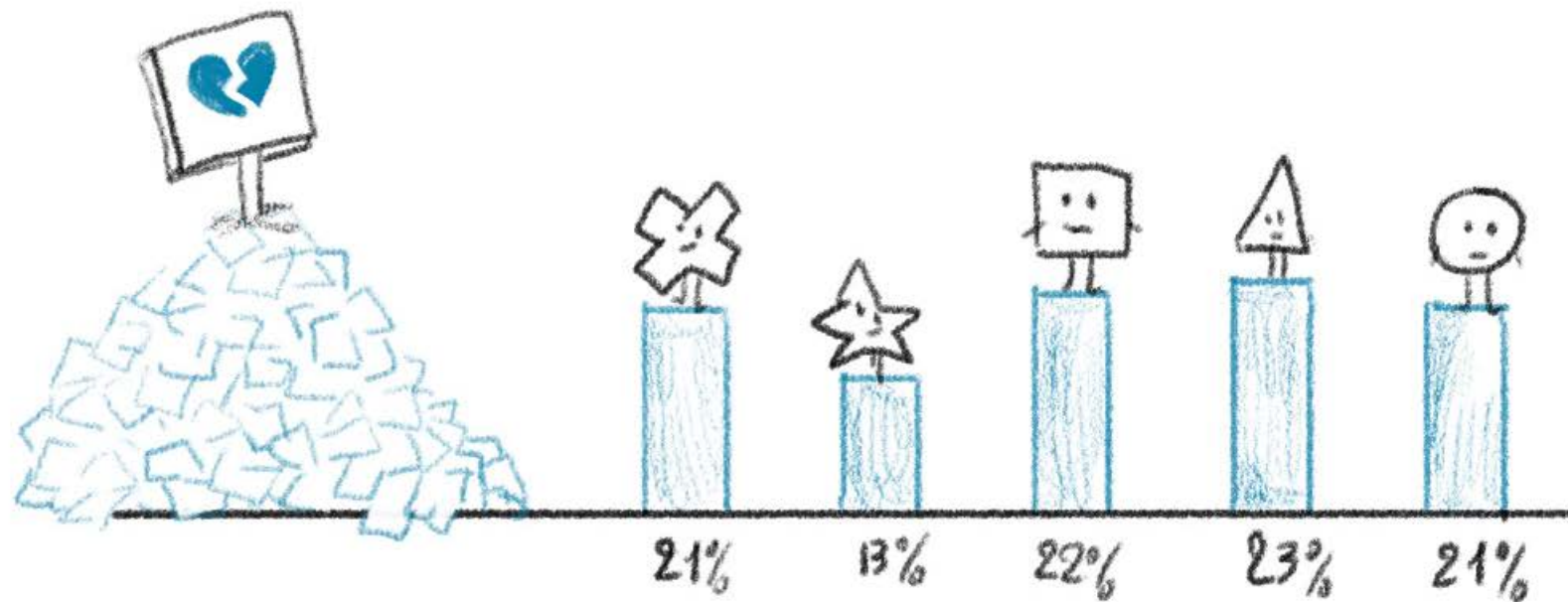
The system forces the voter to make complex calculations before casting a vote in favour of the least bad person amongst the candidates who have a chance.

This is what is referred to as **STRATEGIC MANIPULATION**.



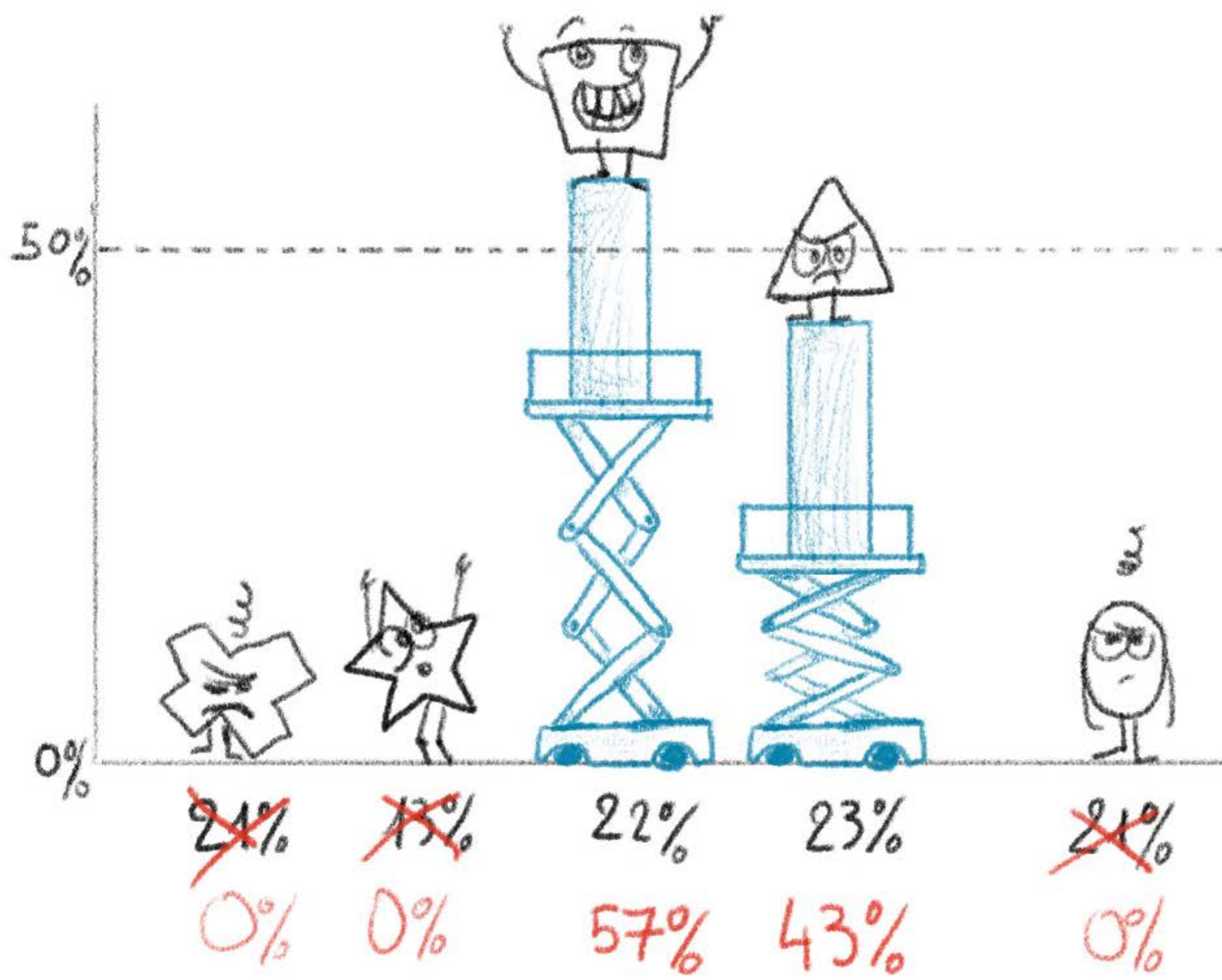


BLANK VOTES are eliminated.

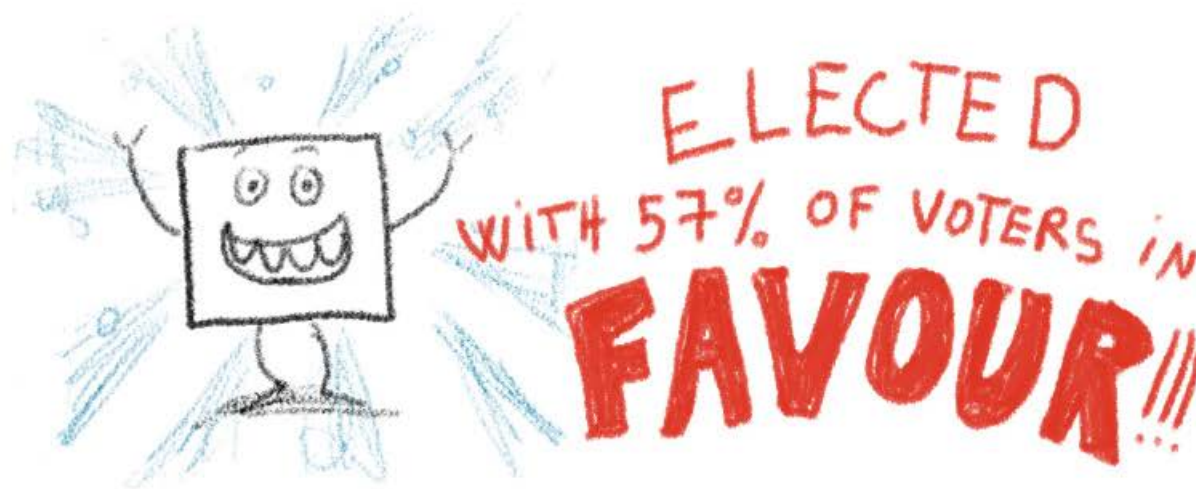


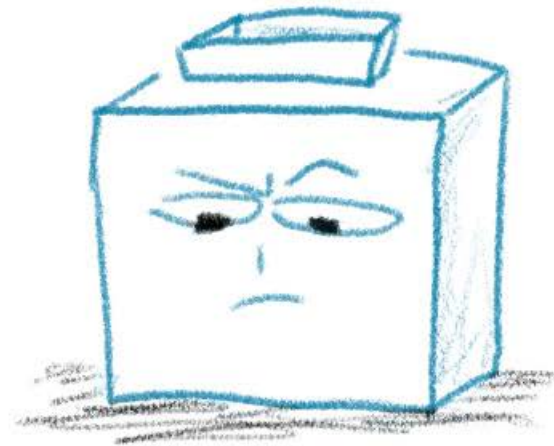


Furthermore, isn't it rather **STRANGE** for a candidate who received something like 20% of the votes in the first round to obtain the majority in the run-off?



Indeed we may well ask ourselves about the meaning of "**MAJORITY**" in the sense attributed to the word in the context of first-past-the-post voting.

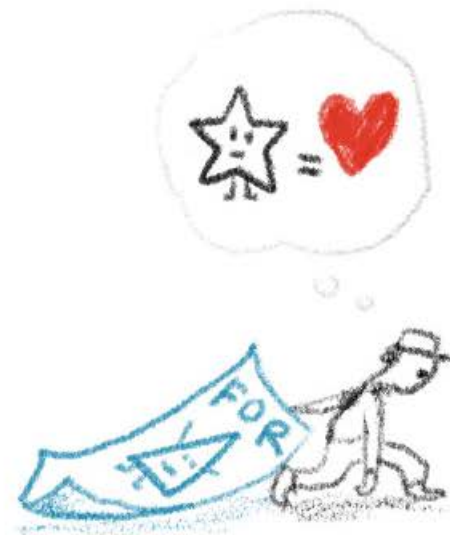
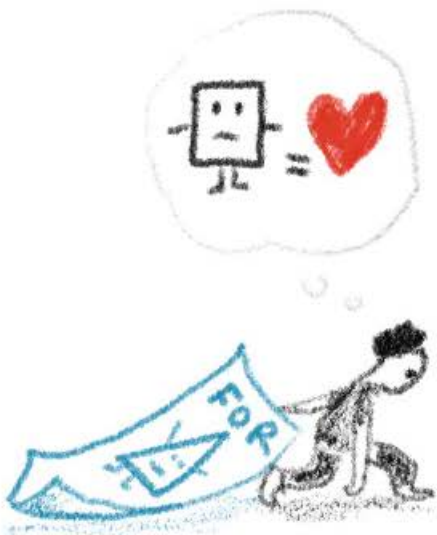




TO SUM UP...

# 1

The simple majority system  
is not a good tool for **MEASURING**  
voters' opinions.



2

It **AGGREGATES VOTES**

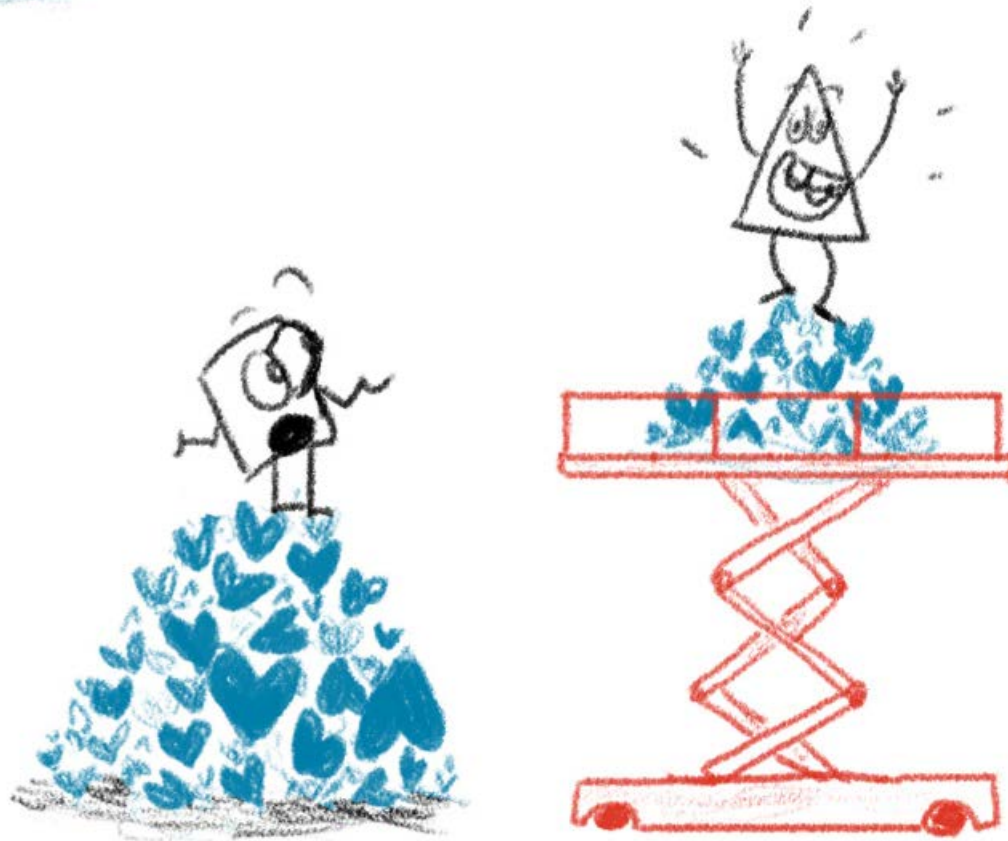
which can't make out much between  
one candidate and the other.





# 3

And, ultimately, the **WINNER** may not actually be the candidate desired by the majority of voters.



Until now, however, this system has been used simply for want of something better.



BUT WHY HASN'T A BETTER  
SYSTEM BEEN DEVELOPED?

# SCIENCE TO THE RESCUE OF DEMOCRACY



---

## THE SOCIAL CHOICE THEORY

Admittedly, people have been aware of **THE PITFALLS  
OF THE FIRST-PAST-THE POST SYSTEM WITH  
RUN-OFF FOR SOME TIME ALREADY.**



In France it dates back to around the time of the French Revolution.



A number of intellectuals therefore scrutinise  
**THE CONCEPTION OF THE VOTING PROCEDURES.**

One of these is J.C. Borda.



*“ In order for a form of election to be considered good, it must give voters the opportunity to make a decision on the merit of each candidate, and compare this systematically to the merits of each of the competitors. ”*

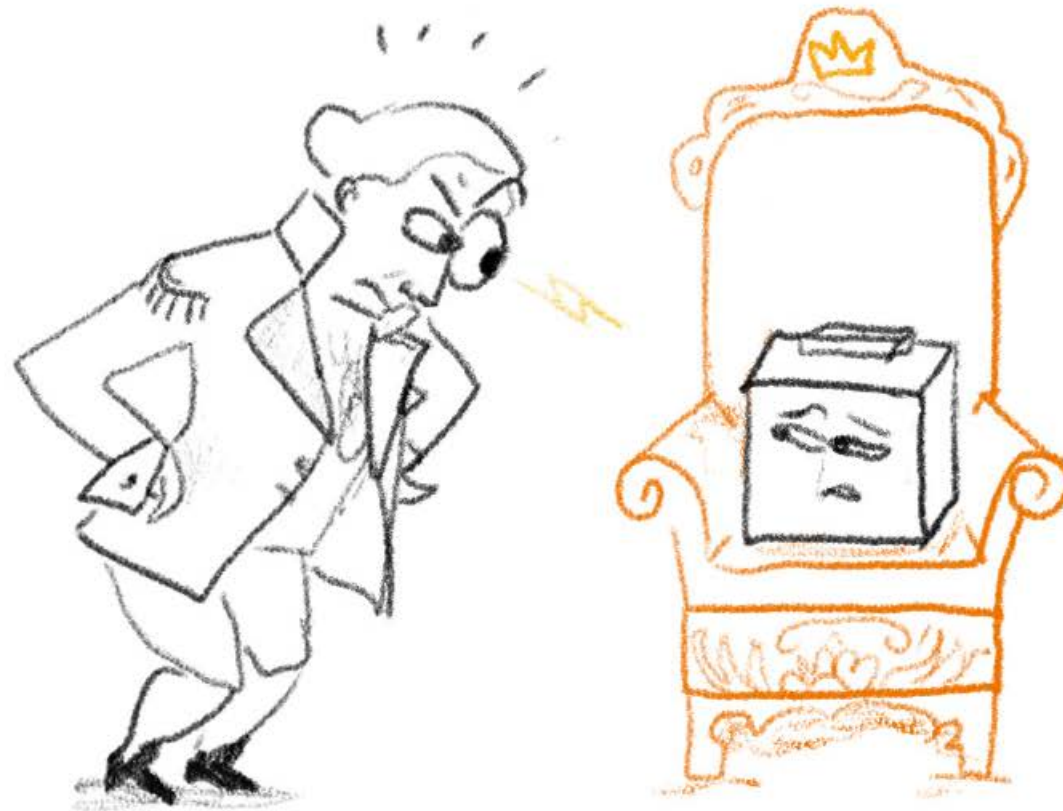
**J.C. BORDA**

1733–1799

MATHEMATICIAN, PHYSICIST,  
POLITICAL SCIENTIST, NAVIGATOR



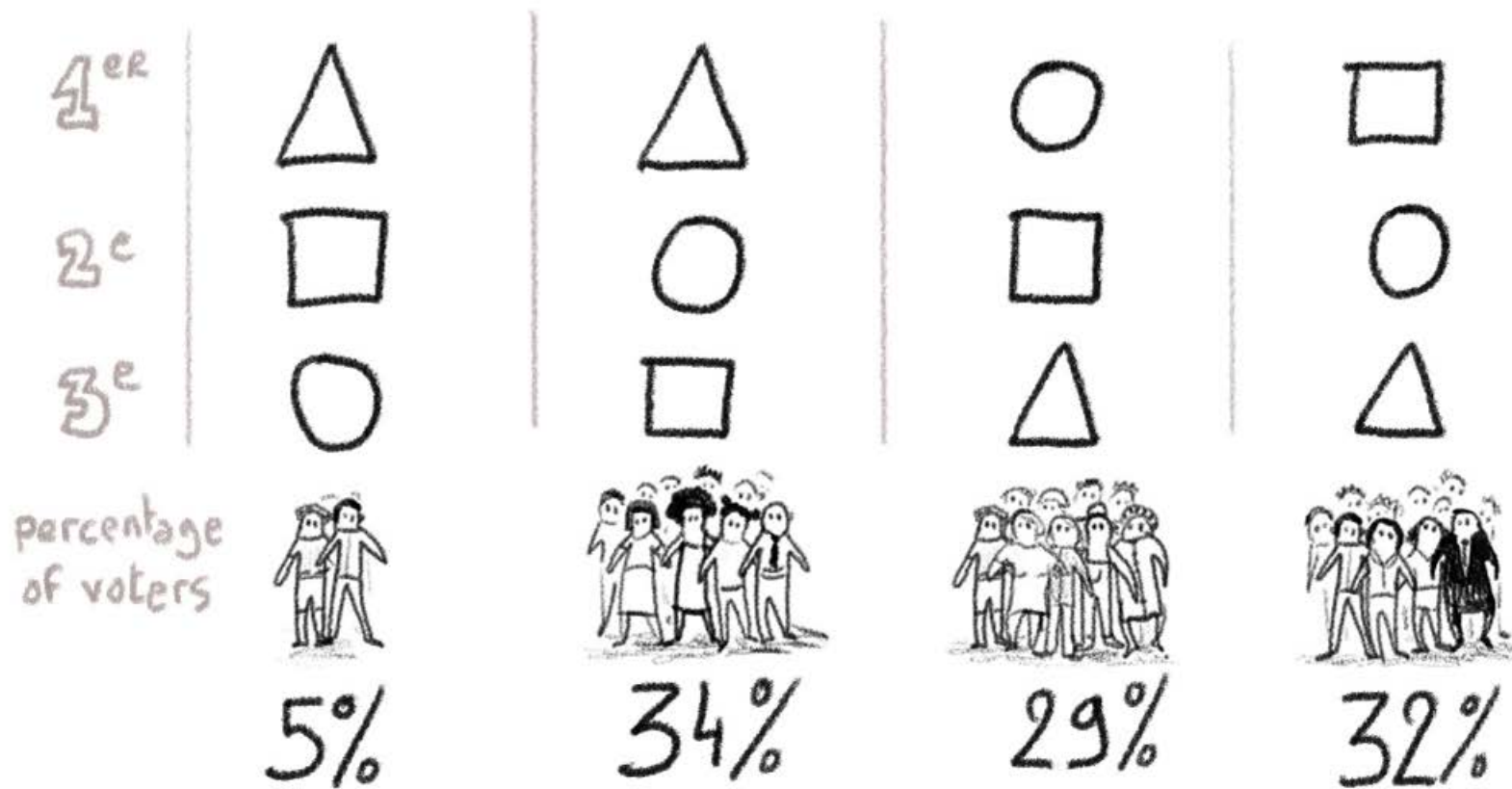
And at that time he already proved to what extent the first-past-the-post voting system with run-off can end up either as one thing or the very opposite.

















## INTERLUDE PRACTICAL CASE STUDY WITH BORDA

Suppose we were to ask voters to classify  
3 candidates according to **THEIR ORDER**  
**OF PREFERENCE.**



If we simulate a system with one round,  
only keeping the first choice of each voter,

 **WILL WIN.**

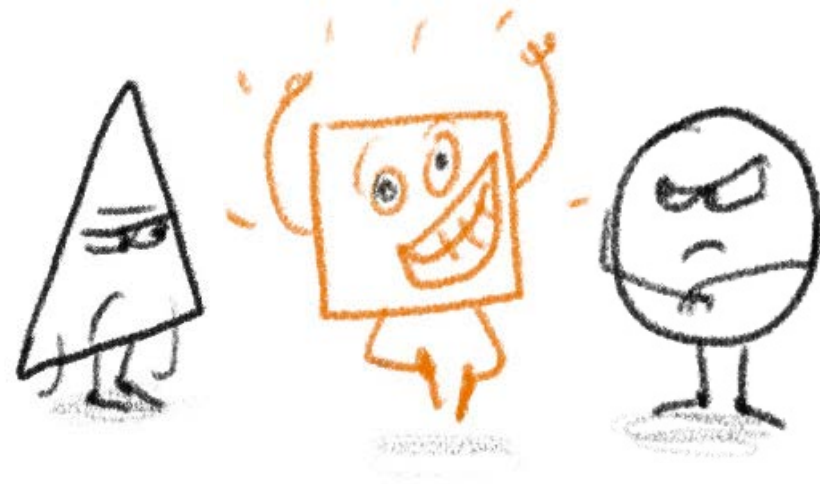
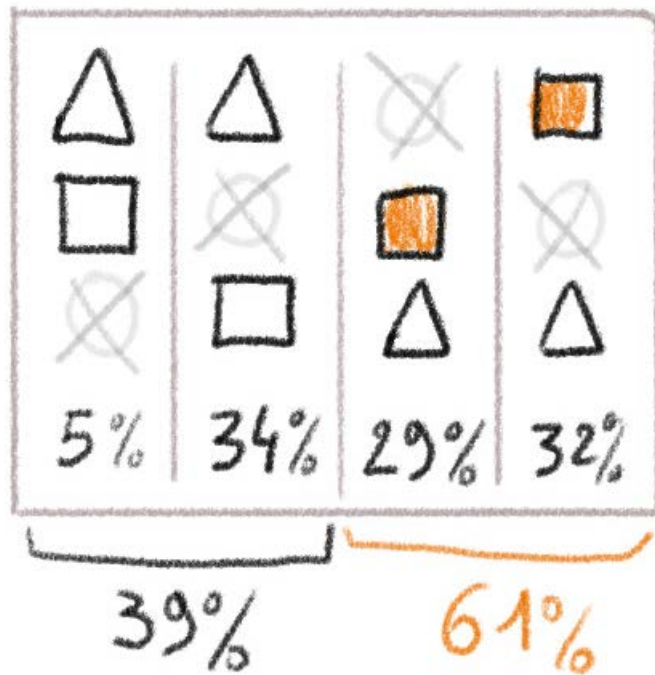
			
			
			
5%	34%	29%	32%

  
39%



However, if we organise a run-off only keeping the 2 candidates with the most votes,

 **IS THE CANDIDATE WHO COMES OUT TOP.**



# BUT THAT'S NOT ALL!

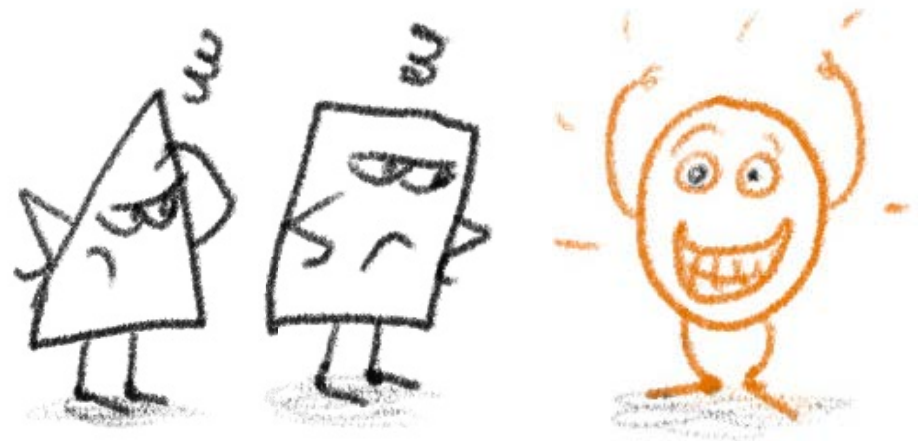
If we make a pairwise comparison of all the candidates,

 **REALLY IS THE WINNER!**

△	△	●	□
□	●	□	●
○	□	△	△
5%	34%	29%	32%

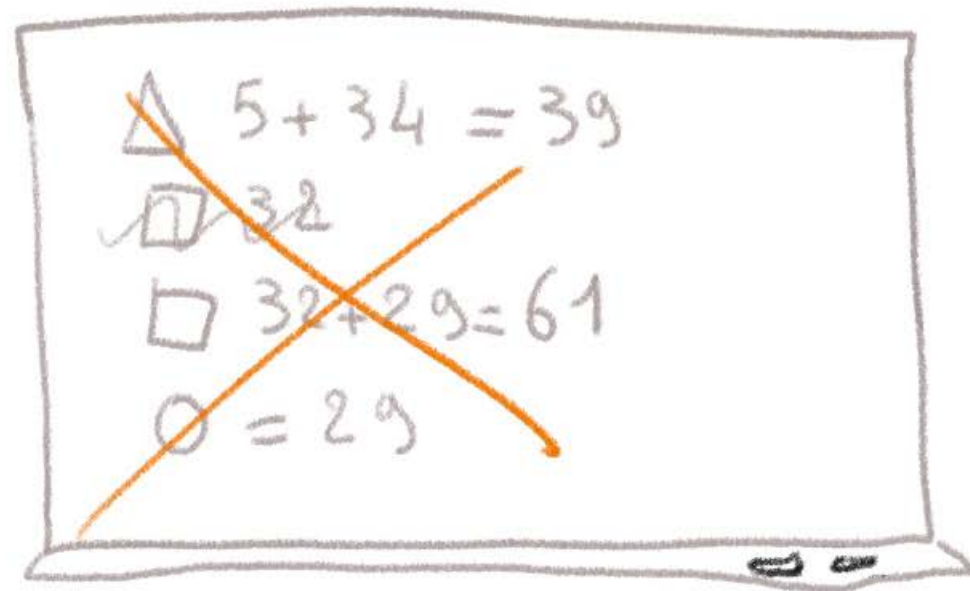
 >  63%

 >  61%





BUT IS THERE NOT AN ERROR SOMEWHERE  
IN THE CALCULATIONS?

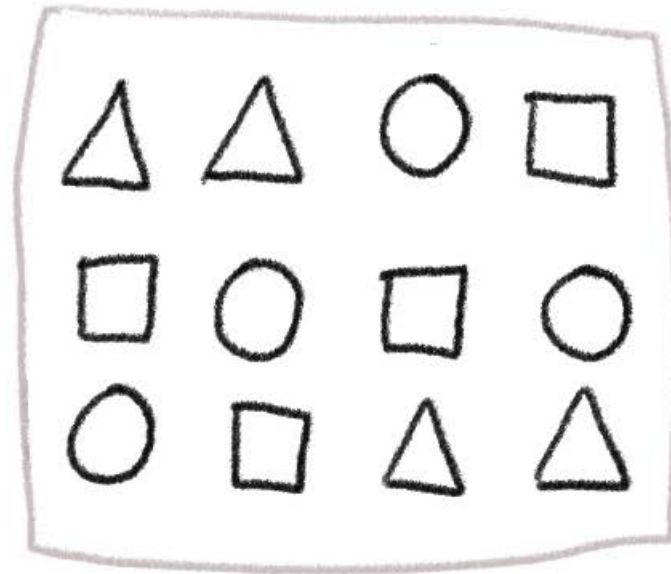




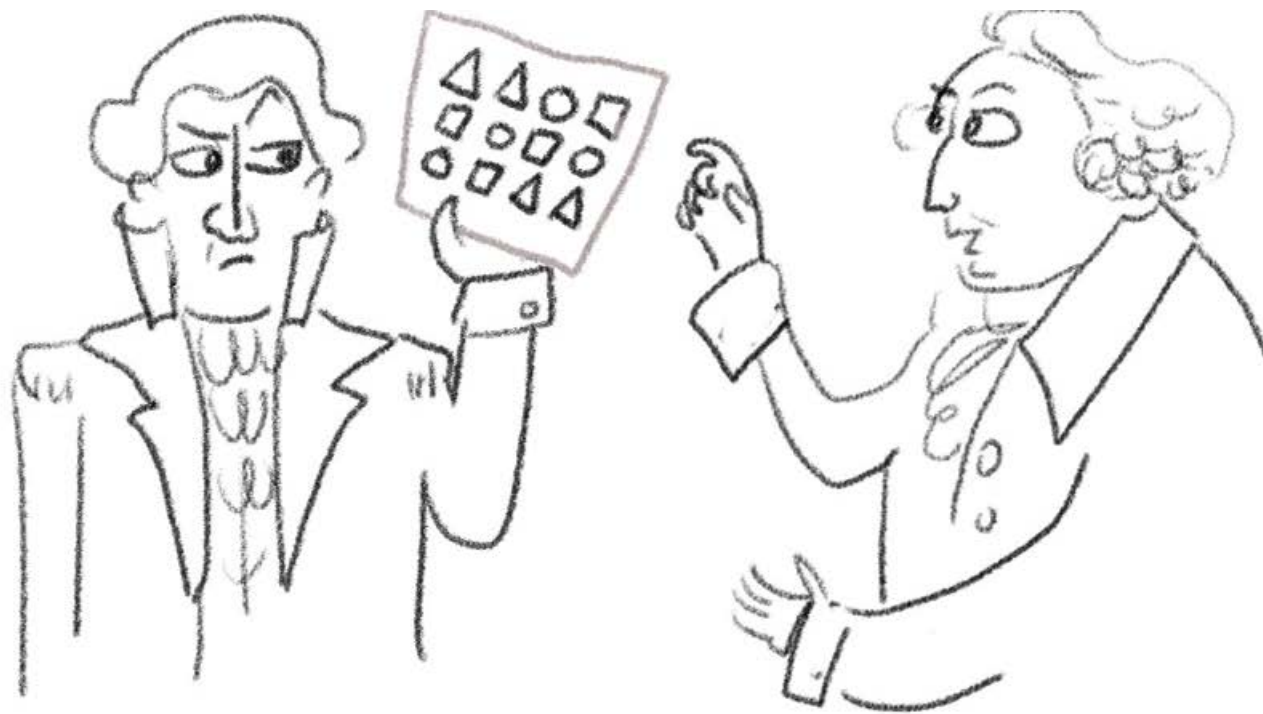
No. It's rather a question of several bad methods of calculation. Because in the two first cases some **CRUCIAL INFORMATION IS CONCEALED.**



In the third case, by contrast,  
**THE ENTIRE RATING** is taken into account.



But even there, surprises are possible...



This was demonstrated by **NICOLAS DE CONDORCET**



*“ Each voter should express what he really wants by making a comparative Judgment of all candidates on a two by two basis. ”*

**N. CONDORCET**

1743–1794

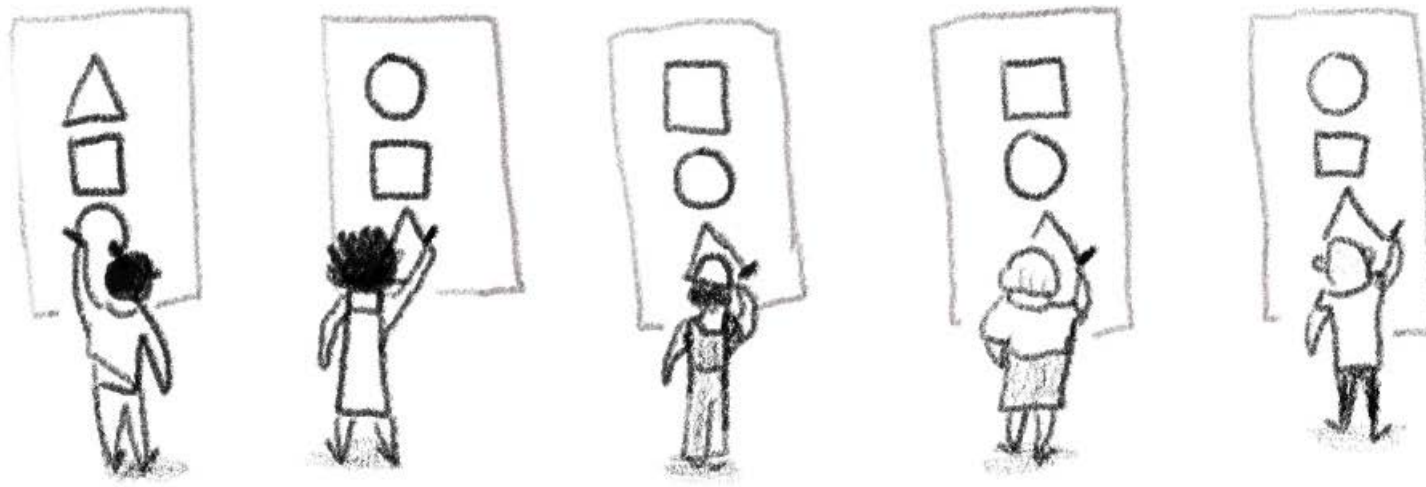
PHILOSOPHER,

MATHEMATICIAN, POLITICIAN

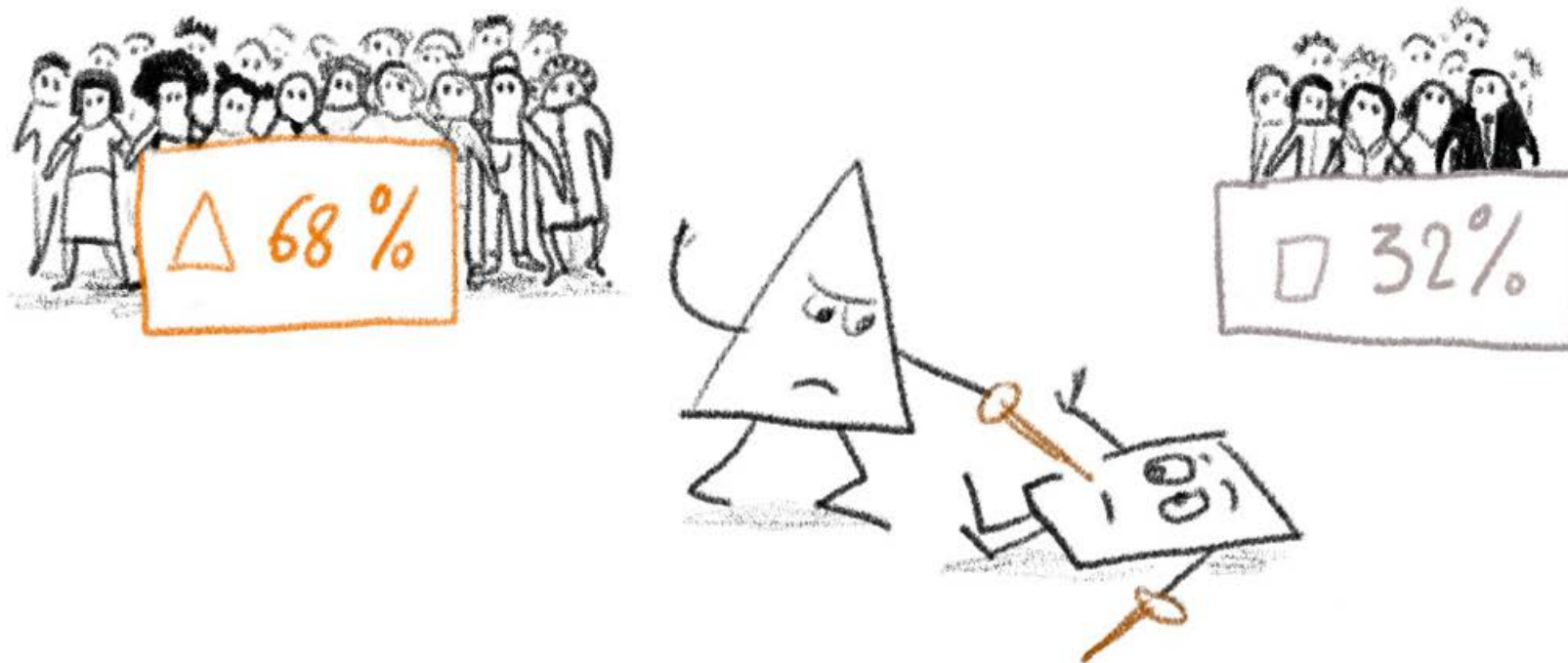
# CONDORCET's METHOD



Here also, each voter is invited **TO RANK**  
the candidates **FROM BEST TO WORST.**



When counting the votes, the focus is on how many voters prefer one candidate to another. This is how the **WINNER OF THIS PAIRWISE COMPARISON** is decided.

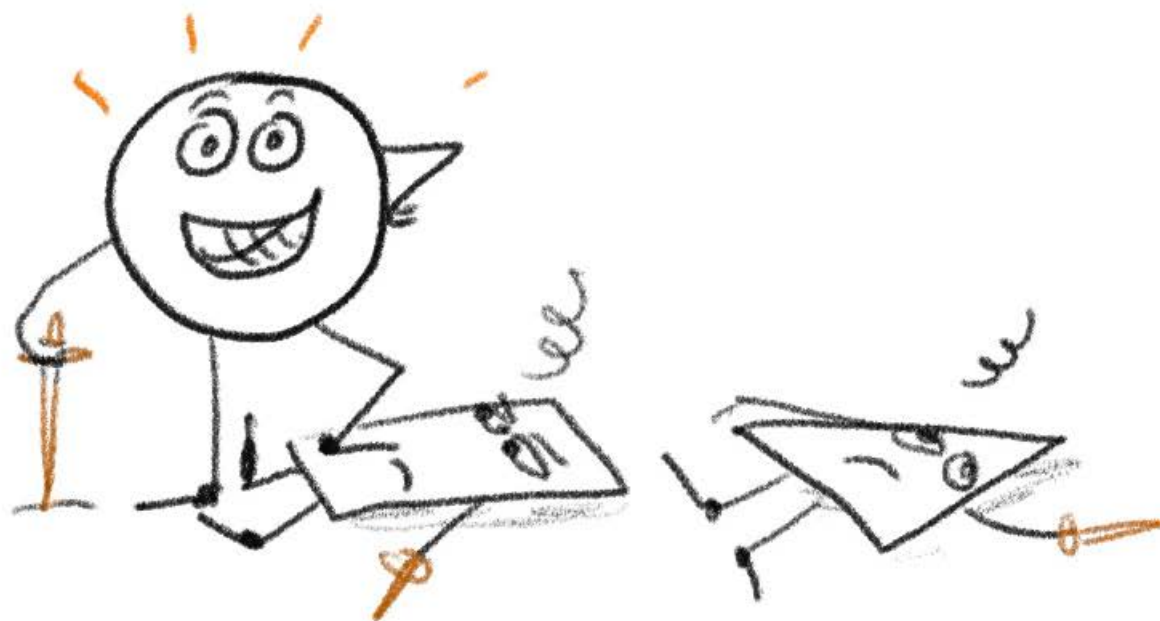




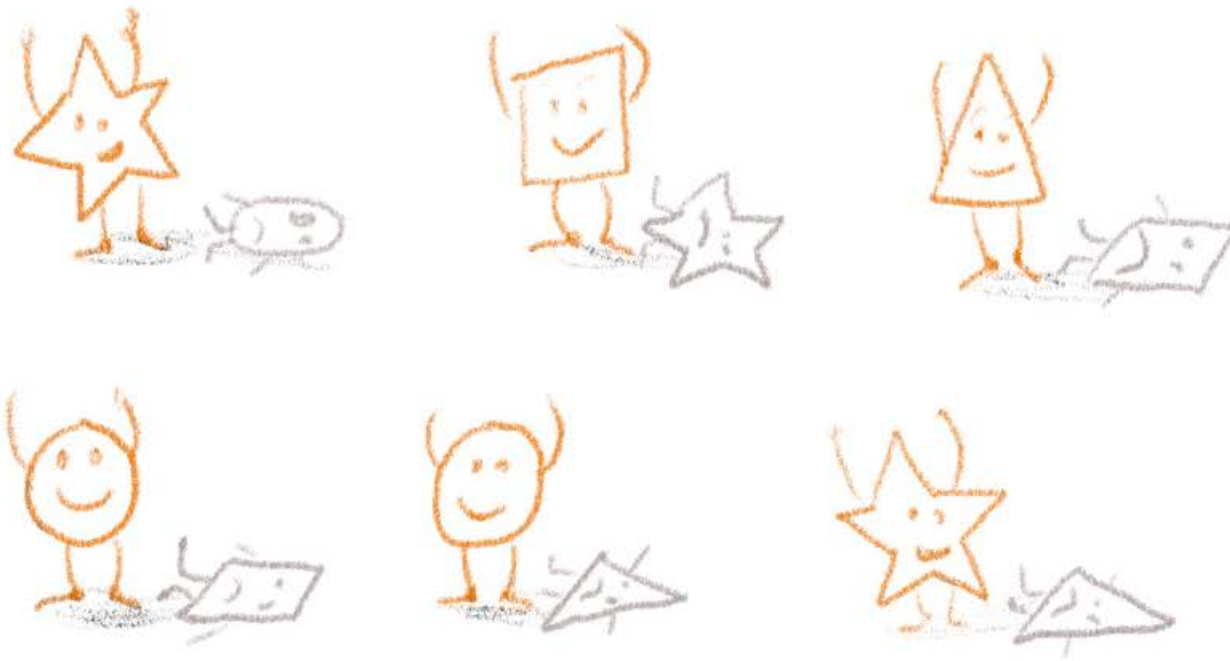
And as many "duels" as necessary are carried out  
to enable each candidate to be **COMPARED**  
**TO ALL THE OTHERS.**



The winner is the candidate  
who defeats each of the others in all the "duels".  
This person is known as: **"THE CONDORCET WINNER"**.



The only problem here is that it is perfectly conceivable that no single candidate will succeed in beating all the others. In such a case there is obviously **NO “CONDORCET WINNER”**.



# EVEN WORSE:

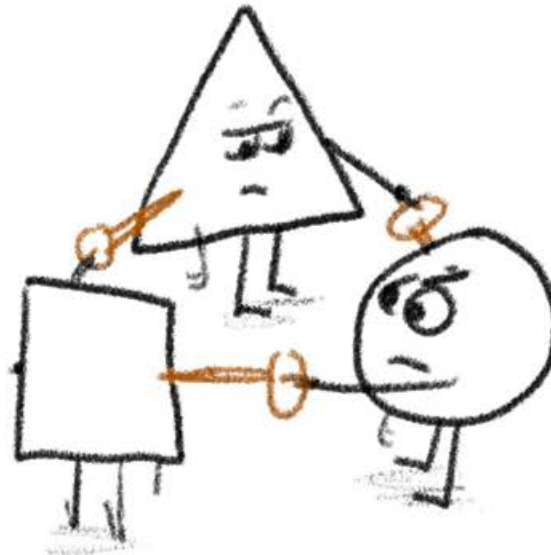
Condorcet stumbles upon an unfortunate paradox!



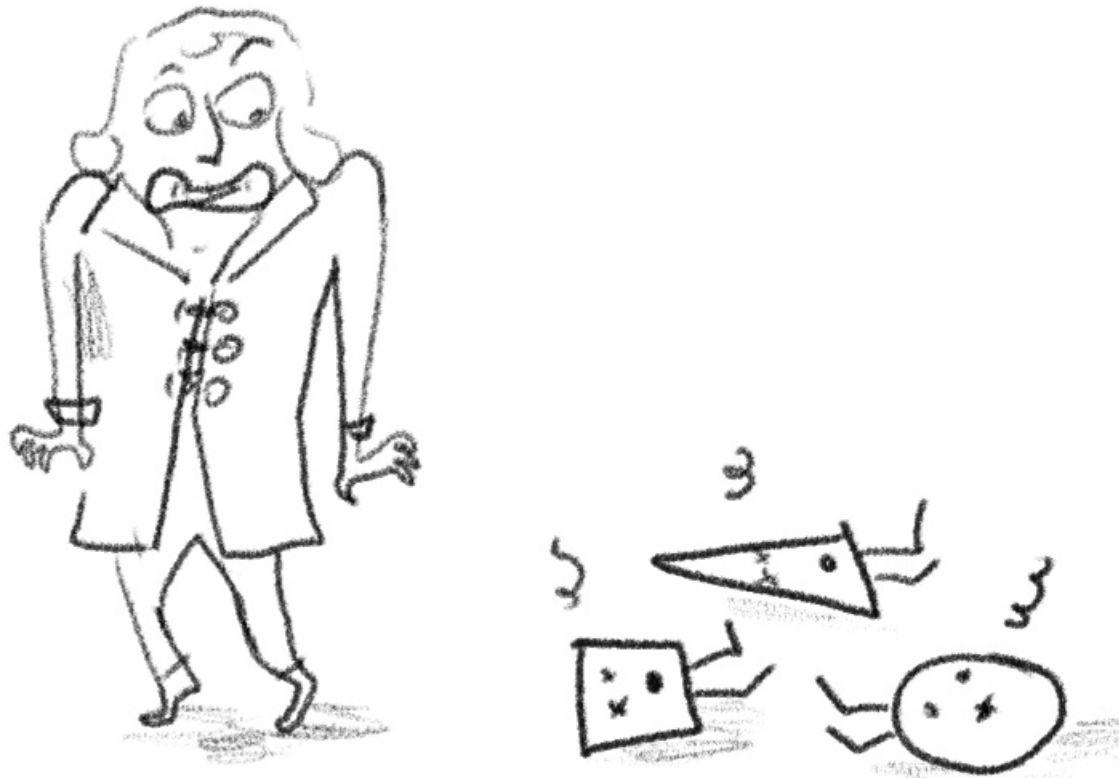
If one majority prefers  
if one majority prefers  
and one majority prefers



...the system will simply be going **ROUND IN CIRCLES** without any candidate actually emerging as the winner.



This is known as the **CONDORCET PARADOX**.





The third person to make a fundamental advancement  
in the reflections on voting procedures  
is **KENNETH ARROW**.



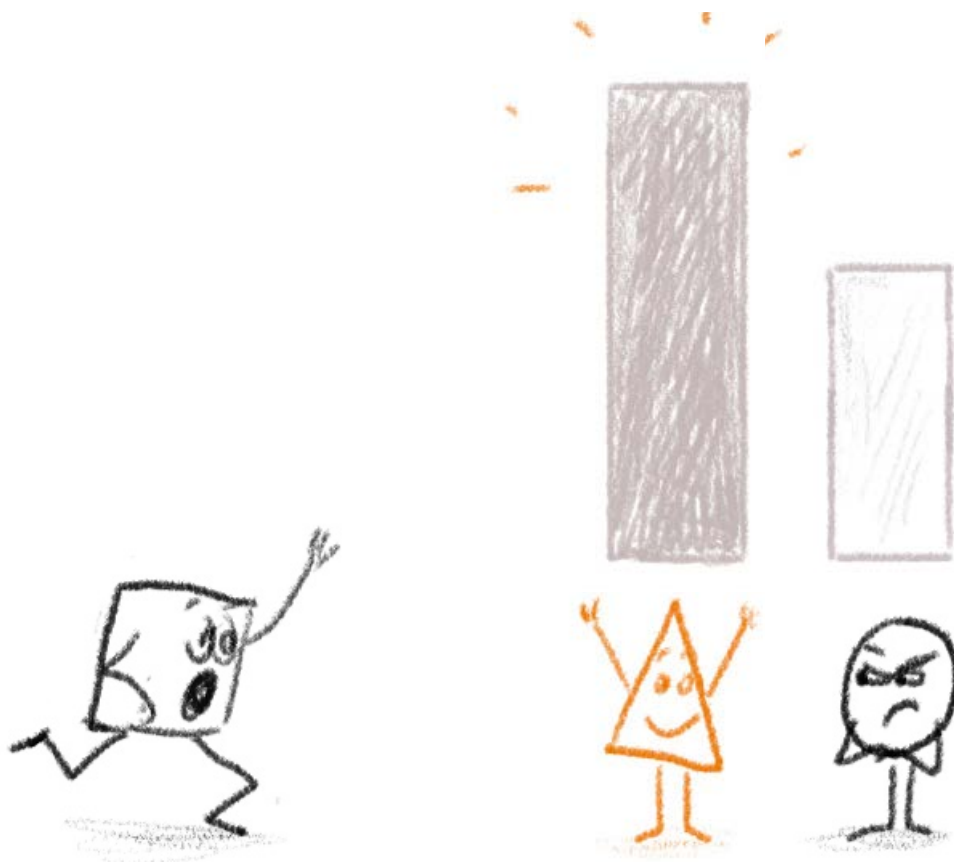
*“ [...] we ask, if it is formally possible to construct a procedure for passing from a set of known individual tastes to a pattern of social decision-making [...] ”*

**K. ARROW**

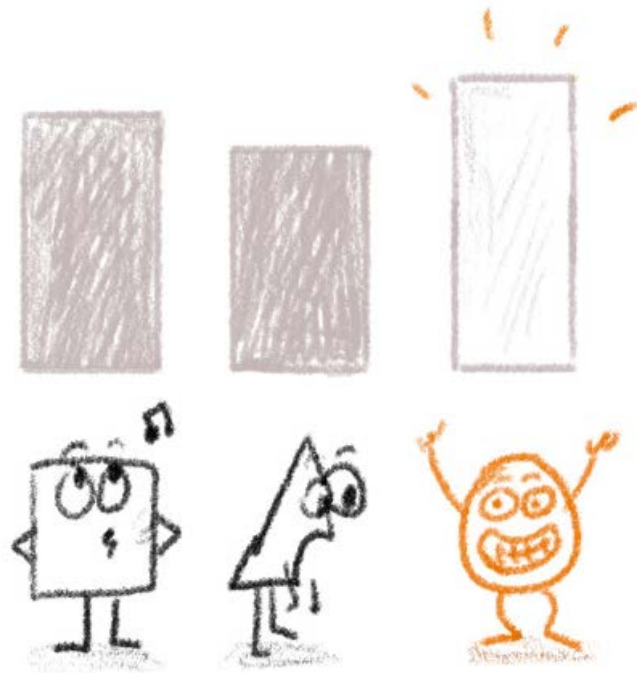
1921–2017 AN ECONOMIST PRESENTED  
WITH THE “NOBEL PRIZE FOR ECONOMICS” IN 1972  
AS A REWARD FOR HIS LIFETIME ACHIEVEMENTS.



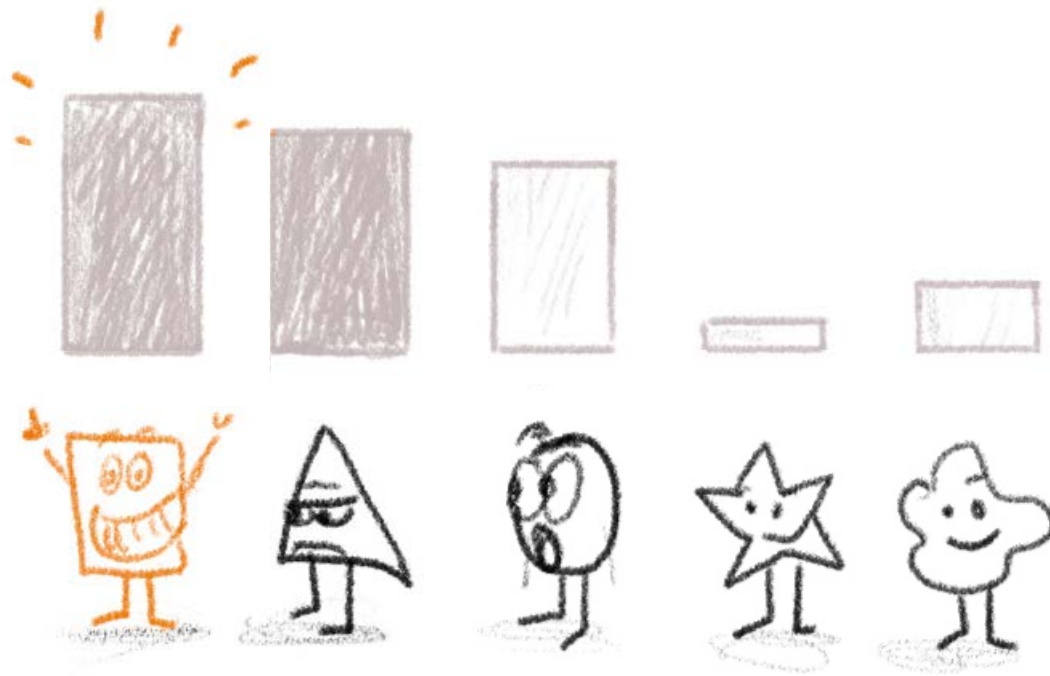
Arrow determines that, **ACCORDING**  
**TO THE NUMBER OF CANDIDATES** who stand...



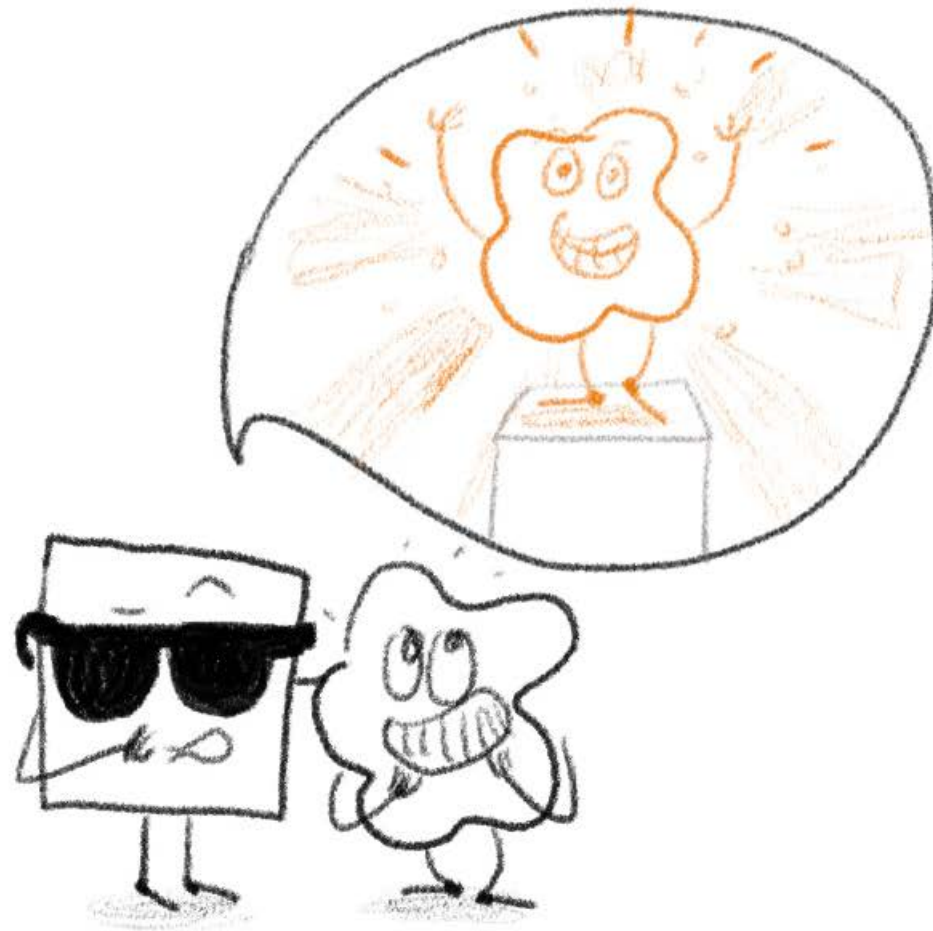
...THE RESULT CAN CHANGE QUITE RADICALLY.



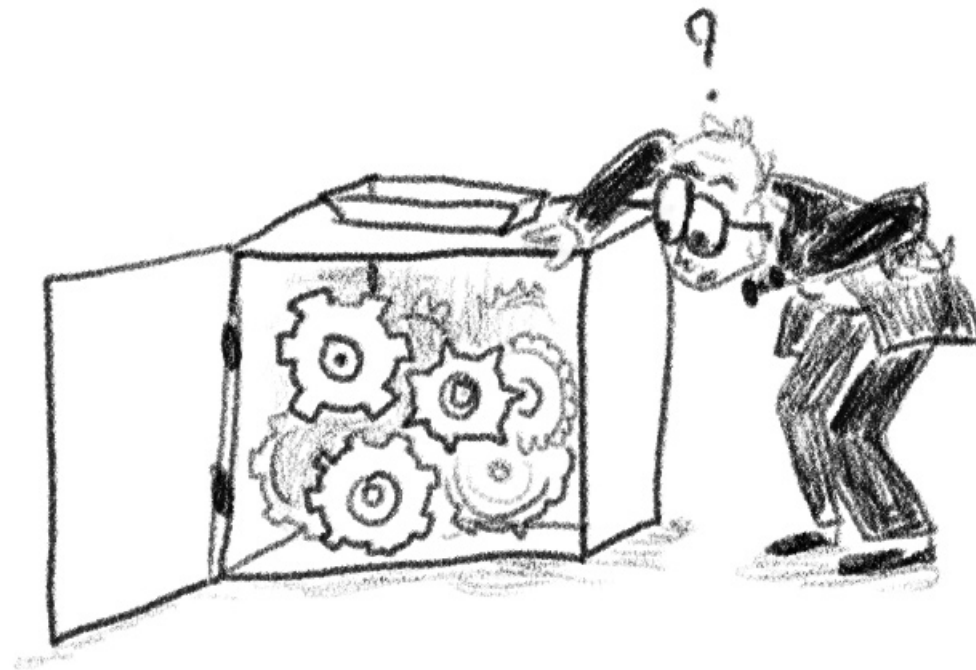
Simply the **ADDITIONAL PRESENCE**  
**OR WITHDRAWAL** of a minor candidate who has  
no chance of winning the election is actually sufficient  
to cause a different candidate to win.



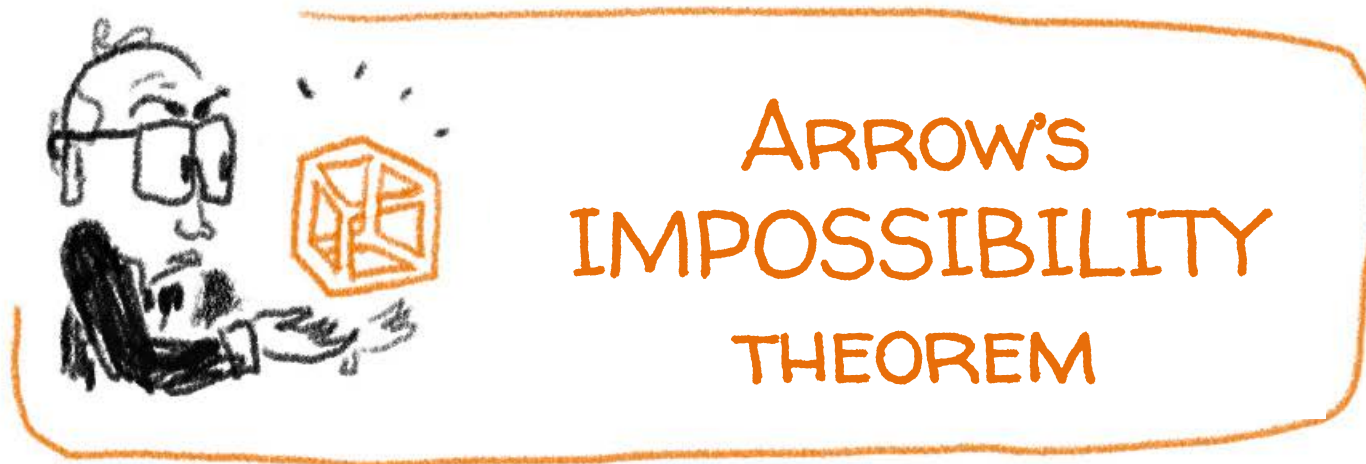
So it is possible to manipulate the results  
by adding or withdrawing candidates.



Based on this observation,  
Arrow tries to describe what could be  
the most fundamental desirable characteristics  
of a **GENUINELY DEMOCRATIC ELECTION**.

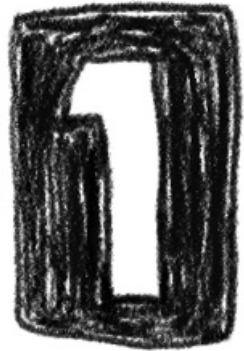






This is the essence of Arrow's reflection.

IF THE INTENTION IS



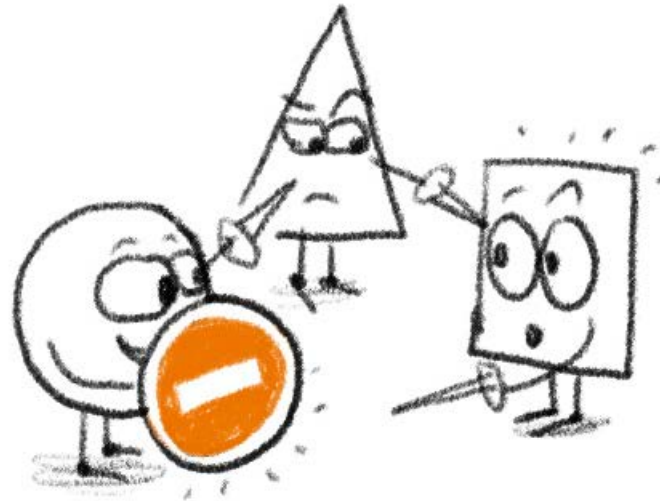
FOR EVERY VOTE  
TO HAVE THE SAME WEIGHT.  
All voters are equal.



IMPARTIALITY



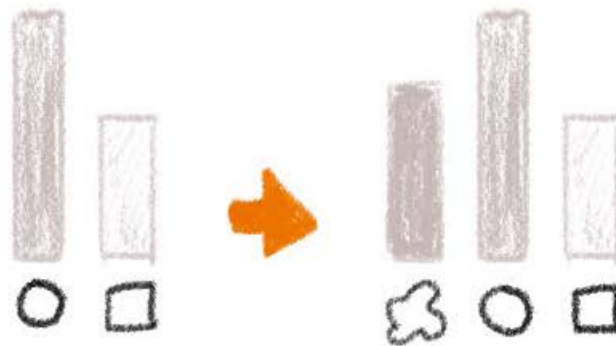
It should always be possible  
for a **WINNER TO EMERGE  
FROM THE ELECTION.**



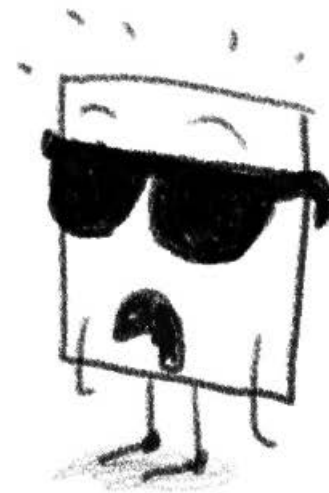
TRANSITIVITY

3

A NEW CANDIDATE DECIDING TO STAND,  
even more so if this candidate has no chance  
of winning, **DOES NOT UPSET THE RESULT.**

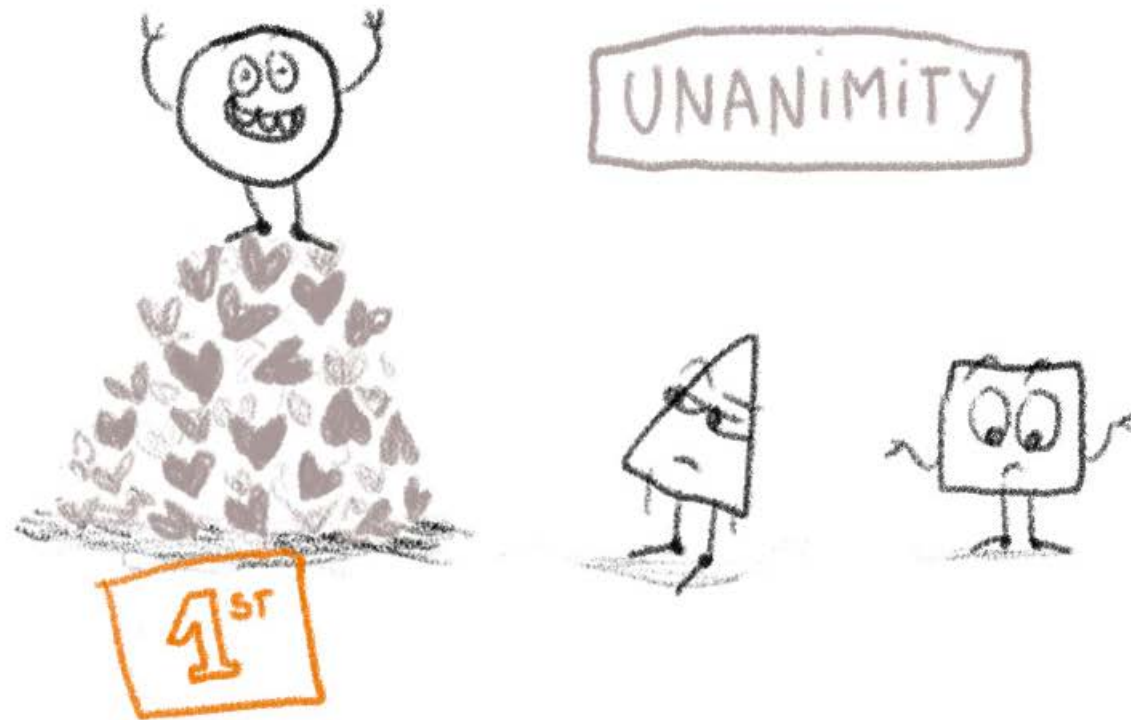


COHERENCE



4

A candidate **CONSIDERED TO BE THE BEST CHOICE BY ALL VOTERS SHOULD EMERGE THE WINNER.**

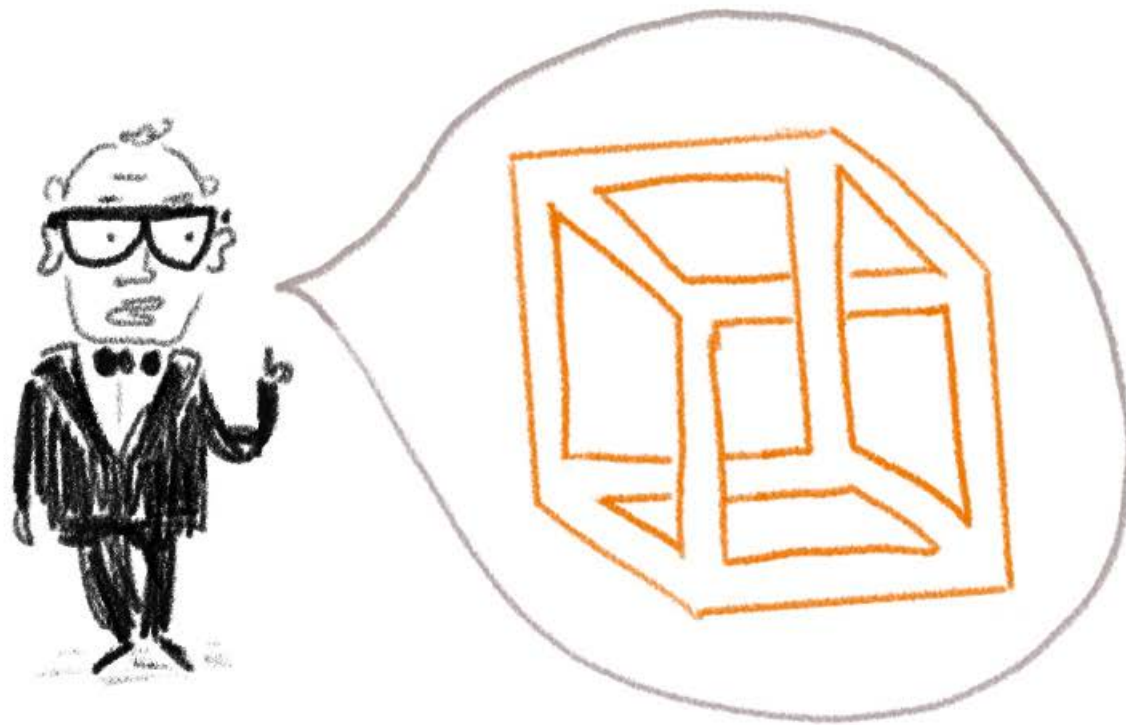




THERE IS NO SOLUTION

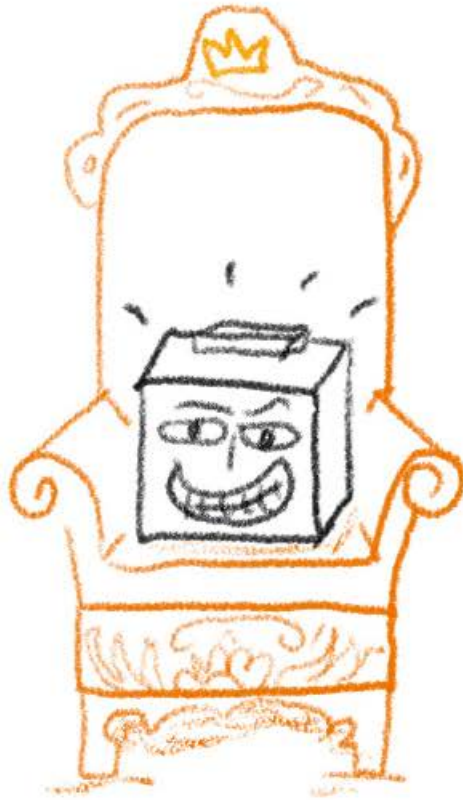


This is Arrow's impossibility theorem  
- as soon as voters are asked to **SELECT**  
**OR RANK** the candidates, **IT BECOMES**  
**IMPOSSIBLE TO VOTE CORRECTLY.**





Having reached the conclusion that there is no such thing as a good voting system anyway, there seemed no point at all in changing the existing one.





AND THIS HAS BEEN THE ATTITUDE  
FOR THE LAST 200 YEARS!



IN FRANCE, HOWEVER, A SOLUTION  
HAS BEEN FOUND AFTER ALL!



# MAJORITY JUDGMENT

Approximately ten years ago, two researchers  
at CNRS\* developed **A NEW VOTING METHOD:**  
**MAJORITY JUDGMENT.**

**M. BALINSKI**  
MATHEMATICIAN,  
EXCEPTIONAL GRADE SENIOR  
RESEARCHER AT CNRS



**R. LARAKI**  
MATHEMATICIAN,  
SENIOR RESEARCHER  
AT CNRS

\* French National Center for Scientific Research (Centre Nationale de la Recherche Scientifique)

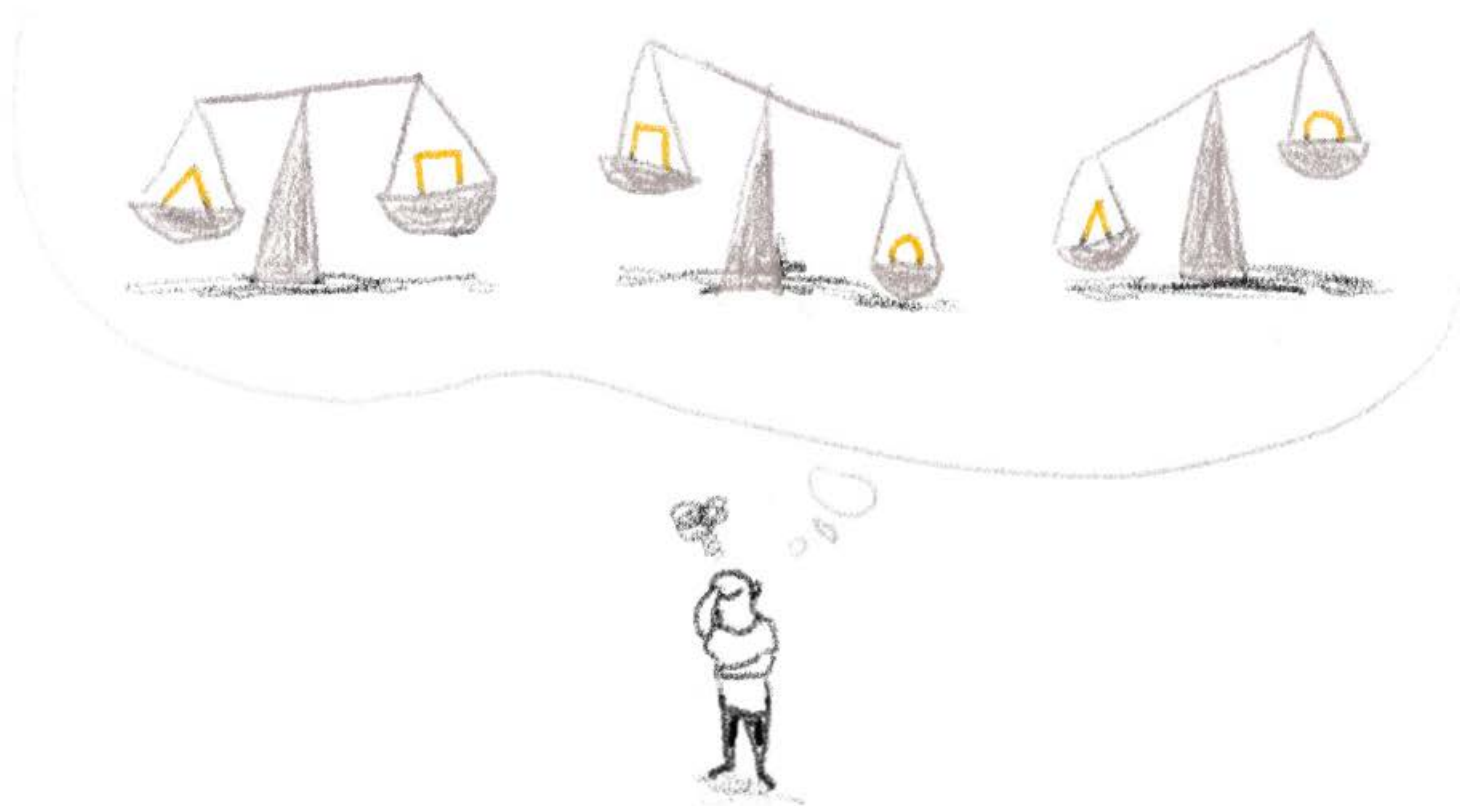
They conceived this method in response to the **4 DEMANDS CONCEIVED BY ARROW.**



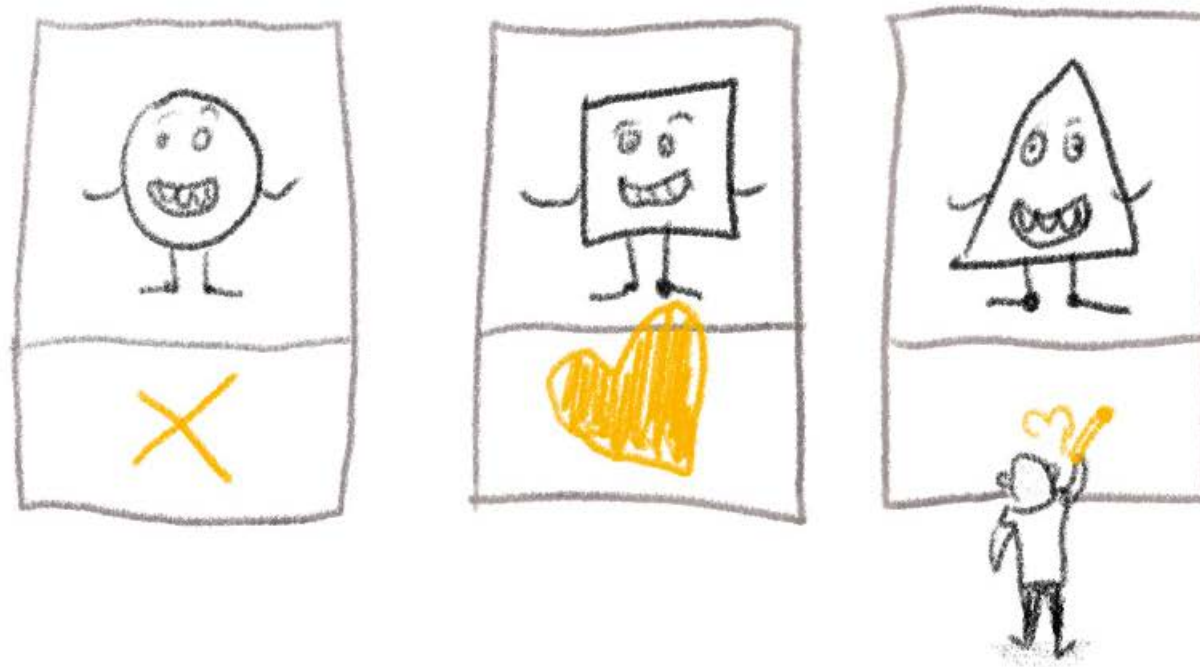


In this context they based their work on the principle that **VOTERS NEEDED TO BE ABLE TO EXPRESS THEMSELVES BETTER.**

Consequently, they no longer ask voters  
**TO COMPARE OR RANK** the candidates.

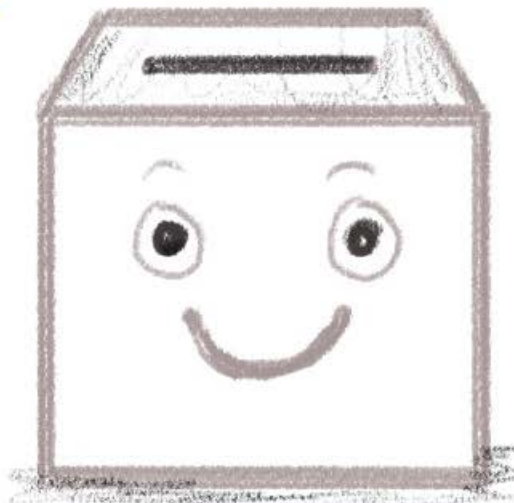


But simply to **ASSESS** each candidate, independently of the competitors. **IT IS QUITE SIMPLY A MATTER OF A VOTER EXPRESSING HIS OPINION!**





SO LET'S TAKE A LOOK AT HOW IT WORKS.



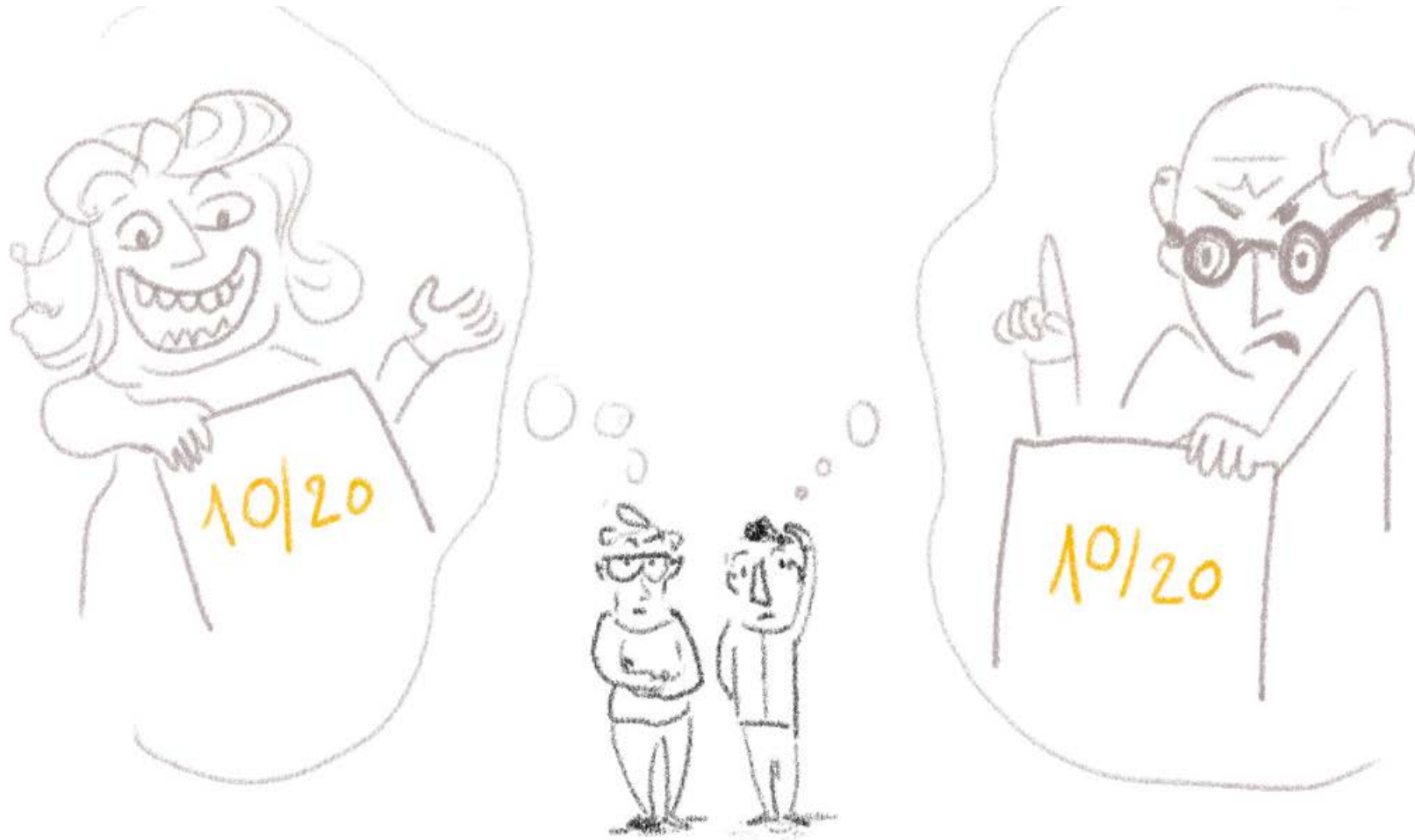


# THE LANGUAGE

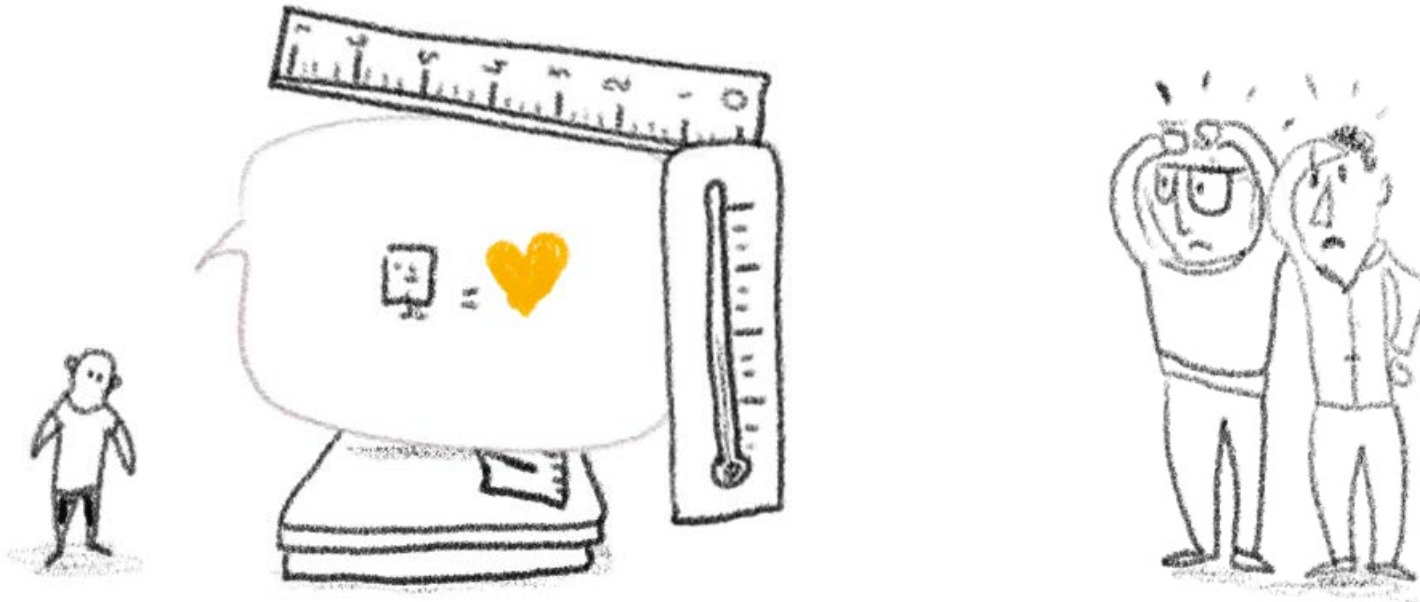
In order for this to work, a **COMMON LANGUAGE** has to be established first of all.



It could be tempting to use a point summation method...  
the problem here, however, is that the numeric grades  
mean different things to different people.



Furthermore, a voter's support for a candidate  
**IS NOT A MEASURABLE PHYSICAL PARAMETER,**



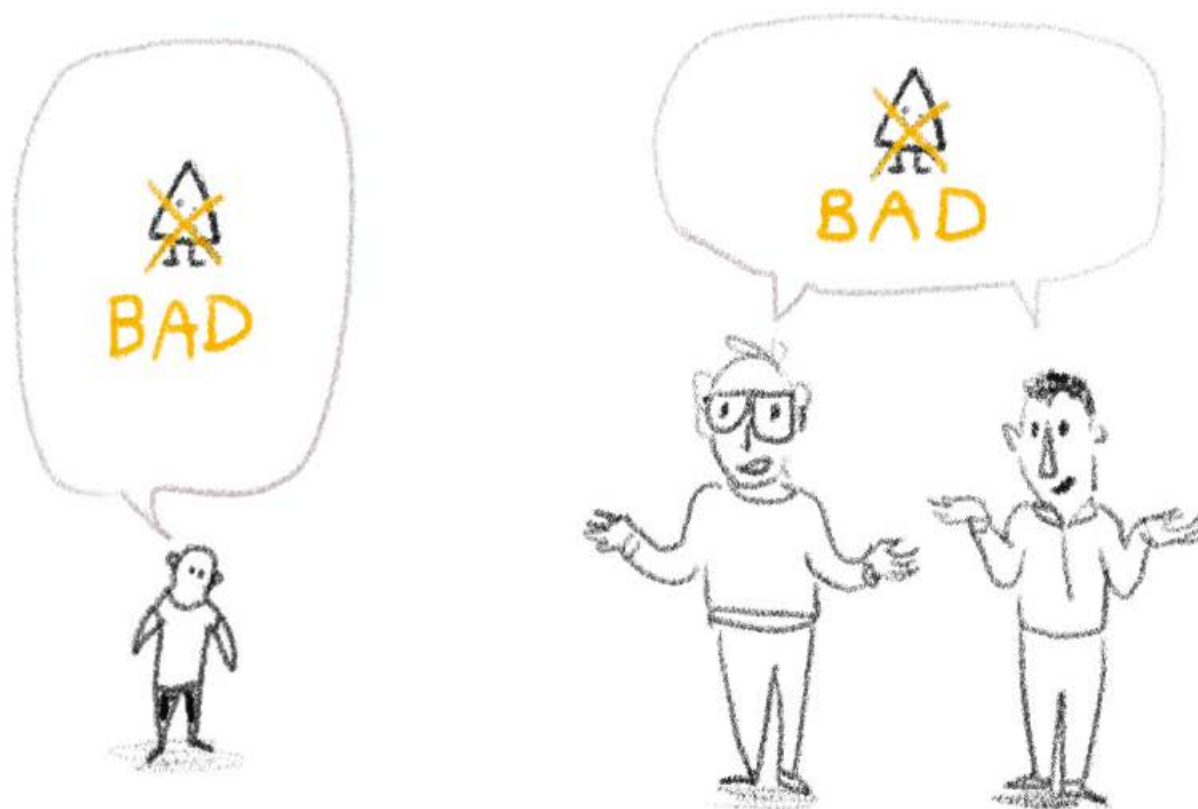
so there is no sense whatsoever  
in transforming it into figures!



Balinski and Laraki are rather going to choose to use the information such as it is provided by the voter...



In this case, if a voter says a candidate is "bad", Balinski and Laraki will also say that this candidate is "bad".





It is now possible to **VOTE**  
**ON THE BASIS OF WORDS!**



## GRADES



To assure that voters are treated equally, however, it is necessary to use a list of expressions **WHICH EVERYONE UNDERSTANDS IN THE SAME WAY.**

mediocre      pretty      kind  
top      cool      handsome      super  
outstanding      clever  
overall      perfect

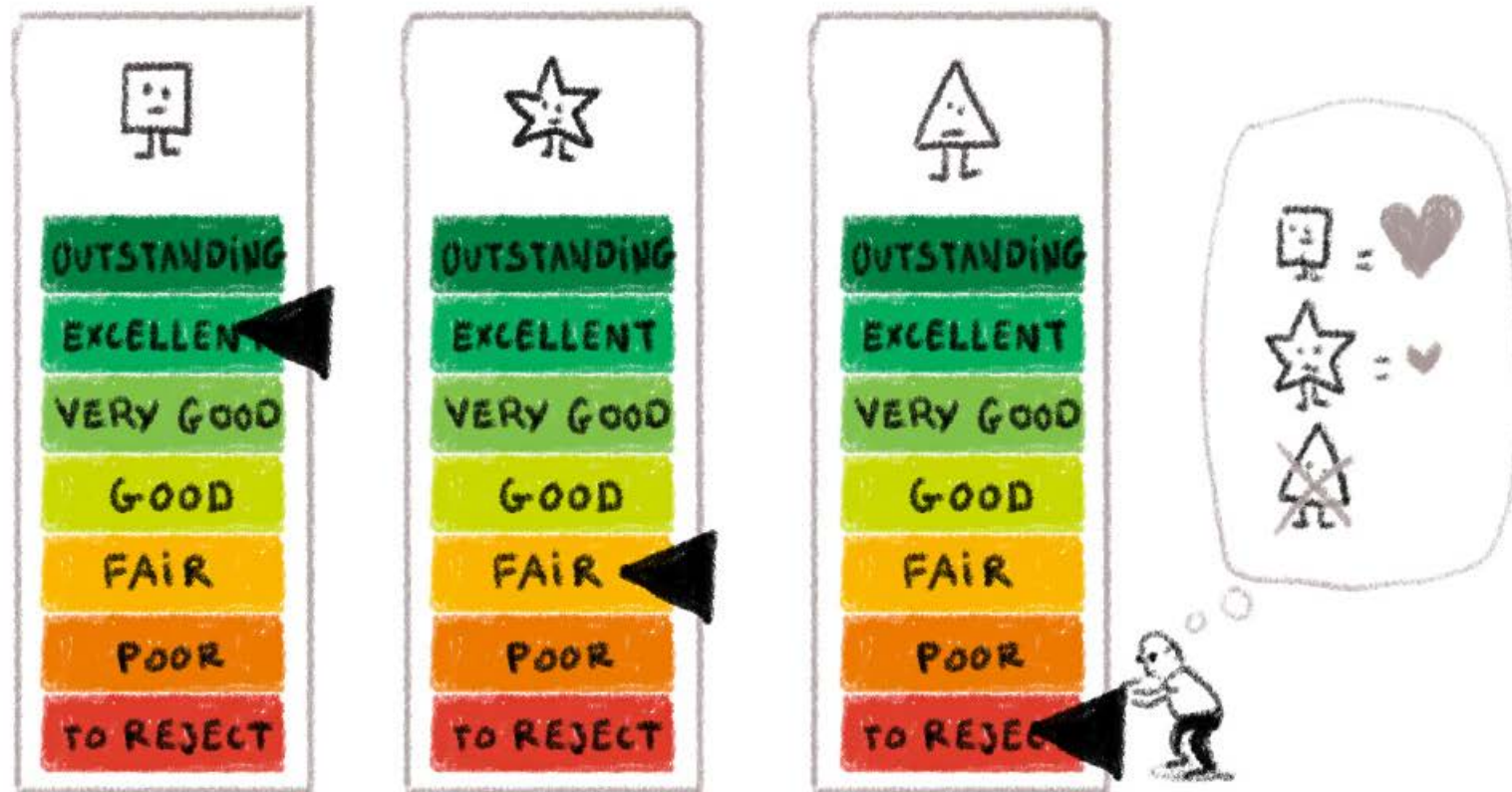
These terms are to be called "**GRADES**".



They make it possible to establish  
an **ORDER** (ascending or descending)



And this scale of grades will enable the voters to assess each candidate.



## THE BALLOT PAPER



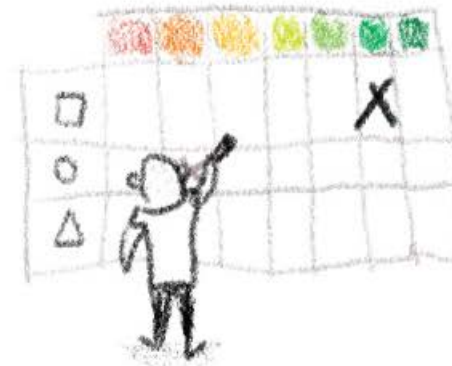
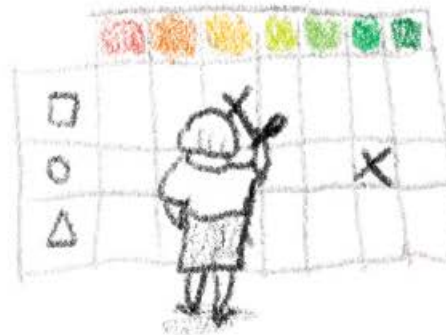
More specifically, a **BALLOT PAPER**  
could look as follows:



for this election,  
I assess that the following candidates are:

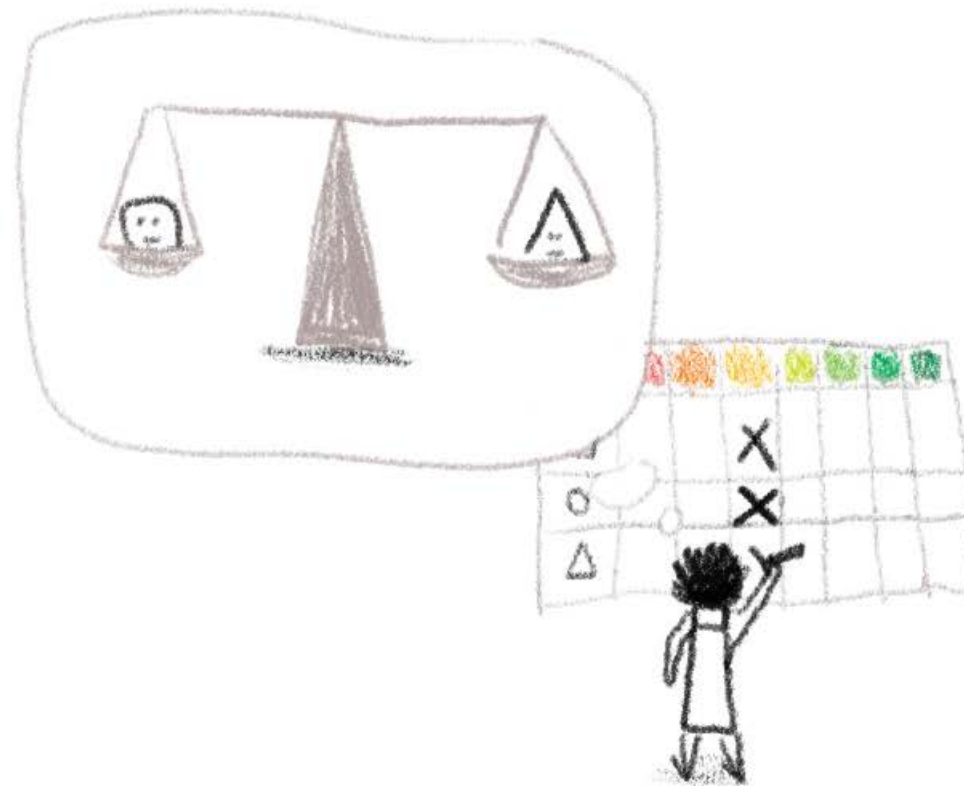
	TO REJECT	POOR	FAIR	GOOD	VERY GOOD	EXCELLENT	OUTSTANDING
							
							
							

To vote, it is sufficient to enter one cross per line.

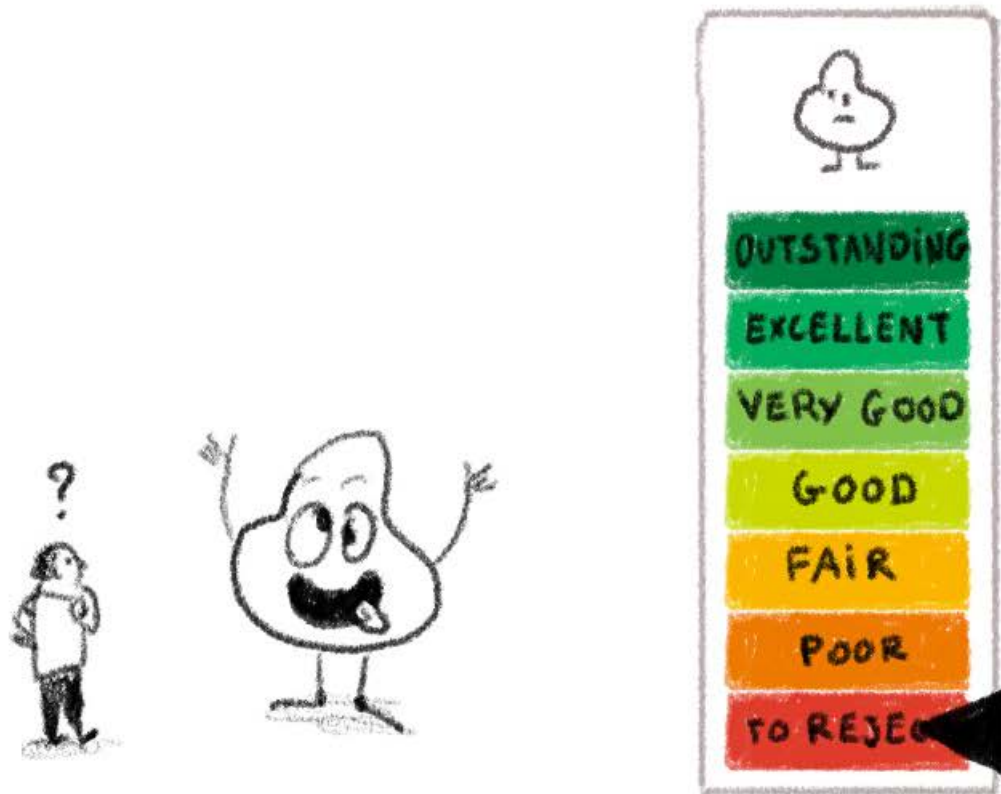




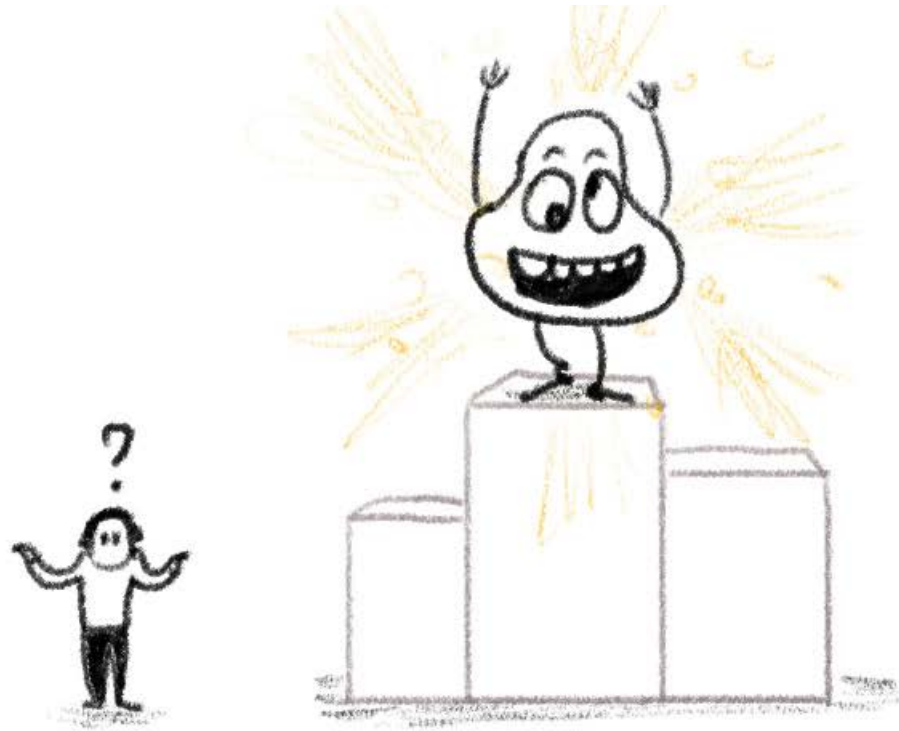
As each candidate is evaluated independently of their competitors, the **SAME GRADE** can obviously be used to describe **SEVERAL DIFFERENT PERSONS**.



If a voter does not have a specific opinion about a candidate, **THE GRADE TO USE IS “TO REJECT”**.



Indeed, no **RESPONSIBLE CITIZEN**  
wants to be represented by a candidate whom  
he knows nothing about.



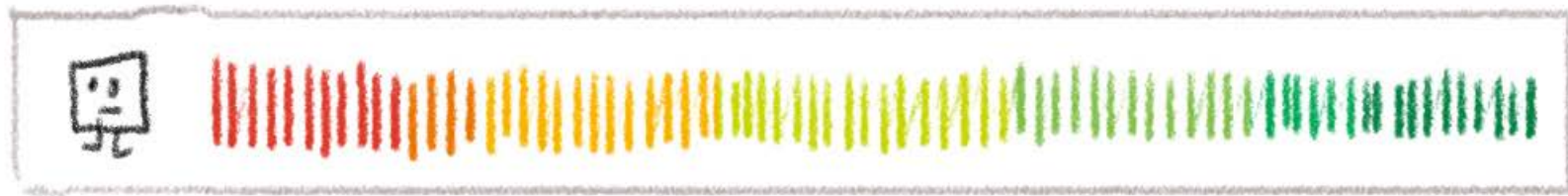
## 2 HOW ARE THESE VOTES TO BE AGGREGATED?




After the votes have been cast, all the grades attributed to each candidate are collected.

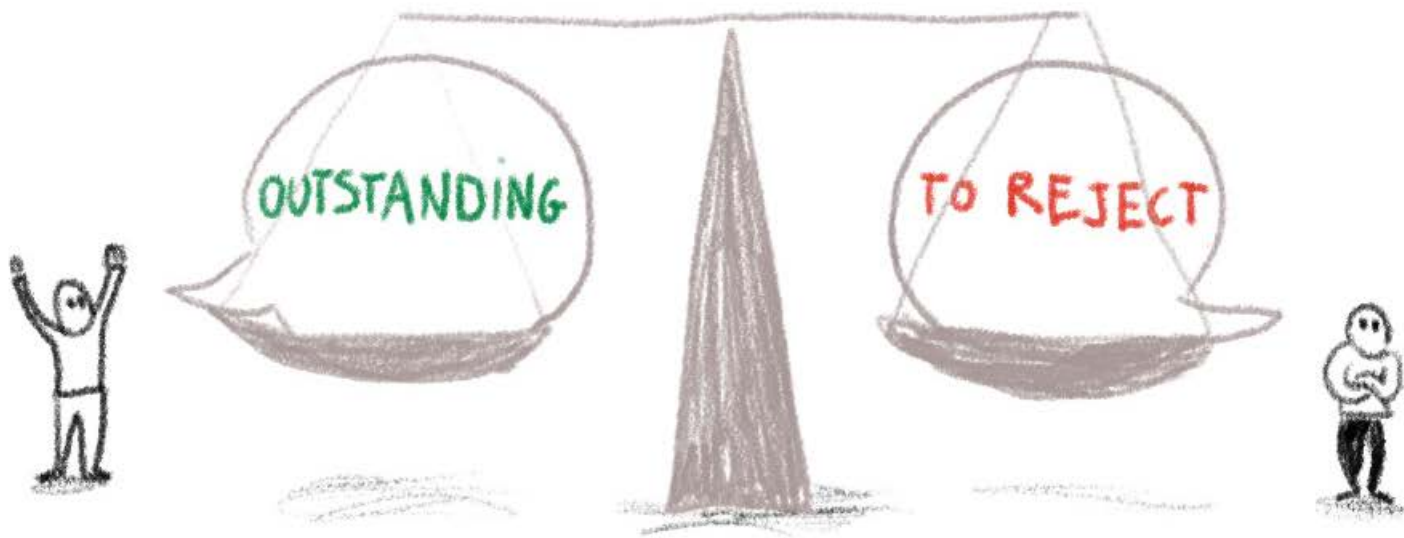


Then they are arranged in appropriate order in each case. In this way, a so-called **"MERIT PROFILE"** of each candidate is obtained.



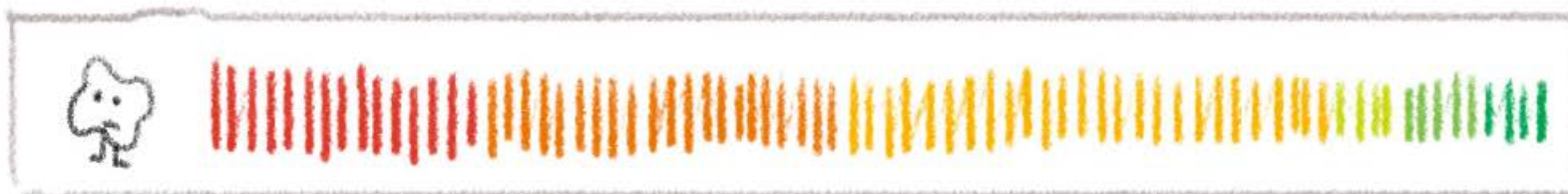
Merit profile of 

With this method, **EACH VOTE**  
**HAS AN EQUAL WEIGHT.** In other words, "outstanding"  
does not carry any more weight than "fair" or "to reject".

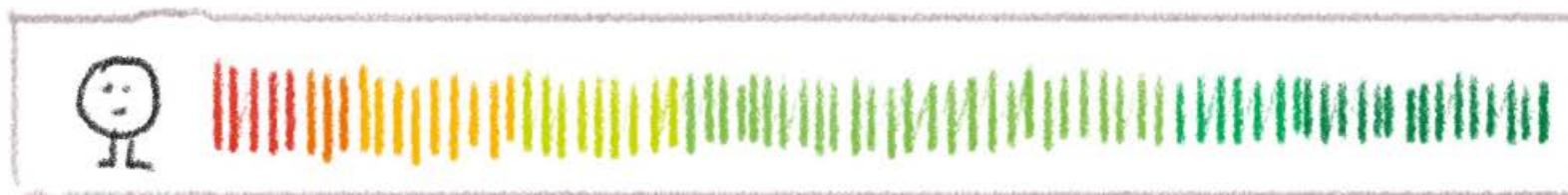




On the basis of these merit profiles, it is possible to find out if a candidate is appreciated by the voters, or not.



We could say that ☁ is not particularly appreciated by the voters



☺, on the other hand, is.

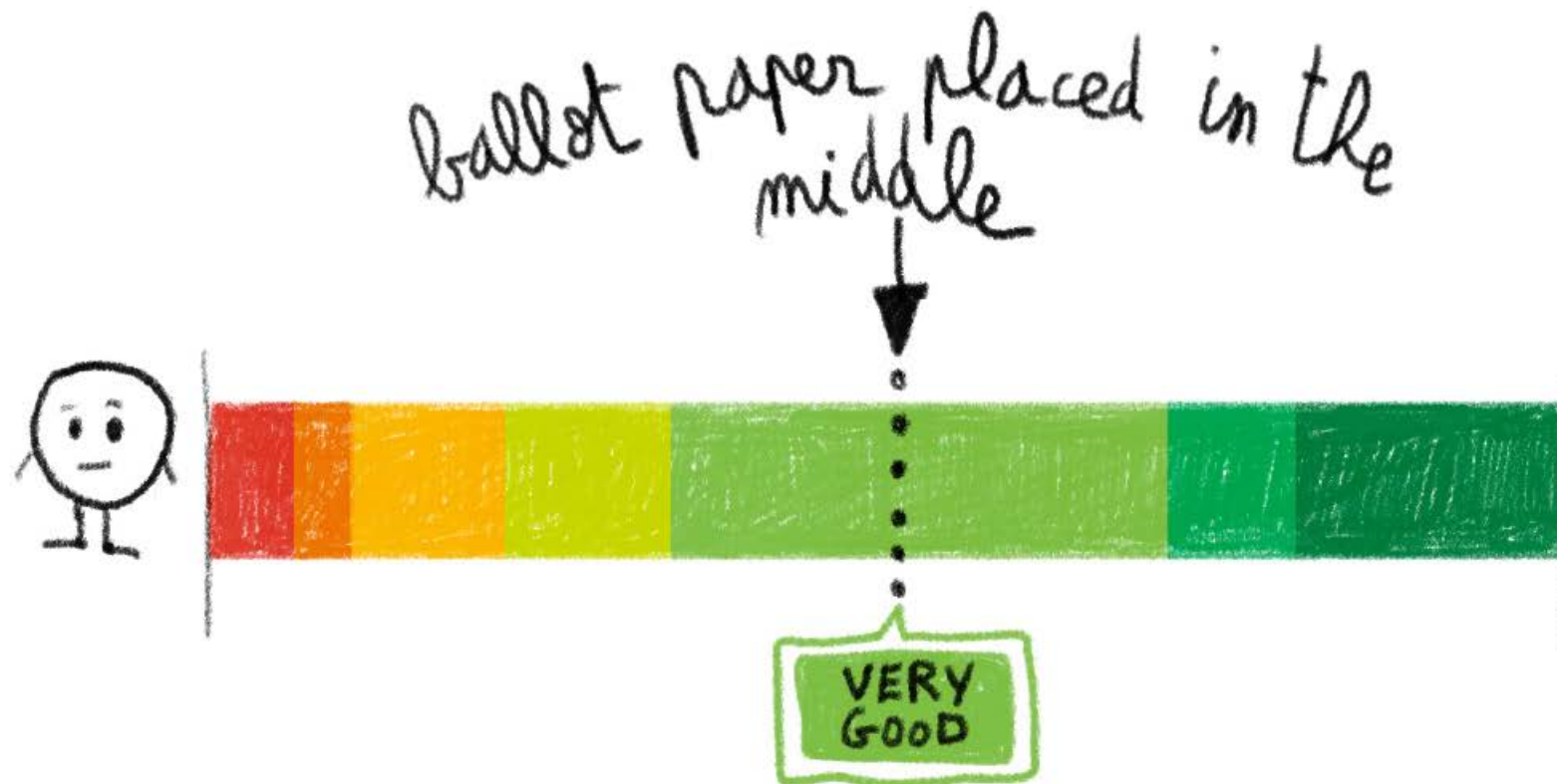




## MAJORITY GRADE



For each merit profile, the grade with which **THE MAJORITY OF VOTERS** agrees is determined. To do this, you take the ballot paper precisely in the middle.



For this grade, you indeed have a majority who say:



And a majority who say that:



Those who dispute this grade are therefore  
always in the minority.





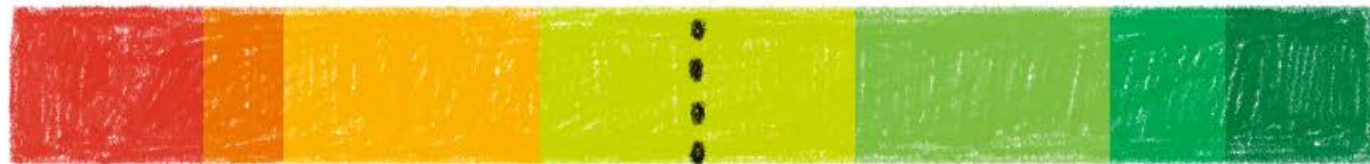
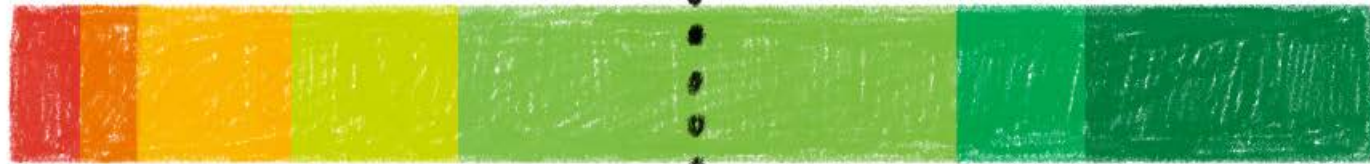
This grade is called the "**MAJORITY GRADE**".



## THE RESULT



Subsequently, all that is required is to compare the majority grades of the candidates...



...to establish a **RANKING**.

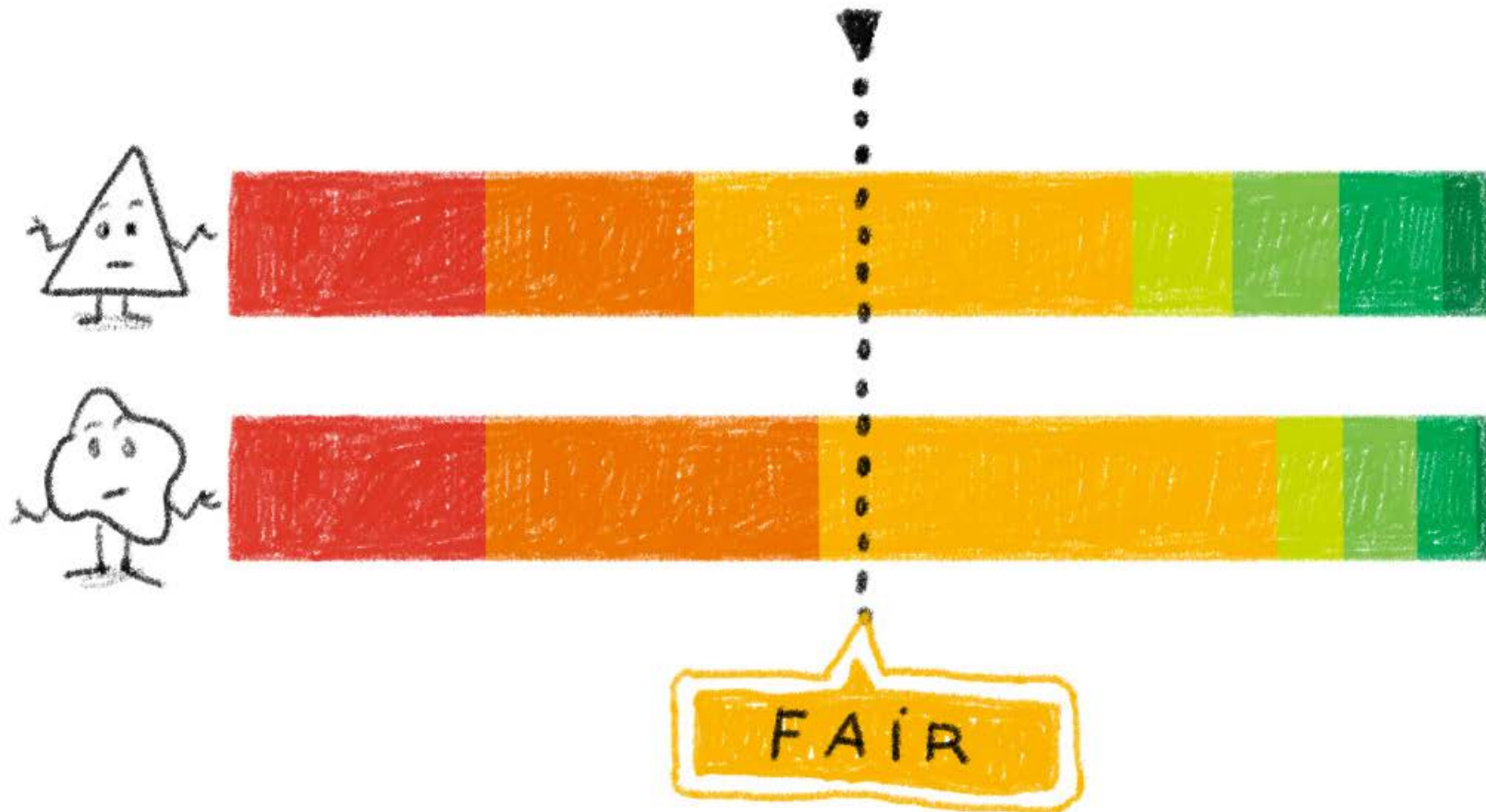




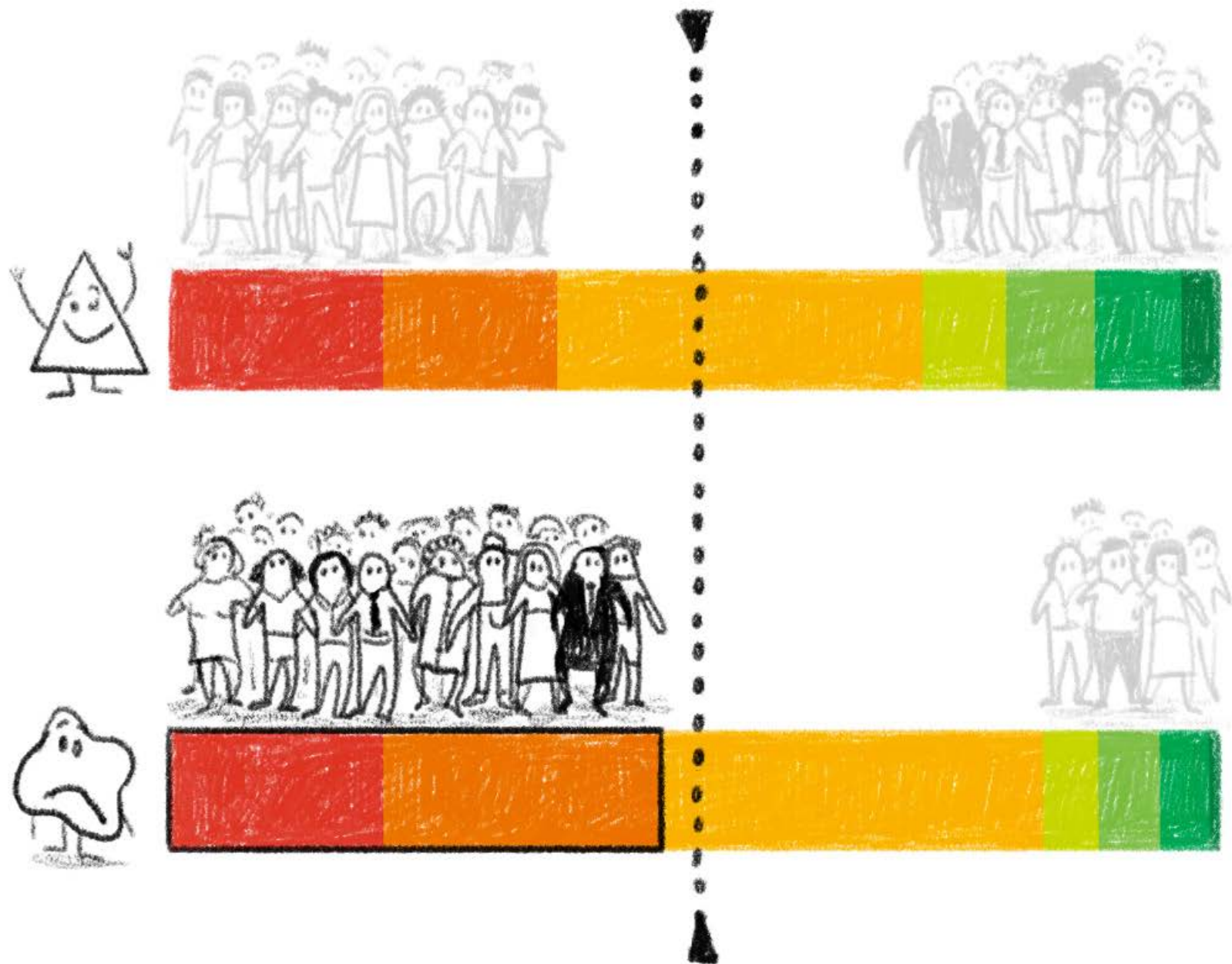
## EQUAL RATINGS



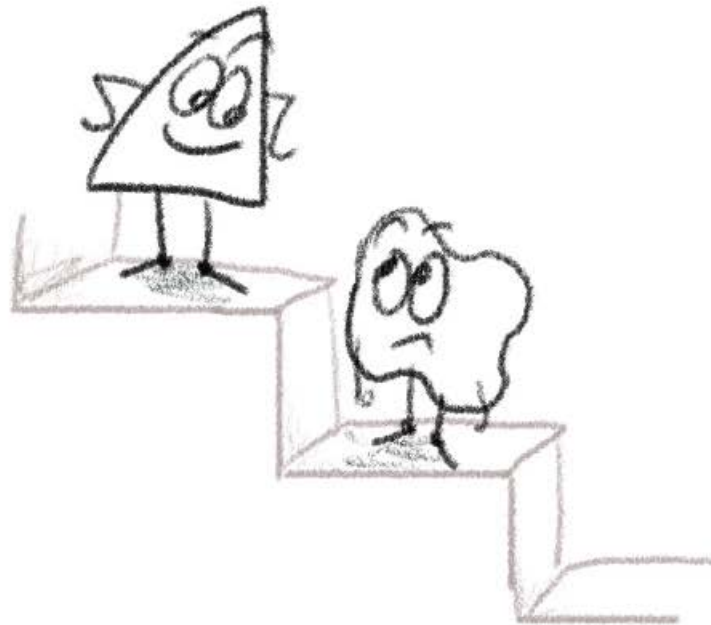
And what if several candidates have the same grade?



So that there is a maximum of voters in agreement with the result, one sides with the **MOST IMPORTANT COLLECTION** of voters among those who think that the candidate was worth more (or less) than his majority grade.



Thus, a decision between candidates is always taken in such a way as to ensure that **A MAXIMUM OF VOTERS IS IN AGREEMENT WITH THE DECISION TAKEN.**



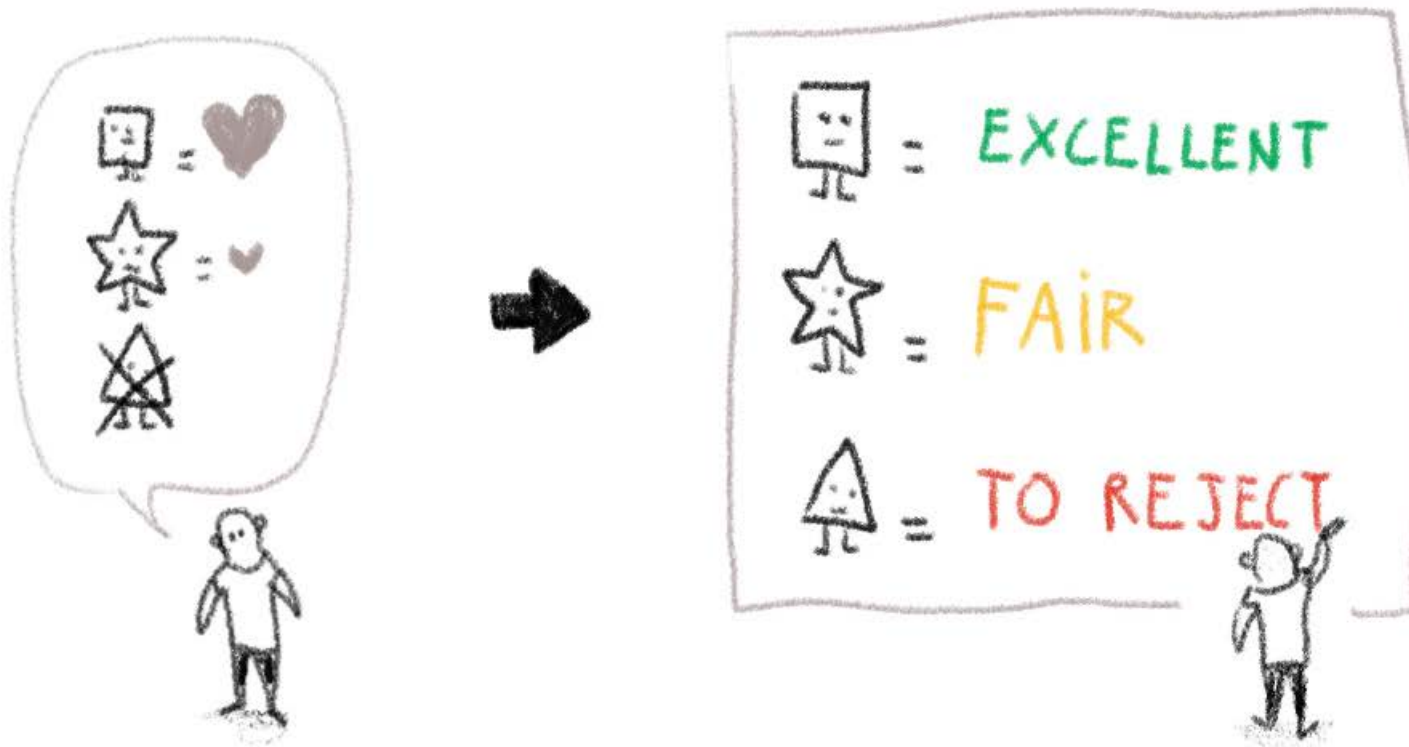
# THE ADVANTAGES OF MAJORITY JUDGMENT



## THE WILL OF THE VOTERS



Majority Judgment makes it possible to know  
**PRECISELY** what the voters think.

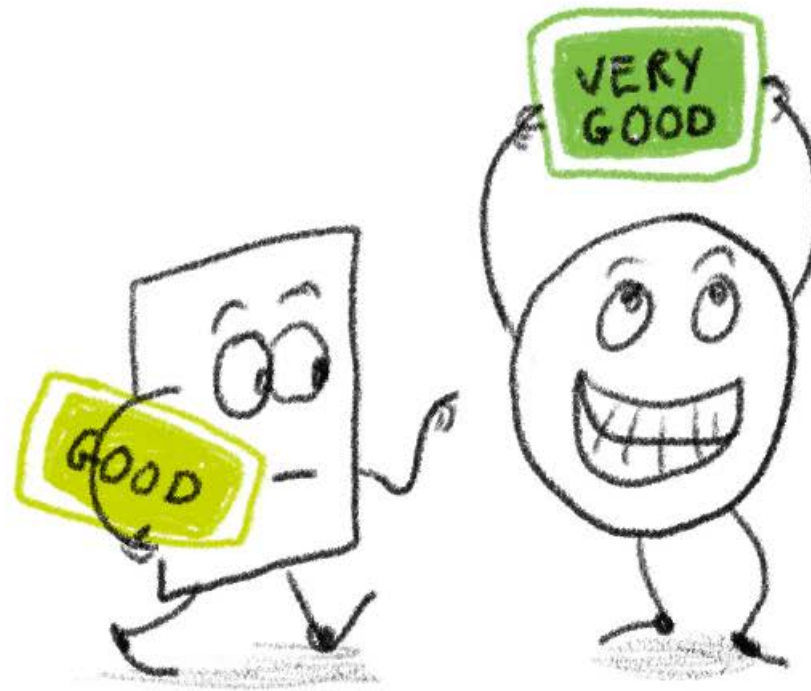




The degree of **ELECTORATE SUPPORT**  
**FOR THE WINNING CANDIDATE** can be measured.  
And yes ! A victory with "fair" does not mean  
the same thing as a victory with "excellent".



What voters think about each candidate becomes evident. The election therefore not only determines a winner. It also provides plenty of **INFORMATION CONCERNING VOTERS' EXPECTATIONS.**

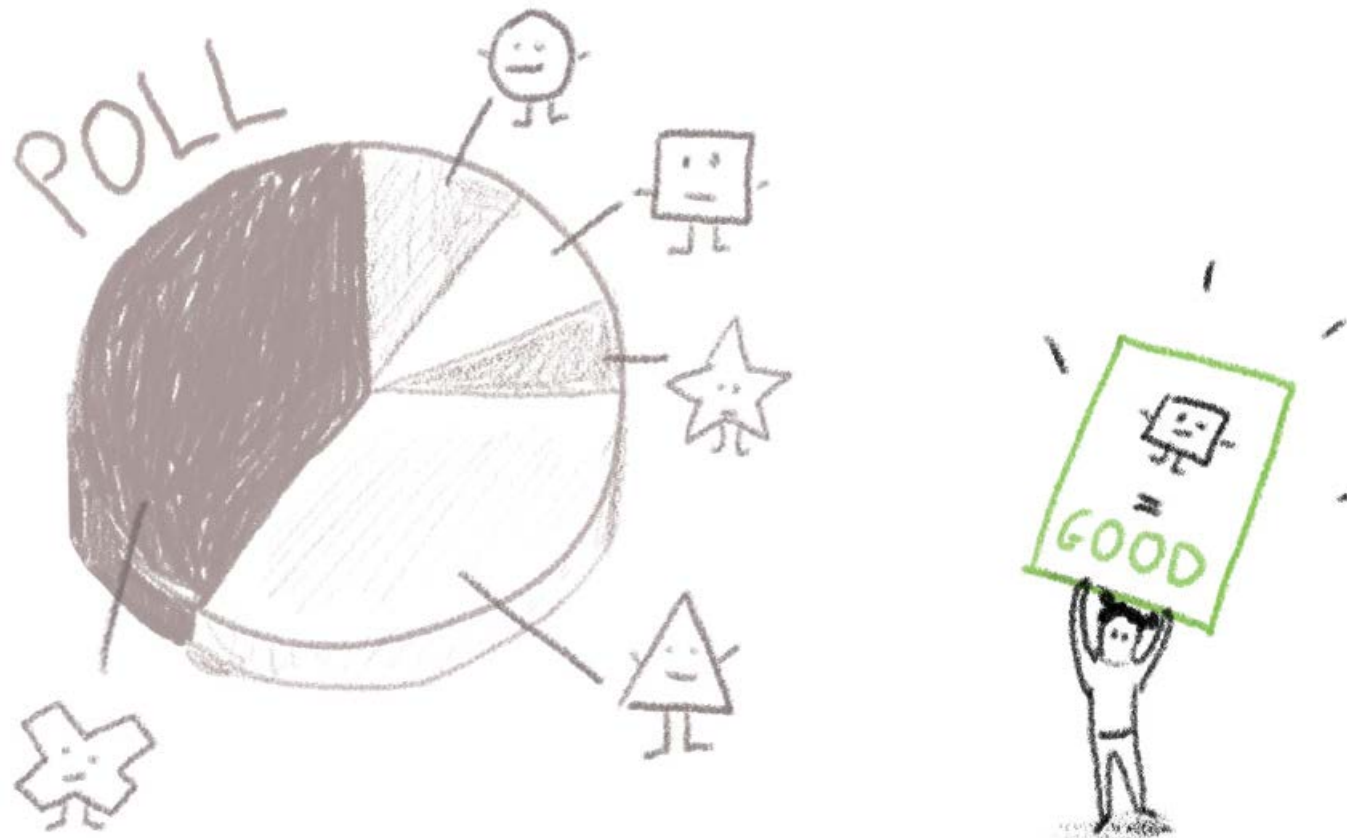




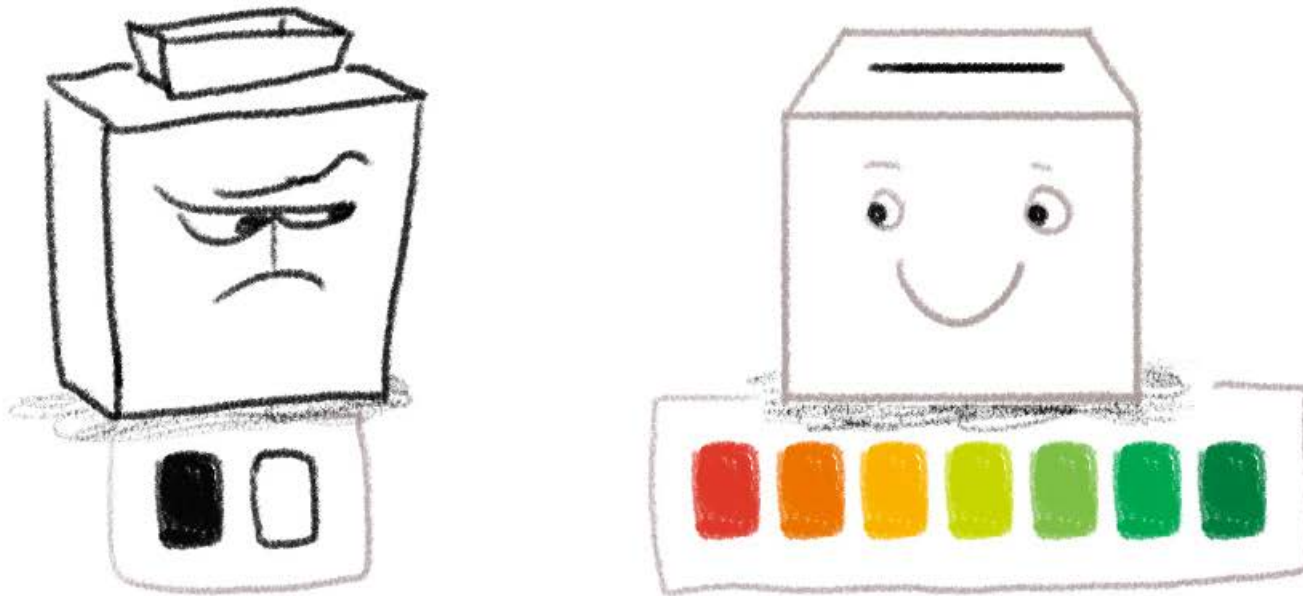
## WHY IS IT BETTER?



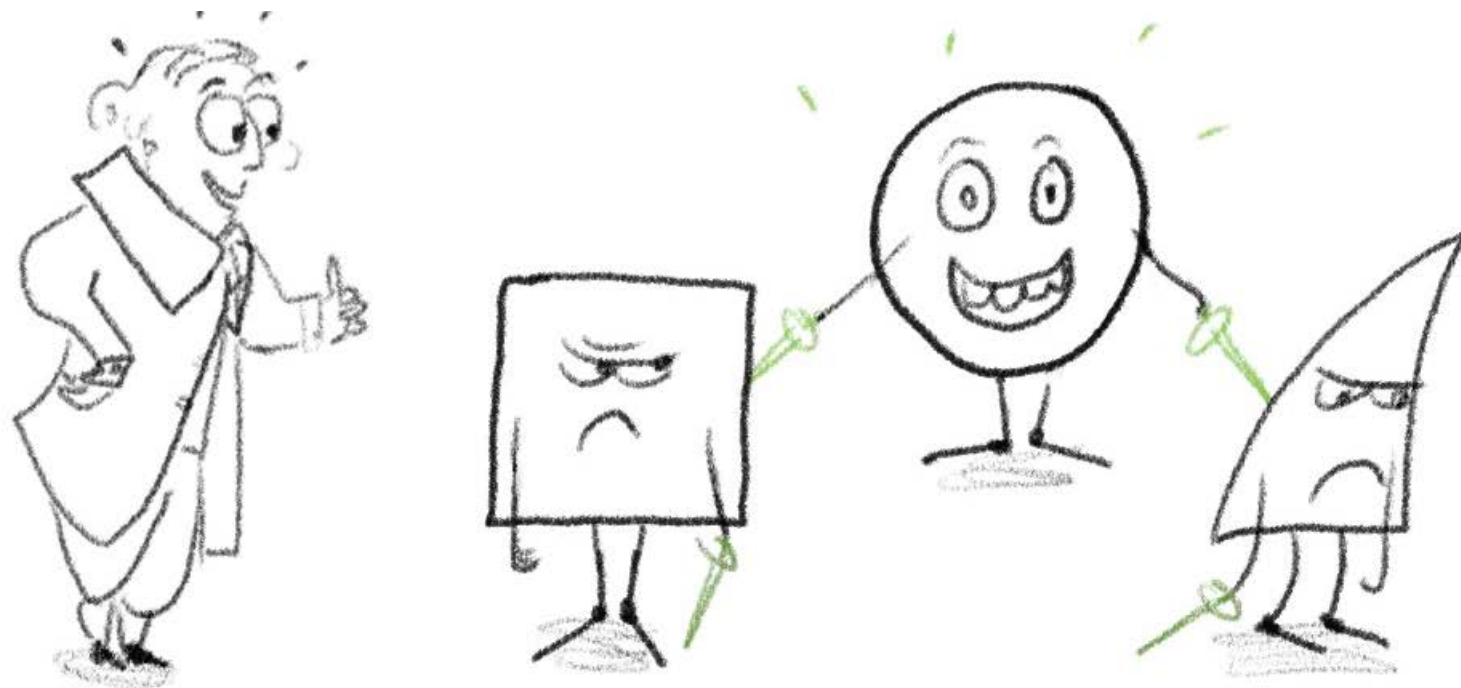
This method offers voters the **OPPORTUNITY** to express their opinions **FREELY AND HONESTLY**.



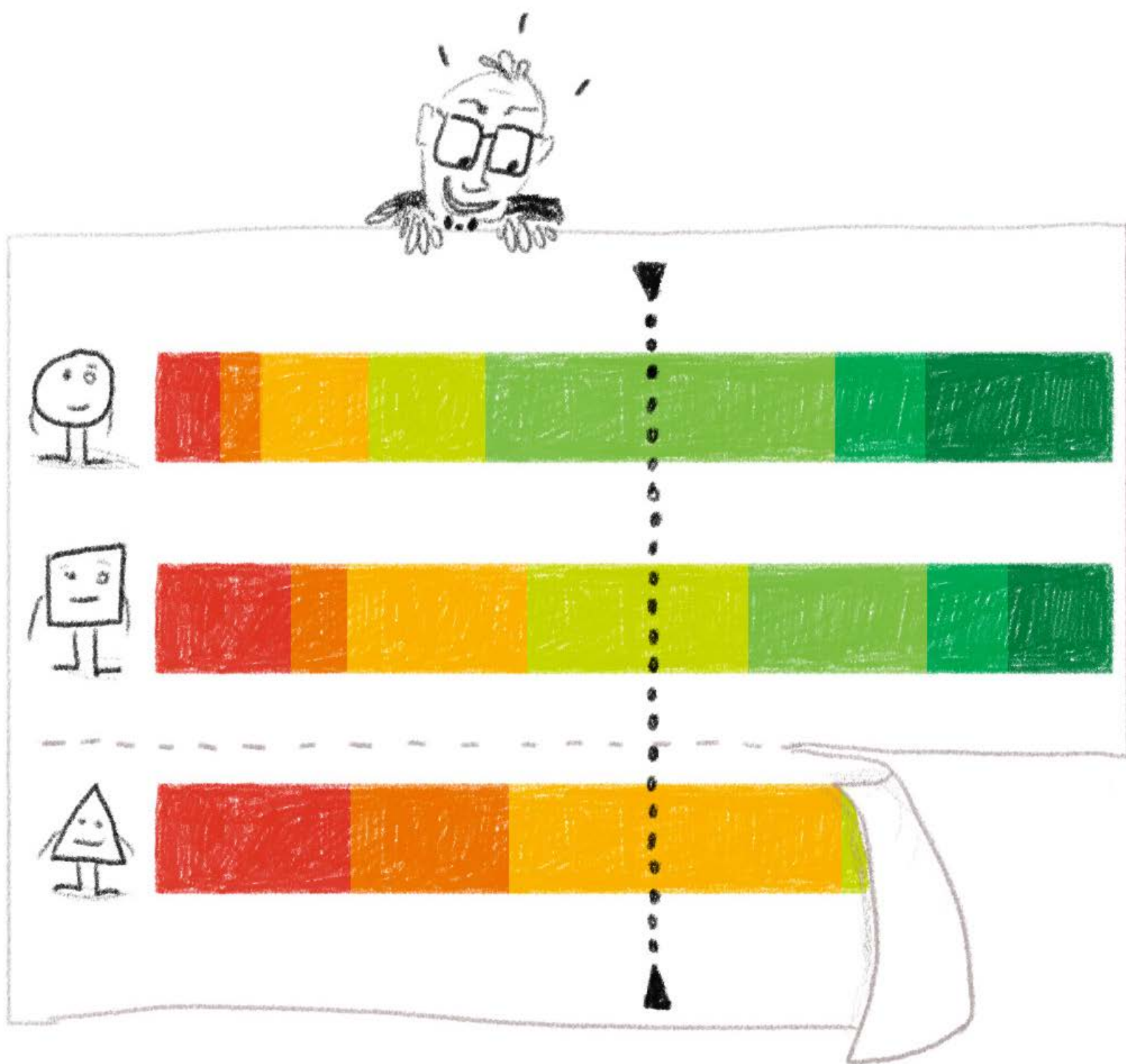
We could be liberated from the binary rule of the first-past-the-post system which required us to select one candidate only. In the context of Majority Judgment voters have the opportunity to express a more **SUBTLE AND NUANCED OPINION.**



There is always a clear winner. And consequently the Condorcet paradox is no longer an issue.



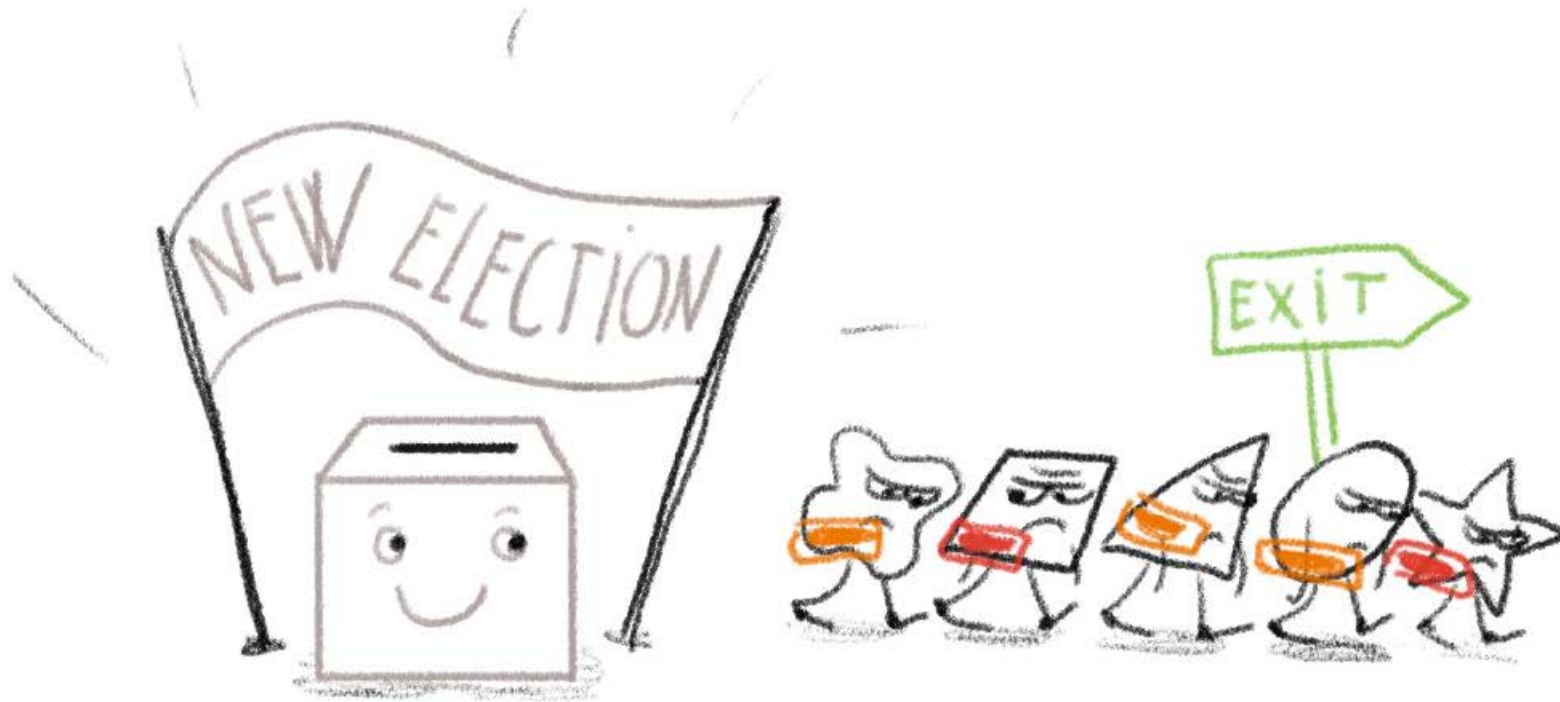
The **ARROW PARADOX** would also clearly be avoided because the addition or withdrawal of a candidate no longer influences the results of the other candidates standing for election.



## AND BLANK VOTES?



Blank votes become **SUPERFLUOUS**: it could be ruled that if no candidate is rated any higher than "poor", a further election has to be initiated with new candidates.

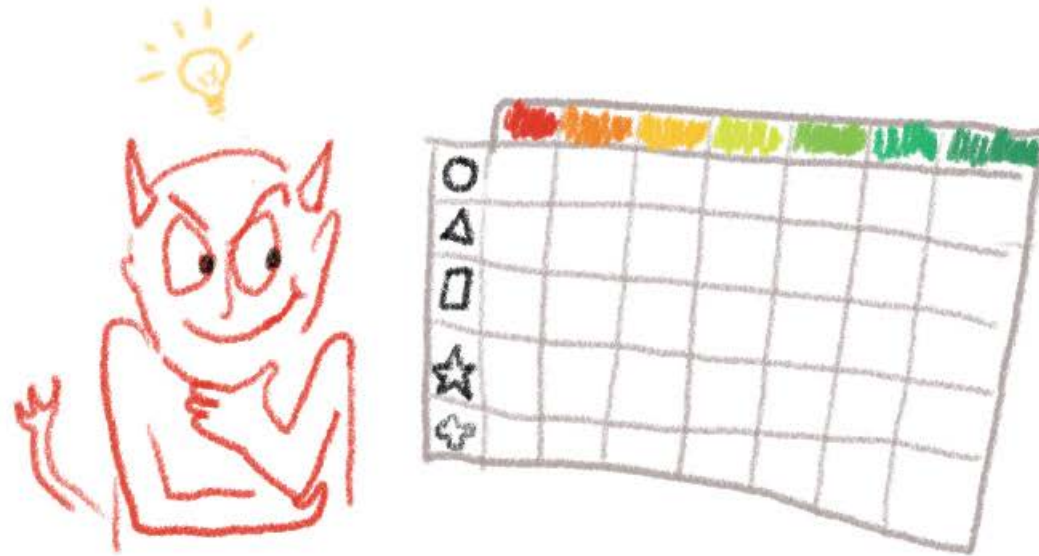




IF PEOPLE  
CHEAT?



Majority judgment is the electoral system which is  
**MOST RESISTANT TO STRATEGIC MANIPULATION.**

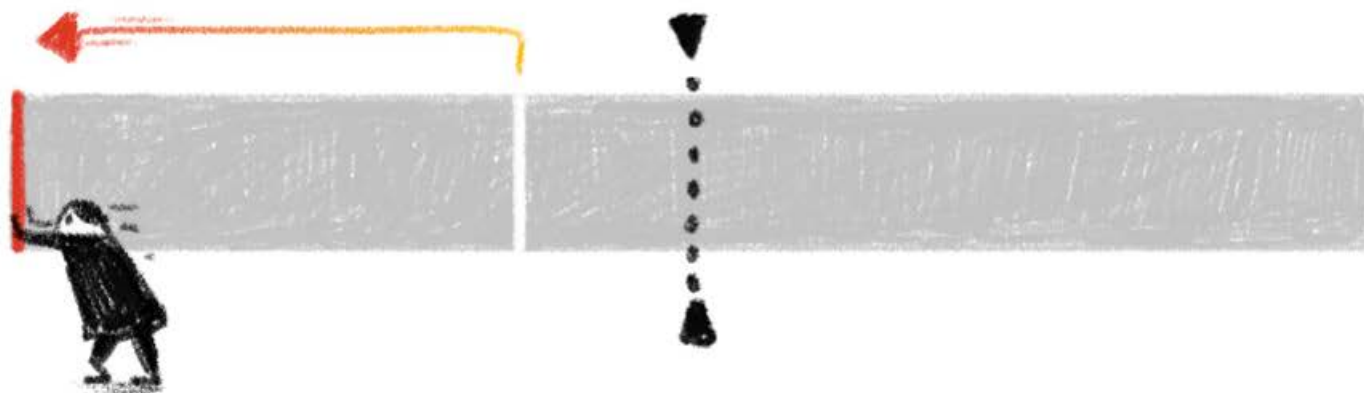




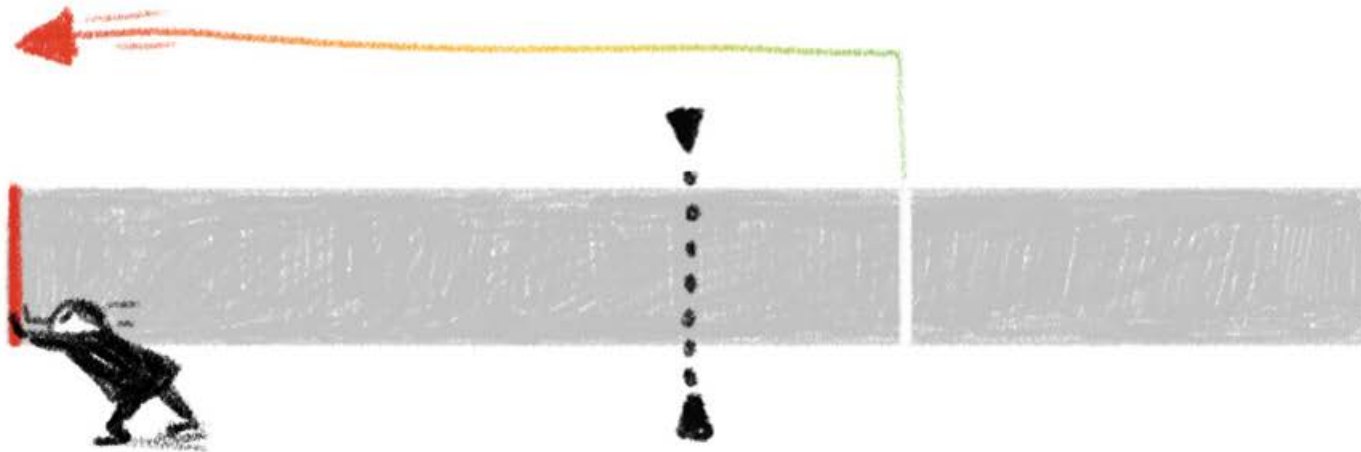
Let's imagine that a voter lies about what he really thinks by **SELECTING MORE POSITIVE OR MORE NEGATIVE GRADES**. When he actually does this, he obviously doesn't yet know the majority grade of the candidates.



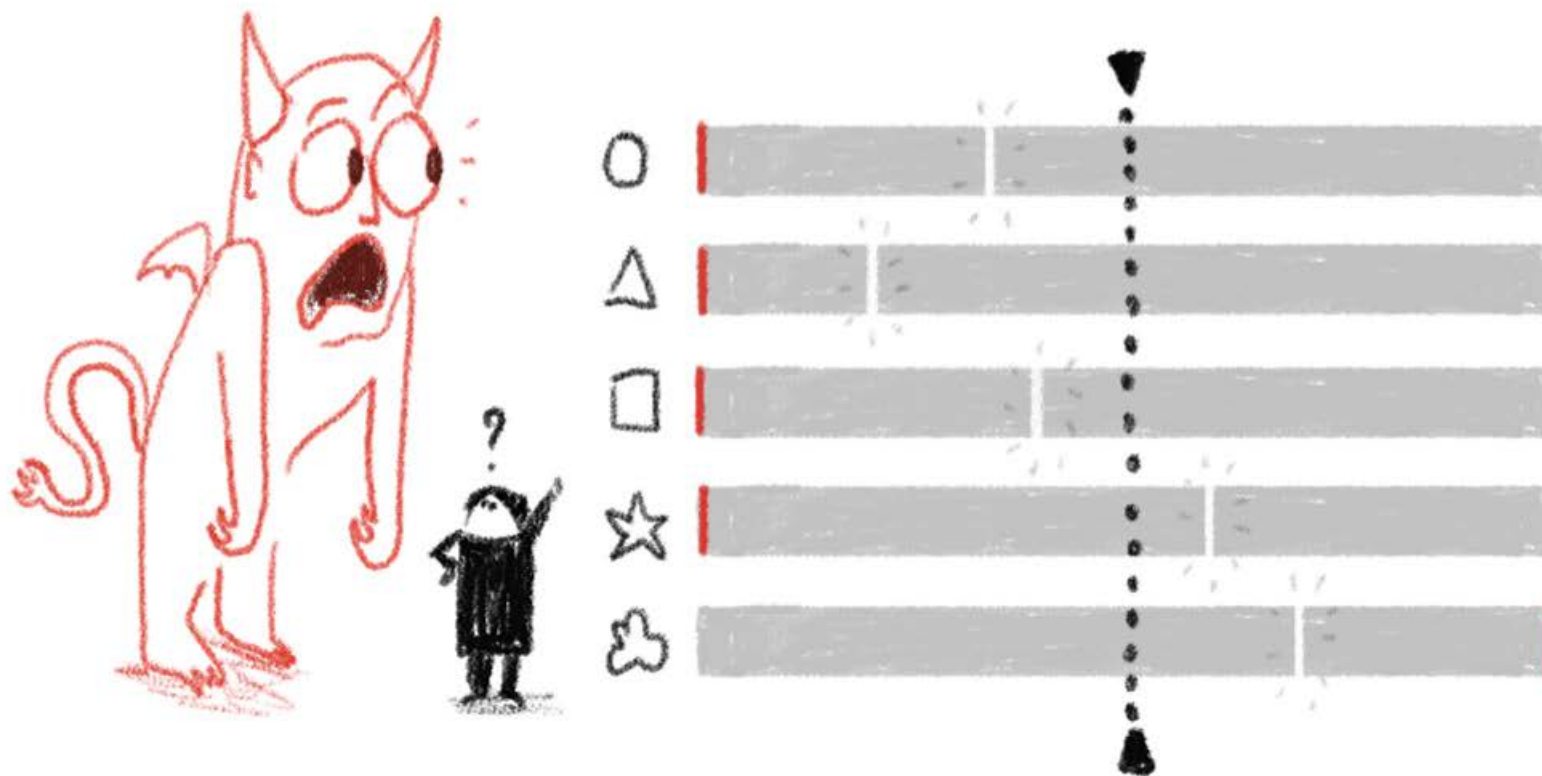
If his "false" vote remains on the same side as the majority grade, **THIS HAS NO INFLUENCE** whatsoever on the result.



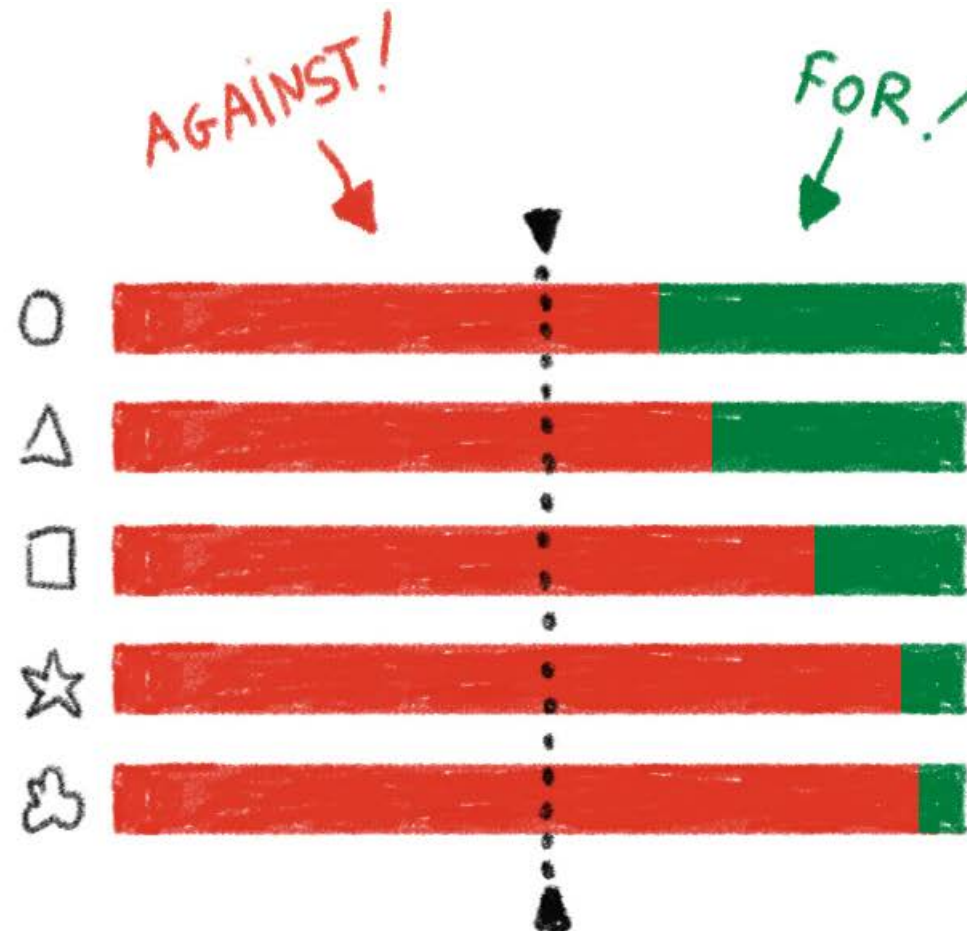
And if the "false" vote is on the other side,  
the "cheater" has only influenced the majority grade  
by one vote and... the effect is in fact the exact opposite  
of what he intended!



Whatever way, cheating principally deprives the voter of the **OPPORTUNITY TO MAKE HIS OPINION COUNT.**



**AND IF ALL THE VOTERS CHEAT** like this in favour of one particular candidate (which would be somewhat odd, to say the least), the result would actually be just the same as we have today with the first-past-the-post system.



## CONCLUSION



Obviously Majority Judgment is  
**NOT A PANACEA FOR ALL PROBLEMS.**



INSTITUTIONS



JUSTICE



INDEPENDENCE  
OF THE PRESS



ECONOMY



But it enables us to acquire a much better idea  
about what citizens think



And consequently to create  
a **SOLID AND COHERENT BASIS** for

