Gorman Lectures 2016 - Part 1
Tuesday 16th Feb
Eric Maskin (Harvard)
Professor and Nobel Laureate
• Today and tomorrow will explore
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\textit{election methods}
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  rules by which candidates are elected to political office
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  – what are the shortcomings of current methods?
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In particular,

– will examine how M.P.s are elected in this country (and how presidents and members of Congress are elected in other countries)
– what are the shortcomings of current methods?
– is there a better method?
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• That is, a strong theoretical (and practical) case for majority rule
• lectures based on joint work with P. Dasgupta
Lecture I

How Should Members of Parliament (and Presidents and Members of Congress) Be Elected?
What’s wrong with this picture?
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2005 U.K. General Election
What’s wrong with this picture?

2005 U.K. General Election
Constituency of Croyden Central
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Andrew Pelling (Conservative) 19,974
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Conservatives won seat
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Conservative 40.8%
Labour    40.6%
Liberal Democrat 13.0%
Others    5.6%
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• In Croyden, 9,084 voters (18.6%) couldn’t express their preference between the Tory and Labour candidates (the only candidates with a serious chance of winning) since they voted for other candidates

• If they *had* been able to express their preference, then one of the serious candidates *would* have had a majority
• Indeed, good reason (e.g., exit polls) to think that large majority of Liberal Democrat voters would have gone for Davies, the incumbent Labour M.P., giving him the victory
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• In 2005, Labour won overall election, so Croyden outcome didn’t matter that much
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  - so Alliance very possibly changed outcome
Similar phenomenon in other countries:
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• In 2002 French presidential election
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- In 2002 French presidential election – nine candidates
Similar phenomenon in other countries:

• In 2002 French presidential election
  – nine candidates
  – most prominent were:
    Jacques Chirac (incumbent)
    Lionel Jospin (Socialist)
    Jean-Marie Le Pen (National Front)
• France has runoff system
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  – in first round, each voter votes for one candidate
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  – if no candidate gets a majority, then top two vote-getters face each other in a runoff
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  Le Pen       16.9%    (big surprise)
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• So Le Pen quite possibly changed outcome in France, even though far out of mainstream
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  (and, of course, history too!)
In all these elections
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- spoiler candidate/party had decisive effect on outcome
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- in U.S., fact that more people preferred Gore than Bush (even then!)
  - created enormous bitterness against Bush
  - contributed to partisanship and polarization in U.S.
Is there a better way than first-past-the-post to elect British M.P.s and U.S. presidents?
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• Answer: yes
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• Answer: yes

• But first let’s examine a common proposal that doesn’t solve problem
Use *run-off* system
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- can be implemented in one round (instant run-off, alternative voting)
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- used in France; used to elect mayor of London; used in many American cities to elect local officials, defeated in 2011 U.K. referendum
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- used in France; used to elect mayor of London; used in many American cities to elect local officials, defeated in 2011 U.K. referendum
- as we saw, such a system does *not* prevent an extremist candidate (Le Pen) from disrupting choice between the serious candidates
2005 Croyden, 2000 Florida and 2002 French elections show that first-past-post and run-off voting ignore critical information
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• Labour candidate in Croyden (very likely) would have defeated Tory in head-to-head contest, but voting system could not take account of this
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• Labour candidate in Croyden (very likely) would have defeated Tory in head-to-head contest, but voting system could not take account of this

• similarly, Gore would almost certainly have defeated Bush in Florida head-to-head, but voting system did not even collect this datum
• Solution: should have voters provide *rankings* of candidates
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e.g. Gore Bush
    Nader or Gore
    Bush Nader
• Solution: should have voters provide rankings of candidates

e.g. Gore Bush
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    Bush Nader

• What should we do with these rankings?
“True” Majority Rule/Condorcet’s method (per Marquis de Condorcet)
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• voters submit rankings
“True” Majority Rule/Condorcet’s method (per Marquis de Condorcet)

- voters submit rankings

- elect candidate who (according to rankings) would beat all the others in head-to-head contests
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Labour is true majority winner
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<td>Jospin</td>
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How might true majority rule apply to 2002 French election?

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- If use French system of run-off between two leading vote-getters, Jospin is eliminated, and Chirac then beats Le Pen (66% to 34%)
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• If use true majority rule, Jospin beats Chirac (64% to 36%) and Le Pen (66% to 34%), so Jospin is the true majority winner
• Once voters submit *rankings*, many systems besides true majority rule become possible
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• Why limit ourselves to majority rule?
Prominent alternative to majority rule: Rank-Order Voting/Borda Count (per Jean-Charles Borda)
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- candidate with most points wins
Consider same population of Croyden voters as before (assume 50,000 voters in all)
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- Tory is rank-order winner
- So true majority rule and rank-order voting lead to different outcomes
Which method is better?
Which method is better?

• Way to answer question: which method does better job of satisfying some basic desiderata?
Consensus principle/Pareto principle
Consensus principle/Pareto principle

- if everyone agrees candidate A better than B, B won’t be elected
Consensus principle/Pareto principle

- if everyone agrees candidate A better than B, B won’t be elected

- satisfied by both true majority rule and rank-order voting
One voter-one vote principle/anonymity principle
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Neutrality
Neutrality

electoral rules should treat all candidates equally (equal treatment)
Neutrality

electoral rules should treat all *candidates* equally (equal treatment)

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No Spoilers (Independence of Irrelevant Alternatives)
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- if candidate A wins when candidate B is also standing for election,
  then A wins when B is \textit{not} standing
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• means B can’t change outcome by standing
  – can’t be spoiler
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Labour wins
So far, true majority rule fares better than rank-order voting
So far, true majority rule fares better than rank-order voting

- both satisfy consensus anonymity, and neutrality but only majority rule satisfies no spoilers
But majority rule has a flaw
But majority rule has a flaw

• There may not always be a candidate that beats all the others
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Tory beats Liberal Democrat (68% to 32%)

Labour beats Tory (67% to 33%)
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• this is called a Condorcet cycle
• majority rule violates decisiveness
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• rank-order voting satisfies decisiveness
• So true majority rule satisfies
  consensus
  anonymity
  neutrality
  no spoilers
• So true majority rule satisfies consensus anonymity neutrality no spoilers

• Rank-order voting satisfies
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• Rank-order voting satisfies consensus anonymity neutrality decisiveness
Does any voting method satisfy all five principles?
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- consensus
- anonymity
- neutrality
- no spoilers
- decisiveness
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Answer: No
Does any voting method satisfy all five principles?

- consensus
- anonymity
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- no spoilers
- decisiveness

Answer: No

- implied by Arrow’s Impossibility Theorem
But Arrow’s theorem *too* negative
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- insists electoral method must work for *any* rankings that voters could have
But Arrow’s theorem too negative

- insists electoral method must work for any rankings that voters could have
- but some rankings may be quite unlikely
For example, for many voters, ideology important
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• In 2005 election, had
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Labour Liberal Dems. Conservative UKIP
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  ![Vision Scale]
  
  Labour
  Liberal Dems.
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  - Labour
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- if most voters’ rankings are ideological, then true majority rule is decisive
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  Labour ➔ Liberal Dems. ➔ Conservative ➔ UKIP

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- if most voters’ rankings are ideological, then true majority rule is decisive
  - Black’s theorem
• Other restrictions on rankings can also ensure decisiveness
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• Define a voting method to *work well* for restricted class of rankings if it satisfies consensus, anonymity, neutrality, no spoilers, and decisiveness when voters’ rankings drawn from that class
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(e.g., true majority rule works well for the class of ideological rankings)
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• if a voting method works well for some particular class of rankings, then true majority rule also works well for that class
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• thus, true majority rule works well *more often* than any other method
• Thus, there is precise sense in which true majority rule is best voting method
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• Now, true majority rule not always decisive
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  – May be no candidate who beats all others in head-to-head contests (Condorcet cycle)
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• Now, true majority rule not always decisive

  – May be no candidate who beats all others in head-to-head contests (Condorcet cycle)

  – If not, can choose as winner one with highest rank-order score

    several other common ways of breaking tie
Virtues of True Majority Rule
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- prevents *minority winners* whenever possible (majority prefers some other candidate to winner)
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  – philosophically, very different from first-past-the-post
Tomorrow will examine another virtue of majority rule:
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helps stop strategic voting