ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Understanding and Solving Societal Problems with Modeling and Simulation

Political Parties, Interest Groups and Lobbying: The Problem of Policy Transmission

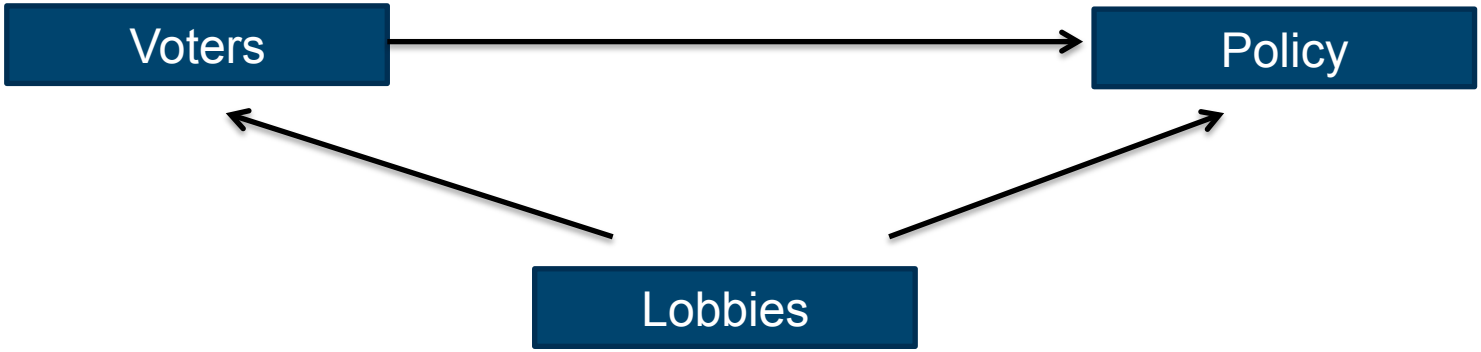
ETH Zurich
Dr. Thomas Chadefaux

The Problem

- Previous lecture on voting: preference aggregation might not reflect social preferences
- Another challenge of democracy: Interest groups and parties interpose themselves between the state and civil society
- Policy is often a reflection not only of direct democracy (the aggregation of preferences), but also of those groups and their strategic interaction

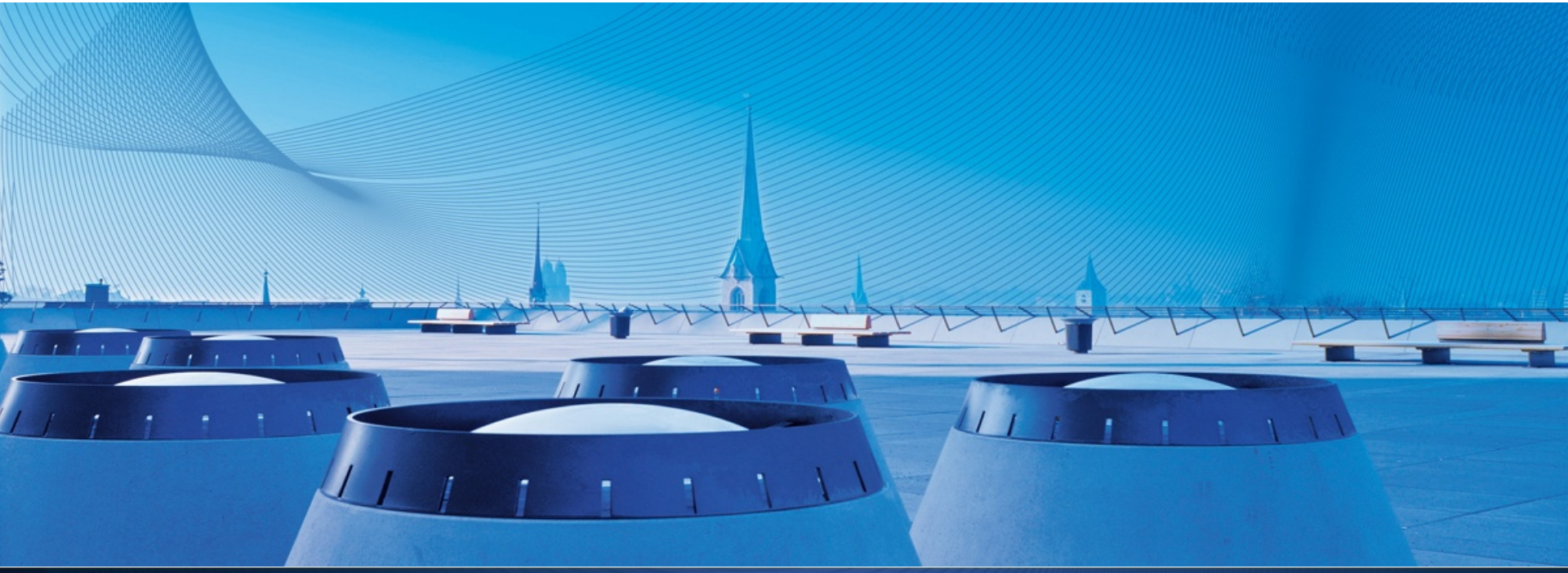
Outline

- 1. Lobbying



- 2. Political parties

1. LOBBYING



Interest Groups

- An interest group is an organized group of individuals or organizations that makes policy-related appeals to government

Nurses PAC

OHIO DAIRY PRODUCERS ASSOCIATION

PAC

AIM PAC

alzheimer's impact move

REALTORS® Political Action Committee

A STRONG VOICE FOR TENANTS

TenantsPAC

UNITED STEELWORKERS

PAC

COMMITTEE

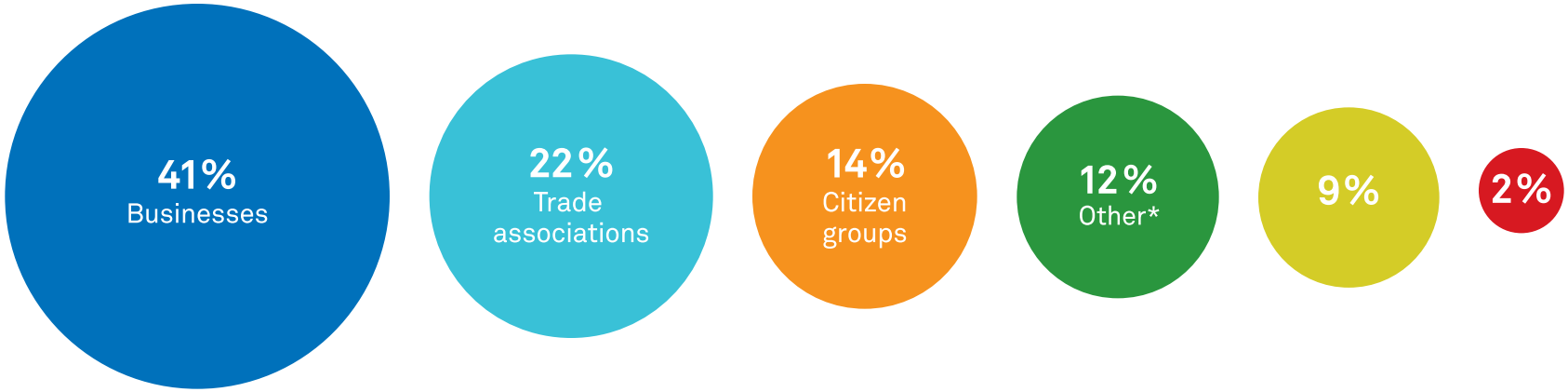
JaAmPAC

www.jaampac.o

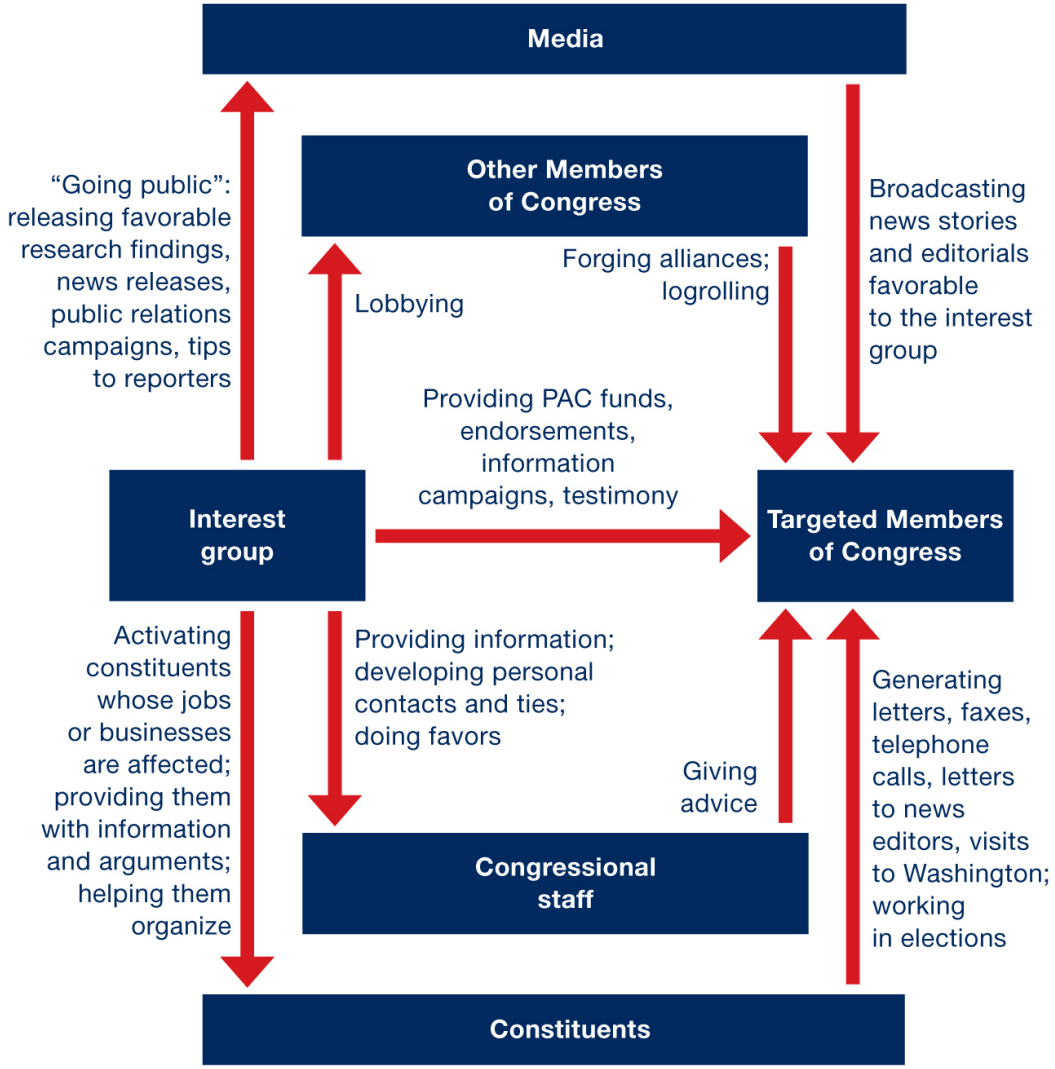
POKER PLAYERS ALLIANCE

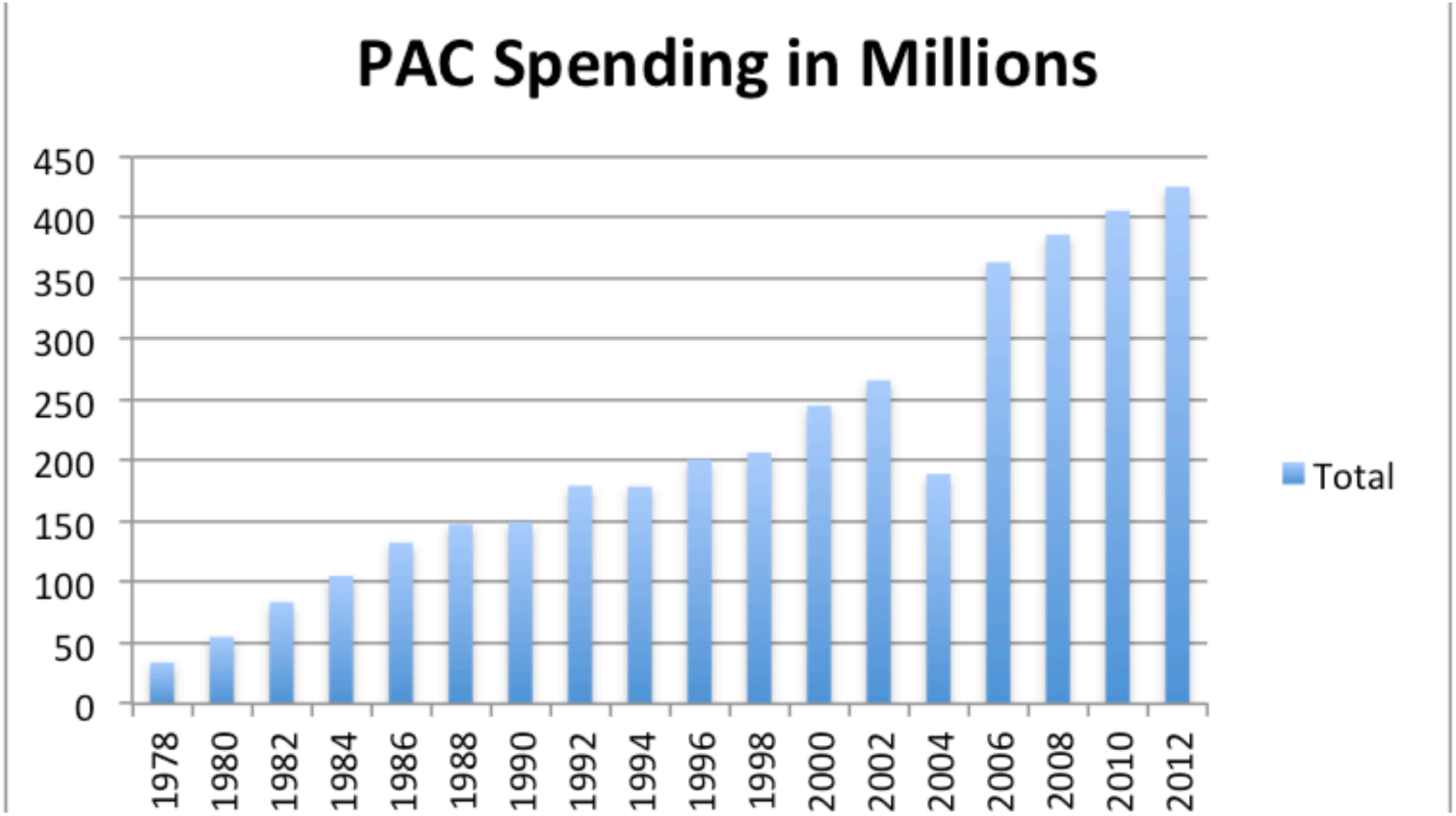
PokerPAC

Types of Interest Groups registered to lobby



How Lobbyists Influence Congress

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Total

Negative views:

- Interest groups are a burden on society
- Special interests pursue their own private interests; never the public interest

Positive view:

- Government needs lobby groups to understand the preferences of different societal groups
- Educate the public
- Individuals and groups need interest groups in order to have their concerns heard
- **Pluralist** view:
  - The public interest emerges from the pursuit of private interests
  - So long as all groups are free to organize, the system is arguably democratic, as individuals will join groups they support and will not join groups they oppose
  - Bigger groups will have more power, as they should

Groups and Pluralism

- But what if some groups organize more easily?
- Groups need money (lobbying, media campaigns, etc.)
- Groups with access and organizational discipline are more successful
- Groups with more members are more powerful

Olson's logic of collective action

- "The larger the group, the less it will further its common interests"
  - ➔Free Rider Problem (back to the prisoner's dilemma)

Example: Trade policy

- Trade is beneficial to society
- Yet trade is not always open
  - E.g., agricultural products in Switzerland
- Why?
  - Lobbies
  - Because of their more concentrated interests, small groups seeking to protect a specific industry are better able to organize and fund their lobbying

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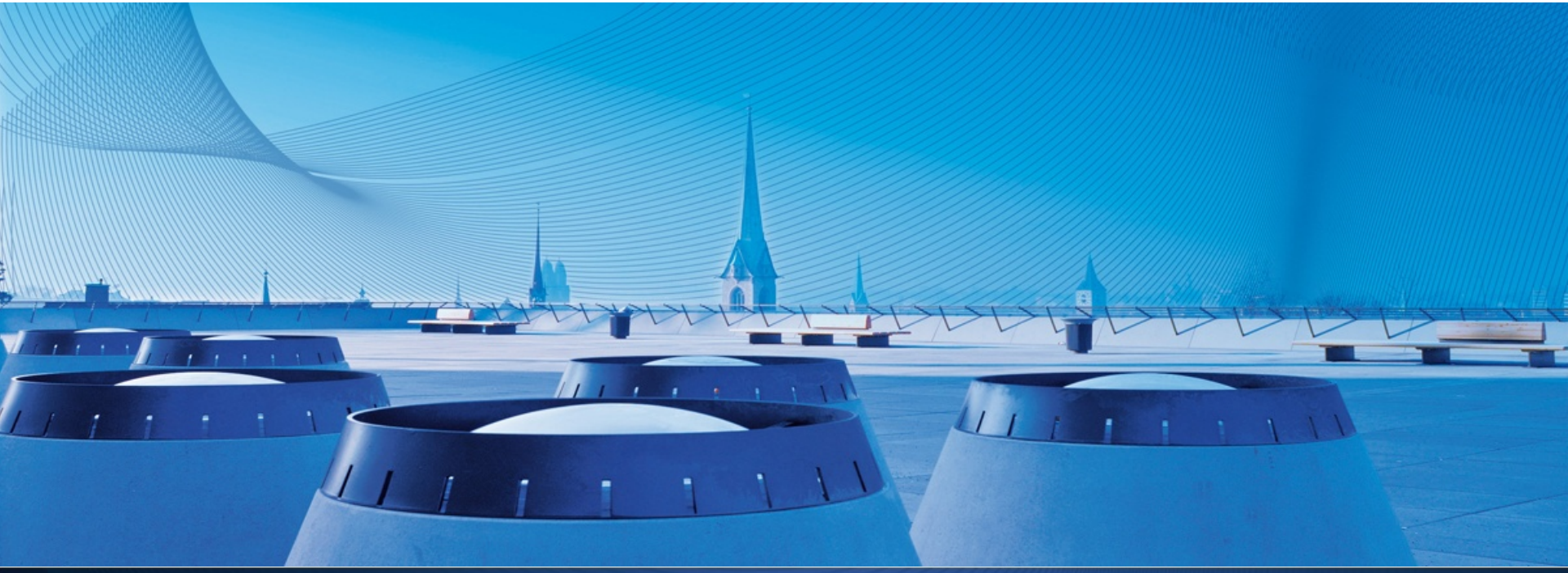
2. THE DYNAMICS OF POLITICAL COMPETITION

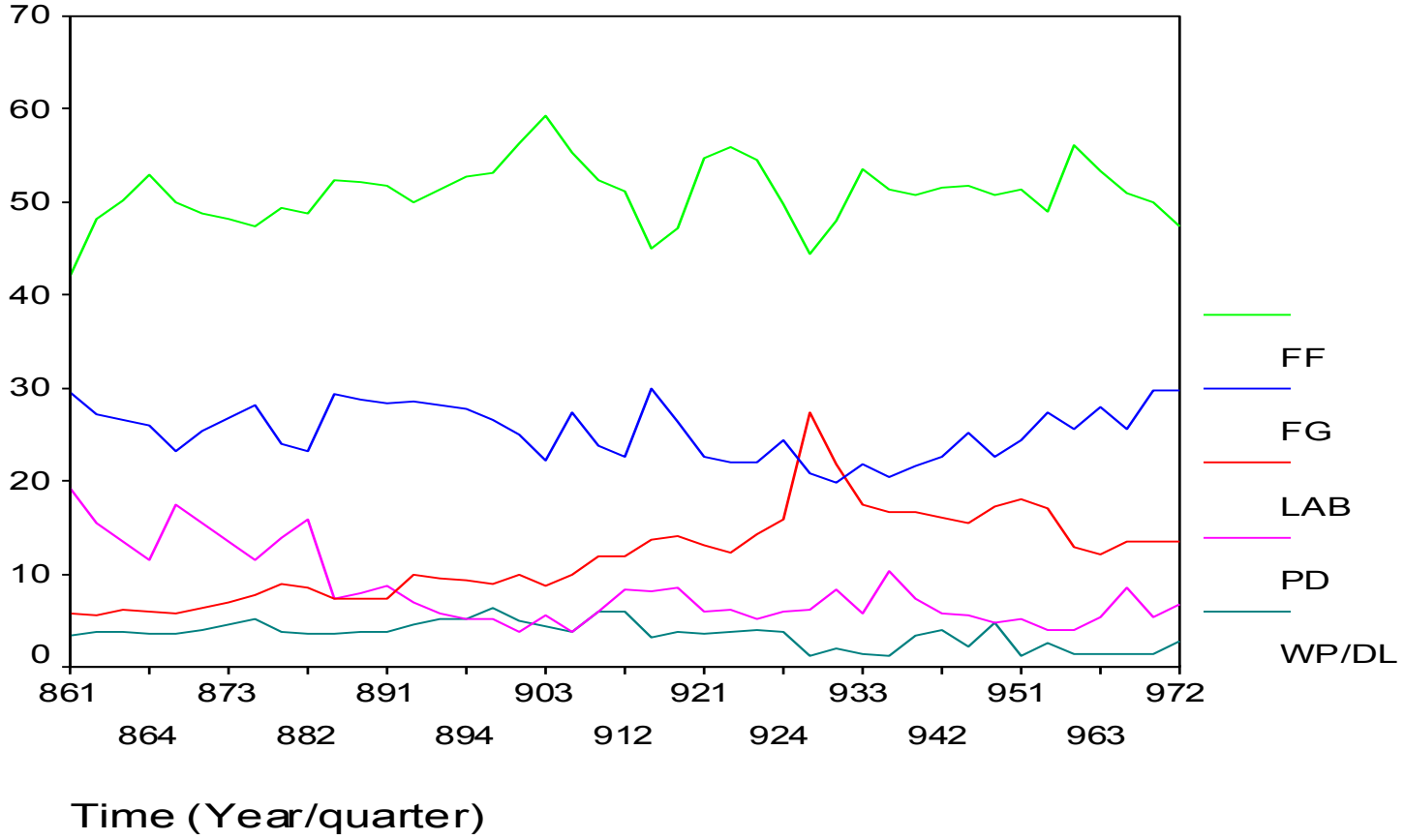


Party competition is a dynamic system

- Political competition as a system in continual motion
  - Political dynamics as endogenous
    - The output of cycle *c* feeds back as input into cycle *c + 1*

- Yet in traditional static models:
  - Equilibria change only in response to unforeseen shocks
  - Politics thus appears to ***mutate*** unpredictably, not ***evolve*** endogenously

E.g.: opinion poll series of party support in Ireland



- Traditional model cannot explain:
  - levels and variation in party sizes
  - volatility of party sizes over time
  - which party loses when another gains

- It takes a dynamic model
  - Traditional game theoretic technology is not (yet?) up to the task …
  - … of modelling “massively parallel” dynamic interaction between large numbers of individual decision makers

How would YOU model it?

Laver's (2005) model

- Assume the classical spatial representation of voter preferences and party policy positions
- Two types of agents – voters and party leaders
- Voters' policy preferences are assumed to be stable

Laver's (2005) model

- Party leaders' policy positions evolve continuously in response to voter preferences and the positions of rival leaders:

  1. Voters support the closest party

  2. Leaders adapt party policy positions, given the party support profile of all voters

  3. The system evolves. Go to 1

- This loop runs forever

RULES FOR PARTY LEADERS

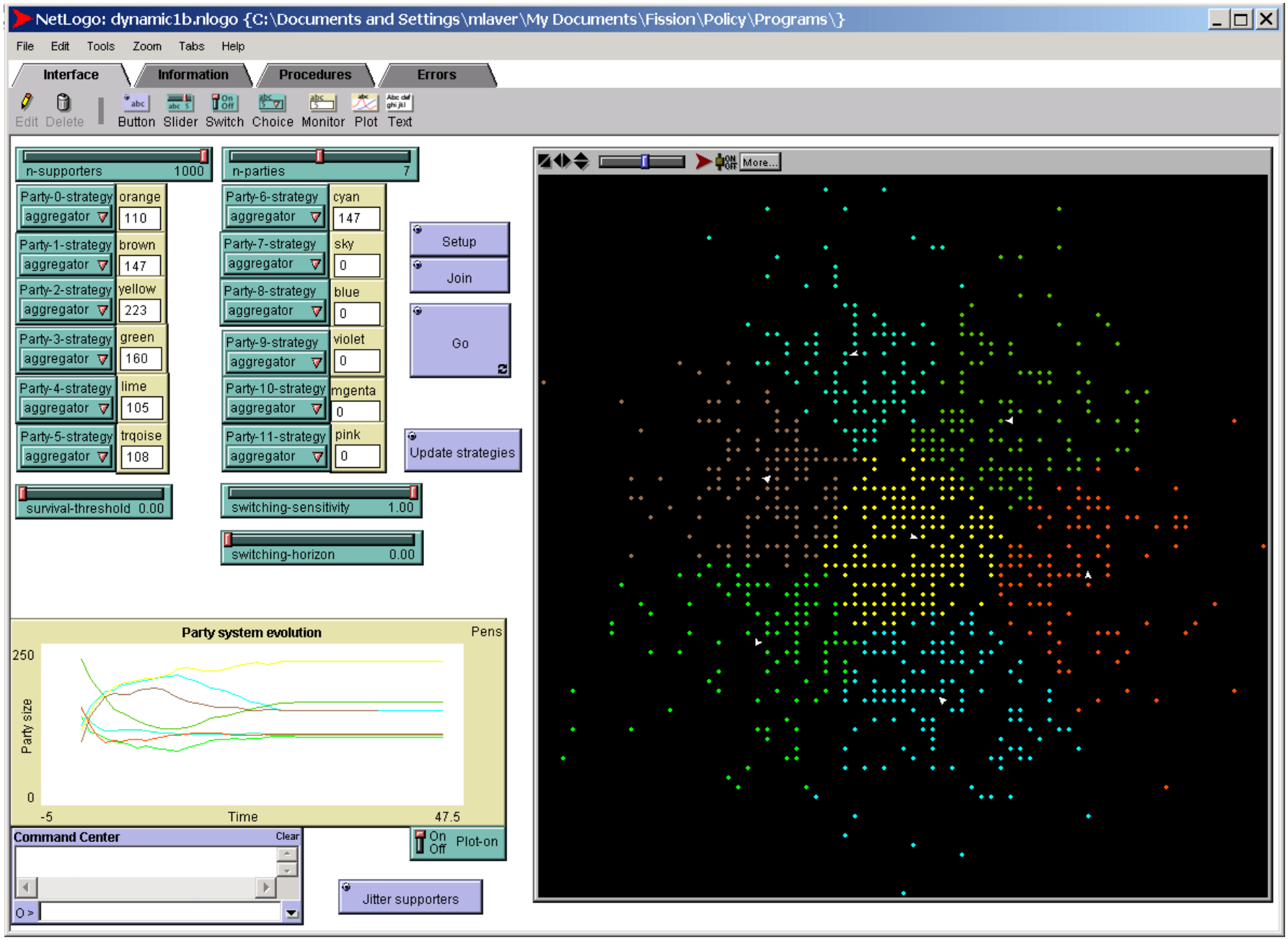
- STICKER. Never change policy
  - “ideological” party leader
- AGGREGATOR. Set party policy on each policy dimension at the mean preference of all party supporters
  - “democratic” party leader
- i-HUNTER. If last policy move increased support, make same move; else, make a random move in opposite direction
  - Pavlovian vote hunter
- PREDATOR. Identify largest party. If this is not you, make policy move towards largest party

RESULTS: 1

- The i-HUNTER rule for party leaders is very successful at finding high voter support densities
  - Note that this uses very little information about the “geography” of the policy space
  - “Win-stay, lose-shift” Pavlovian adaptation (Nowak and Sigmund)

RESULTS: 2

- All-AGGREGATOR systems reach steady state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Party-1-strategy aggregator brown 147
Party-2-strategy aggregator yellow 223
Party-3-strategy aggregator green 160
Party-4-strategy aggregator lime 105
Party-5-strategy aggregator trqoise 108
Party-6-strategy aggregator cyan 147
Party-7-strategy aggregator sky 0
Party-8-strategy aggregator blue 0
Party-9-strategy aggregator violet 0
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Party-11-strategy aggregator pink 0
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Party system evolution
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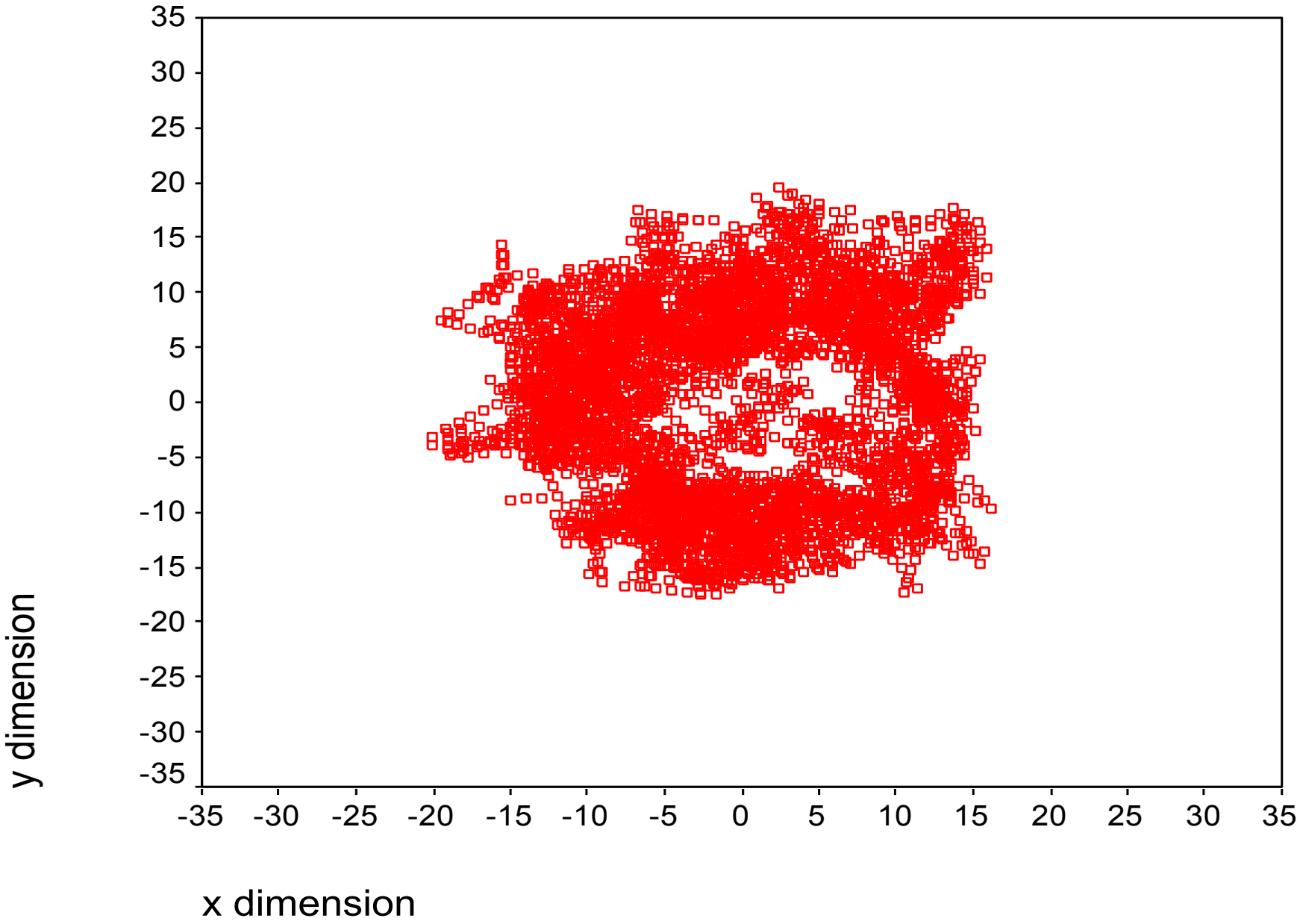
More...

RESULTS: 3

- Hunters hunt for support in centrist positions but ***do not go to the dead centre*** of the space
- This is realistic, and solves what is a big problem for the traditional spatial model
- The center is a dangerous place in an all-HUNTER system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y dimension
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RESULTS: 4

- Hunters and lone Predators beat Aggregators
- But 2+ Predators attack each other and don't necessarily beat Aggregators
- Hunters beat Predators!
  - Unexpected. Simple Pavlovian adaptation very effective against superficially more "rational" predatory behaviour

How would YOU improve the model?

A real-world tournament

- Tournament with a $1000 prize for the action selection rule winning most votes, in competition with all other submitted rules.
- The four rules investigated by Laver were entered but declared ineligible to win: Sticker, Aggregator, Hunter and Predator
- Submitted rules constrained to use only published information about party positions and support levels during each past period and knowledge of own supporters' mean/ median location

Departures from Laver (2005)

- Distinction between inter-election (19/20) and election (1/20) periods
- Forced births (1/election) at random locations
- Survival threshold (<10%, 2 consecutive elections)
- Rule designers' knowledge of pre-entered rules
- Diverse and indeterminate rule set to be competed against

Tournament structure

- 29 distinctive rules submitted in all.
  - Five runs/rule (in which the rule in question was the first-born)
  - 200,000 periods (10,000 elections)/run (after 20,000 period burn in)
  - Thus 145 runs, 29,000,000 periods and 1,450,000 elections in all
- There was a completely unambiguous winner – not one of the pre-entered rules
- However only 9/25 submissions beat pre-announced Sticker (which selects a random location and never moves)

- Rules don’t just compete against one another, but also against themselves

Devise your own rule!

Tournament algorithm portfolio

- Center-seeking rules: use the vote-weighted centroid or median
- Tweaks of pre-entered rules:
  - E.g.:
    - Change Hunter from switch randomly to switch toward most successful party
    - Handshake
    - Change predator to closest successful party, not most successful overall.
    - Sticker: try 19 locations, then settle on the best
- "Parasites" (move near successful agent): a complex effect
  - Split successful "host" payoff so unlikely to win – especially in competition with other species of parasite
  - But do systematically punish successful rules
  - No submitted rule had any defense against parasites
  - No submitted parasite anticipated other species of parasite

Tournament algorithm portfolio (cont'd)

- Satisficing (stay-alive) rules: stay above the survival threshold rather than maximize short-term support
  - E.g.: make tiny random moves when above the survival threshold and only explore the space for a better location after falling below the threshold for three consecutive periods
  - Does well because:
    - Doesn't overfit
    - Overly successful strategies are often punished
      - Avoids the attention of parasites!

Yardstick

- Success at winning votes relative to the unresponsive Sticker rule
- Sixteen of the twenty-five submitted rules were less effective at winning votes than the unresponsive Sticker rule!
- Many of the scholars who submitted unsuccessful rules were experienced and well-published specialists in static spatial models of party competition

And the winner is…

- Jennings master-slave strategies won the 20th re-run of Axelrod's tournament.
  - Rules may be programmed to recognize each other using a ''secret handshake''—an obscure sequence of moves known only to themselves—after which the rules can collude in some way
- KQ-Strat
  - KQ-parties jittered when over the threshold, using tiny random moves with a very distinctive step size recognizable to other KQ-parties.
  - When under the threshold, a KQ-party moved very close to the position of a randomly selected other party over the threshold, provided this was not another KQ-party

#2

- Shuffle
  - Do Aggregator if over 11.5% or more votes in previous round;
  - Do Hunter if at 11.5%-8.0%.
  - Else divide space into quadrants around weighted party centroid; pick a random location in the quadrant in which votes/party is highest

#3

- Genety: weighs 3 vectors to choose where to move
  - direction of estimated voter centroid
  - direction of current supporter centroid
  - direction indicated by Hunter rule
- weights of these vectors determined in simulations by applying a genetic algorithm to optimize in competition with the four pre-submitted strategies and nine other posited alternatives.

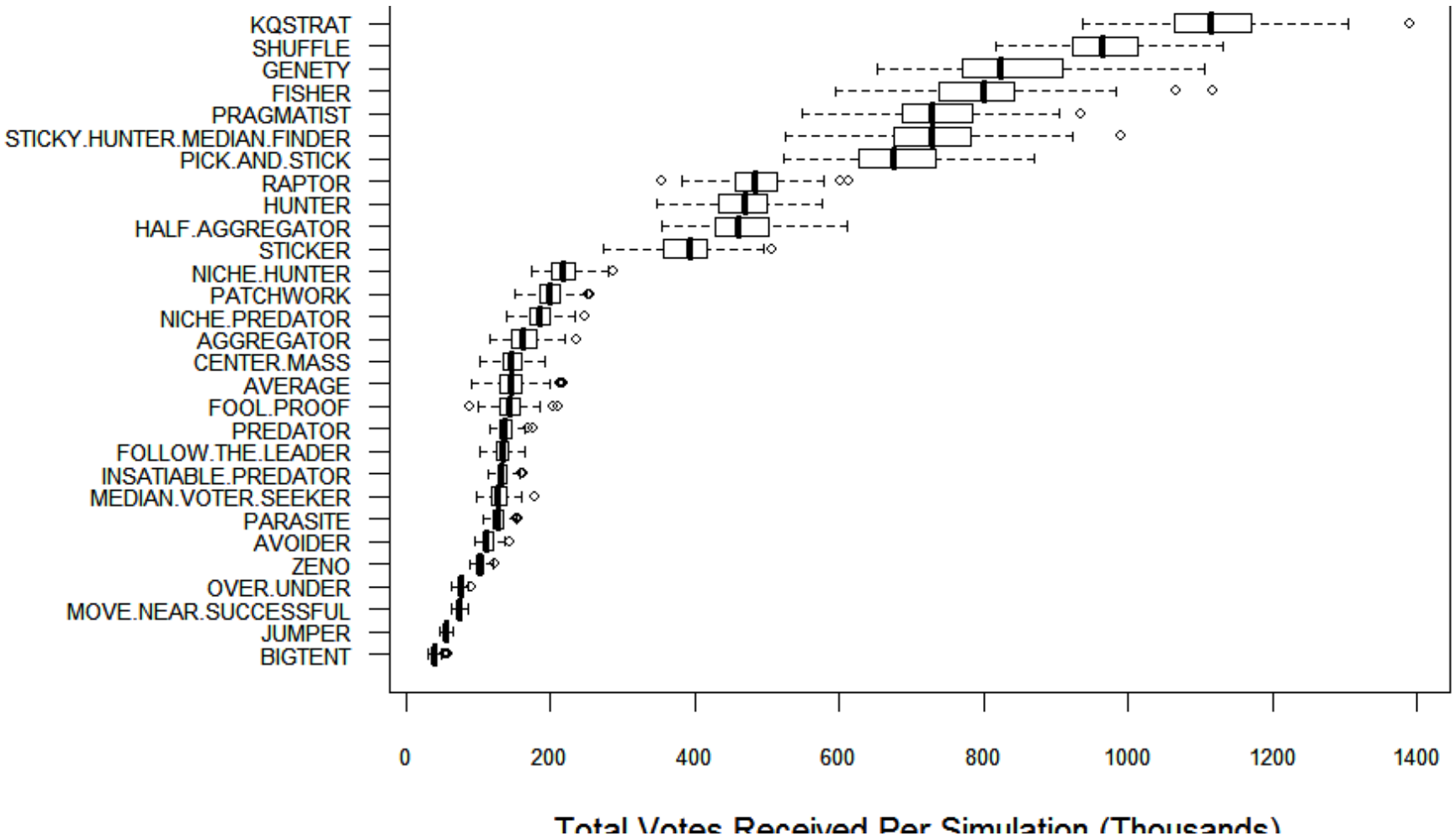
Fisher

- (a) For the first 10 inter-election periods, random walk through the space using large steps, recording support levels at visited locations. In remaining periods, refine search around best location.
- (b) If support in an election is above survival threshold, reduce step size to 1/5 of original and do (a), exploring close to successful position.
- (c) If party support below threshold, repeat (a) with original step size until finding a position with support above threshold, then do (b).

#7

- Pick-and-stick:In the 19 periods before the first election, locate party at random points in the space. Then return to the point at which it received most votes and stay there for subsequent elections.

Results: votes/rule



Characteristics of successful rules

- Set of successful rules was thus diverse – most systematic pattern being to condition on the survival threshold