Majoritarian principles in critical junctures: an analysis of Brazil's 2018 presidential election

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Context : electoral success of highly divisive candidates

Research Question

Is the election of divisive or polarizing candidates an artifact of the voting methods?

Prior research

- Potthoff and Munger [3] and Kurrild-Klitgaard [2] argue that Trump might have been a Condorcet loser. Woon et al. [5] argue he was in the Core.
- Igersheim et al. [1] argue that the Condorcet,Borda, Utilitarian winner was actually Sanders.

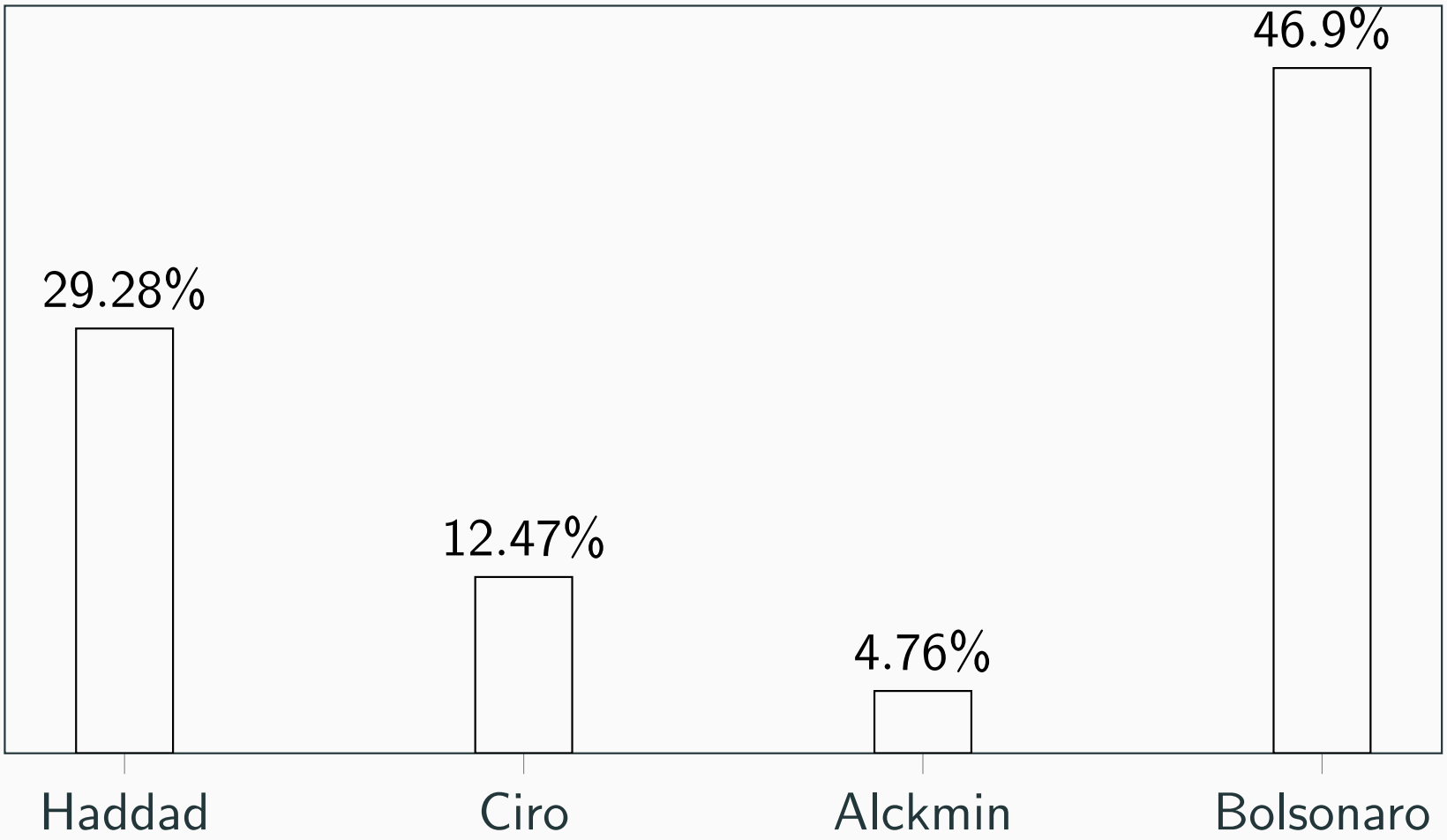
Hypothesis

I expected similar results in the Brazilian 2018 presidential election. Particularly, I expected him to have neither "pairwise" nor high "positional" mandate.

Background on the Election

- Abstention: 20%
- White/Null: 8.79%
- Others: 7.19%

Top four candidates' first round shares



Data

I use a representative street survey done by DataFolha a week before the first round of the presidential election. A pairwise comparison of the top 4 candidates was the only question I analyzed.

Data Preprocessing

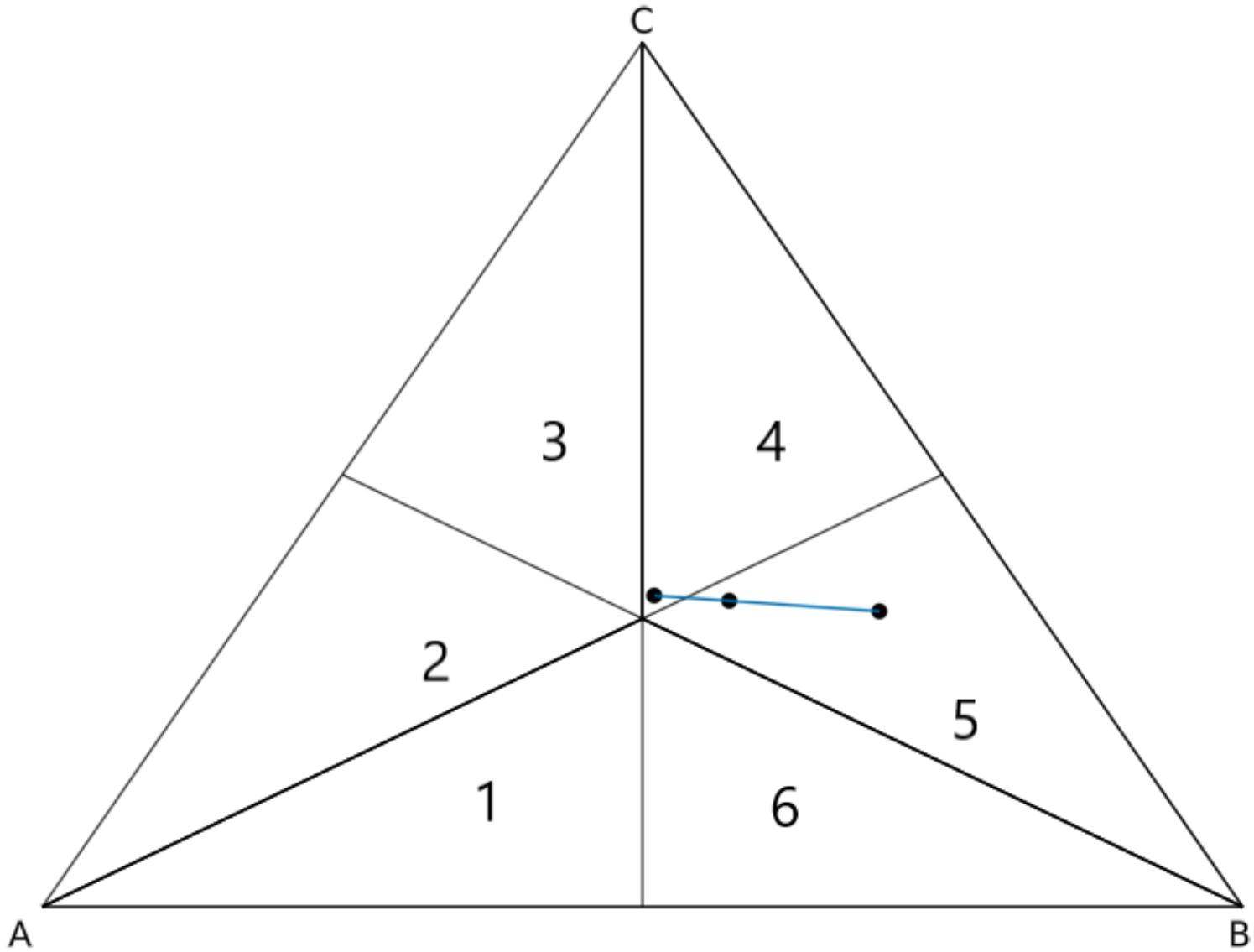
- Not all respondents compared all candidates. I imputed the data with polytomous regressions[1].
- There was a discrepancy between the survey and the result of the first round. I transferred while respecting Kemeny's distance, and picked the transferrence with minimal euclidean distance to the result.

[1] Using the **R** package mice .

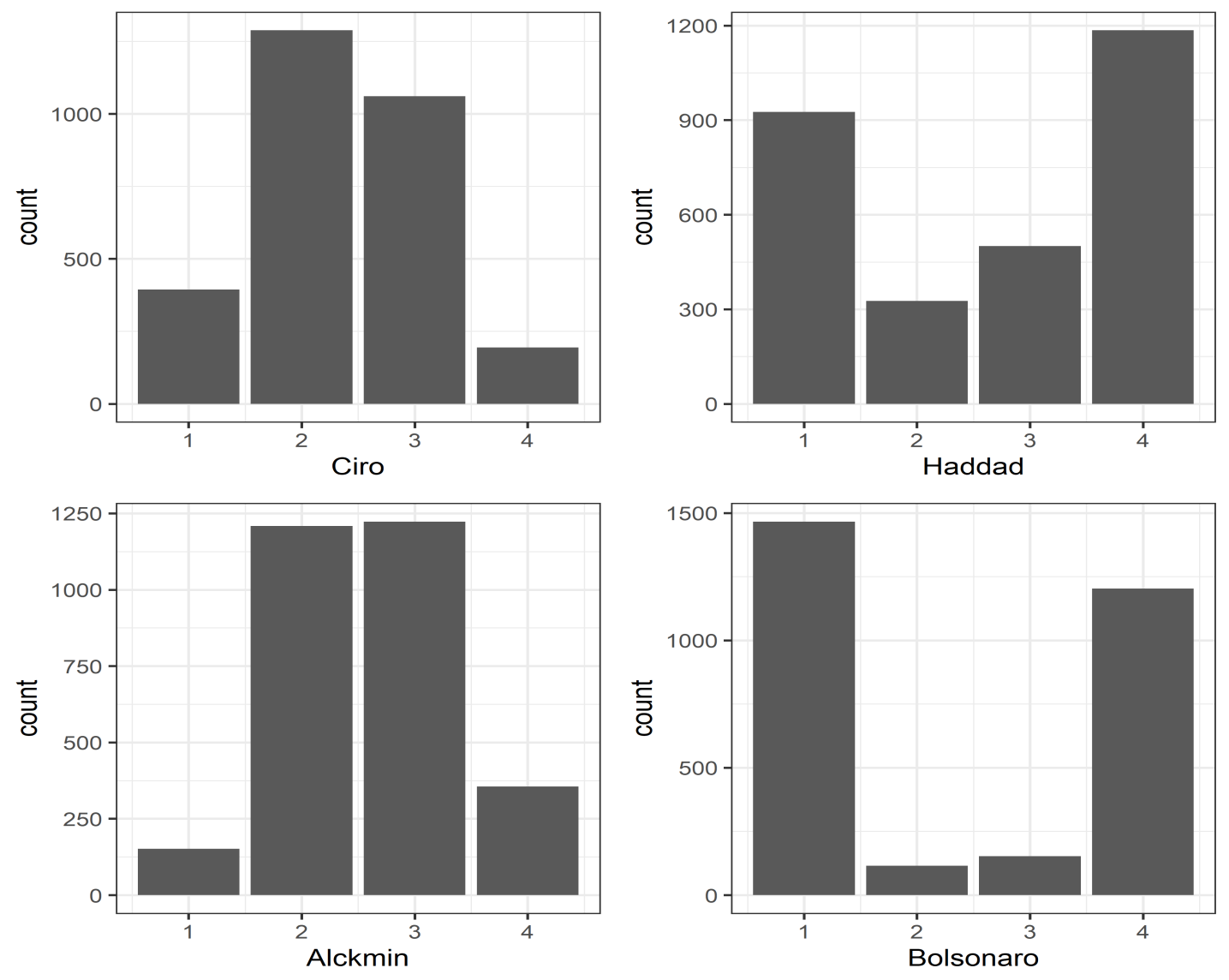
Method - Saari's Geometry of Voting

- Positional Voting methods are weighting systems: assign points to candidates according to their positions in the rankings. Then sum those points to get the candidates' scores.
  - Plurality: (1,0,0);
  - Antiplurality: (1,1,0);
  - Borda: (2,1,0).
- They can be normalized:
  - Three candidates: $(1, s, 0)$ where $0 \leq s \leq 1$;
    - Borda becomes $(1, \frac{1}{2}, 0)$;
  - Four candidates: $(1, s_1, s_2, 0)$, where $0 \leq s_2 \leq s_1 \leq 1$.

Method - Saari's Outcome Triangle



Frequencies at each position in the ranking



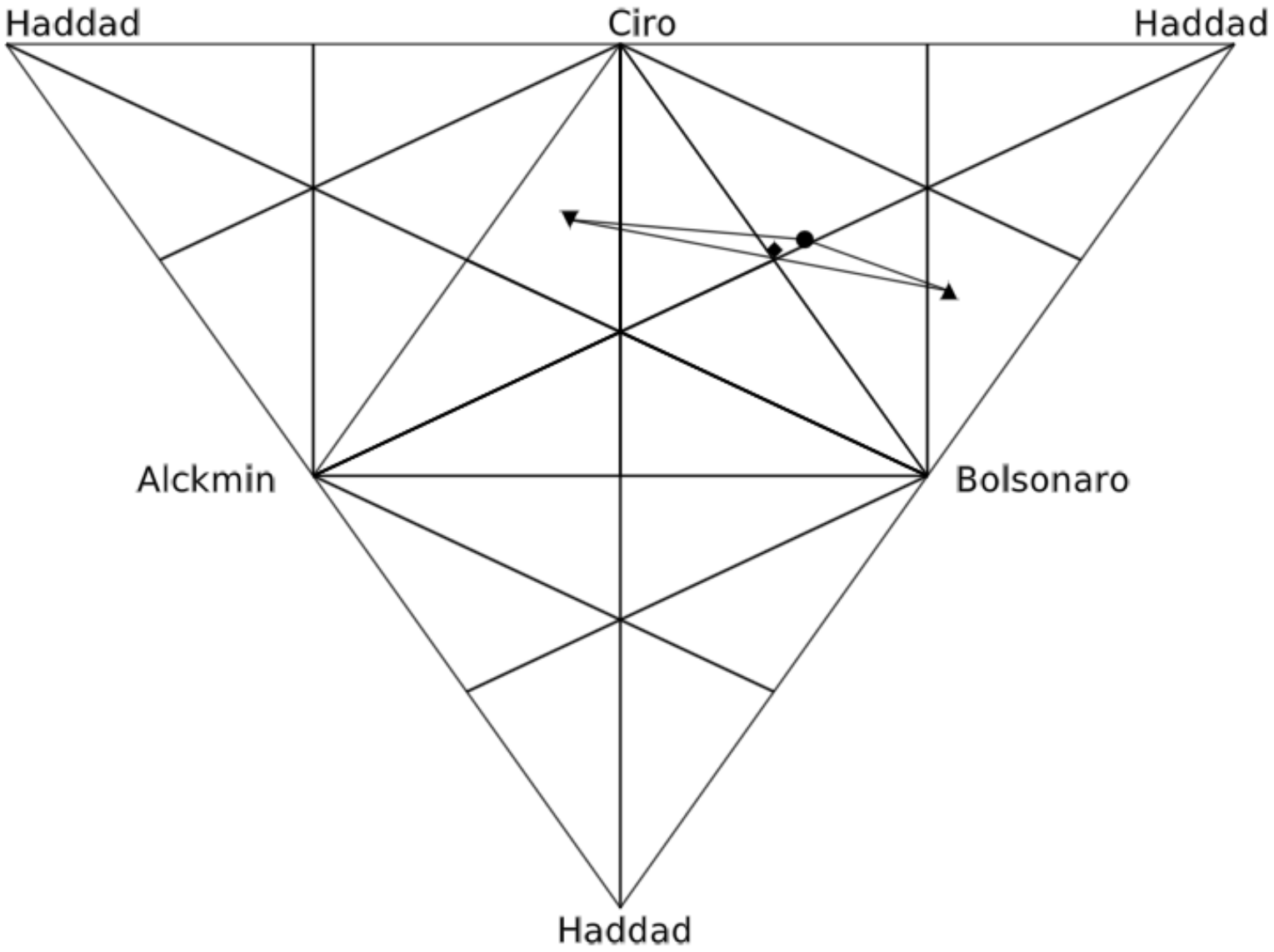
Pairwise Majority Comparisons

	Alckmin	Bolsonaro	Ciro	Haddad
Alckmin	-	-12.63%	-16.99%	8.27%
Bolsonaro	12.63%	-	5.48%	7.46%
Ciro	16.99%	-5.48%	-	16.65%
Haddad	-8.27%	-7.46%	-16.65%	-

Borda Count outcome

	Borda Score	Standardized Borda Score
Alckmin	7029	0.464
Bolsonaro	7718	**0.543**
Ciro	7756	**0.547**
Haddad	6867	0.446

9 possible positional outcomes

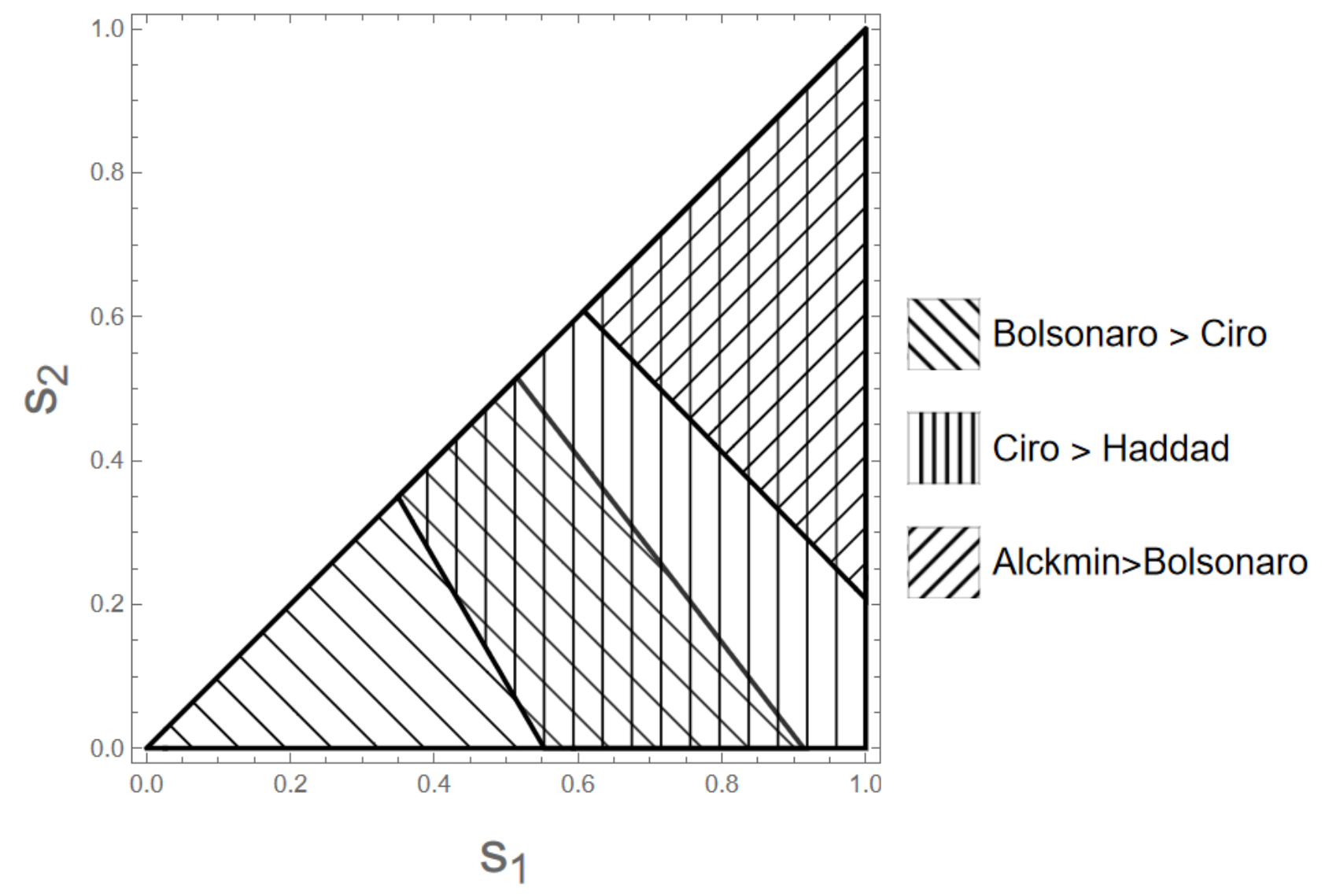


Counterfactual Positional Victories

	Alckmin	Bolsonaro	Ciro	Haddad
Alckmin	0.0	0.31	0.0	0.58
Bolsonaro	0.69	0.0	0.47	1.0
Ciro	1.0	0.53	0.0	0.81
Haddad	0.42	0.0	0.19	0.0

Table 1: Proportion of victories in the positional voting procedure set

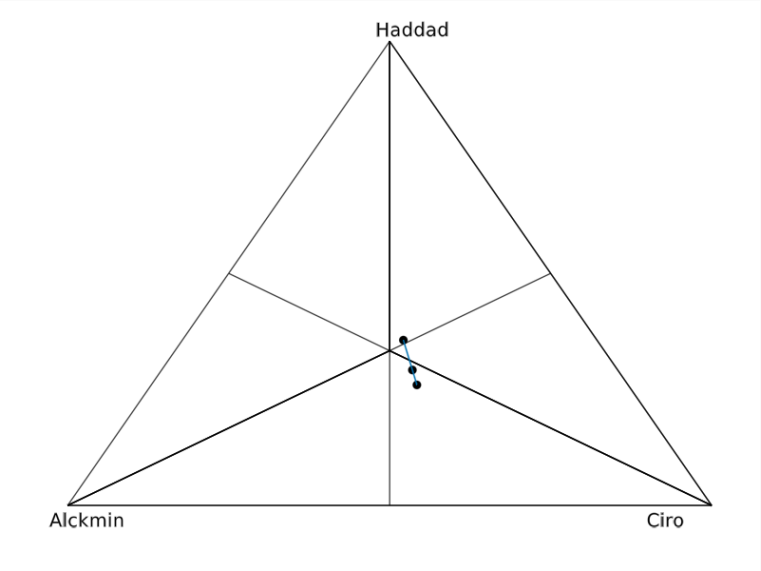
Victory in terms of weights given to the second (s_1) and third (s_2) positions in the rankings



Discussion

- We can't conclude Bolsonaro's victory was an institutional fluke. However, there is a conflict between the visions of Condorcet and Borda in this case:
  - pairwise mandate: ✓
  - positional mandate: ×

- They perfectly match had he not run.



Limitation and next steps

- Use other variables in the dataset, particularly in the imputation.
- Such counterfactual analysis can be done for any dataset we can recover the (partial) rankings.
- ★ Why did the CW and BW diverge? Size of the Condorcet Component [4]?

References

[1] Herrade Igersheim et al. “Comparing Voting Methods: 2016 Us Presidential Election”. In: *European Journal of Political Economy* 71.nil (2022), p. 102057. DOI: 10.1016/j.ejpoleco.2021.102057. URL: http://dx.doi.org/10.1016/j.ejpoleco.2021.102057.

[2] Peter Kurrild-Klitgaard. “Trump, Condorcet and Borda: Voting paradoxes in the 2016 Republican presidential primaries”. In: *European Journal of Political Economy* 55 (2018), pp. 29–35.

[3] Richard F Potthoff and Michael C Munger. “Condorcet Loser in 2016: Apparently Trump; Condorcet Winner: Not Clinton?” In: *American Politics Research* 49.6 (2021), pp. 618–636.

[4] Donald G Saari. “Mathematical structure of voting paradoxes”. In: *Economic Theory* 15.1 (2000), pp. 1–53.

[5] Jonathan Woon et al. “Trump is not a (Condorcet) loser! Primary voters? preferences and the 2016 Republican presidential nomination”. In: *PS: Political Science & Politics* 53.3 (2020), pp. 407–412.