

# Application of scoring rules in decision-making process in ensemble classifiers

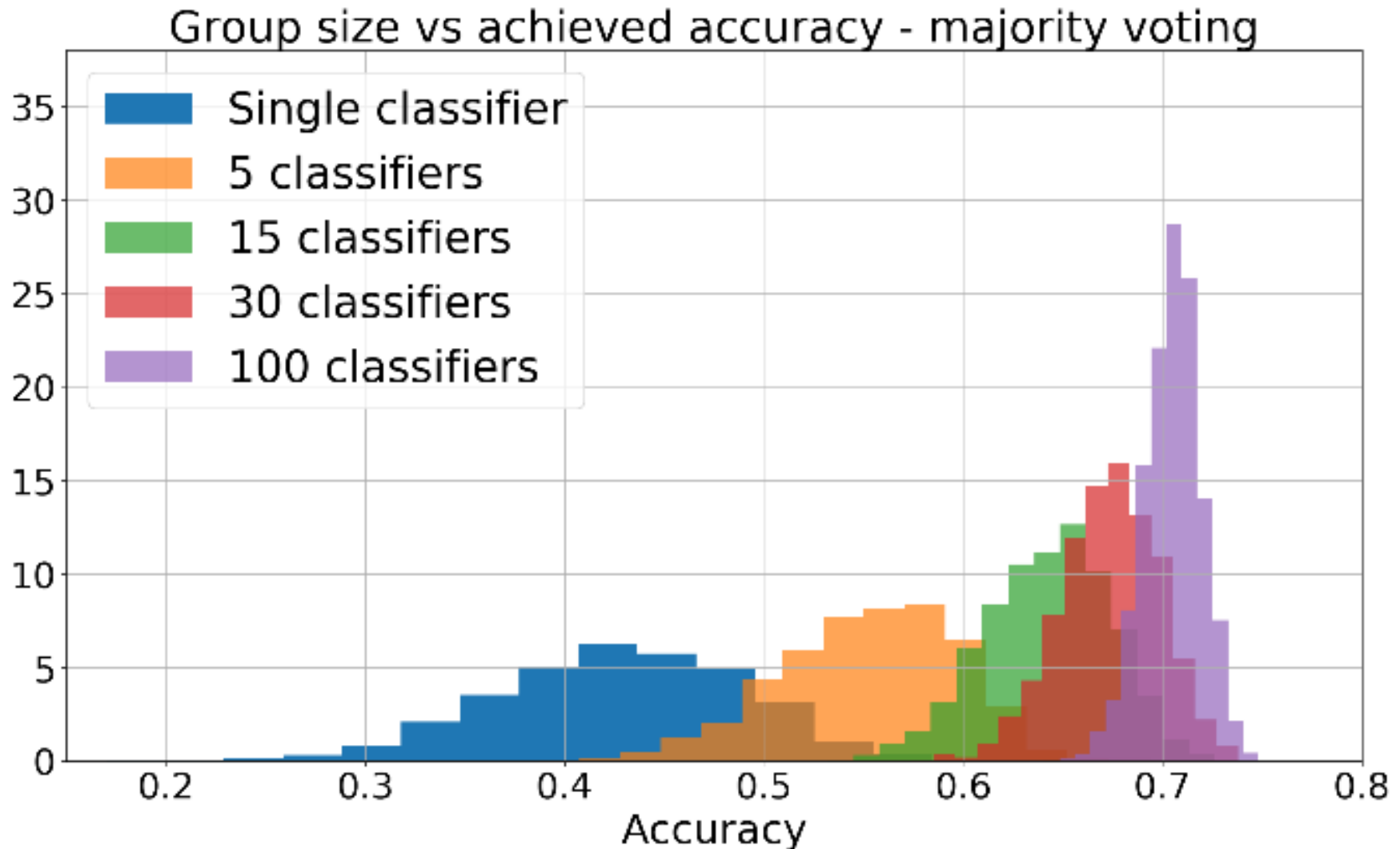
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# Ensemble learning



# Scoring Vector

Voters preferences

$V_1$ :  >  >  > 

$V_2$ :  >  >  > 

$V_3$ :  >  >  > 

$V_4$ :  >  >  > 

$V_5$ :  >  >  > 

One vote for first candidat

1 0 0 0

 :2  :1  :1  :1

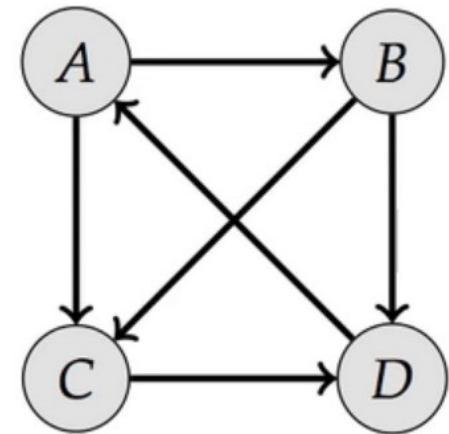
k - Borda

4 3 2 1

 :15  :13  :11  :11

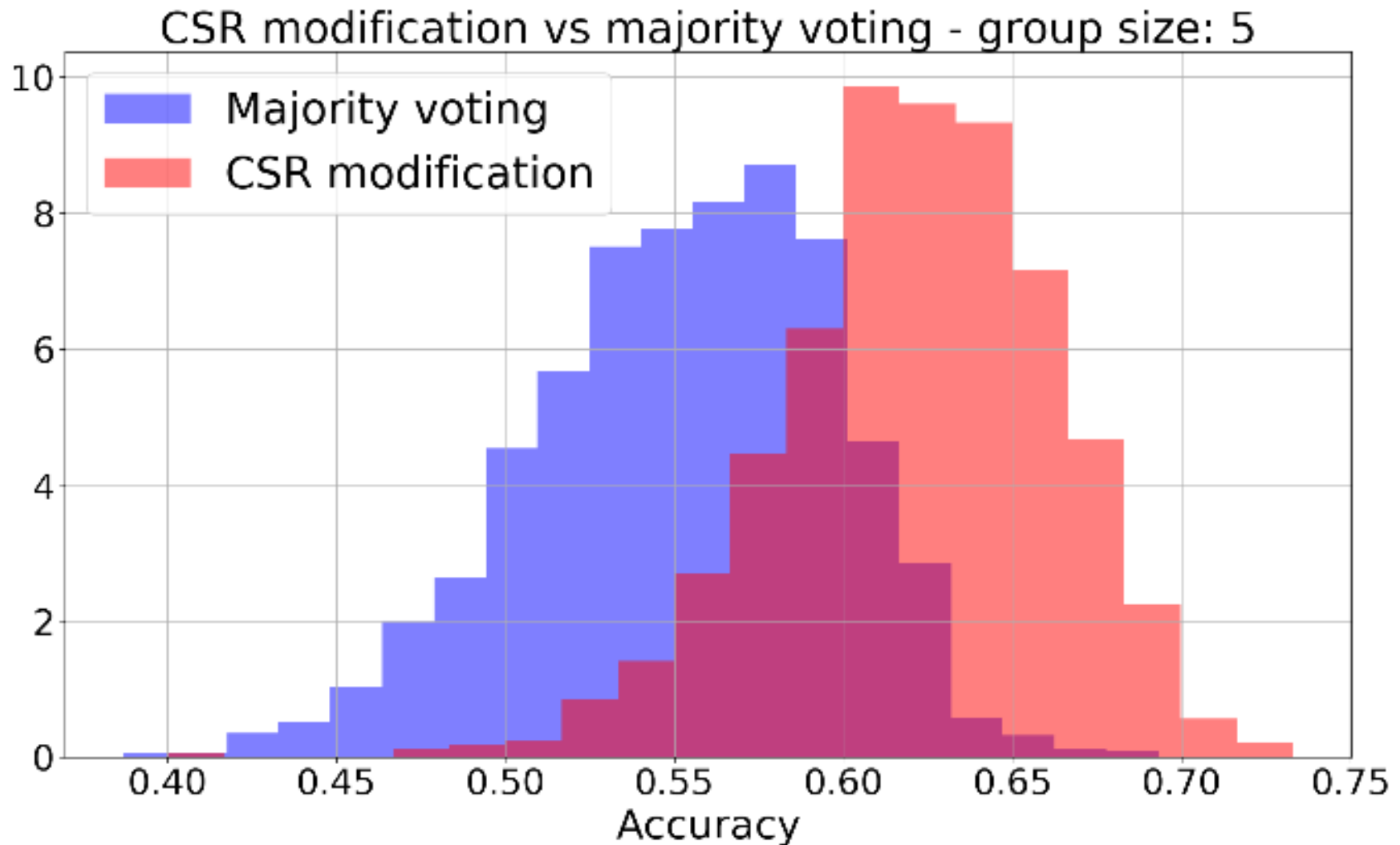
# Condorcet Voting Methods

# voters	21	12	5	12
best	A	C	D	B
↑	B	D	C	D
↑	C	B	A	A
worst	D	A	B	C

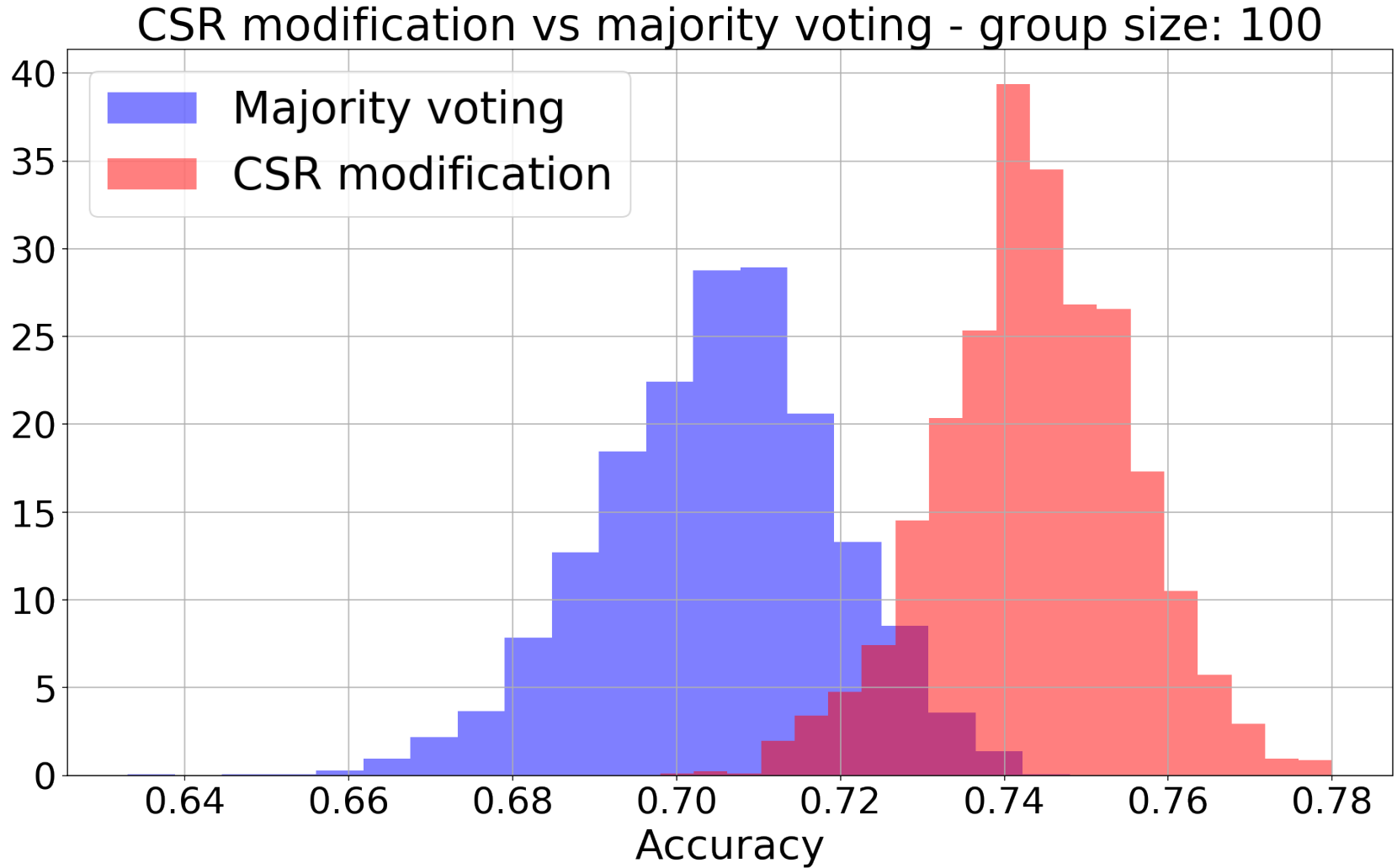


- **Majority graph:** the vertices are the candidates, there is an edge from candidate X to candidate Y provided a majority of people prefer X over Y.

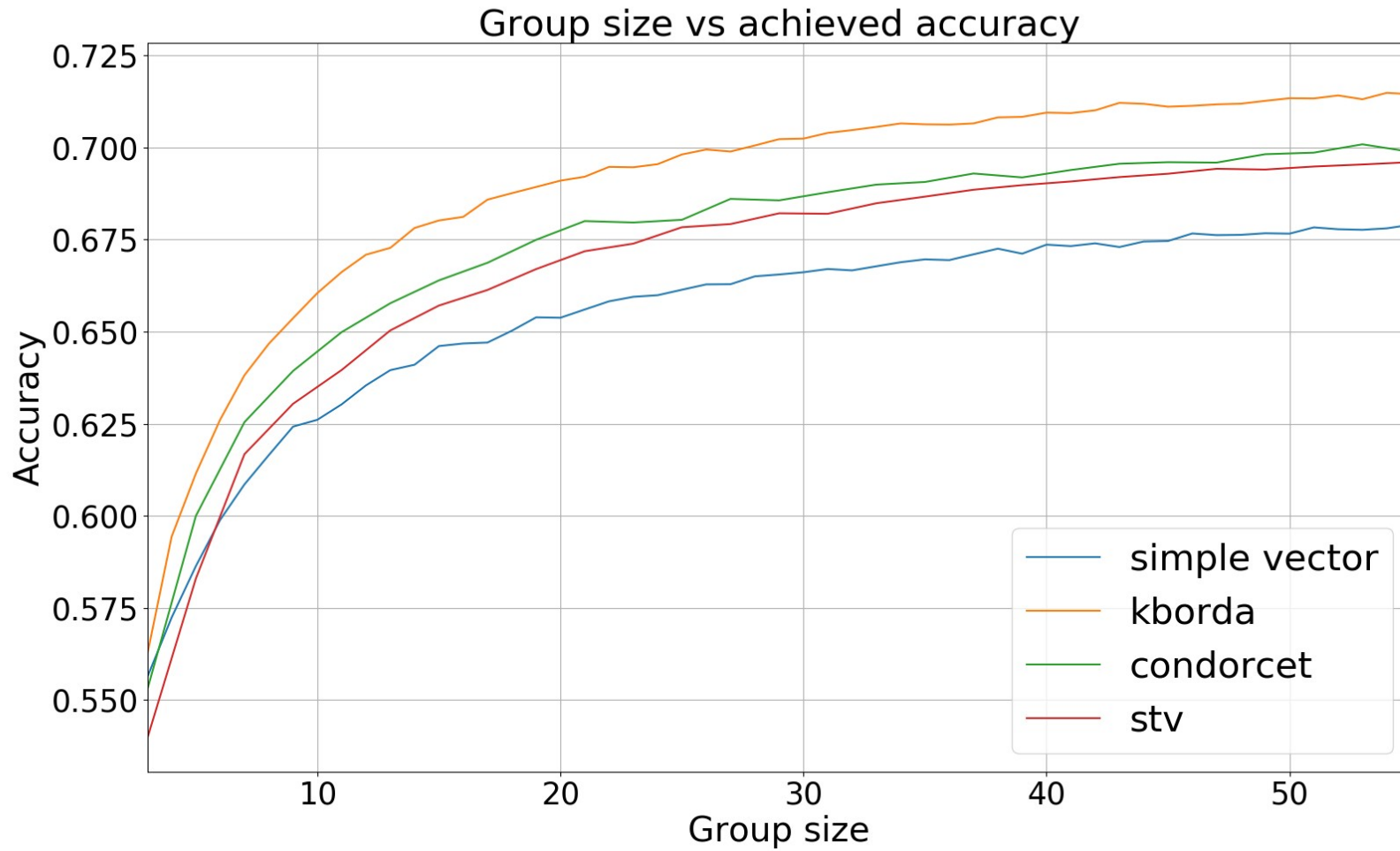
# Results



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# Acknowledgements

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## References

- 1) Faliszewski, P., Skowron, P., Slinko, A., & Talmon, N. (2016, July). Committee Scoring Rules: Axiomatic Classification and Hierarchy. In IJCAI (pp. 250-256).
- 2) Clarkson, K. L. (1984). Algorithms for closest-point problems (Doctoral dissertation, stanford university).
- 3) Skowron, P., Faliszewski, P., & Slinko, A. (2016). Axiomatic characterization of committee scoring rules. arXiv preprint arXiv:1604.01529