Topics in Computational Social Choice 2026: Exercise Sheet #4

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Instructions. Write at most one page of text and then email your solutions as a PDF to both instructors no later than **10:00 on Monday, 12 January 2026**. You are free to discuss this assignment with others and to make use of additional resources in any way that seems reasonable. Always include a short paragraph in which you document what outside help you received and what sources of information you consulted (if any).

The intended workload for this exercise sheet is around two hours of concentrated work.

Exercise 1. In the lecture, we saw that the approval voting rule (for single-winner elections) satisfies a form of strategy-proofness. However, this axiom indirectly assumes that voters' true preferences are dichotomous and correspond directly to their approval ballots. Now, assume that in addition to their approval preferences, voters also have linear preferences (i.e., a ranking) over the candidates they approve, but still only cast approval ballots as required by the rule. Show an example where a group of voters can benefit by misreporting their approval ballots under this extended preference model.