Voting Systems

Read the book chapters first, then make sure you can answer the questions in the notes. Following that, work on some skills-check problems and exercises. Then take the online quizzes.

Reading 9.3, 9.4
Skills Check 14, 16, 17, 18, 19, 21, 22, 23, 25, 27, 28, 29, 30
Exercises 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 32, 33
Quiz Take the quiz[1]

9.3

- How does *plurality voting* work?
- Does it always produce at least one winner?
- Does it always produce only one winner?
- What does the *Condorcet Winning Criterion* (CWC) say?
- So far we have seen the following systems: Imposed Rule, Dictatorship, Plurality, Condorcet's Winning Method. Which of these, if any, satisfy the Condorcet Winning Criterion? Give concrete examples if they fail to satisfy it.
- How does the *Borda Count* system work?
- Does the Borda Count always produce at least one winner?
- Does the Borda Count produce at most one winner?
- Does the Borda Count satisfy the Condorcet Winning Criterion?
- What does the *Independence of Irrelevant Alternatives* (IIA) property say?
- So far we have seen the following systems: Imposed Rule, Dictatorship, Plurality, Condorcet's Winning Method, Borda Count. Which of these, if any, satisfy the IIA property? Give concrete examples if they fail to satisfy it.
- How does *Sequential Pairwise Voting* work?
- Does Sequential Pairwise Voting always produce at least one winner?
- Does Sequential Pairwise Voting produce at most one winner?
- Does Sequential Pairwise Voting satisfy the CWC and/or IIA properties?
- What does the *Pareto Condition* say?
- So far we have seen the following systems: Imposed Rule, Dictatorship, Plurality, Condorcet's Winning Method, Borda Count, Sequential Pairwise Voting. Which of these, if any, satisfy the Pareto property? Give concrete examples if they fail to satisfy it.
- How does the *Hare System* work?
- Does the Hare System always produce at least one winner?
- Does the Hare System produce at most one winner?
- Does the Hare System satisfy the CWC, IIA and/or the Pareto properties?
- What does the *Monotonicity Property* say?

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[1] https://moodle.hanover.edu/mod/quiz/view.php?id=5028

- So far we have seen the following systems: Imposed Rule, Dictatorship, Plurality, Condorcet's Winning Method, Borda Count, Sequential Pairwise Voting, Hare System. Which of these, if any, satisfy the Monotonicity property? Give concrete examples if they fail to satisfy it.
- How does the *Plurality Runoff* system work?
- Does Plurality Runoff always produce the same winner as Hare's?

9.4

- What does *Arrow's Theorem* say?
- What does the weak version of Arrow's Theorem say?