Glossary

Arbitrary: An arbitrary selection from a set is used as an example. Something like, "Pick a card, any card" to start a card trick. A selection is arbitrary only if it doesn't matter which is chosen.

Assumptions: Premises, taken as true within the context of a logical argument, where some conclusion is deduced. The truth value of such premises is deduced from the truth or falsity of the conclusions.

Classical left–right dimension: Used by Anthony Downs to describe a dimension of differences in views of ideal forms of economic organization, ranging from the "left" (government ownership of the means of production) to the "right" (pure laissez-faire economics).

Classical spatial model: The decision-theoretic model of voter behavior, using the assumption that preferences can be represented with a weighted quadratic loss function based on distance.

Closed interval: On a line segment, all the points between the end points of the segment, including the end points.

Committee voting: A decision process with the following properties: informed voters, voting directly for alternatives rather than candidates, significant stakes by voters on outcomes, and a presumption of participation by all voters. Additional properties that may be assumed include simple majority rule and free proposal power, but there can be other forms of committee voting with neither of these properties.

Complementarity: An interaction between preferences for two or more alternatives. Positive complementarities mean that more (less) of one alternative makes the voter want more (less) of another alternative. Negative complementarities mean that more (less) of one alternative makes the voter want less (more) of another alternative.

Condorcet winner: An alternative that beats any other alternative in a pairwise majority rule election.

Continuous: A continuous curve is smooth and has no gaps or breaks. Another way of thinking about continuity is that for any two points that are elements of a set on a line segment, there is another point that lies between the two points that is also an element of the set.

Corollary: A result that follows almost immediately from a theorem, with little or no additional assumptions and few logical steps.

Decisive set: A group G is decisive for an alternative A versus another alternative B if A is collectively preferred (chosen by the group) to B under every preference pattern in which all the members of G prefer A to B, whatever the preferences of nonmembers of G. In particular, if all members of G like A over B, all nonmembers like B over A, and the society chooses A, G is decisive for that pair of alternatives.

Deduction: The logical process of arriving at a conclusion from a set of premises.

Democracy: Democracy means many different things. The important thing to remember is that there is no single, dominant process of democracy. At the most fundamental level, democracy is simply rule by the people.

Dictator: A decisive set with a single member, decisive for all pairs of alternatives.

Discrete: A discrete set of elements is "countable," so that it is possible to assign integers uniquely to elements. Discrete sets are not continuous.

Enfranchised: Given the effective power to vote. Alternatively, an enfranchised person is one whose opinion has a positive weight in some collective decision.

Equilibrium: Generally, a situation with no tendency to change without the agency of some outside force. Equilibrium requires that actions are either independent or mutually consistent.

Ideal point: The outcome that a voter judges to be best, of all the feasible alternatives.

Institutions: Rules of the game, or restrictions on the process of choice.

Majority rule equilibrium: One alternative, or a set of alternatives, that cannot be defeated by another alternative in a pairwise majority rule election. It is possible that other alternatives tie the majority rule equilibrium, but none can command a strict majority against it. If the win set of an alternative is empty, that alternative is a majority rule equilibrium, and vice versa. Likewise, any "median in all directions" is a majority rule equilibrium, and vice versa. If the majority rule equilibrium is unique, it is a Condorcet winner.

Mass elections: A decision process with the following properties: many uninformed voters, insignificant stakes by voters on outcomes, and no presumption of participation by all voters. Generally, mass elections are conceived as choices

over bundles of policies called "candidates," though referenda are also mass elections.

Models: A representation of a complex structure that aids in understanding. In this book, models are mental mock-ups of a political process, much like an architect or shipbuilder might create a mock-up to understand a design.

Nash equilibrium: A set of actions by all the participants of a game such that the action of each person is the optimal response to all the other players' actions. The "actions" may be a choice (a vote, a proposal) or a contingent sequence of moves (called a "strategy"). A Nash equilibrium is a situation where no player, acting alone, can improve his or her lot by acting differently.

Necessary condition: A requirement if a conclusion is true. Suppose that A is true only if B is true. Then B is a necessary condition. However, B could be true and A could still be false, unless B is also a sufficient condition for A.

Normative theory: A theory about what ought to be.

Oligarchy: Rule by a few.

Open interval: On a line segment, all the points between the end points of the segment, not including the end points.

Paradox: A surprising result, arising from a contradiction or inconsistency of seeming innocuous premises.

Plott conditions: Pairwise symmetry of ideal points around a median position. The Plott conditions are sufficient, but not necessary for the existence of a majority rule equilibrium.

Politics: This word is often used to mean maneuvering among individuals for power or resources. This is not the meaning intended here. Instead, politics means the process of deciding policies or actions in a democratic society.

Positive theory: A theory about what is, or about how and why phenomena occur.

Preferences: Set of reactions of a citizen to alternatives. Presented with two alternatives A and B, a citizen may prefer A to B, prefer B to A, or be indifferent between them. A citizen's set of preferences is the list of all these reactions to all pairs of alternatives, ranked from best to worst (though ties, or indifference, may occur). The basis of preference may be taste, psychological factors, or reason.

Result: A conclusion, which may be supported either deductively or inductively. A deductive result is one in which the conclusion follows from the premises, with clearly identified necessary and sufficient conditions.

Separability: A feature of preferences. Separable preferences mean that the citizen's reaction to changing levels of one alternative is independent of the expected level of any other alternative.

Sincere voting: Voting one's own preferences, regardless of the expected actions of others.

Single-peaked preferences: Single-peaked preferences decline monotonically as alternatives are more different from the ideal. If changing alternatives in any constant direction lowers utility for some distance, and then increases utility, preferences are not single peaked.

Status quo: The present government policy, whether it is the result of a conscious decision process in the past or simply historical accident.

Strategic voting: Voting to produce the most desired outcome from a decision process, rather than to express sincere preferences over the alternatives immediately presented.

Sufficient condition: A conclusion must be true whenever a sufficient condition is true. Suppose that A always follows from B. Then B is a sufficient condition for A. However, A could also be true if B is not true, if B is not also a necessary condition.

Symmetry: A feature of preferences, implying that differences from the ideal point are disliked equally, whether the differences are positive or negative.

Theorem: A deductive result that is not self-evident, but can be proved to follow logically from a defined set of assumptions.

Transitivity: The logical linkage in a chain of preference longer than two alternatives, when only pairwise comparisons are available. For example, if A is preferred to B, and B is preferred to C, A is preferred to C only if preferences are transitive.

Unique: The property of being the one and only element of a set. For example, an ideal point is unique if only one person has maximum satisfaction at that point. A median point, however, can be unique if there are no other median points, even if several voters share the median point as their ideal point. In the latter case, the median point is unique but the ideal point is not.

Win set: The intersection of the alternatives that a decisive set of voters all prefer to the status quo. Any element of the win set of $\mathbf{z}$ (written $W(\mathbf{z})$) would defeat $\mathbf{z}$ if the two were voted on. Win sets can be defined for any majority, from 0% to 100%, but the usual presumption is that the decision rule is 50% + 1, so that the decisive set is any simple majority of the enfranchised voters.