

Part 1: Short Answer Questions: To answer these questions you must identify (i.e., define) the listed concept and give its significance *to this course* (the same or similar concepts are used in other branches of political science and economics, so it is important to not the last clause). Fully correct answers do only this (Do not try to prove or derive anything or discuss the concept in detail). The answers to these questions can be given in four sentences or less. You will lose points for writing material unrelated to the answer so *think before writing*. **Credit: Answer 4 (four) of the following for 5 points each** (20 total points).

1. *Preference profile*: A preference profile is a set of individual preference orderings, one for each member of the community, on some set of outcomes. Preference profiles, along with agendas, are the basic inputs to (the domain of) a social choice function.
2. *Condorcet's paradox*: Condorcet's paradox is the existence of intransitive social preference (under the Condorcet social choice procedure) from a profile of transitive preferences. This paradox has triggered attempts to identify social choice rules that are free from such paradoxes, as well as attempts to evaluate the implications for agenda-setting.
3. *Universal (or "Unrestricted") domain*: The social preference function has as its domain all logically possible profiles of preference orderings on O and all possible agendas $\nu \subset O$. This says that, at least *a priori*, we have no reason in a democratic political system to define any particular individual preference ordering, and thus we cannot rule out any particular profile. That is, unrestricted domain is a *diversity condition*. This is one of the axioms in the system that yields Arrow's impossibility theorem.
4. *Value-restricted preferences*: Recall that the domain of a social choice function is the set of all possible profiles for a given community of people and all possible agendas from a given set of outcomes. Value restriction refers to attempts to evaluate the consequences for Arrow's theorem of restrictions on this domain. In particular, research has focussed on profile restrictions. One that has attracted considerable interest is the restriction of preferences to those that are single-peaked.
5. *Empty win set*: The win set is the set of points that defeat a specified point in a majority rule contest. Thus, a proposal with an empty winset is a point that cannot be defeated in a majority rule contest. For example, in a majority rule contest over a single dimension, with single peaked preferences, the ideal point of the median voter must have an empty winset.
6. *Socialization of conflict*: When a participant in a private conflict seeks to include others, we say that s/he seeks to socialize conflict. One important form of socialization is politicization, the attempt to attract government into the conflict. Schattschneider considers socialization of conflict to be one of the primary attributes of all conflict and democratic political systems as major sources of politicization.
7. *Plott's theorem*: If voters possess distance-based (e.g. Euclidean) preferences, and if their ideal

points are distributed in a radially symmetric fashion with x^* the distinguished ideal point and the number of voters is odd, then $W(x^*) = \emptyset$. Useful tool for identifying winners of majority rule contests.

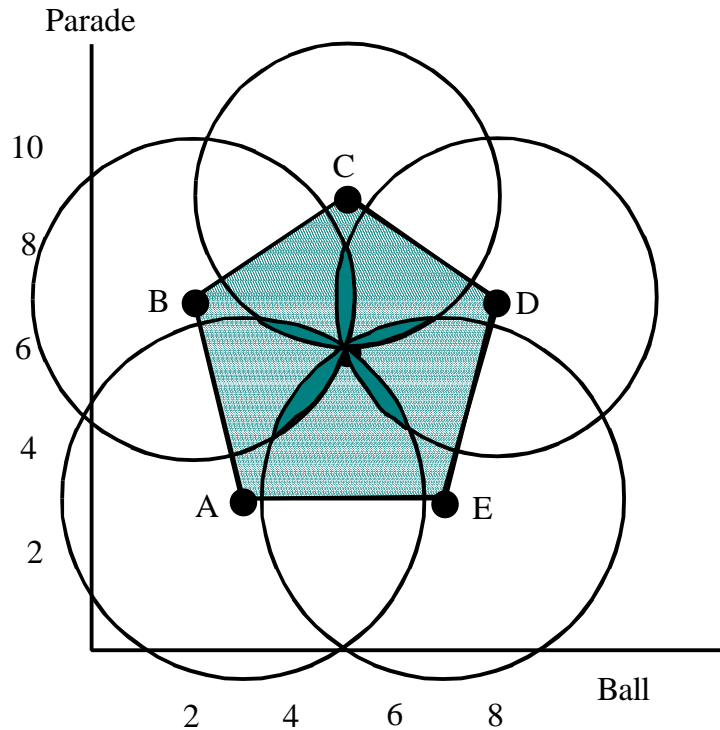
8. *Competitive party system*: A competitive party system is a political system in which parties compete for voters. This is an essential element of Schattschneider's "realist" theory of democracy. In particular, Schattschneider sees competitive parties as a dynamic force for political inclusion of both citizens and issues.

The next **two** parts (i.e. Part II and Part III) require you to write essays. From **each part** you must select **one** question to answer. Your answer must be logical, complete and grammatical (i.e., you must write in complete, well-constructed sentences and paragraphs). If you use graphical or algebraic analysis to support your argument, you must explain fully the elements of your formalism. No credit will be given for graphical apparatus without explanation, and no credit will be given for answers (correct or otherwise) that do not explain the logic underlying the answer. Think before writing.

Part II: Mandatory Essay. (40 points).

Al, Betty, Charlie, Daniele, and Eve are the members of the steering committee of a Mardi Gras krewe. They need to decide how much the krewe is going to spend on the parade and how much they will spend on the ball, and, thus, how much each member will have to pay. Al and Eve favor a small parade (\$300 per member), Betty and Daniele favor a medium sized parade (\$700 per member), and Charlie wants a really big parade (\$900 per member). Daniele wants a big ball (\$800) and Betty wants a small ball (\$200), while Al, Charlie and Eve favor intermediate sizes (\$300, \$500, and \$700 respectively). Suppose that all members of the committee have Euclidean preferences.

- a. Draw a graph, identifying the ideal points for this problem. (5 points)



The ideal points of the five committee members are denoted by A,B,C,D, and E.

b. Suppose that last year krewe members spent \$500 on the ball and \$600 on the parade. Is this point in the Pareto set? Why, why not? (10 points)

The Pareto set is the set of points such that there is no alternative point that is weakly preferred by all members of the committee. That is, points such that any alternative will make at least one member of the committee worse off relative to the reference point. Using this definition, it is easy to show that there is no direction of change from (\$500, \$600) that does not make at least one member of the committee worse off. Specifically, relative to the indifference curves that are drawn through the reference point, it can be seen that there is no direction of change that does not result in a reduction in at least one members welfare.

More generally, we can identify the Pareto set and show that the previous year's expenditure falls inside that set. If preferences are Euclidean, the "contract curves" between committee members are straight lines between ideal points. Thus, the outer boundary of the Pareto set is the pentagon shown in the figure. The Pareto set itself is the lightly shaded area in the interior of that Pentagon and the boundary. Thus, the point (\$500, \$600) is in the Pareto set. There is no alternative to this point that does not leave at least one member with a lower utility than this point.

c. Identify the set of points that can defeat (\$500, \$600) in this committee? What defines this set of points? (10 points)

With a 5 member committee, a majority of 3 is required to defeat any point. Thus, the win set of any point is the set of all proposals that at least 3 members prefer to the reference point. For each committee member, given Euclidean preferences, the set of points preferred to (500, 600) lie inside the circle with its origin at the ideal point passing through the reference point. The win set of (500,600), $W((500,600))$, is made up of all points that a majority of 3 prefer to that point. These will be areas where three individual preferred-to sets overlap. Thus, $W((500,600))$ is the darkly shaded, petal-shaped area. A majority of 3 prefers any point in each of the petals (of course it is a different majority in each petal).

d. Is there a Condorcet winner in this case? If no, explain why not. If yes, identify the proposal that is a Condorcet winner, and explain why. (15 points)

According to *Plott's theorem*: If voters possess distance-based (e.g. Euclidean) preferences, and if their ideal points are distributed in a radially symmetric fashion with x^* the distinguished ideal point and the number of voters is odd, then $W(x^*) = \emptyset$. According to *McKelvey's chaos theorem*, if the conditions of Plott's theorem fail, there will be no Condorcet winner. In this case, there is an odd number of voters, but there is no ideal point satisfying Plott's condition. Thus, there is no Condorcet winner.

Part III: Essays. Answer **one** for 40 points.

1. The theory of party systems, as sketched in Schattschneider, portrays relatively stable competition among parties for periods covering several electoral cycles (20 to 30 years). This stability comes from agreement among the electorate and the parties over a small number of issues that fundamentally define the system.

a. If we suppose that there is a single such dimension, under what conditions can we predict the winning platform? What will that platform be? Why? (10 points)

If there is a single dimension, and preferences are single-peaked, Black's (median voter) theorem says that the most preferred point of the median voter cannot be defeated in a majority rule contest. Furthermore, with two party competition, the Hotelling-Downs theorem asserts that both parties will offer the most preferred point of the median voter as their platforms (i.e. these strategies are the unique Nash equilibrium of the electoral competition game).

b. Schattschneider describes the collapse of what he calls the system of '96 and the emergence of the New Deal system. This produced what is called a realignment of voters and parties and is seen by Schattschneider as one of the main dynamic forces in a democratic system. Use a simple spatial model to represent this process. [Note: a correct answer will briefly explain the main forces leading to this realignment and use the spatial framework to illustrate the working of a realignment.] (15 points)

According to Schattschneider, the emergence of a nationwide economic crisis (the Great Depression), created an essentially national electorate demanding fundamental change, without necessarily being clear on the content of that change. The result was a decisive victory for the Democrats. In addition, the combination of piecemeal policies pursued to fight the depression, the massive expansion of government entailed in fighting the Second World War, and the continued large-scale presence of government as a response to fears of both renewed depression and the Cold War, led to a new structure of partisan competition in which, loosely speaking, Democrats defended the expanded role of government and Republicans opposed that role. In the process, many traditional Republicans became firm Democrats and many firm Democrats became Republicans. This changed issue structure of competition, and the changes in partisan identification that went along with it is what is called a realignment. In terms of the spatial model, this is easily represented as a switch from one linear dimension to another, with people taking new positions on the new dimensions. Furthermore, it is generally, though not always, the case that a new party is able to establish itself as the median voter's preferred party.

c. During the realigning process the presence of a number of competing issues makes the political process highly unpredictable. Use McKelvey's chaos theorem to explicate this claim. (15 points)

McKelvey's Chaos Theorem states that: in multidimensional spatial settings, except in the

case of a rare distribution of ideal points (like radial symmetry), there will be no majority rule empty winset point. Instead there will be chaos—no Condorcet winner, anything can happen. The transition to a new electoral system involves a transition between relatively stable issues, during which period there are a number of dimensions in use. This situation satisfies McKelvey’s dimensionality assumption, and since preferences are also likely to be particularly disorganized, the theorem suggests that “anything can happen”. That is, the theorem doesn’t really imply that cycling will be observed, just that there is no single point, or even a small set of centrally located points, that will attract the majority. Until the system settles on another more-or-less stable, one-dimensional issue in terms of which partisan competition can be defined, winning platforms will be hard to predict, parties will experiment with different platforms, et cetera.

2. Arrow and Schattschneider would seem to have very different notions of democracy.

a. In what sense do Arrow’s axioms try to capture some notion of democratic-ness? That is, which axioms deal explicitly with democratic values? What are the values? (15 points)

The Pareto principle, non-dictatorship, and unrestricted domain identify three very weak democraticness conditions. The first two are attempts to capture very weak versions of majority rule. The *Pareto principle* is a unanimity condition—if everyone, $i \in I$, has preferences such that $x P_i y$, then the social rule should be such that $x P_S y$. *Non-dictatorship* says that there should be no person, d , such that, for every profile, for every agenda, $\forall x, y \in \mathbf{v}, x R_d y \Rightarrow x R_S y$. The third condition is a diversity condition. *Universal domain* requires that the social preference function has as its domain all logically possible profiles of preference orderings on \mathbf{O} and all possible agendas $\mathbf{v} \subset \mathbf{O}$. This says that, at least *a priori*, we have no reason in a democratic political system to require or ban any particular individual preference ordering, and, thus, no reason to rule out any particular profile.

b. If the goal of democratic process is to identify something like the “will of the people”, there must be some consistency in the outcomes of that process. Explain why? The remaining axioms seek to ensure a kind of consistency. What are those axioms and what sorts of consistency do they seek to ensure? (10 points)

If the outcome of a social choice process can be anything, we cannot interpret it as meaning something. Thus, for the social choice process to be meaningfully interpreted as the “will of the people” it must be characterized by consistency. Recalling that the social choice function is a function from profiles (\mathbf{R}) and agendas (\mathbf{v}), Arrow adopts two sorts of consistency axioms, one that fixes profiles and varies agendas (*Collective rationality*) and one that fixes agenda and varies profiles (*Independence of Irrelevant Alternatives*). Each of these requires that when the relevant argument is varied in a way that remains constant over some aspect of the domain, although change has occurred in some other part of the domain, that the social choice should remain constant from that part of the domain that remained constant.

c. Give Schattschneider’s definition of democracy. Identify one important difference between Arrow’s analysis of a democratic social choice function and Schattschneider’s analysis of democracy. Explain the difference and explain why it is important. (15 points)

Schattschneider defines democracy as: “a competitive political system in which competing leaders and organizations define the alternatives of public policy in such a way that the public can participate in the decision-making process” (pg. 138). Where Arrow represents the democratic process as a problem of preference aggregation from a fixed profile for a fixed agenda, and constitution writing as the problem of finding a rule for making such choices, Schattschneider’s definition is essentially dynamic with both preferences and issues open to change via public discussion. Schattschneider’s definition would not seem to require any notion of a coherent “will of the people”, and thus would not seem to be subject to Arrow’s theorem (at least in any straightforward way).

Exam Statistics

	Short Answer	Mandatory Essay	Essay 1	Essay 2	Total	Percent of Max
Mean	13	21	15	26	57	68
Std Dev	4	7	5	5	14	17
Maximum	20	35	25	33	83	100
Minimum	5	8	10	17	33	40
Median	14	22	13	27	57	69

Note: Percent of Max gives statistics on total scores calculated as a percent of the maximum score. From the total column, you can see that the maximum score on the exam was 83. Thus, to calculate your score as a percent of the maximum:

$$\frac{\text{Your Score}}{83} \times 100,$$

so if your score was 57, you would have $(57/83) \times 100 = 69$. Note that this is how your final grade will be calculated–i.e. your semester total points will be summed and then taken as a percentage of the maximum total points actually earned.