Strategic Ambiguity in Electoral Competition*

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ABSTRACT

Many have observed that political candidates running for election are often purposefully expressing themselves in vague and ambiguous terms. In this paper, we provide a simple formal model of this phenomenon. We model the electoral competition between two candidates as a two-stage game. In the first stage of the game, two candidates simultaneously choose their ideologies, in the second stage, they simultaneously choose their levels of ambiguity. Ambiguity, although disliked by voters, may be sustained in equilibrium. More interestingly, we provide insight into the causes for ideological differentiation by showing that politicians may wish to differentiate themselves ideologically so that they can afford to become more ambiguous.

KEYWORDS: electoral competition, ideological differentiation, ambiguity.

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1. Introduction

Many have observed that political candidates running for election are often purposefully expressing themselves in vague and ambiguous terms. Already Downs (1957) observed that candidates perceive incentives to "becloud their policies in a fog of ambiguity" during the course of their campaigns. As Downs argued, candidates have good reasons to be ambiguous. A candidate who advocates an ambiguous platform during the campaign enjoys greater freedom in implementing his policies once he wins the election without having to sacrifice his credibility.[1] Shepsle (1972) has added that "...we can accept with Downs the assumption that politicians do not lie – that false information does not enter the communications system – while still acknowledging the politician's advantage in speaking "half-truths" and in varying his appeals with variations in audience and political climate." Indeed, if candidates care about their reputations, the choice of a campaign platform constrains their choices of policies in case they win the election. If they are unsure what their preferences on policies will be in case they win the election, they will have a desire for flexibility that translates into a preference for ambiguity. In particular, a vague candidate enjoys greater freedom in choosing his policy and can therefore choose to adopt the policy that proves to be the most expedient ex-post. Alternatively, he can "sell" his policy plan to a larger set of lobbyist groups, thereby increasing his post-election base of support and possibly his party's budget (see Morton and Myerson, 1992).

We thus argue that the level of ambiguity associated with candidates' platforms is the result of a conscious strategic decision. This decision can also be interpreted as determining the candidates' level of commitment to their ideologies. A candidate who advocates an explicit and unambiguous platform is in fact committing himself to implement more specific policies. On the other hand, a candidate who presents an ambiguous platform is less committed, avoiding promises which can be attributed to him later. While candidates for election may well find ambiguity to be advantageous, voters -- especially risk-averse ones -- prefer less ambiguous candidates because the uncertainty associated with their future policies is smaller. This implies that candidates are required to trade-off their "office preferences" that call for a higher level of ambiguity and flexibility against their popularity among voters. The purpose of this paper is to understand the way in which this trade off is resolved and to investigate the implications with respect to candidates' choices of ideological affiliation and in particular for the possibility of ideological differentiation.

We present a game theoretic model that allows us to determine the equilibrium levels of candidates' ambiguity. In our model candidates' platforms are represented by *sets of policies*. Thus, whereas in the standard spatial model candidates are constrained to choose a single policy which they promise to implement once they win the election, in this paper candidates have the option to remain vague regarding the policy that they will implement in case they win the election. The "center" of the candidate's policy-set is determined by the candidate's choice of ideology and the "size" of the set is determined by the candidate's level of ambiguity. A more ambiguous candidate chooses a larger policy-set, and therefore, in case he wins the election, he can choose his policy from a larger number of alternatives. In other words, he is less constrained by his campaign promises, and can implement more expedient policies as the need arises. For example, while an unambiguous leftist candidate has to implement a leftist policy if he wins the election, an ambiguous leftist candidate might also implement a centrist policy if it proves more expedient.

We model the election process as a two-stage game. In the first stage, two candidates simultaneously announce their ideological positions given their beliefs about the distribution of voters' preferences. In the second stage, they simultaneously determine the ambiguity levels of their campaign messages. Because in the second stage of the game the ideologies of the candidates are publicly known, the candidates can determine their levels of ambiguity conditionally on the ideology choices (of both of them) in the first stage. After the two candidates have voiced their ideological credo and chosen their ambiguity levels, election takes place, the winning candidate is determined by majority rule and chooses the policy to be implemented.

We analyze two variants of this model. In the first, the choices of ideology and ambiguity levels are discrete, while in the second they are continuous. In both models a pure strategy subgame perfect equilibrium always exists. Two kinds of equilibria emerge in these models. In the first equilibrium, both candidates choose the median voter's preferred ideology and choose a minimal level of ambiguity. In the second equilibrium the candidates differentiate themselves ideologically and choose identical, positive levels of ambiguity. What determines which equilibrium prevails is the ratio between the utility of assuming office and the (dis)utility of being less ambiguous. Not surprisingly, when candidates value the fact of winning the election and ambiguity is not very rewarding (relative to winning the election) the first equilibrium prevails, and when the candidates care less about winning the election per-se and more about their freedom once they win the election, the second equilibrium prevails. For intermediate parameter values both equilibria may coexist.

The intuition underlying the first equilibrium is identical to that of the standard spatial voting model, namely, both candidates compete by choosing what they believe to be the median voter's preferred ideology in the first stage of the game, knowing that by doing so they will be constrained to continue to compete in the second stage of the game by choosing a very specific platform (low ambiguity). These strategies constitute an equilibrium when ambiguity is not very rewarding for candidates. In this case, the main interest of the candidates is to maximize the probability of winning the election.

The intuition which underlies the second equilibrium is more interesting. Candidates differentiate themselves ideologically in order to soften the second stage competition in ambiguity. In this equilibrium candidates face a trade-off between the probability of winning the election and their level of utility in case they win the election (determined by their level of ambiguity). Each candidate can guarantee a 50% probability of winning the election by adopting his opponent's ideology, but when ambiguity is valuable, one of the candidates may increase his expected payoff by sacrificing some probability of winning for the chance of having a more ambiguous platform in case of winning. That is, at an equilibrium with differentiated ideologies, one candidate may have a lower probability of winning the election. However, he realizes that should he move closer to the other candidate's ideological position, the other candidate would retaliate by choosing to be less ambiguous in the second stage of the campaign, thereby forcing the first candidate to respond by lowering his own ambiguity level and with it his utility from winning the election.

The notion of strategic ambiguity has been extensively dealt with in political science literature. (For a survey of this literature, see Shepsle, 1972) This literature has lead to several attempts of formal modeling of strategic ambiguity. Generally, these formal models have employed the assumptions of the standard spatial model. Ambiguous strategies were represented as probability distributions (lotteries) over the policy space. Zeckhauser (1969) is probably the earliest formal discussion of ambiguous policy formation. He shows that under certain conditions, a lottery over some subset of the alternatives can defeat the median position, and that a component of this lottery can defeat the lottery itself. Thus, an alternative that wins a majority of the vote may not exist. However, he shows that if an equilibrium of the *m*-dimensional election game exists, it must be in unambiguous strategies. Shepsle (1972) shows that if only uniform lotteries are permitted and the incumbent is restricted to select a less ambiguous lottery than the challenger, there exist voter preferences such that the challenger's choice will command more votes than any policy available to the incumbent. McKelvey (1980) studies the effect of the introduction of a fixed amount of ambiguity (or variance). He shows that it has no effect on the location or existence of equilibria in uni-dimensional models. For higher dimensions, assuming that voters' utility functions are multivariate normal density functions, the introduction of ambiguity does not disrupt equilibria when they exist.

In contrast to the results of this paper, most of the former literature on strategic ambiguity did not differ qualitatively from the standard spatial model literature. Ambiguous policies where chosen by candidates only in special cases of models with asymmetric assumptions on the behavior of candidates.[2] One exception is Alesina and Cukierman (1990). In their model candidates have ideal points in the policy space, and the incumbent faces a trade-off between implementing his ideal point and implementing the policy that maximizes his chances of re-election. In their model, voters are not perfectly informed about the preferences of the candidates, and the level of ambiguity is defined as the variance of the noise of the policy outcome that is observed by the voters. The main distinction between the approach taken in this paper and the approach followed by Alesina and Cukierman is that the latter treat the case in which ambiguity is an exogenously given noise while we deal with the case in which the candidates strategically choose the degree to which their platforms are ambiguous. We believe that such an approach is necessary if we are to understand the circumstances under which candidates are more or less likely to be ambiguous.

The rest of the paper proceeds as follows: the next section contains a discussion of the main assumptions. In section 3, we analyze the discrete model and in section 4, the continuous model. Section 5 offers concluding remarks. All proofs are relegated to the appendix.

2. The Main Assumptions

As noted in the introduction, we model the electoral competition between two candidates as a two-stage game and analyze the pure strategy subgame perfect equilibria of this game.

We denote the two candidates by 1 and 2. Let I denote the set of ideologies available to the candidates, and let A denote the set of levels of ambiguity. In the first stage of the game, the candidates simultaneously choose their ideologies (I_1, I_2) from the set I. In the second stage of the game, after the candidates' ideologies become publicly known, the candidates simultaneously choose their ambiguity level (a_1, a_2). Candidate *i*'s (pure) strategy can thus be described by the vector (I_i, f_i) where $I_i \in \mathrm{I}$ denotes the ideology chosen by candidate *i* and $f_i : \mathrm{I} \times \mathrm{I} \to \mathrm{A}$ denotes candidate *i*'s choice of an ambiguity level as a function of the ideology choices of the first stage.

We assume that candidates do not have any *a-priori* preference for any ideological position. Rather, they wish to win the election while being as ambiguous as possible. Winning the election results in some "utility" for the candidates that depends on their level of ambiguity, while losing the election gives them a zero payoff. The candidates' preference for ambiguity is motivated by the following consideration. Before the election, the candidates do not know what will be the most expedient policy once they assume office. This information will become available to them only after they win the election. By definition, this most expedient policy is the policy they will want to implement after they win the election. However, by specifying their ideologies and ambiguity levels during the campaign they constrain themselves by limiting the type of policies available to them if they win the election. Choosing to become more ambiguous amounts to relaxing this constraint and therefore provides them with a higher utility from assuming office. (It might, however, adversely affect their *chances* of winning the election.) Thus, it is not necessary to explicitly assume that candidates have a preference for ambiguity. Rather, such preferences can be derived from the more basic assumption that the most expedient policy ex-post after winning the election is unknown ex-ante, i.e., before the election. We illustrate this argument more formally in the next section.[3]

We make the standard assumption that the candidates are expected utility maximizers; that is, they maximize the product of the probability of winning the election and the utility of assuming office. The candidates' utility functions are given by $U_i(I_1, f_1; I_2, f_2) = P(I_1, a_1; I_2, a_2)u(a_i)$ where $a_i = f_i(I_1, I_2)$ is candidate i's level of ambiguity; $P_i(I_1, a_1; I_2, a_2)$ denotes the probability that candidate i wins the election given the candidates' choices of ideologies and levels of ambiguity; and $u(a)$ is an increasing function that represents the utility of winning the election given the level of ambiguity chosen by the candidate. Finally, we assume that candidates do not know the distribution of the voters' ideal policy points, instead they have a common belief about this distribution.[4,5]

Voters are endowed with single peaked preferences on the policy space. They realize the relationship between the candidates' choices of ideologies and ambiguity levels and their eventual policies. Namely, from the voters' perspective, the eventual policies that the candidates will implement are perceived as random variables with means that are determined by candidates' ideologies and variances that are determined by the candidates' choices of ambiguity levels. We assume that voters maximize their expected utility and vote sincerely. In case of indifference, they vote randomly for either candidate.

We proceed to describe two variants of our model. In the next section, we analyze a very simple model where the number of possible ideologies and ambiguity levels is minimal, but the two equilibria described in the introduction still emerge. As a robustness check, in section 4 we analyze a more general case with a continuum of ideologies and levels of ambiguity that yields the same qualitative results.

3. A Discrete Model of Strategic Ambiguity

Suppose that a candidate can choose either a "*Leftist*", a "*Centrist*", or a "*Rightist*" ideology, and a level of ambiguity that is either high or low. Thus, the set of ideologies is given by $\mathrm{I} = \{L, C, R\}$ and the set of ambiguity levels is given by $\mathrm{A} = \{a_l, a_h\}$ where a_l indicates a low level of ambiguity and a_h indicates a high level of ambiguity. Suppose further that it is commonly believed that the most expedient policy to the winner of the election will be a leftist, a centrist, or a rightist policy with a probability q, $0 < q < 1/3$, respectively, and that with probability $1 - 3q > 0$ the winner of the election will find all policies to be equally expedient. An unambiguous candidate (who chose a level of ambiguity a_l) may only implement a policy that agrees with his ideology after he wins the election, while an ambiguous candidate (who chose a level of ambiguity a_h) may adopt any policy he wishes without being perceived as reneging on his campaign promises. We assume that in the case where the candidates find all the policies to be equally expedient, it is commonly believed that the candidates implement a policy that agrees with their stated ideology.

We assume that the candidates derive a direct utility $k > 0$ from winning the election as well as an additional unit of utility if, while in office, they succeed in implementing the most expedient policy. It follows that the (expected) utility that candidates derive from assuming office is $u(a_l) = k + 1 - 2q$ for an unambiguous candidate and $u(a_h) = k + 1$ for an ambiguous candidate. Note that, first, conditional on winning the election, the candidates prefer to be more ambiguous; second, as k increases, the significance of ambiguity to the candidates' payoffs decreases and the model "converges" to the usual Downsian model.

The voters in this model are assumed to belong to three main blocs: *Leftist*, *Centrist*, and *Rightist*. The preferences of the voters depend only on their ideological identification. We present the voters' preferences in the following table: (the alternatives are ranked in decreasing order from top to bottom),

Leftist	*Centrist*	*Rightist*
(L,a_l)	(C,a_l)	(R,a_l)
(L,a_h)	(C,a_h)	(R,a_h)
$(C,a_l)\,(C,a_h)$	$(L,a_h)\,(R,a_h)$	$(C,a_l)\,(C,a_h)$
(R,a_h)	$(L,a_l)\,(R,a_l)$	(L,a_h)
(R,a_l)		(L,a_l)

Voters recognize the fact that candidates are likely to adopt policies that agree with their ideology, but that ambiguous candidates are less likely to behave this way. They correctly assume that centrist candidates are equally likely to "drift" to either side of the policy space, while extremist candidates are more likely to drift to the center. Thus, a voter's decision rule is lexicographic: when comparing two candidates, a voter always prefers the one who is ideologically closer to her. Only if the ideologies of the candidates are identical, does the voter consider their ambiguity levels. The preference for ambiguity depends on the ideology of the voter, and, specifically, on whether she would like the candidate to "drift" from his stated ideology.[6,7]

Without loss of generality, we normalize the size of the population to be 1. We denote the size of the "*Leftist*" bloc by n_L, the size of the "*Centrist*" bloc by n_C, and the size of the "*Rightist*" bloc by n_R. Each bloc has a non-negative size and $n_L + n_C + n_R = 1$. Each voter knows her preferences (which are given by the bloc to which she belongs). This information, however, is unobservable to the candidates who do not know the exact sizes of the voters' blocs, but they have beliefs about them. Specifically, we assume that the candidates have an identical prior distribution defined over n_L, n_C, and n_R. The beliefs of the candidates can be described by a probability distribution over the two dimensional simplex as in figure 1.

- Figure 1 -

Each point in the figure corresponds to a different distribution of bloc sizes. The respective sizes of the leftist and rightist blocs are depicted by the axes, and the size of the centrist bloc corresponds to the distance of the point from the diagonal line connecting the points (0,1) and (1,0). Thus, for example, the probability that the leftist bloc forms a majority corresponds to the integral of the distribution function over the area denoted by δ, the probability that the rightist bloc forms a majority corresponds to the integral of the distribution function over the area denoted by α, and the probability that the number of leftist voters exceeds that of the rightist voters corresponds to the integral of the distribution function over the area denoted by $\gamma + \delta$.

As we demonstrate in the sequel, the information contained in the distribution can be summarized by the following two probabilities: the probability that the leftist bloc forms a majority, or $P\left(n_L > \frac{1}{2}\right)$; and the probability that the rightist block forms a majority, or, $P\left(n_R > \frac{1}{2}\right)$. We focus our attention on the case where the median voter, as perceived by the candidates, belongs to the centrist bloc of voters. That is, we assume that $0 \leq P\left(n_L > \frac{1}{2}\right), P\left(n_R > \frac{1}{2}\right) \leq \frac{1}{2}$.[8]

In a subgame perfect equilibrium, the candidates choose their ideologies in the first stage while taking into account the implications of their choices to the second stage game. In the second stage, they continue to play their equilibrium strategies, as foreseen in the first stage of the game. Our results depend on the relative importance of ambiguity as measured by *k*. We summarize the results in the following theorem.

THEOREM 1 *Suppose that* $k > 4q - 1$. *The electoral game described above possesses a (generically) unique subgame perfect equilibrium whose outcomes are as follows:*

(a) When k is large $\left(k > \frac{q}{\frac{1}{2} - P\left(n_L > \frac{1}{2}\right)} - 1,\ \frac{q}{\frac{1}{2} - P\left(n_R > \frac{1}{2}\right)} - 1\right)$, *both candidates choose a centrist ideology and a low level of ambiguity.*

(b) When k is not large and the leftist bloc is perceived as more likely to form a majority than the right bloc $\left(\frac{q}{\frac{1}{2} - P\left(n_L > \frac{1}{2}\right)} - 1 > k\right.$, *and* $\left.P\left(n_L > \frac{1}{2}\right) > P\left(n_R > \frac{1}{2}\right)\right)$, *one candidate chooses a leftist ideology, the other a centrist ideology, and both choose a high level of ambiguity.*

(c) When k is not large and the rightist bloc is perceived as more likely to form a majority than the left bloc $\left(\frac{q}{\frac{1}{2} - P\left(n_R > \frac{1}{2}\right)} - 1 > k\right.$, *and* $\left.P\left(n_R > \frac{1}{2}\right) > P\left(n_L > \frac{1}{2}\right)\right)$, *one candidate chooses a rightist ideology, the other a centrist ideology, and both choose a high level of ambiguity.*

Figure 2 depicts the ideologies chosen as equilibrium outcomes. On the borders between the different areas of the figure (that is, on the lines), the possible equilibrium outcomes are those of the bordering areas.

- Figure 2 -

When *k* is small ambiguity is important. In this case, not surprisingly, both candidates choose ambiguous platforms in equilibrium. Theorem 1 focuses on what we think is the more interesting case where *k* is not too small, namely $k > 4q - 1$.[9] In this case, there are only two kinds of pure strategy equilibria (up to renaming the candidates). In one of these equilibria, the two candidates choose the same ideology in the first stage of the game, and a low level of ambiguity in the second stage. This equilibrium exists when the candidates believe that it is very unlikely that the median voter belongs to either of the extreme blocs. Thus, a candidate that deviates from the Centrist ideology would sacrifice an important part of his payoff due to the decrease in the probability of winning the election.

When the candidates believe that there is a greater chance that the median voter belongs to one of the extreme blocs, it is profitable for one of the candidates to choose this ideology, even if it means sacrificing a little probability of winning, because he can compensate this loss with the gains derived from an ambiguous platform. Therefore, in the second kind of equilibrium, candidates choose different ideologies and a high level of ambiguity.

Notice that the equilibrium outcomes depend on the relationship between the candidates' assessments of the likelihood that the median voter belongs to a certain ideological bloc and k and q which determine the importance of ambiguity vis-à-vis the direct payoffs of assuming office. As the value of ambiguity decreases (either k is very high, or q is very low), the incentives of the candidates to choose different ideologies disappear. Thus, the results can be summarized as follows: when the value of ambiguity is high relative to the value of winning the election *per se*, in equilibrium candidates will choose different ideologies and ambiguous platforms, otherwise, they will choose the same ideology and low levels of ambiguity.

4. A Continuous Model of Strategic Ambiguity

In this section the set of ideologies is given by the real line, $\mathrm{I} = \mathbf{R}$, and the set of ambiguity levels is given by the non negative "half" of the real line, $\mathrm{A} = \mathbf{R}_+$. Candidates may choose any non negative level of ambiguity. The candidates' utilities from assuming office when their ambiguity level is a are given by $u(a) = k + a^2$. For simplicity sake, we incorporate the preference for ambiguity directly into candidates' utilities and do not illustrate how they can be rationalized through more basic considerations as in the previous section. This allows us to focus our attention more closely on the issue of ideological differentiation.

A voter with an ideal point v derives a utility $u_v(p) = -(p-v)^2$ when policy p is implemented. Voters interpret a candidate's choice of an ideology I and an ambiguity level a as inducing a distribution $\pi(I, a)$ over the candidate's implemented policy once in office that is uniform over the interval $[I-a, I+a]$.

Voters vote for the candidate that maximizes their expected utility. That is, a voter with an ideal point *v* votes for the candidate that maximizes her expected utility $U_v(I,a) = E_{\pi(I,a)}\left[u_v(p)\right] = -(I-v)^2 - \frac{a^2}{3}$. In case of indifference, she votes randomly.

Candidates are uncertain about the distribution of voters' ideal points. Specifically, we assume that the candidates believe that the ideal point of the median voter is uniformly distributed over the interval $[0,1]$.

We summarize the results in the following theorem.

THEOREM 2 *In the electoral game described above,*

(i) when $\frac{33}{16} < k$, $I_1 = I_2 = \frac{1}{2}$, *and* $a_1 = a_2 = 0$ *is the unique (up to renaming the names of the parties) subgame perfect equilibrium outcome.*

(ii) when $0 \le k < \frac{4}{3}$, $I_1 = -\frac{1}{4}$, $I_2 = \frac{5}{4}$, *and* $a_1 = a_2 = \frac{9}{2} - k$ *is the unique subgame perfect equilibrium outcome.*

(iii) when $\frac{4}{3} \le k \le \frac{33}{16}$, *the only pure strategy subgame perfect equilibrium outcomes are the equilibrium outcomes described in parts (i) and (ii).*

As in the previous section, the results depend on the importance of the level of ambiguity to the candidates as measured by *k*. When ambiguity does not play a major role in the candidates preferences (that is, when *k* is large), both candidates choose the median voter's ideology in the first stage of the game and strongly commit to it. When, on the other hand, the candidates value the flexibility in choosing their subsequent policy more (when *k* is small), the candidates choose different ideological positions in the first stage of the game in order to relax the ambiguity competition in the second stage.

Thus, the results obtained for this continuous model are similar to those obtained for the discrete model. However, note that while in the discrete model the equilibrium was (generically) uniquely determined by the parameters of the model, in the continuous model, two pure strategy equilibria coexist for intermediate values of *k*.

5. Conclusion

The main contribution of this paper is that it offers a plausible model of strategic ambiguity and that it suggests a new rationale for policy differentiation in electoral competition.[10]

Incorporating the choice of a level of ambiguity adds a new strategic dimension to the standard model of electoral competition. In other models of electoral competition, allowing the policy space to have two or more dimensions does not change the nature of the analysis qualitatively. (The existence of equilibrium may, however, become problematic.) Candidates always have an incentive to change their position in the direction of the median voter. By contrast, in this model the candidates may have different incentives. Namely, to differentiate themselves in the ideology space so that they can soften the competition in the ambiguity space. Thus, the candidates are able to adopt more pragmatic policies which they prefer. Hence, this model generalizes the result of Downs (1957) by showing that the median voter result, where both candidates choose the same ideological position, holds only as a special case. Yet, the spirit of the median voter result is retained. From the voters' perspective, ambiguity (or low commitment) blurs the ideological differences between the candidates. Highly ambiguous candidates that have chosen different ideologies during the campaign might end up choosing similar policies in case they win the election because they recognize that the same policies are the most advantageous ex-post.

Our results depend on the trade-off between the value of ambiguity and candidates' beliefs about the identity of median voter's preferred ideology. When ambiguity is valued and the uncertainty about the ideological preferences of the median voter is not too small, only equilibria where candidates differentiate themselves ideologically and adopt ambiguous platforms are shown to exist.

Finally, we emphasize that any model that shares the underlying features of our two models, namely, a two-stage game where the candidates share similar preferences for the outcome of the second stage of the game, and uncertainty about voters' preferences, will yield similar results: candidates may choose to differentiate themselves in the first stage of the game in order to relax the competition in the second stage of the game.[11] Further intuition can perhaps be gained by observing that the candidates are interested in relaxing the competition between them, but are driven by the pressure to win the voters' support to compete against each other. If the game has only a single stage, the competition between the candidates forces them to give up the surplus they could capture from being ambiguous. But, when the game has two stages, the fact that the candidates observe each other's choice of ideology creates a sort of commitment device that allows the candidate to relax the competition in the ambiguity dimension. Two points should be noted. First, when the candidates' ideologies are differentiated, a candidate can still command the votes of his supporters even if he is ambiguous because the other candidate, even if he is unambiguous, is worse from the supporters' perspective. Second, the ideological differentiation that is achieved in the first stage of the game and which allows the candidates to be ambiguous is sustained by the candidates' threats to retaliate by decreasing their second stage ambiguity against any attempt to choose a more "centrist" ideology. The candidates realize that by choosing an ideology that appeals more to the median voter, they will have to compete more strongly later in the ambiguity dimension. The differentiated equilibria described in this paper are sustained by the fact that the stronger competition in the ambiguity dimension is enough to dissipate any gains achieved by increasing the chances of winning the election.

The approach followed in this paper is to focus on one election and to assume that while the candidates can choose to be ambiguous, they cannot lie. This assumption can be endogenized by modeling repeated electoral competition. After winning the election, a candidate may realize that certain policies are more expedient than others and may choose to implement any policy he prefers, but voters are adversely impressed by a candidate who implements a policy that is very different from what the candidate had promised during the course of his campaign. They correctly perceive that the variance associated with such a candidate is higher and, everything else equal, will be less inclined to vote for such a candidate in the future. Therefore, a candidate who wishes to be flexible while in office but is interested in remaining in office for more than one period, would do better to adopt a vague platform than to adopt a specific platform and then implement a very different policy. Further elaboration of these ideas is left to future work.

Finally, the interpretation of the formal model presented here, namely of two dimensional electoral competition where one dimension is ideology and the other ambiguity, is not the only possible one. Another interpretation of the second dimension of electoral competition may be the strategic choice of the level of corruption, or catering to special interest groups. As in our model, both candidates can be thought of as sharing a common interest for higher personal corruption while voters prefer to vote for non corrupt candidates. Thus, when the benefit from corruption is sufficiently high, the candidates will differentiate themselves ideologically in the first stage of the game so that they will be able to relax the competition in the second stage of the game and be more corrupt. (Myerson, 1993, offers related analysis.)

Appendix: Proofs

PROOF OF THEOREM 1 We denote the second stage game induced by candidates' ideology choices by $G(I^1, I^2)$. We start by computing the equilibria of these second stage games. Symmetry considerations imply that we need to study only four different classes of second stage games:

(1) Where both candidates have chosen a centrist ideology in the first stage, or *G*(*C,C*).

(2) Where both candidates have chosen an identical ideological position in the first stage, but not the centrist one, *G*(*L,L*) or *G*(*R,R*).

(3) Where the candidates have chosen adjacent ideological positions in the first stage, *G*(*L,C*), *G*(*C,L*), *G*(*C,R*), or *G*(*R,C*).

(4) Where the candidates have chosen extreme ideological positions in the first stage of the game, *G*(*L,R*) or *G*(*R,L*).

First, consider the game *G*(*C,C*)**.** Notice that since leftist and rightist voters are indifferent to the results of the elections, the vote of the centrist voters determines the winner.

G(*C,C*)	a_l	a_h
a_l	$\frac{1}{2}(k+1-2q)$, $\frac{1}{2}(k+1-2q)$	$k+1-2q$, 0
a_h	0, $k+1-2q$	$\frac{1}{2}(k+1)$, $\frac{1}{2}(k+1)$

It is straightforward to verify that when $k > 4q-1$, (a_l, a_l) is the unique equilibrium of the game *G*(*C,C*).

In the game *G*(*L,C*) leftist voters vote for the leftist party and centrist and rightist voters vote for the centrist party.

$G(L,C)$	a_l	a_h
a_l	$P(n_L > ½)(k+1-2q)$; $\left(1-P(n_L > ½)\right)(k+1-2q)$	$P(n_L > ½)(k+1-2q)$; $\left(1-P(n_L > ½)\right)(k+1)$
a_h	$\left(1-P(n_L > ½)\right)(k+1)$; $\left(1-P(n_L > ½)\right)(k+1-2q)$	$P(n_L > ½)(k+1)$; $\left(1-P(n_L > ½)\right)(k+1)$

Strict dominance considerations imply that (a_h, a_h) is the unique equilibrium of this game as well as of the games $G(C,L)$, $G(C,R)$ and $G(R,C)$. In the game $G(L,L)$ the less ambiguous candidate gets the vote of the leftist bloc and the more ambiguous candidate gets the vote of the centrist and rightist voters. Therefore, again, strict dominance considerations imply that (a_h, a_h) is the unique equilibrium. Similarly, (a_h, a_h) is the unique equilibrium of the game $G(R,R)$ as well.

In the game $G(L,R)$ leftist voters vote for the leftist candidate, rightist voters vote for the rightist candidate, and centrist voters vote for the more ambiguous of the two candidates.

$G(L,R)$	a_l	a_h
a_l	$P(n_L > n_R)(k+1-2q)$; $P(n_R > n_L)(k+1-2q)$	$P(n_L > ½)(k+1-2q)$; $\left(1-P(n_L > ½)\right)(k+1)$
a_h	$\left(1-P(n_R > ½)\right)(k+1)$; $P(n_R > ½)(k+1-2q)$	$P(n_L > n_R)(k+1)$; $P(n_R > n_L)(k+1)$

It is straightforward to verify that (a_h, a_h) is the only equilibrium of $G(L,R)$. Analogously, it is also the only equilibrium of $G(R,L)$.

LEMMA *In a subgame perfect equilibrium, the candidates do not choose* (L,R), (R,L),(L,L), *or* (R,R) *in the first stage of the game.*

PROOF We show that the candidates do not choose (L,R) in the first stage of the game. Since (a_h,a_h) is the unique equilibrium played after the candidates choose (*L*,*C*) in the first stage of the game, by deviating and choosing *C*, the second candidate gets the vote of the centrist voters and so increases his probability of winning the elections from $P(n_R > n_L) = 1 - P(n_L > n_R)$ to $1 - P(n_L > ½)$ without changing his level of ambiguity. A similar argument shows that, in a subgame perfect equilibrium, the candidates do not choose (R,L) either. In much the same way, candidates do not choose (L,L) or (R,R) in a subgame perfect equilibrium. In a subgame perfect equilibrium, the fact that $0 \le P(n_L > ½), P(n_R > ½) \le ½$ implies that by deviating to the center a candidate increases his probability of winning without decreasing his level of ambiguity. ■

Thus, up to renaming the candidates, only (*C*,*C*), (*L*,*C*) and (*C*,*R*) can be chosen in the first stage of the electoral game in a subgame perfect equilibrium. To complete the proof of the theorem notice that when $k > \dfrac{q}{½ - P(n_L > ½)} - 1, \dfrac{q}{½ - P(n_R > ½)} - 1$, $(C,a_l;C,a_l)$, is the unique subgame perfect equilibrium outcome of the electoral game; when $\dfrac{q}{½ - P(n_L > ½)} - 1 > k$, and $P(n_L > ½) > P(n_R > ½)$, $(L,a_h;C,a_h)$ is the unique subgame perfect equilibrium outcome of the electoral game; and when $\dfrac{q}{½ - P(n_R > ½)} - 1 > k$, and $P(n_R > ½) > P(n_L > ½)$, $(C,a_h;R,a_h)$ is the unique subgame perfect equilibrium outcome of the electoral game. In case of equalities, all the equilibrium outcomes of the neighboring regions are possible.

QED

PROOF OF THEOREM 2 As in the proof of theorem 1, we compute the subgame perfect equilibria through backward induction. First, we compute the equilibrium levels of ambiguity as a function of the ideology choices of the first stage of the electoral game and then we compute the equilibrium's ideologies. In a subgame perfect equilibrium (SPE), if the candidates choose the same ideologies in the first stage of the game, all voters vote for the candidate that chooses a lower level of ambiguity in the second. Therefore, the only second stage SPE involves both candidates choosing zero ambiguity. Suppose then that $I_1 < I_2$. For $i \in \{1,2\}$, denote $\alpha_i \equiv a_i^2$. Thus, when the parties choose I_1, a_1 and I_2, a_2 the ideal point of the indifferent voter is

$$v^* \equiv \frac{I_1 + I_2}{2} + \frac{\alpha_2 - \alpha_1}{6(I_2 - I_1)}.$$

The probabilities with which the candidates win the election are,

$$P_1(I_1, a_1; I_2, a_2) = \begin{cases} 0 & v^* \le 0 \\ v^* & 0 \le v^* \le 1 \\ 1 & 1 \le v^* \end{cases}$$

$$P_2(I_1, a_1; I_2, a_2) = \begin{cases} 1 & v^* \le 0 \\ 1 - v^* & 0 \le v^* \le 1. \\ 0 & 1 \le v^* \end{cases}$$

Therefore, the candidates' respective utilities are,

$$U_1(I_1, a_1; I_2, a_2) = \begin{cases} 0 & v^* \le 0 \\ v^*(k + \alpha_1) & 0 \le v^* \le 1 \\ k + \alpha_1 & 1 \le v^* \end{cases}$$

$$U_2(I_1, a_1; I_2, a_2) = \begin{cases} k + \alpha_2 & v^* \le 0 \\ (1 - v^*)(k + \alpha_2) & 0 \le v^* \le 1 \\ 0 & 1 \le v^* \end{cases}$$

Notice that the utilities are either linear or quadratic in α. Thus, in the second stage of the game, when I_1, I_2 and α_2 are fixed, the optimal α_1 is,

$$\alpha_1^*(I_1, I_2, \alpha_2) = \max\left\{0, \frac{1}{2}\left(3(I_2^2 - I_1^2) - k + \alpha_2\right), 3(I_2^2 - I_1^2) - 6(I_2 - I_1) + \alpha_2\right\}.$$

When I_1, I_2 and α_1 are fixed, the optimal α_2 is,

$$\alpha_2^*(I_1, I_2, \alpha_1) = \max\left\{0, \frac{1}{2}\left(-3(I_2^2 - I_1^2) + 6(I_2 - I_1) - k + \alpha_1\right), -3(I_2^2 - I_1^2) + \alpha_1\right\}.$$

We represent the α_i^*'s as reaction functions. We distinguish between two cases (1) where $k \ge 6(I_2 - I_1)$, and (2) where $k \le 6(I_2 - I_1)$. When $k \ge 6(I_2 - I_1)$,

$$\alpha_1^*(I_1, I_2, \alpha_2) = \begin{cases} 0 & 0 \le \alpha_2 \le 6(I_2 - I_1) - 3(I_2^2 - I_1^2) \\ 3(I_2^2 - I_1^2) - 6(I_2 - I_1) + \alpha_2 & 6(I_2 - I_1) - 3(I_2^2 - I_1^2) \le \alpha_2 \end{cases}$$

$$\alpha_2^*(I_1, I_2, \alpha_1) = \begin{cases} 0 & 0 \le \alpha_1 \le 3(I_2^2 - I_1^2) \\ \alpha_1 - 3(I_2^2 - I_1^2) & 3(I_2^2 - I_1^2) \le \alpha_1 \end{cases}$$

and when $k \le 6(I_2 - I_1)$,

$$\alpha_1^*(I_1, I_2, \alpha_2) = \begin{cases} 0 & 0 \le \alpha_2 \le k - 3(I_2^2 - I_1^2) \\ \frac{1}{2}\left(3(I_2^2 - I_1^2) - k + \alpha_2\right) & k - 3(I_2^2 - I_1^2) \le \alpha_2 \le 12(I_2 - I_1) - 3(I_2^2 - I_1^2) - k \\ 3(I_2^2 - I_1^2) - 6(I_2 - I_1) + \alpha_2 & 12(I_2 - I_1) - 3(I_2^2 - I_1^2) - k \le \alpha_2 \end{cases}$$

$$\alpha_2^*(I_1, I_2, \alpha_1) = \begin{cases} 0 & 0 \le \alpha_1 \le 3(I_2^2 - I_1^2) - 6(I_2 - I_1) + k \\ \frac{1}{2}\left(6(I_2 - I_1) - 3(I_2^2 - I_1^2) - k + \alpha_1\right) & 3(I_2^2 - I_1^2) - 6(I_2 - I_1) + k \le \alpha_1 \le 3(I_2^2 - I_1^2) + 6(I_2 - I_1) - k \\ \alpha_1 - 3(I_2^2 - I_1^2) & 3(I_2^2 - I_1^2) + 6(I_2 - I_1) - k \le \alpha_1 \end{cases}$$

We continue by incorporating the second stage equilibrium levels of ambiguity into the candidates' utilities, and compute the candidates' utilities as functions of the ideologies alone. Notice that the α_i^*'s are continuous in I_1 and I_2 and therefore the candidates' utilities are continuous in I_1 and I_2.

We start by analyzing the simpler case, where $k \ge 6(I_2 - I_1)$. We distinguish three subcases. ***(i)*** Suppose that $0 < I_2 + I_1 < 2$. This implies that $0 < v^* < 1$, and therefore $\alpha_1^* = \alpha_2^* = 0$, $U_1 = \frac{I_1 + I_2}{2}k$ and $U_2 = \left(1 - \frac{I_1 + I_2}{2}\right)k$. ***(ii)*** Suppose that $I_2 + I_1 \le 0$. It follows that $v^* = 0$, $\alpha_1^* = 0$ and $\alpha_2^* = -3(I_2^2 - I_1^2)$. Consequently $U_1 = 0$ and $U_2 = k - 3(I_2^2 - I_1^2)$. Lastly, in case that ***(iii)*** $2 \le I_2 + I_1$. It follows that $v^* = 1$, $\alpha_1^* = 3(I_2^2 - I_1^2) - 6(I_2 - I_1)$ and $\alpha_2^* = 0$. Thus, $U_1 = k + 3(I_2^2 - I_1^2) - 6(I_2 - I_1)$ and $U_2 = 0$. In all the above cases, at least one of the candidates can always benefit by locating closer to the other candidate in the first stage of the game. Therefore, we conclude that no equilibrium exists in this range of ideology choices.

We now analyze the more complicated case where $k \le 6(I_2 - I_1)$. We distinguish six cases. The six cases correspond to the six possibilities of matching the slopes of α_1^* and α_2^* which are 0, ½ ,or 1. (Three of the nine possibilities of matching the slopes are impossible.) We number these cases **(1.1)**, **(1.2)**, **(2.1)**,

(1.3), **(3.1)**, and **(2.2)**. (**(1.3)**, for example, represents the region where α_1^* has slope 0 and α_2^* slope 1.) We represent the regions that correspond to these cases in the following figure.

- figure 3 -

As we show in the sequel, candidates' utilities in regions (*i*), (*ii*) and (*iii*) coincide with those of regions (1.1), (1.3) and (3.1) respectively.

We now show that except for region (2.2), all regions of ideology choices do not admit the existence of an equilibrium.

(1.1) When $\left\{\begin{matrix} 3\left(I_2^2 - I_1^2\right) - 6\left(I_2 - I_1\right) + k \geq 0 \\ k - 3\left(I_2^2 - I_1^2\right) \geq 0 \end{matrix}\right\}$, $\alpha_1^* = \alpha_2^* = 0$. It follows that $v^* = \frac{I_1 + I_2}{2}$. Since $k \leq 6\left(I_2 - I_1\right)$ it follows that $0 \leq v^* \leq 1$. Therefore, in this region $U_1 = \frac{I_1 + I_2}{2}k$ and $U_2 = \left(1 - \frac{I_1 + I_2}{2}\right)k$. Since both candidates can increase their utility by moving closer to the other candidate in the first stage of the game, no equilibrium exists for this range of ideology choices.

(1.3) When $\left\{3\left(I_2^2 - I_1^2\right) + 6\left(I_2 - I_1\right) - k \leq 0\right\}$, $\alpha_1^* = 0$ and $\alpha_2^* = -3\left(I_2^2 - I_1^2\right)$. It follows that $v^* = 0$. Therefore, in this region $U_1 = 0$ and $U_2 = k - 3\left(I_2^2 - I_1^2\right)$. Since candidate 1 can guarantee himself a positive utility by choosing candidate's 2 ideology in the first stage of the game, no equilibrium exists for this range of ideology choices.

(3.1) When $\left\{-3\left(I_2^2 - I_1^2\right) + 12\left(I_2 - I_1\right) - k \leq 0\right\}$, $\alpha_1^* = 3\left(I_2^2 - I_1^2\right) - 6\left(I_2 - I_1\right)$ and $\alpha_2^* = 0$. It follows that $v^* = 1$. Therefore, in this region $U_1 = 3\left(I_2^2 - I_1^2\right) - 6\left(I_2 - I_1\right) + k$ and $U_2 = 0$. Since candidate 2 can guarantee himself a positive utility by choosing candidate's 1 ideology in the first stage of the game, no equilibrium exists for this range of ideology choices.

(2.2) When $\left\{\begin{matrix} k - \left(I_2^2 - I_1^2\right) - 2\left(I_2 - I_1\right) \leq 0 \\ \left(I_2^2 - I_1^2\right) - 4\left(I_2 - I_1\right) + k \leq 0 \end{matrix}\right\}$, $\alpha_1^* = 2\left(I_2 - I_1\right) + \left(I_2^2 - I_1^2\right) - k$ and $\alpha_2^* = 4\left(I_2 - I_1\right) - \left(I_2^2 - I_1^2\right) - k$. It follows that $v^* = \frac{1}{3} + \frac{I_1 + I_2}{6}$. We claim that $0 \leq v^* \leq 1$. Notice that $v^* \geq 0 \Leftrightarrow I_1 + I_2 \geq -2$ and that $v^* \leq 1 \Leftrightarrow I_1 + I_2 \leq 4$ and that both inequalities hold. Therefore, in this region

$U_1 = \left(\frac{1}{3} + \frac{I_1 + I_2}{6}\right)\left(2\left(I_2 - I_1\right) + \left(I_2^2 - I_1^2\right)\right)$ and $U_2 = \left(\frac{2}{3} - \frac{I_1 + I_2}{6}\right)\left(4\left(I_2 - I_1\right) - \left(I_2^2 - I_1^2\right)\right)$. The only possible equilibrium in this region is $I_1^* = -1/4$, $I_2^* = 5/4$, and $\alpha_1^* = \alpha_2^* = 9/2 - k$ when $k \le 9/2$.

(2.1) When $\left\{\begin{matrix} k - 3\left(I_2^2 - I_1^2\right) \le 0 \le 12\left(I_2 - I_1\right) - 3\left(I_2^2 - I_1^2\right) - k \\ 0 \le \left(I_2^2 - I_1^2\right) - 4\left(I_2 - I_1\right) + k \end{matrix}\right\}$, $\alpha_1^* = \frac{1}{2}\left(3\left(I_2^2 - I_1^2\right) - k\right)$ and $\alpha_2^* = 0$. It follows that $v^* = \frac{I_1 + I_2}{4} + \frac{k}{12\left(I_2 - I_1\right)}$. We claim that $0 \le v^* \le 1$. Notice that $v^* \ge 0 \Leftrightarrow 3\left(I_2^2 - I_1^2\right) + k \ge 0$ that $v^* \le 1 \Leftrightarrow 12\left(I_2 - I_1\right) - 3\left(I_2^2 - I_1^2\right) + k \ge 0$. Therefore, in this region $U_1 = \left(\frac{I_1 + I_2}{4} + \frac{k}{12\left(I_2 - I_1\right)}\right)\frac{1}{2}\left(3\left(I_2^2 - I_1^2\right) + k\right)$ and $U_2 = \left(1 - \frac{I_1 + I_2}{4} - \frac{k}{12\left(I_2 - I_1\right)}\right)k$. We claim that no equilibrium exists for this range of ideology choices. In this region, $\frac{dU_2}{dI_2} = -\frac{k}{4} + \frac{k^2}{12\left(I_2 - I_1\right)^2}$ and therefore 2's best response to 1 is to set $I_2 = I_1 + \sqrt{\frac{k}{3}}$ whenever it is possible in this region and to set I_2 on the boundaries of the region when it is not possible. Since the utilities of the candidates are continuous in the ideologies, the analysis of the other regions shows that there can be no equilibrium on the boundaries of 2.1. Specifically, 2.1 borders with regions 1.1, 3.1, and 2.2. We already proved that no equilibrium exists in regions 1.1 and 3.1 including their boundaries and the only equilibrium that may exist in region 2.2 does not lie on its boundary with region 2.1. We now show that there can be no interior equilibrium in 2.1 either. In any interior equilibrium, 2 sets $I_2 = I_1 + \sqrt{\frac{k}{3}}$. 1's utility in this case is $\frac{1}{2}\left(\sqrt{3k}I_1^2 + 2kI_1 + \frac{k^2}{\sqrt{3k}}\right)$. This is a convex function and therefore cannot be maximized in the interior of 2.1.

(1.2) When $\left\{\begin{matrix} \left(I_2^2 - I_1^2\right) + 2\left(I_2 - I_1\right) - k \le 0 \\ 3\left(I_2^2 - I_1^2\right) - 6\left(I_2 - I_1\right) + k \le 0 \le 3\left(I_2^2 - I_1^2\right) + 6\left(I_2 - I_1\right) - k \end{matrix}\right\}$, $\alpha_1^* = 0$ and $\alpha_2^* = \frac{1}{2}\left(6\left(I_2 - I_1\right) - 3\left(I_2^2 - I_1^2\right) - k\right)$. It follows that $v^* = \frac{1}{2} + \frac{I_1 + I_2}{4} - \frac{k}{12\left(I_2 - I_1\right)}$. We claim that $0 \le v^* \le 1$. Notice that $v^* \ge 0 \Leftrightarrow 6\left(I_2 - I_1\right) + 3\left(I_2^2 - I_1^2\right) - k \ge 0$ and that

$v^* \le 1 \Leftrightarrow -3\left(I_2^2 - I_1^2\right) + 6\left(I_2 - I_1\right) + k \ge 0$. Therefore, in this region $U_1 = \left(\frac{1}{2} + \frac{I_1 + I_2}{4} - \frac{k}{12\left(I_2 - I_1\right)}\right)k$ and

$U_2 = \left(\frac{1}{2} - \frac{I_1 + I_2}{4} + \frac{k}{12\left(I_2 - I_1\right)}\right)\frac{1}{2}\left(6\left(I_2 - I_1\right) - 3\left(I_2^2 - I_1^2\right) + k\right)$. Symmetry arguments (to region 2.1) imply that no equilibrium exists in this range of ideology choices.

Thus, we have identified two candidate equilibria

(*i*) $I_1^* = I_2^* = \frac{1}{2}$ and $\alpha_1^* = \alpha_2^* = 0$. And,

(*ii*) $I_1^* = -\frac{1}{4}$, $I_2^* = \frac{5}{4}$, and $\alpha_1^* = \alpha_2^* = \frac{9}{2} - k$.

We claim that (*i*) holds as SPE for any $k \ge \frac{4}{3}$ and that (*ii*) holds as SPE for any $k \le \frac{33}{16}$. To verify the first claim notice that when $I_1^* = I_2^* = \frac{1}{2}$ and $\alpha_1^* = \alpha_2^* = 0$ the candidates will benefit mostly from deviating into region 2.2. Symmetry considerations imply that it is sufficient to check the equilibrium against a deviation of one candidate only. Candidate 1 will benefit mostly by deviating into region 2.2 and choosing $I_1 = -\frac{1}{2}$ which will give him a utility of $\frac{2}{3}$, hence the bound $k \ge \frac{4}{3}$. (It is straightforward to verify that 1 will not deviate into region 1.1 where he would rather locate as close as possible to candidate 2, to region 1.3 where he gets a utility of 0, nor to region 1.2 where his maximal utility is $\left(\frac{1}{2} - \frac{k}{12}\right)k \le \frac{k}{2}$. Similarly, 2 will not deviate to regions 1.1, 3.1 and 2.1, and therefore by applying symmetry again we conclude that 1 will not deviate and choose $I_1 > I_2$ either.) To verify the second claim notice that when $I_1^* = -\frac{1}{4}$, $I_2^* = \frac{5}{4}$, and $\alpha_1^* = \alpha_2^* = \frac{9}{2} - k$, candidate 1 will benefit mostly by deviating into region 3.1 where his utility is $U_1 = k + 3\left(I_2^2 - I_1^2\right) - 6\left(I_2 - I_1\right)$. Analogously, candidate 2 will benefit mostly by deviating into region 1.3 where his utility is $U_2 = k - 3\left(I_2^2 - I_1^2\right)$. As before, it is sufficient to verify that the equilibrium is immune to a deviation of one candidate. The highest utility that candidate 1 can achieve in region 3.1 is obtained when $I_1 = 1$ and equals $k + \frac{3}{16}$ while at equilibrium 1's utility equals $\frac{9}{4}$. Hence the bound $k \le \frac{33}{16}$. (It is straightforward to verify that 1 will not deviate into region 1.2 where he is forced to choose a zero level of ambiguity, nor to region 1.3 where he gets a utility of 0. Similarly, it is easy to see that 1 will not deviate and choose $I_1 > I_2$. It is more difficult to see that deviating into region 3.1 is preferable to deviating into region 2.1, but intuitively, 1 is better off in 3.1 than in 2.1.) This completes the proof of the theorem.

QED

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Endnotes

1. This motivation for the preference for ambiguity is not unlike the motivation for the "Preference for Flexibility" as discussed by Koopmans (1964) and Kreps (1979). (More on this below.)

2. Austin-Smith (1983), for example, remarked that "vagueness and imprecision in policy specification by candidates is commonplace: the issue for spatial theory is to explain why this can be a rational strategy. Unfortunately, the few results obtained are for the most part only suggestive."

3. A possible objection to the "rationalization" of preference for ambiguity above is that a policy that is most expedient for the winning candidate will also be favored by his constituents so that it is in their interest to allow the winner of the election to choose the most expedient policy. While there could certainly be instances in which this is the case, this need not always be so. The policy that is most expedient to the president may be the result of his "office preferences" rather than his ideological promises. For example, the liberals who supported President Clinton because he promised he would let gays openly serve in the military attacked him later, after it became clear that he will not break down the military establishment's opposition, for putting his office preferences before his policy preferences and for not fulfilling his (ambiguous) promises.

4. Alternatively, we could assume that candidates know the exact distribution of the voters' ideal points, but voter turnout is random.

5. If the candidates knew the preferences of the median voter, the choice of ideologies would be trivial: both candidates would have chosen the median voter's most preferred ideology and the competition of the second stage would have led both candidates to choose unambiguous platforms.

6. It is readily observed that voters' preferences can be justified on grounds of stochastic dominance. Namely, a leftist voter prefers an unambiguous leftist candidate to a more ambiguous leftist candidate because the probability that the latter will implement a centrist or rightist policy is higher. Similarly, an ambiguous leftist candidate is preferred to a centrist candidate and so on.

7. Similar results obtain when voters' preferences are such that between two candidates who chose the same ideology, voters always prefer the candidate with a lower level of ambiguity. We believe, however, that the preferences described above are more natural.

8. Relaxing this assumption yields "less interesting" equilibria where both candidates choose a leftist or rightist ideology according to the location of the median voter.

9. If $k < 4q - 1$ additional equilibria where both candidates choose the same ideology and a high level of ambiguity exist as well. We find these equilibria – as well as the assumption that the level of ambiguity is very important to the candidates (namely, $k < 4q - 1$) – somewhat less interesting.

10. Existing literature offers three possible explanations to policy and ideological differentiation: the first is based on probabilistic voting (see e.g., Hinich, 1977), the second assumes that parties have different policy preferences (see e.g., Wittman, 1983), and the third is based on sequential entry (Palfrey, 1984).

11. The fact that similar results about first-stage differentiation as a means of relaxing second-stage competition obtain in industrial organization literature lends additional support to the robustness of our results. Specifically, D'Aspremont, Gabszewicz, and Thisse (1979) present a variation of Hotelling's (1929) classic model, where two sellers choose locations on a line of finite length, and then compete in prices. In this model, D'Aspremont et. al. derive the "principle of maximal differentiation." Namely, in the unique equilibrium of the game, the sellers locate as far from one another as possible in the first stage of the game in order to soften the price competition in the second stage of the game.