Journal of Theoretical Politics, 4 (1992), 31-52

The Multilingual Election Problem

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ABSTRACT

Multilingual elections may democratically enfranchise linguistic minorities, or may promote extremist, uncompromising, clientelistic, inefficient politics. One theoretical approach to this question extends existing spatial models of elections, allowing candidates to state different positions in different languages and assuming that language barriers give voters incomplete information about the positions stated in their non-native languages. In a simple model of multilingual campaigning, candidates under some conditions can state different positions in different languages so that every voter aggregates the positions into a perception coinciding exactly with the voter's own position. To do this, candidates must choose positions more extreme than the positions of the respective audiences. As groups gain multilingual fluency, candidate extremism further increases. Extremism is vote-maximizing unless voters sufficiently penalize inconsistency. When inconsistency is important enough, candidates consistently take the position of the larger group in 2-group elections, and of the ideologically central group in 3-group elections.

KEY WORDS • candidate ambiguity • elections • incomplete information • language minorities • spatial theory

Introduction

Although ‘free and fair elections’ are now widely regarded as an acid test of democracy, the conditions that make an election free and fair are controversial. There are arguments for and against various methods of election-timing, voter qualification, vote-counting, districting, campaign-financing, campaign-advertising, and candidate-debating, for example.

One of the conditions that may affect the freedom and fairness of elections is the language or languages in which they are conducted. If they are conducted entirely in a single language and voters are required to know it in order to understand campaign messages or cast votes, then voters who do not know that language are disenfranchised. The extent of the disenfranchised segment would vary among polities, but every jurisdiction has linguistic minorities, so the problem is world-wide. The United States Congress found in 1975 ‘that, through the use of various practices and procedures, citizens of language minorities have been effectively excluded from participation in the electoral process’ (42 U.S.C. 1973aa-1a(a)). Multilingually conducted elections, while possibly remedying this exclusion, may cause voters to be broken into mutually isolated segments that are influenced by abusive campaigning and controlled by bilingual intermediaries.

More specifically, some reasons for believing that the use of multiple languages makes elections free and fair are these:

- *Since the United Nations Charter in 1945, it has been a world norm that fundamental rights, including the right to vote, must be respected ‘without distinction as to … language’ (Brownlie, 1981: 5).*
- *Voters knowing different languages tend to differ in ethnicity, region, economic status, religion, and policy preferences (Dahl, 1966: 368), so the voters in a multilingual election are more representative of the electorate and more capable of arriving at reasonable policy compromises (Das Gupta, 1970) than voters in unilingual elections.*
- *Human languages are fundamentally equal as instruments of thought and communication (Lyons, 1970: 10). Thus, no person's language renders that person an intrinsically incompetent voter.*
- *Multilingual elections help preserve linguistic, and hence conceptual and cognitive, diversity. Such diversity, in turn, helps people understand that political truth is relative and that different beliefs deserve tolerance.*

And some reasons against this belief (see Sonntag and Pool, 1987) are these:

- *An election is a deliberation. For its success, all its participants must be able to intercommunicate, so a common language must be used (cf. Hertzler, 1966: 175; Malinowski, 1960: 165).*
- *Multilingual elections concentrate power in bilingual intermediaries, who become patrons or power brokers, making deals to deliver votes.*
- *In multilingual elections, each group deliberates in isolation, causing the issues and arguments to diverge and inhibiting compromise.*
- *People tend to believe unrebutted accusations. Multilingual elections give candidates an incentive to incite language groups against one another (e.g. Rabushka and Shepsle, 1972), since rebuttals are inhibited by language barriers.*

- *Multilingual elections reward deceptive campaigning. Candidates can tell each group what it wants to hear, with inconsistencies remaining little known.*
- *Publishing electoral information and ballots and making voting assistance available in multiple languages is expensive, inducing governments to conduct fewer elections or finance them less adequately.*

One theoretical approach to this issue is to generalize models of unilingual elections, permitting voters to be members of various language groups. Such extensions may lead to results different from those of the original models, and if so then we have an account of a possible effect of the multilingual character of an election. Conversely, any failure of such extensions to produce different results is a theoretical claim that multilingual elections do not differ from unilingual ones.

The simplest classic model of the (tacitly unilingual) election, set forth originally in works of Hotelling, Downs and Black, assumes that voters have preferences about, and candidates state positions on, only 1 issue, which can be interpreted as a left–right scale. Voters' preferences are defined by ideal points, and positions on either side of a voter's ideal point are preferred by that voter in the order of their proximity to the voter's ideal point. Each candidate's position is defined by a point. Each voter votes sincerely, namely for the candidate whose position that voter prefers most (resolving ties randomly). An equilibrium is a situation in which each candidate's position maximizes that candidate's votes, given the positions of the other candidates.

The best-known result following from the assumptions of this classic model is that a candidate whose stated position coincides with a median of the voters' ideal points always gets at least as many votes as any other candidate in a 2-candidate election, so when there are 2 candidates there is always at least 1 equilibrium, and in every equilibrium both candidates state a position coinciding with a median of the voters' ideal points (Enelow and Hinich, 1984: 12; Ledyard, 1989: 10). In other words, candidates' positions converge to a point where the same number of voters are to the left of the position as are to its right.

The classic model's assumptions fit situations in which all voters know the candidates' positions and all candidates know the preferences of the voters, but in a multilingual election it is reasonable to assume that language barriers impede the transmission of information. A model of a multilingual election might therefore depart from the classic assumption of complete information.

Multilingual elections typically exhibit particular patterns of incomplete information, and it is reasonable to incorporate these patterns into models of such elections. Candidates typically have a great enough stake in the outcome of elections to overcome language barriers at little cost relative to their budgets, while voters' incentives to overcome language barriers are dubious. Thus, a model of **candidate** uncertainty about voters' ideal points, such as that of Ledyard (1989), seems inappropriate to represent the peculiar feature of a multilingual election. This reasoning leads us to models with **voter** uncertainty about candidates' stated positions, but not all such models are appropriate either. Such models assume that voters have beliefs about the probabilities of candidates having particular positions. In a multilingual election it would be reasonable to assume that the variation of these beliefs depends on the languages that voters know. Thus, the models of Bernhardt and Ingberman (1985), Enelow and Hinich (1984: 123), Glazer (1990) and Rabushka and Shepsle (1972: 53–5), which assume that probability beliefs are identical for all voters, omit what seems to be an essential aspect of multilingual elections.

In the following model I assume that the peculiar characteristic of a multilingual election is the partial mutual isolation of groups of voters. The difficulty that groups have in understanding one another's languages allows candidates to state different positions in different languages, knowing that to some extent the audience of any message will be confined to those voters who have the language of that message as their native language. Through this highly simplified model, I examine the logic of the claim that a multilingual election induces candidates to take extreme positions, telling each language group what it wants to hear.

As a byproduct of the high level of abstraction practiced here, we may obtain insight into isomorphisms between languages and other political cleavages. It may be, for example, that the characterization I have given to electoral campaigns amidst linguistically segmented electorates applies also to political (and not only electoral) competition for the support of constituencies segmented into groups by race, sex, age, occupation, location, and other barriers to information (cf. Lang, 1986).

Model

ASSUMPTION 1. *The* political spectrum *is a continuum of possible* positions.

Motivation: Although many political issues exist, they are often interpreted as belonging to a few dimensions or just one (left–right) dimension. Adopting this latter view, I model a simplified polity in which anyone's position on any issue can be predicted from that person's position on a single political spectrum.

ASSUMPTION 2. *A finite set of* languages *exists. The* electorate *is a continuum partitioned into compact* groups. *Each group has a language, a positive* size *and a position on the political spectrum. The* size *of any language is the sum of the sizes of the groups that have that language. Every language's size is positive.*

Motivation: This assumption allows us to represent various combinations of linguistic and ideological cleavages. For example, a linguistically polarized polity can be modeled as one with two groups, each having a different language and a different position. A linguistically homogeneous and consensual polity can be modeled as one with one group. A polity in which language has low political salience can be modeled as having several groups per language. For analytical simplicity, I assume each individual is an infinitesimal fraction of the electorate.

ASSUMPTION 3. *There are at least 2* candidates. *Each candidate* signals *1 position in each language. A signaled position is a* signal. *A* strategy *is a set of signals, 1 signal in each language.*

Motivation: This assumption focuses the model on the special opportunity for inconsistency that language barriers may offer to candidates: the opportunity to signal different positions in different languages. I am choosing to exclude some other kinds of manipulative behavior, such as multiple positions in the same language, vague positions, abstention from positions, and distortions of candidates' positions by other candidates.

ASSUMPTION 4. *Each group has a* fluency *in each language. The fluency of each group in its language is 1. The fluency of each group in each other language is greater than 0 and less than 1.*

Motivation: By assuming a group is perfectly fluent in its own language, I am modeling a society in which each person has one native language and is assigned to a group on the basis of that native language. Competence in nonnative languages is allowed by this assumption, subject to a moderate constraint. Groups with the same language may differ in their fluencies in other languages if they have different positions on the political spectrum, because they are then different 'groups'. Since different fluency repertoires seem to arise partly from different social circumstances (e.g. different levels of education and wealth), it is reasonable to imagine that those who share both a primary language and a political position would tend to share levels of fluency in other languages.

The theoretical term 'fluency' in this model has various possible uses. It might be taken as an expression of all forces that affect a group's reception of information in other languages (and, as indicated above, 'languages' may in turn be taken to describe not only linguistic information barriers). Thus, if the press that serves some group translates much material from other languages, the group that is so served may be interpreted as being fluent in those languages. To model a unilingual but semi-literate polity, we could interpret the oral and written codes as distinct languages and postulate that literate groups are highly fluent in the oral language but not vice versa.

ASSUMPTION 5. *The* apparent position *of a candidate for a group is the weighted mean of the candidate's signals, the weights being the group's fluencies in the signals' languages.*

Motivation: When a candidate signals a position in a language, what does this signal do to the candidate's apparent position for a group? Various plausible assumptions might be made. One would be that voters disbelieve all signals, so apparent candidate positions are independent of their signals. If it is assumed that voters believe signals, one possibility is that partial fluency leads to misunderstandings of a signal. Or the impact of a signal might vary with the size of its language, since signals in larger languages might have larger initial audiences and through their transmission become more widely diffused in the electorate. Alternatively, signals might be announced publicly with the whole electorate as their audience; any misunderstandings might be random and thus unbiased, but the impact of the signal might be diminished if one must perceive it in a poorly known language or rely on a translator. Adopting this idea, I assume here that signals are correctly understood but that each signal is perceived (or taken into account) in proportion to one's fluency in its language.

ASSUMPTION 6. *The* apparent inconsistency *of a candidate for a group is the weighted mean of the absolute values of all pairwise differences between the candidate's signals, the weights being the products of the group's fluencies in the signals' languages.*

Motivation: While obtaining an impression of a candidate's position, voters may also obtain an impression of how inconsistent the candidate's signals are. One might imagine voters constructing inconsistency estimates in various plausible ways. A moralistic voter might perceive only two possible amounts of inconsistency: none and any. Rabushka and Shepsle (1972) argue that voters approximate such an extreme in what they call 'plural' (ethnically polarized) societies. A tolerant voter might ignore small deviations from perfect consistency. My assumption here is that voters perceive inconsistency proportionately to inter-signal differences, but are biased by fluency. High fluency is assumed to increase the weight of any inter-signal difference.

ASSUMPTION 7. *Inconsistency has some nonnegative* importance *identical for all groups.*

Motivation: In this model I avoid the complexity of groups that differ in the importance attached to candidate inconsistency. In a more general model each group, or even each voter (as in Bernhardt and Ingberman, 1985), might be allowed to attribute a different importance to candidate inconsistency.

ASSUMPTION 8. *Each group's* resistance *to each candidate is the sum of two quantities: (1) the absolute value of the difference between the group's position and the apparent position of the candidate for the group; (2) the apparent inconsistency of the candidate for the group, multiplied by the importance of inconsistency.*

Motivation: I allow voters to penalize candidates for both deviation from the voters' own positions and inconsistency. The relative (nonnegative) weights of these considerations can vary without limit, but are assumed to be identical for all groups.

Thus, I assume if you are a candidate a group evaluates you by asking 2 questions. (1) How far do we think you are from our position? (2) How inconsistent do we think you are? After weighting your apparent inconsistency by the importance of inconsistency, the group adds the 2 quantities. The greater the sum, the worse you are, from the group's perspective. Obviously, this model ignores most of the real influences on the evaluation of candidates, including candidates' records and group affiliations.

ASSUMPTION 9. *Each group's* favorite *candidates are those candidates to whom the group's resistance is the minimum of its resistances to all candidates. Each group gives* support *to candidates. The total support given by each group is equal to the group's size. Each group divides its total support equally among its favorite candidates and gives no support to any other candidate.*

Motivation: Voters in this model are mechanistic and sincere rather than strategic actors. Thus, they can't conspire. I assume a group gives no support to a candidate if it finds any other candidate more attractive. The support a group can give is assumed proportional to its size, reflecting a presumed democratic distribution of voting rights.

ASSUMPTION 10. *A candidate's strategy is* optimal *if it maximizes the candidate's total support, given the other candidates' strategies. An* outcome *is a combination of strategies, 1 strategy for each candidate. An outcome is* stable *if all its strategies are optimal.*

Motivation: Candidates are assumed to be motivated to maximize their own total support. While in a purely electoral model one might argue that candidates should care only whether they win or lose and not by how much they win or lose, assumption 10 seems plausible for actual electoral systems, where additional votes short of victory or beyond victory help with policy influence, campaign-financing, self-image, and other apparent goals of politicians. This model does not attempt to integrate multiple motives such as support and substantive policy goals. Thus, I assume candidates have no true positions on the political spectrum.

I also ignore the problem of signal-timing in this model. My idea is that candidates have continuing opportunities to revise signals, so an outcome is realistically stable only when all signals are in equilibrium and therefore no candidate can get more total support by revising any signal(s).

Results, Proofs and Discussion

In an election fitting the above assumptions, what positions will the candidates signal? Given the partial fluency of the groups in one another's languages, will candidates signal compromise positions? Will their signals become even more moderate as fluency levels increase and as voters attach more importance to candidate consistency? I present Results 1–7, followed in each case by proofs and discussions.

To derive my initial results, I consider an electorate in which the number of groups equals the number of languages. In other words, those who share a language also share a position on the political spectrum, as well as a set of fluencies in the other languages. Since positions are perfectly predictable from languages, I call such an electorate a *lingual* electorate. Within this category, I consider electorates in which all groups are equally fluent in all languages other than their own, and I call these *uniformly fluent* electorates. For such electorates, I ask whether a candidate can give a set of signals that makes the candidate's apparent position for each group identical to the group's own position. A candidate who achieves such perfect correspondence between apparent positions and group positions is called a *chameleon candidate*, and a strategy that produces such correspondence is called a *chameleon strategy*.

RESULT 1. *When the electorate is uniformly fluent and lingual, a unique chameleon strategy always exists.*

Proof. In a lingual electorate we can number the groups and languages correspondingly from 1 to n and call any arbitrary group or language i. I prove Result 1 for an arbitrary candidate, using the following terms:

- f the fluency of each group in each language other than its own;
- g_i the position of group i;
- c_i the position signaled by the candidate in language i;
- p_i the apparent position of the candidate for group i.

For any chameleon candidate, by definition,

$$p_i = g_i \text{ for } i = 1, 2, \ldots, n \tag{1}$$

According to assumption 5, any candidate's apparent position for group i is the candidate's fluency-weighted mean signal, namely

$$p_i = \frac{c_i + f\sum_{j \neq i} c_j}{1 + (n-1)f} = \frac{(1-f)c_i + f\sum_{j=1}^{n} c_j}{1 - f + nf} \tag{2}$$

It follows that

$$\sum_{j=1}^{n} g_j = \sum_{j=1}^{n} p_j = \frac{(1-f)\sum_{j=1}^{n} c_j + nf\sum_{j=1}^{n} c_j}{1 - f + nf} = \frac{(1-f+nf)\sum_{j=1}^{n} c_j}{1 - f + nf} = \sum_{j=1}^{n} c_j \tag{3}$$

This leads to

$$g_i = p_i = \frac{(1-f)c_i + f\sum_{j=1}^{n} g_j}{1 - f + nf} \tag{4}$$

and

$$c_i = \frac{(1-f+nf)g_i - f\sum_{j=1}^{n} g_j}{1 - f} \tag{5}$$

The strategy defined by equation 5 is always defined, because Assumption 4 says $0 < f < 1$, and thus $1 - f \neq 0$. Equation 5 thus gives the set of signals that a chameleon strategy must consist of, and it is always possible to adopt that strategy. A candidate can always have an apparent position for each group i equal to the group's position g_i.

Discussion. Under some conditions, chameleon strategies exist. When the electorate is uniformly fluent and lingual, it is always possible to be a chameleon candidate. One need not choose which groups to appear close to; one can make each group perceive one's position as identical to the group's own position.

It is not only with uniformly fluent lingual electorates that chameleon strategies exist. But with other electorates they do not always exist. In general, the candidate's problem with a lingual electorate is to solve a system of n simultaneous linear equations (1 for each group) with n unknowns (the n signals). With uniform fluency a solution always exists, but there are sets of non-uniform fluencies that render the equations inconsistent and thus devoid of a solution. When the electorate is not lingual, there are fewer languages than groups and the problem becomes a system of n equations with fewer than n unknowns. No solution exists for such a system except with special sets of fluencies.

I now examine the relationship between the signals in the chameleon strategy and the positions of the groups. For this purpose I call the group in whose language a position is signaled the signal's *primary target*.

RESULT 2. *When the electorate is uniformly fluent and lingual, each signal in the chameleon strategy deviates from the mean of all groups' positions in the same direction as, and to a greater extent than, does the position of the signal's primary target.*

Proof. The signals in the chameleon strategy given by equation 5 can be restated as follows:

$$c_i = g_i + \left(ng_i - \sum_{j=1}^{n} g_j\right)\frac{f}{1-f} = g_i + \left(g_i - \frac{\sum_{j=1}^{n} g_j}{n}\right)\frac{nf}{1-f} \tag{6}$$

Equation 6 says that each signal deviates from the position of the primary target by a constant positive multiple ($nf/1 - f$) of the latter's deviation from the mean of all the groups' positions. This implies Result 2.

Discussion. Result 2 tells us that when the electorate is uniformly fluent and lingual a chameleon candidate must signal a set of positions each *more extreme* than the position held by its primary target. Only when a group's position coincides with the mean of all groups' positions can a chameleon candidate's signal match the group's position. A chameleon candidate can never give a signal more moderate (closer to the groups' mean) than the position of the signal's primary target.

For an example, consider an electorate with 4 groups whose fluencies in one another's languages are uniformly 0.5 and whose positions on the political spectrum are 120, 140, 160 and 220, respectively. The groups' mean position is 160. Equation 6 implies that a chameleon candidate must signal a position in each language that is 4 times as far from the primary target's position as that position is from the mean of all groups' positions—and in the same direction. Thus, the 4 signals must be –40, 60, 160 and 460, respectively.

When the electorate is not uniformly fluent and a chameleon strategy exists, it may or may not exhibit the pattern described in Result 2. For example, if we merely change group 1's fluency in language 4 from 0.5 to 0.1 and leave everything else the same, the chameleon strategy changes to (rounded to the nearest integer) 148, 13, 113, and 413, thus moderating rather than exaggerating group 1's deviation and deviating from the nondeviant position of group 3.

To appreciate the reason for Result 2, imagine what would happen if a candidate simply told each group ‘My position is your position’. The group would weigh this signal together with the same candidate's other signals in perceiving the candidate's apparent position. For a group with a position above the groups' mean, the other signals would, on average, lower the candidate's apparent position. To counteract that effect, the candidate would have to give the group a higher signal, saying ‘My position is higher than your position’. The converse would be the case for a group with a below-average position.

Suppose, for example, that this year's election issue is birth control, and the speakers of language 1 are much more favorable toward restricting birth control than are the speakers of language 2. If a candidate wants to be perceived by both groups as perfectly aligned with their own positions, it will not suffice to mimic the position of each group when communicating in its language. Being partly fluent in the other language, each group will perceive some of the candidate's signal to the other group, and the candidate's apparent (weighted-mean) position will then be more moderate than the group's own position. By telling each group 'I am more extreme than you are', the candidate can counterbalance the effect of each group being partly aware of the position signaled in the other language.

RESULT 3. *The deviation of any signal by any chameleon candidate from the position of the corresponding group in any uniformly fluent and lingual electorate increases with the fluency of the groups in their other languages.*

Proof. Equation 6 shows that any signal by any chameleon candidate in language i deviates from the position of group i in any uniformly fluent and lingual electorate by the difference between that position and the mean position of all groups, multiplied by $nf/1 - f$. The deviation varies directly with this fraction, and this fraction varies directly with f, so the deviation varies directly with f.

Discussion. Although it might seem that increased fluency would promote mutual understanding and compromise, under the assumptions of this model increased fluency does not promote moderation by candidates who choose to appear sympathetic to all groups. Instead, as fluency increases chameleon candidates become more extreme.

In the above example, suppose fluency rises from 0.5 to 0.6. We find that a chameleon candidate's signals must deviate from the corresponding groups' positions not 4 times as much, but now 6 times as much, as those positions deviate from the mean of all groups' positions. If fluency falls from 0.5 to 0.2, the multiple falls from 4 to 1, making a chameleon candidate exactly double each group's extremity.

Why does increased intergroup fluency contribute to chameleon candidate extremism? Candidates become less able to conceal their signals in one language from other language groups. Since these signals are more vividly perceived outside their primary target than before, it takes more effort to counteract them. In this model, the effort consists of heightened extremism signaled in each language.

The foregoing results about chameleon strategies will be useful in establishing some features of stable outcomes. I shall limit myself here to 2-candidate situations, and I begin with a feature of all stable outcomes in these situations.

RESULT 4. *When the number of candidates is 2, in every stable outcome each candidate's total support is equal.*

Proof. Suppose in some outcome the 2 candidates have unequal amounts of total support. The candidate with less total support can then adopt the other candidate's strategy. That will cause the candidates to experience identical sets of group resistances and thus obtain equal amounts of total support. Since the sum of the candidates' total support is constant, this change will increase the total support of the candidate whose strategy changes, implying that the original outcome is not stable.

Discussion. Result 4 simplifies the search for stable outcomes in 2-candidate elections. Any candidate whose total support is less than the other candidate's can simply duplicate the other candidate's strategy and share the available total support equally with the other candidate. A stable outcome, then, must be one in which the candidates are equal in total support.

Not every outcome that gives both candidates equal amounts of total support is stable, however. It is stable only if each candidate's strategy is optimal. If either candidate's strategy is not optimal, then that candidate can adopt some other strategy that increases that candidate's total support.

Therefore, if any strategy exists that gives its adopter more total support than the other candidate gets when the latter adopts some strategy, then the latter strategy cannot be present in a stable outcome. To put this implication more formally, suppose we want to know whether any stable outcome can include some strategy C. If we can show that some other strategy C' exists which, when used against C, gives its adopter more total support than the candidate who adopts C, then no outcome that includes C can be stable.

RESULT 5. *When the number of candidates is 2, the electorate is uniformly fluent and lingual, and inconsistency has no importance, exactly 1 stable outcome exists. In it, each candidate is a chameleon candidate.*

Proof. By Result 2, under these conditions a unique chameleon strategy exists. Its adoption by both candidates defines a unique outcome. In it, each group's resistance to each candidate is 0 (and thus the candidates are equal in total support). Any change in strategy by either candidate would increase at least 1 group's, and not decrease any group's, resistance to that candidate, thereby decreasing that candidate's total support. Therefore, the outcome is stable.

Any other outcome is unstable, by Result 4, if in it the candidates are unequal in total support. By the reasoning in the previous paragraph, equal total support is impossible if 1 candidate adopts the chameleon strategy and the other does not. Thus, in any other stable outcome both candidates are non-chameleon candidates. Suppose, after such an outcome, some candidate changes to the chameleon strategy. By the reasoning in the previous paragraph, that candidate's total support increases. Therefore, the original outcome is not stable. This deduction, combined with that of the previous paragraph, implies Result 5.

Discussion. Result 5 formalizes a common-sense conclusion. When voters do not penalize candidate inconsistency and it is possible for candidates to 'be all things to all people'—namely, to make their apparent position for each group identical to the group's position—we can predict that this is what candidates will do.

The question then arises, what happens when the voters **do** penalize candidate inconsistency? I begin by considering the 2-group case.

RESULT 6. *When the number of candidates is 2, the number of groups is 2, the groups' sizes are unequal, the electorate is uniformly fluent and lingual and inconsistency has positive importance, then exactly 1 stable outcome exists. In it, all signals are equal to the larger group's position.*

Proof. With 2 groups, we lose no generality by arbitrarily ordering the groups on the political spectrum, scaling the spectrum and scaling the measure of group size. For convenience, then, I number the larger group 1 and the smaller group 2, scale the political spectrum so each group's position is equal to the group's number and measure the sizes of the groups so as to make the size of the electorate 1. I use 3 more terms:

s_i the size of group i;

k the importance of inconsistency;

c_{ui} the signal of candidate u in language i.

Result 6 applies when $k > 0$. Suppose in that case each candidate u makes $c_{u1} = c_{u2} = g_1$. Then group 1's resistance to each candidate is 0, group 2's resistance to each candidate is 1, and each candidate's total support is $1/2$. If either candidate u changed to any other strategy, group 1's resistance to that candidate would necessarily increase. This is true if in the new strategy $c_{u1} = c_{u2} \neq g_1$, and because $k > 0$ it is also true if $c_{u1} \neq c_{u2}$. Group 1 would therefore give 0 in support to the changing candidate, whose total support would decline to less than $1/2$, since $s_1 > s_2$. Therefore, the outcome is stable.

Suppose only 1 candidate u makes $c_{u1} = c_{u2} = g_1$. Group 1's resistance to that candidate is 0 and to the other candidate is greater than 0, so the former's total support is at least s_1 and thus greater than the latter's, and by Result 4 the outcome is not stable.

Suppose neither candidate u makes $c_{u1} = c_{u2} = g_1$. If the candidates are unequal in total support, by Result 4 the outcome is not stable. If the candidates are equal in total support, either candidate u, by changing to $c_{u1} = c_{u2} = g_1$, would get total support greater than $1/2$, and this would be an increase. Therefore, the outcome is not stable regardless of the distribution of total support.

These 3 arguments show that the outcome in which each candidate u makes $c_{u1} = c_{u2} = g_1$ is stable, and no other outcome is stable.

Discussion. Result 6 says that, at least in a simple class of 2-candidate situations, the importance of inconsistency has a dramatic impact on the kind of outcome that is stable. The situations are those in which there are only 2 groups, each with a different language, they are unequal in size and each group is equally fluent in the other group's language.

In any such situation, when inconsistency has no importance the only stable outcome—Result 5 showed—is one in which the candidates both adopt the chameleon strategy. With this strategy, a candidate signals a position in each language more extreme than the position of the primary target. The signals (given by equation 6) are, with 2 groups, equally deviant from the positions of the corresponding groups. In that sense, when inconsistency is unimportant the candidates are unbiased with respect to the 2 groups.

When inconsistency is important, however, a completely different outcome is the only stable one. Now each candidate signals identical positions in both languages. The signals are equal to the position of the larger group. The candidates exhibit this complete bias in favor of the majority group regardless of how small the importance of inconsistency is, as long as its importance is not 0.

Thus, in this class of situations even the slightest importance granted to inconsistency induces both candidates, in the only stable outcome, to practice a complete bias in favor of the majority group.

This result may seem surprising, but it is easy to understand. When inconsistency is irrelevant, a candidate can appear ideal to the smaller group while appearing ideal to the larger group as well. When inconsistency is relevant, no candidate can appear ideal to both groups at once. Any concession to the smaller group renders a candidate imperfect in the view of the larger group, allowing the other candidate co capture that group's support by imitating its position in both signals.

Does the importance of inconsistency have a similar drastic impact under all conditions? For a partial answer, let us examine a class of 3-group electorates.

RESULT 7. *When the number of candidates is 2, the number of groups is 3, the groups' positions are all different, the groups' sizes are all different, each group constitutes less than $1/2$ of the electorate, the electorate is uniformly fluent and lingual and inconsistency has positive importance, then exactly 1 stable outcome exists if inconsistency is sufficiently important. In it, all signals are equal to the middle group's position. Otherwise there is no stable outcome.*

Proof. I prove Result 7 in 3 steps. Step 1 shows that the only outcome that can ever be stable under the conditions described in Result 7 is the outcome in which all signals are equal to the middle group's position. I call this the *totally middle* outcome. Step 2 shows that the totally middle outcome is stable if and only if it is stable against a particular class of strategies. Step 3 shows that the totally middle outcome is stable if and only if the importance of inconsistency is sufficiently great. Because of its length, I present the proof in the Appendix.

The proof reveals that $(f + 2)(1 - f)/(f + 3)(2f + 1)$ is a critical level of k determining whether the totally middle outcome is stable. When k is positive but smaller than this threshold, the totally middle outcome is not stable; when k is greater than the threshold, the totally middle outcome is stable.

Discussion. In the class of 3-group situations to which Result 7 applies, even the slightest importance attached to candidate inconsistency suffices to destabilize the chameleon-strategy outcome described in Result 5. When inconsistency has no importance, the adoption of chameleon strategies by all candidates is a stable outcome, but when inconsistency has any importance this outcome is not stable. This was true also for the class of 2-group situations to which Result 6 applies.

Unlike the 2-group situations, however, in the 3-group situations the stable chameleon-strategy outcome is not necessarily replaced with a different stable outcome. To make another outcome stable, the importance of inconsistency must reach a threshold level. Until it does, no outcome is stable. When the threshold is exceeded, only the totally middle outcome is stable. In it, both candidates make all their signals coincide with the position of the middle group.

The more fluent the groups are in one another's languages, the less important candidate inconsistency can be and still permit the totally middle outcome to be stable. As fluency approaches 1, the importance threshold approaches 0. As fluency approaches 0, the importance threshold approaches $2/3$. When $f = 1/2$, the importance threshold is $5/28$. Conversely, when inconsistency is sufficiently important, namely when $k \geq 2/3$, the totally middle outcome is stable regardless of fluency. When $0 < k < 2/3$, this outcome is stable only if f is sufficiently great.

Thus, fluency and the importance of candidate inconsistency both contribute

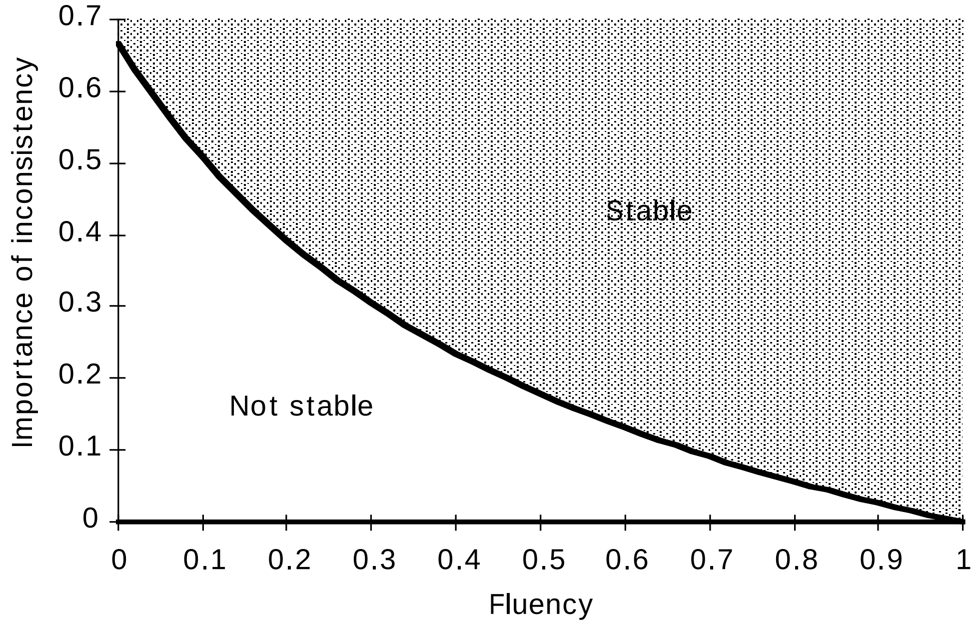

Figure 1. Effect of Groups' Fluency in One Another's Languages and of Importance of Candidate Inconsistency on Stability of the Totally Middle Outcome in a 2-Candidate, 3-Group Election

to the stability of the totally middle outcome. This joint contribution, pictured in Figure 1, is intuitively reasonable, because a candidate's apparent inconsistency varies directly with fluency, and the resistance of any group to any candidate varies directly with the importance of inconsistency.

Conclusion

In the model examined here, there is a language barrier. It attenuates the ability of voters in any group to know what positions candidates signal to the voters of other groups. In other words, it gives candidates the ability to signal different positions to different groups with partial confidentiality.

The language barrier can have a dramatic effect on the ability of candidates to manipulate their apparent positions in the eyes of voters. In the classic model, when voters have different ideal points, a candidate can make any voter believe that the candidate's position is identical to the voter's position, but no candidate can make **all** voters believe this. In a multilingual election, however, every candidate can make every voter believe this under some conditions. A pair of conditions sufficient to permit any candidate to be a ‘chameleon candidate’ is that each voter's non-native fluency is identical and each voter's ideal point is predictable from that voter's native language. These are of course significantly restrictive conditions, and when they are not met a candidate's ability to appear close to every voter will in general be constrained—in ways that remain to be investigated.

When it is possible for candidates to appear to be ‘all things to all people’, they do so not by telling each group that they share the group's position, but by telling each group that they are more extreme than the group itself is. Furthermore, the extremism is increased, not decreased, by any increase in the voters' non-native fluency. In this way, the extreme position signaled in the group's language is counterbalanced by the (attenuated) perceptions of the positions signaled in the other groups' languages. Of course, the phenomenon of elite extremism has often been observed, and it has been explained in various ways, including self-selection into elites by extremist persons. This model suggests an alternative account, namely that elites tend to state extreme positions to constituents in order to protect themselves against the suspicion that they may be taking other positions in their communications with other groups. Such suspicions could arise not only through the imperfect perception of signals actually given in other languages (or across other information barriers), but also through the mere presumption that—given the existence of an information barrier among groups—elites are probably telling other groups what those groups would most like to hear.

The classic model's main result—the convergence of candidate signals to a median of all the voters' ideal points—does not always persist when the election is multilingual. In this research I have examined only 2-candidate elections. Here, if inconsistency has no importance the candidates adopt an identical set of positions, but they are the positions of the chameleon strategy, so they diverge from one another more than the positions of the corresponding groups do. In order to induce convergence to a consistent position, the voters must penalize inconsistency to some extent. Under some conditions, including the existence of only 2 groups, even the slightest importance attached to inconsistency suffices to make the candidates totally consistent. Under other conditions, the importance of inconsistency must attain some threshold to induce consistent signals.

When voters penalize inconsistency sufficiently to make the candidates consistent, the signals then converge to the median of the voters' positions in the 2- and 3-group cases analyzed here. In the 2-group case, this is equivalent to choosing the position of the larger group. In the 3-group case with no majority group, it is equivalent to choosing the position of the middle group. Thus, with a sufficient penalty for inconsistency, this model produces candidate behavior identical to that of the classic simple model. Interpreted in the context of a society with linguistically distinct interest groups, this behavior discriminates against the language minority in the 2-group case and against the ideologically peripheral groups in the 3-group case. The members of minority and peripheral language groups, then, should be expected to be happier audiences of election campaigns in societies that do not care about inconsistency than in societies where inconsistency is given great importance.

APPENDIX

Proof of result 7. In this proof I number the groups in the order of their positions, implying that $g_1 < g_2 < g_3$, call the candidates u and v, measure the sizes of the groups so as to make the size of the electorate 1 and use the following new terms:

C_u the strategy of candidate u;

p_{ui} the apparent position of candidate u for group i;

d_{ui} the apparent inconsistency of candidate u for group i;

r_{ui} the resistance of group i to candidate u.

Step 1. Consider any outcome in which $c_{u1} = c_{u2} = c_{u3} \neq g_2$. Then a C_v in which $c_{vi} = g_2$ for all i would make $r_{v2} < r_{u2}$ and also $r_{vi} < r_{ui}$ for $i = 1$ (if $c_{ui} > g_2$) or $i = 3$ (if $c_{ui} < g_2$), giving v all the support of 2 groups. Because any 2 groups constitute more than $1/2$ of the electorate, v would get more total support than u. As discussed after Result 4, this implies that the original outcome is not stable.

Consider instead, then, any outcome in which u's signals are not all equal. With only 3 signals, at least 1 of them must be a unique maximum or unique minimum of all c_{ui}. Let us arbitrarily choose any such unique maximum or minimum and call it the *reply tool*. Let us also call u's other signal closest to the reply tool its *neighbor*. Now consider a C_v identical to C_u except that the reply tool is closer to (but on the same side of) its neighbor. This makes $d_{vi} < d_{ui}$ for all i, by Assumption 6. It also makes $p_{vi} \neq p_{ui}$ for all i. If we use the letter t to refer to the language of the reply tool, then for the 2 groups *other than* group t we find that

$$p_{vi} - p_{ui}\big|_{i \neq t} = \frac{(c_{vt} - c_{ut})f}{1 - f + nf} = \frac{(c_{vt} - c_{ut})f}{2f + 1} \tag{7}$$

Finally consider a C'_v identical to C_v except that

$$c'_{vi} = c_{vi} - \frac{(c_{vt} - c_{ut})f}{2f + 1} \tag{8}$$

for all i. This makes $p_{vi} = p_{ui}$ for $i \neq t$ while leaving $d_{vi} < d_{ui}$ for all i, thus giving all the support of 2 groups to v and making v's total support exceed u's. Thus, no outcome in which either candidate's 3 signals are not all equal can be stable.

The foregoing arguments combine to show that the only outcome that can possibly be stable is the totally middle outcome. Because of symmetry, the same conclusions hold when candidate u is renamed v and vice versa.

Step 2. The totally middle outcome is stable if and only if C_v is optimal, given C_u. To determine whether C_v is optimal, we must determine whether each possible C'_v gives v more total support than does C_v. If any C'_v does, the outcome is not stable. If no C'_v does, the outcome is stable.

The stability criterion can be further simplified. Every $C'_v \neq C_v$ makes $r_{v2} > 0$ and thus reduces group 2's support of v from $s_2/2$ to 0. Therefore, the totally middle outcome is stable if and only if no C'_v exists which gives v more support from groups 1 and 3 than $1/2$.

In determining whether this criterion is satisfied, we can ignore some strategies. Given any 2 strategies C'_v and C''_v, such that group 1 or 3's resistance to v is less, and neither of these groups' resistance to v is greater, with C'_v than with C''_v, all other information about C''_v is redundant for determining stability. If C'_v gives v more total support than 1/2, the totally middle outcome is unstable regardless of any information about C''_v. If C'_v does not give v more total support than 1/2, then the same is true for C''_v, so no additional information about C''_v can affect the determination of stability. Thus, in determining the stability of the totally middle outcome we can ignore any strategy that makes group 1's or 3's resistance to v greater, and makes neither of these groups' resistance to v less, than does some other strategy when used against C_u. I shall call any such ignorable strategy *inferior*.

We can identify several classes of inferior strategies:

$$c_{v1} < c_{v2} \text{ and } c_{v2} > c_{v3}; \tag{9}$$

$$c_{v1} > c_{v2} \text{ and } c_{v2} < c_{v3}; \tag{10}$$

$$c_{v1} \geq c_{v2} > c_{v3}; \tag{11}$$

$$c_{v1} > c_{v2} \geq c_{v3}; \tag{12}$$

$$p_{v1} < g_1; \tag{13}$$

$$p_{v3} > g_3. \tag{14}$$

Every strategy in classes 9 and 10 is inferior because we can reduce r_{v1} and r_{v3} by making c_{v2} equal to c_{v1} or c_{v3}, whichever is closer to it. This reduces d_{vi} for all i. It also changes p_{v1} and p_{v3} by equal amounts, but with an equal and opposite change of c_{vi} for all i the original p_{v1} and p_{v3} can be restored, leaving the reduced d_{vi} as the only change and, therefore, leaving r_{v1} and r_{v3} smaller. Every strategy in classes 11 and 12 is inferior because we can reduce r_{v1} and r_{v3} by making all signals identical. This change decreases d_{vi} for all i and makes all p_{vi} identical. Since previously $p_{v1} > p_{v3}$, we can find some uniform c_{vi} that brings p_{vi} closer to g_i for both i = 1,2. This reduces both r_{v1} and r_{v3}. Every strategy in classes 13 and 14 is inferior because we can reduce r_{v1} and r_{v3} by moving signals up, down, or closer together. If $p_{v1} < g_1$ and $p_{v3} < g_3$, we can increase all signals. If $p_{v1} > g_1$ and $p_{v3} > g_3$, we can decrease all signals. If $p_{v1} < g_1$ and $p_{v3} \geq g_3$ or $p_{v1} \leq g_1$ and $p_{v3} > g_3$, we can move c_{v1} and c_{v3} toward one another.

Of the strategies that remain, it is clear that v's total support under C_v is not increased by any strategy in either of these classes:

$$c_{vi} \leq g_2 \text{ for all } i; \tag{15}$$

$$c_{vi} \geq g_2 \text{ for all } i. \tag{16}$$

Any such strategy would increase either r_{v1} or r_{v3} and therefore give v only 1 group's support, which could not exceed 1/2. In addition, C_v obviously does not give v more total support than does C_v itself.

Step 3. Thus, C_v itself, the strategies in classes 15–16, and the inferior strategies in classes 9–14 can be ignored when we determine whether any C'_v gives v more support from groups 1 and 3 than 1/2. The set of strategies that remain after these are excluded are those satisfying all the following constraints:

$$\begin{cases} c_{v1} < c_{v2} \le c_{v3} \text{ or } c_{v1} \le c_{v2} < c_{v3} \\ c_{v1} < g_2 < c_{v3} \\ g_1 \le p_{v1} < p_{v3} \le g_3 \end{cases} \tag{17}$$

When v adopts any strategy satisfying constraints 17 against C_u, groups 1 and 3's resistances are

$$r_{u1} = g_2 - g_1; \tag{18}$$

$$r_{u3} = g_3 - g_2; \tag{19}$$

$$\begin{aligned} r_{v1} &= \left|p_{v1} - g_1\right| + kd_{v1} = p_{v1} - g_1 + kd_{v1} \\ &= \frac{c_{v1} + (c_{v2} + c_{v3})f}{1 + 2f} - g_1 + k\frac{(c_{v2} - c_{v1})f + (c_{v3} - c_{v1})f + (c_{v3} - c_{v2})f^2}{2f + f^2} \\ &= \frac{c_{v1} + (c_{v2} + c_{v3})f}{2f + 1} - g_1 + k\frac{c_{v2} + c_{v3} - 2c_{v1} + (c_{v3} - c_{v2})f}{f + 2} \end{aligned} \tag{20}$$

$$\begin{aligned} r_{v3} &= \left|p_{v3} - g_3\right| + kd_{v3} = g_3 - p_{v3} + kd_{v3} \\ &= g_3 - \frac{c_{v3} + (c_{v2} + c_{v1})f}{1 + 2f} + k\frac{(c_{v3} - c_{v2})f + (c_{v3} - c_{v1})f + (c_{v2} - c_{v1})f^2}{2f + f^2} \\ &= g_3 - \frac{c_{v3} + (c_{v2} + c_{v1})f}{2f + 1} + k\frac{2c_{v3} - c_{v2} - c_{v1} + (c_{v2} - c_{v1})f}{f + 2} \end{aligned} \tag{21}$$

The stability condition is that no C'_v gives v more support from groups 1 and 3 than 1/2. The values of r_{v1} and r_{v3} that would give v this support depend on the groups' sizes, which by assumption are all different. We find the totally middle outcome stable if and only if no C'_v satisfying constraints 17, given C_u, makes

$$\begin{cases} r_{v1} < r_{u1} \text{ and } r_{v3} < r_{u3} \text{ when } s_1 < s_2 \text{ and } s_2 > s_3 \\ r_{v1} \le r_{u1} \text{ and } r_{v3} < r_{u3} \text{ when } s_1 < s_2 < s_3 \\ r_{v1} < r_{u1} \text{ and } r_{v3} \le r_{u3} \text{ when } s_1 > s_2 > s_3 \\ \left.\begin{matrix} r_{v1} \le r_{u1} \text{ and } r_{v3} < r_{u3} \\ \text{or} \\ r_{v1} < r_{u1} \text{ and } r_{v3} \le r_{u3} \end{matrix}\right\} \text{ when } s_1 > s_2 \text{ and } s_2 < s_3 \end{cases} \tag{22}$$

Suppose that

$$0 < k < \frac{(f+2)(1-f)}{(f+3)(2f+1)} \tag{23}$$

Candidate v can then choose some positive quantity q, such that

$$g_1 \le g_2 - q < g_2 < g_2 + q < g_3 \tag{24}$$

and adopt the strategy C'_v in which

$$\begin{cases} c_{v1} = g_2 - q \\ c_{v2} = g_2 \\ c_{v3} = g_2 + q \end{cases} \tag{25}$$

which will satisfy constraints 17. Groups 1 and 3's resistances to v will then be

$$\begin{aligned} r_{v1} &= \frac{c_{v1} + (c_{v2} + c_{v3})f}{2f+1} - g_1 + k\frac{c_{v2} + c_{v3} - 2c_{v1} + (c_{v3} - c_{v2})f}{f+2} \\ &= \frac{(2f+1)g_2 - (1-f)q}{2f+1} + k\frac{(f+3)q}{f+2} - g_1 \\ &< \frac{(2f+1)g_2 - (1-f)q}{2f+1} + \frac{(f+2)(1-f)(f+3)q}{(f+3)(2f+1)(f+2)} - g_1 \\ &= \frac{(2f+1)g_2 - (1-f)q}{2f+1} + \frac{(1-f)q}{2f+1} - g_1 = g_2 - g_1 = r_{u1} \end{aligned} \tag{26}$$

$$\begin{aligned} r_{v3} &= g_3 - \frac{c_{v3} + (c_{v2} + c_{v1})f}{2f+1} + k\frac{2c_{v3} - c_{v2} - c_{v1} + (c_{v2} - c_{v1})f}{f+2} \\ &= g_3 - \frac{(2f+1)g_2 + (1-f)q}{2f+1} + k\frac{(f+3)q}{f+2} \\ &< g_3 - \frac{(2f+1)g_2 + (1-f)q}{2f+1} + \frac{(f+2)(1-f)(f+3)q}{(f+3)(2f+1)(f+2)} \\ &= g_3 - \frac{(2f+1)g_2 + (1-f)q}{2f+1} + \frac{(1-f)q}{2f+1} = g_3 - g_2 = r_{u3} \end{aligned} \tag{27}$$

Since inequalities 26 and 27 satisfy all of conditions 22, we see that when k satisfies inequality 23 the totally middle outcome is not stable.

Conversely, suppose that

$$k > \frac{(f+2)(1-f)}{(f+3)(2f+1)} \tag{28}$$

The totally middle outcome is stable if and only if, given C_u, no C'_v satisfies both constraints 17 and conditions 22. Suppose some C'_v satisfying constraints 17 also satisfied conditions 22. Then, for that C'_v, it would necessarily be true that

$$r_{v1} \leq r_{u1} \text{ and } r_{v3} \leq r_{u3} \tag{29}$$

This would imply that

$$\frac{c_{v1} + (c_{v2} + c_{v3})f}{2f + 1} + k\frac{c_{v2} + c_{v3} - 2c_{v1} + (c_{v3} - c_{v2})f}{f + 2} \leq g_2 \tag{30}$$

and

$$\frac{c_{v3} + (c_{v2} + c_{v1})f}{2f + 1} - k\frac{2c_{v3} - c_{v2} - c_{v1} + (c_{v2} - c_{v1})f}{f + 2} \geq g_2 \tag{31}$$

which in turn would imply that

$$\begin{aligned} &\frac{c_{v1} + (c_{v2} + c_{v3})f}{2f + 1} + k\frac{c_{v2} + c_{v3} - 2c_{v1} + (c_{v3} - c_{v2})f}{f + 2} \\ &\leq \frac{c_{v3} + (c_{v2} + c_{v1})f}{2f + 1} - k\frac{2c_{v3} - c_{v2} - c_{v1} + (c_{v2} - c_{v1})f}{f + 2} \end{aligned} \tag{32}$$

$$\frac{(3 + f)(c_{v3} - c_{v1})k}{f + 2} \leq \frac{(1 - f)(c_{v3} - c_{v1})}{2f + 1} \tag{33}$$

and

$$k \leq \frac{(f + 2)(1 - f)}{(f + 3)(2f + 1)} \tag{34}$$

contradicting inequality 28. Therefore, when inequality 28 is true no C'_v satisfies both constraints 17 and conditions 22, and consequently the totally middle outcome is stable.

Notes

I acknowledge helpful comments from Elinor Ostrom, anonymous reviewers and members of the Political Economy Drinks and Discussion Society of the University of Washington. Support for this research was received from Zentrum für interdisziplinäre Forschung der Universität Bielefeld and the University of Washington.

REFERENCES

Bernhardt, M. Daneil and Daniel E. Ingberman (1985) ‘Candidate Reputations and the “Incumbency Effect” ’, *Journal of Public Economics* 27: 47–67.

Brownlie, I. (ed.)(1981) *Basic Documents on Human Rights*. Oxford: Clarendon.

Dahl, Robert A. (ed.)(1966) *Political Oppositions in Western Democracies*. New Haven, CT: Yale University Press.

Das Gupta, Jyotirindra (1970) *Language Conflict and National Development*. Berkeley: University of California Press.

Enelow, James M. and Melvin J. Hinich (1984) *The Spatial Theory of Voting: An Introduction*. Cambridge: Cambridge University Press.

Glazer, Amihai (1990) 'The Strategy of Candidate Ambiguity', *American Political Science Review* 84: 237–41.

Hertzler, Joyce O. (1966) 'Social Uniformation and Language', in Stanley Lieberson (ed.) *Explorations in Sociolinguistics*, pp. 170–84. The Hague: Mouton.

Lang, Kevin (1986) 'A Language Theory of Discrimination', *Quarterly Journal of Economics* 100: 363–81.

Ledyard, John O. (1989) 'Information Aggregation in Two-candidate Elections', in Peter C. Ordeshook (ed.) *Models of Strategic Choice in Politics*, pp. 7–30. Ann Arbor: University of Michigan Press.

Lyons, John (1970) 'Introduction', in John Lyons (ed.) *New Horizons in Linguistics*, pp. 7–28. Harmondsworth, U.K.: Penguin.

Malinowski, Bronislaw (1960) *A Scientific Theory of Culture and Other Essays*. New York: Oxford University Press.

Rabushka, Alvin and Kenneth A. Shepsle (1972) *Politics in Plural Societies: A Theory of Democratic Instability*. Columbus, OH: Merrill.

Sonntag, Selma K. and Jonathan Pool (1987) 'Linguistic Denial and Linguistic Self-denial: American Ideologies of Language', *Language Problems and Language Planning* 11: 46–65.